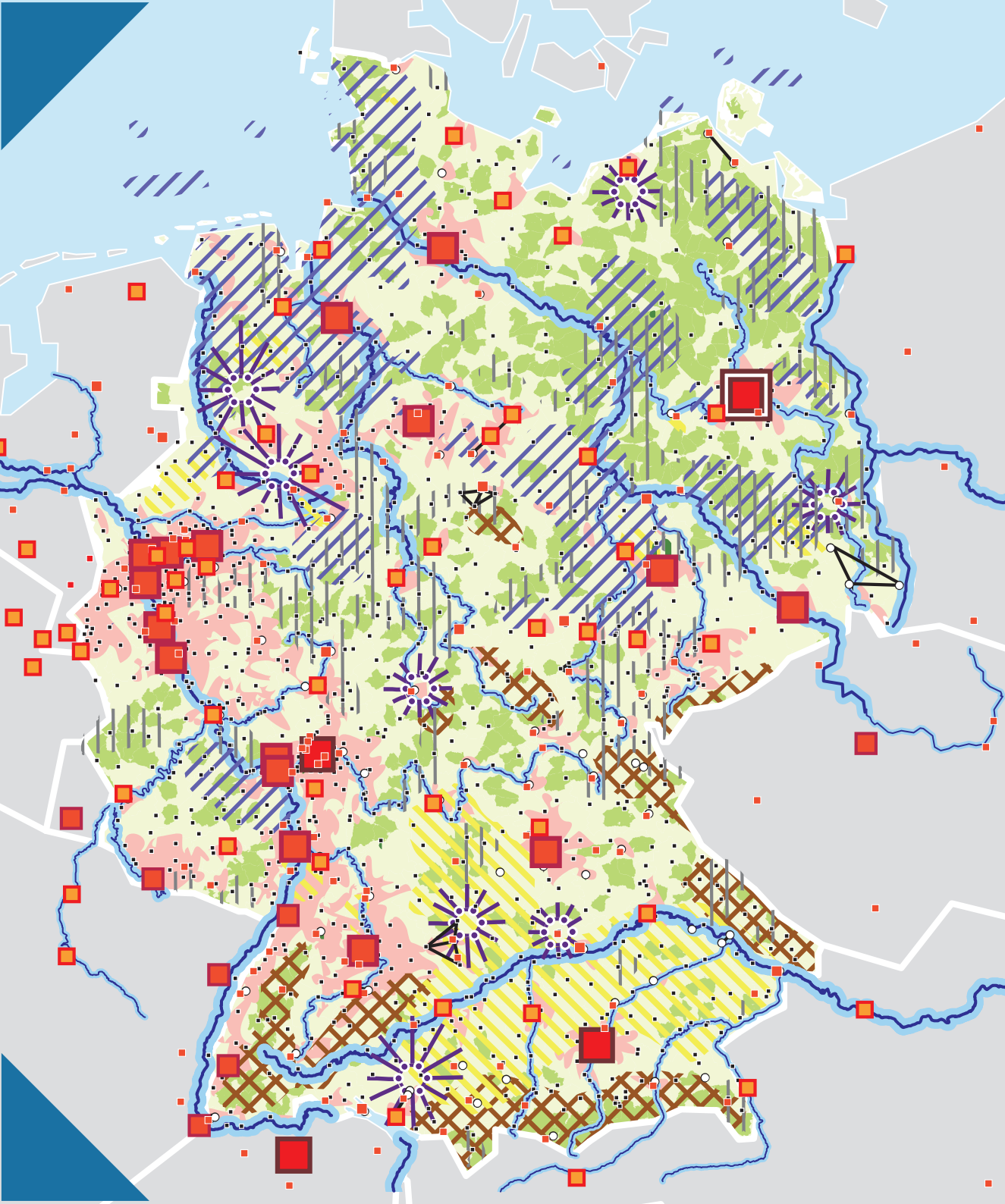


# Concepts and Strategies for Spatial Development in Germany



Decision of the 41st Standing Conference of Ministers responsible for Spatial Planning in Berlin on 09 March 2016



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# Decision

## „Concepts and Strategies for Spatial Development in Germany“

1. After an extensive consultation procedure the Standing Conference of Ministers responsible for Spatial Development in Germany adopted the „Concepts and Strategies for Spatial Development in Germany“ as a further developed common strategy from the year 2006 for the spatial planning and development policy for the Federation and the Federal States.

It sees in the four strategic concepts

- a) „Enhancing competitiveness“
- b) „Ensuring the provision of public services“
- c) „Controlling and sustainably developing land uses“ and
- d) „Shaping climate change and the transformation of the energy system“

its common orientation which does justice to the principle of sustainability and spatial cohesion at the same time.

2. The Standing Conference of Ministers responsible for Spatial Development expects that these concepts and action strategies will provide incentives which
  - make it possible for all regions to strengthen their individual strong points, to combine and link up their strong points and their potential, and to develop the cooperation;
  - to support the reorientation of strategies and standards of spatial planning in order to ensure

equivalent living standards also in the future, which applies in particular for the provision and accessibility of services and supply infrastructures in all partial regions of Germany, and

- enhance an improved coordination of the sectoral policies with a spatial impact with the requirements of spatial planning.

Spatial planning at federal state and regional level especially must continue in the future to craft spatial structures in terms of these common concepts, guide locational development accordingly and minimize competing spatial uses, and this should be done primarily through plans and programmes. To the extent that the proven tools of state and regional planning are not sufficient for this purpose, they have to be developed in line with demand.

3. In addition the Standing Conference of Ministers responsible for Spatial Development acts to ensure that the concepts and action strategies are reflected also in the further development of spatial strategies of the sectoral planning of the Federation and the Federal States.
4. The Standing Conference of Ministers responsible for Spatial Development requests the Federal Government to arrange for the wide publication of the concepts and action strategies. It requests the Central Committee to report to it on the implementation of the concepts and action strategies in the Federal States and in the Federation.

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# Introduction

The Concepts and Strategies for Spatial Development in Germany (in the following: Concepts) show the spatial development strategies pursued by the Federal Government and the federal states. They are dedicated to the spatial planning vision of a sustainable spatial development which reconciles the social and economic requirements to be met by the space with its ecological functions and results in a system which is permanent and supraregionally balanced and provides for a convergence of living standards in all sub-regions.

The Concepts contribute to preserve and strengthen the variety of regions, their cohesion as well as their sustainability; they relate to all types of area, from the predominantly rural areas to metropolitan regions.

The Concepts form the framework for the spatial policy objectives, the specifications in spatial plans as well as for the concrete implementation measures. The Concepts are to become effective by the approaches pursued in practical implementation. This includes the spatial planning instruments such as spatial plans and spatial impact assessment procedures but also the spatial planning cooperation with sectoral policies with a spatial impact (e.g. the planning of transport or energy networks, the development of rural areas) and with the local stakeholders such as municipalities, associations, enterprises and individuals (e.g. regional management concepts to ensure the provision of public services).

Therefore, the Concepts are chiefly aimed at decision-makers in the field of spatial planning at the federal and federal state levels including regional planning authorities, local authorities and local authority associations; they are, thus, the guideline for common action. At the same time, they are intended for the decision-makers of sectoral policies with a spatial impact such as transport, environment, energy and

the economy who are responsible for the implementation of spatial planning objectives by including them in their sectoral planning and measures. In addition, they offer the private sector guidance to help businesses make decisions on investment in the future. They support the dialogue on spatial development in Germany with the stakeholders from society, the neighbouring states and regions as well as with the European institutions.

On the basis of Section 26 (2) of the Federal Spatial Planning Act, the Standing Conference of Ministers responsible for Spatial Planning decided in 2010 to more clearly define and evolve the Concepts of 2006. The main objective in this connection is to substantiate the strategies and fields of action which are necessary to deal with demographic change, to ensure mobility, to initiate cooperative partnerships between urban regions and rural areas as well as to cope with the spatial consequences of climate change and the transformation of the energy system. Furthermore, account is to be taken of the challenges and potentials of cross-border and Europe-wide interrelations.

The evolved Concepts take changed parameters into consideration:

1. As a consequence of demographic change it is necessary, above all in stagnating and shrinking regions, to focus even more intensively on regional development potentials, modernization, conversion and deconstruction as well as on the management of the building stock in the course of the development of the settlement structures and infrastructures as well as for the provision of public services. At the same time, it is essential to improve the spatial outline conditions for such regions where towns and cities are particularly affected by in- and out-migration from other parts of Germany and from abroad.

In this connection, it is also necessary to include and observe the challenges and opportunities of migration and integration.

2. Avoidance and mitigation strategies as well as adaptation measures to the expected climate change must be taken up in spatial planning. The stakeholders of spatial development are increasingly called upon to cooperate in ensuring an integrated development of settlement and traffic areas which results in energy savings and the avoidance of traffic, to take precautionary action to cope with growing natural risks and to make the energy supply more climate-friendly.

3. The precondition for the transformation of the energy system is the demand-oriented development of renewable sources of energy in Germany. This requires the adequate designation of suitable areas for the generation and storage of energy under spatial aspects as well as the securing of lines for the coordinated development of the power transmission and distribution network.

4. For an effective public participation, transparency is needed, that means that comprehensive and comprehensible information about projects, their consequences and procedural steps must be provided in due time. The existing instruments of public participation are to be further developed - to the extent appropriate - with the objective of achieving a broad public acceptance of the procedure.

5. Meanwhile, digital infrastructure controls the development and quality of almost all spheres of life and economic activity. It is not only an indispensable element of the economic development of regions but also an important parameter for the provision of public services. Special challenges have to be mastered in connection with the high-performance broadband roll-out in rural areas.

6. Against the background of ever tighter financial con-

straints it becomes necessary to concentrate on the core functions as well as to devise new funding and organizational concepts. This also includes extended forms of cooperation across local authority and sectoral boundaries.

7. The territorial cohesion as an objective of the European Union was laid down in the Treaty of Lisbon together with economic and social cohesion. This means for Germany to make use of the opportunities inherent in the infrastructural advantages due to its location at the centre of Europe. And it also necessitates a more intensive cooperation in functional and cross-border regions, for example in maritime and coastal areas or in the form of urban-rural partnerships with public and private stakeholders.

8. Maritime spatial planning is a task to be performed at EU, federal and federal state level. The EU Member States must adopt a common maritime spatial approach which is in compliance with terrestrial spatial planning.

9. The conflict between land-use and protection requirements is steadily increasing. Spatial planning must pay greater attention to its task of coordinating and reviewing the various spatially significant plans. Especially the reduction of the use of new land for settlement and traffic purposes remains a core task of sustainable spatial development.

10. The increasing traffic flows in the wake of the onward march of globalization require more efficient and effective mobility and logistics systems. The development of integrated logistics centres with links to supra-regional transport arteries is a main precondition here.

The Concepts define priorities and cover the essential areas where spatial planning aspects become relevant. The four Concepts are on an equal footing. The spatial planning

issues and approaches of the Concepts are in many cases interrelated: Thus, the sustainable use and development of the coastal and maritime areas, the extension of large-scale partnerships as well as the accessibility of locations and sub-regions and mobility do not only serve the purpose of competitiveness but also the provision of public services. Conflict minimization and the coordination of land-use requirements as cross-cutting tasks of spatial planning are, however, also of importance to competitiveness and the provision of public services.

# Enhance competitiveness

All regions and sub-regions are to be given the opportunity to steadily develop in a competitive and sustainable manner. This requires further impetus to initiate regional growth alliances in order to enhance the locational quality, to improve the regional self-organization (Regional Governance) and to clearly raise the profile of regions and sub-regions as regards their development objectives. The approaches to be pursued include, among other things, the strengthening of the knowledge-based economic sectors (e.g. information and communications technologies) and the development of additional potentials by large-scale interlinking and cooperative systems.

The spatial planning sector is to support the local stakeholders in the elaboration of regional development and competition strategies and to optimize their interaction. Allowance must be made for the diversity of the regions (e.g. less favoured regions, rural regions, coastal and maritime regions, border regions, agglomerations or metropolitan regions) by adopting suitably nuanced policy approaches. In the framework of these policies, due account has to be taken of the interrelationship of growth, prosperity and the quality of living.

The Concept is in line with the objectives of European spatial development policy in accordance with the Territorial Agenda of the European Union (TA 2020). This Agenda is to achieve an optimum balance between competitiveness and the economic and social cohesion by means of a cross-sectoral and sustainable territorial development.

## 1.1 Evolve metropolitan regions

The German metropolitan regions of European importance are the essential national economic areas with a high productivity and are facing international competition. Steering and control functions, gateway functions, innovation and competition functions as well as educational and scientific institutions of European and global significance are concentrated there. They are characterized by innovative multi-level governance structures of cooperation which enable them to give special impetus to climate protection and cluster policy as well as to international linkages.

Cooperation in the metropolitan regions has proved successful and is to be continued and intensified. All sub-regions, even the predominantly rural ones of the metropolitan regions, fulfil important functions. The existing development potentials of all sub-regions should be promoted and exploited. In this framework, due account has to be taken of the interests of the regions in the extended metropolitan zones of influence. It is intended to create synergies through thematic cooperative systems between predominantly urban and predominantly rural sub-regions.

The decentralized settlement pattern of the rural areas with towns and villages as well as their diverse cultural landscapes can be found in many parts of the federal territory. The regional diversity of their sub-regions and the different conditions prevailing in their areas of unspoilt nature and the different settlement patterns are, therefore, to be taken into account in spatial planning objectives as well as in sectoral planning with a view to enhance the attractiveness and perception of the rural areas within the metropolitan regions.

It is becoming increasingly evident that regional structures and developments can no longer be explained solely in terms of a national insular geography. For these reasons, many problems call for the inclusion of the neighbouring

regions in the regional analysis. Cooperative systems in cross-border regions are, therefore, gaining in importance. The spatial planning policy of the Federal Government and of the federal states is to further support the intensification of the cooperation of the metropolitan border regions and of other potential cross-border metropolitan areas. It is necessary here to exploit the potentials of cooperation in the cross-border zones of influence. For this purpose, it is rather useful to further extend the delimitations of those regions with common cooperation objectives and a common identity. Cross-border issues, planning approaches and coordination procedures must increasingly be placed in the focus of attention.

In their function as communities of cooperation and responsibility, the metropolitan regions which do not cross borders as well as the cross-border regions make a significant contribution to European cohesion policy.

## Approaches to action

- Support the metropolitan regions by taking greater account of them in national and EU sectoral policies and in the EU Structural Funds
- Evolve cooperation of the German metropolitan border regions within the Cross-Border Metropolitan Regions Initiative (IMeG) and their partner regions across the border
- Promote and communicate the internationalization of authorities, associations and undertakings
- Exploit the opportunities arising from international migration and social integration
- Enhance the presence of the metropolitan regions at European and international level
- Have the metropolitan regions themselves elaborate and disseminate an internationally comparative benchmarking
- Promote cooperation processes within and among the metropolitan regions as well as with outside areas
- Strengthen and use the potentials in rural and less favoured areas within the metropolitan regions
- Safeguard and evolve the rural regions with their diverse sub-regions in the long run as a living environment, as an economic, cultural and natural area, especially preserve the towns and villages as attractive places where people live and work

## 1.2 Strengthen cooperation and the interlinking of areas

The concept of the metropolitan regions did not only promote cooperation within the metropolitan regions but at the same time provided the impetus for the establishment of further networks at different spatial levels and in many action fields. Thus, the cooperation of regional and local stakeholders was also strengthened, efficiency enhanced and better use was made of endogenous potentials. The task is now to continue to promote these positive approaches of networking and cooperation - also on a large-scale basis - while simultaneously optimizing their interaction with each other and with the metropolitan regions in such a way that the diverse cooperative systems complement each other.

Even outside the metropolitan regions, cities and rural sub-regions with a high economic and innovative capacity considerably contribute already today to the overall economic growth and assume important development and supply functions for their zones of influence. It is planned to strengthen these locations for industry, innovation and technology within the framework of a spatial development strategy. Initiatives aimed at evolving urban regions, which can promote growth and innovation processes in areas off the metropolitan regions as self-organization processes on the initiative of regional stakeholders (in terms of regiopolis), are to be encouraged in this connection. This is in particular reflected in the regiopolis concepts.

In the process of developing the large-scale interlinking, the maritime and coastal areas should increasingly come to the fore as areas providing economic potentials. As regards the coastal regions, the development of maritime transport and the accessibility of the seaports as logistics hubs with their hinterland connections are of central importance to the international competitiveness and the extension of the trans-European networks.

### Approaches to action

- Strengthen cross-border cooperation with the immediately adjacent neighbouring states, e.g. in the sector of regional planning
- Actively support cooperation in functional regions, especially in urban-rural partnerships
- Support integrated and cross-sectoral regional development policies also by networks and partnerships at different levels
- Stronger interlink spatial planning and EU structural funding, e.g. by integrating spatial planning into the monitoring committees and take account of cross-sectoral approaches to spatial development at the level of the Member States and the regions when drawing up the Operational Programmes
- Take account of the large-scale interlinking of the maritime and coastal areas when updating the spatial plans of the federal states and of the Federal Government for the North and Baltic Seas and the coastal regions
- Intensify cross-border spatial monitoring



### 1.3 Support areas with a special structural need for action

A series of rural or older industrialized areas reveal a considerable structural backwardness with a problematic demographic development and an economic capacity which is well below average. This can in many cases be explained by their peripheral location and poor accessibility, their lack of jobs or their obsolete industrial structure.

These regions are to be stabilized by better activating, using and evolving regional resources and endogenous potentials as well as by interlinking them with sub-regions with a higher economic capacity. Existing development cores, especially in central locations, are to be extended to become anchor points.

#### Approaches to action

- Support the better use of regional potentials and regional value creation in coordination with regional structural policy and the policy for rural areas
- Contribute to the elaboration of integrated development and stabilization strategies for areas with special need for action, particularly with regard to demographic and structural developments
- Use integrated policies to promote economic development

#### 1.4 Ensure infrastructural links and mobility

The competitiveness of regions and sub-regions depends to a decisive degree on their links and interconnectivity.

The primary objective will remain to enhance regional competitiveness and to more effectively use the transport infrastructure by providing a sustainable and integrated global transport system. Apart from the upgrading of the supraregional infrastructure for the development of the trans-European transport network with important hubs in the metropolitan regions, all regions and sub-regions are to be linked to this network. The settlement development and transport systems are to be even better coordinated so that they are sustainable in financial and spatial terms and contribute to reduce the land take.

Furthermore, it is necessary to create reliable and robust infrastructural outline conditions in order to ensure the German competitiveness in the global economy as well as the supply of the population with goods and services.

The links provided by information and communications technologies and networks are of decisive importance to the competitiveness of regions and sub-regions. Therefore, such links are a component part of the area-wide provision of public services and have to be ensured as such. Another prerequisite to ensure equivalent living standards and the full participation in the opportunities of digitalization is an area-wide and high-performance broadband network.

Information and communications technologies as well as the potentials derived from the digitalization of several infrastructure services can help to make better use of the existing capacity and to improve accessibility.

#### Approaches to action

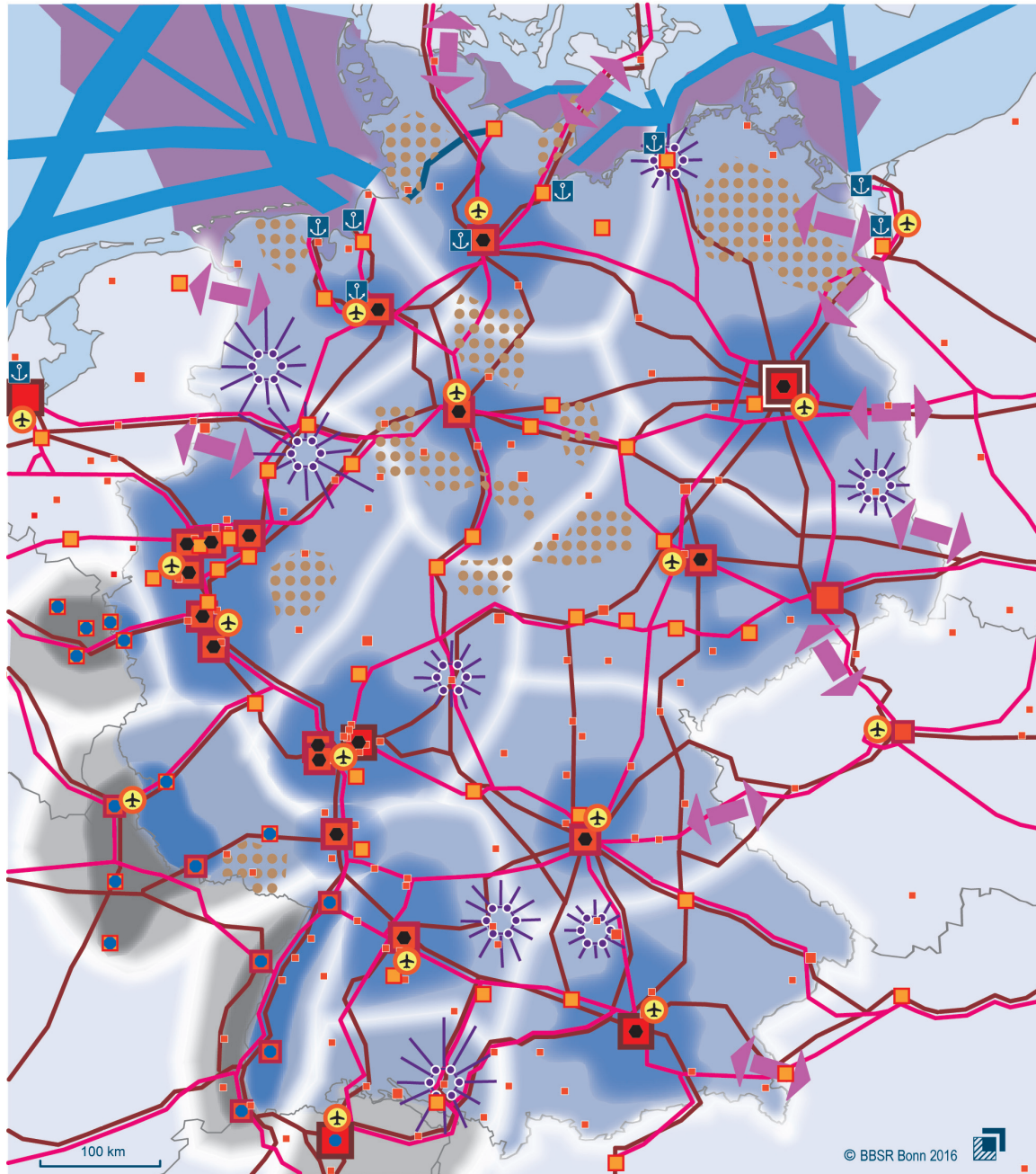
- Support the preservation and improvement of the quality of the transport links of metropolitan regions as intermodal interfaces and hubs of European traffic streams as well as hubs for the transfer of knowledge and research results
- Create the spatial preconditions to eliminate the vulnerabilities of the gateways (air transport links and logistics centres, long-distance rail services, ports) and intensify transnational cooperative systems
- Mitigate traffic bottlenecks and accessibility deficiencies as well as improve the trans-European traffic links in the 2015 Federal Transport Infrastructure Plan in consideration of the EU regulation on the development of the Trans-European Transport Network (core and comprehensive network)
- Prioritize measures in the 2015 Federal Transport Infrastructure Plan for structural maintenance and the elimination of bottlenecks in goods transport in consideration of the limited use of nature and landscape as well as the improvement of the quality of life in cities and regions
- Improve the spatial and demand-oriented control of large-scale multimodal logistics centres and infrastructures by regional and supraregional logistics strategies while taking account of cross border interrelations
- Contribute to the optimization of the traffic flows with the aim of making better use of the capacity potentials of all transport modes in the regions, while conserving resources
- Promote integrated spatial development and transport strategies which tackle even more the causes for the generation of traffic, enhance the attrac-

tiveness of non-motorized and public transport, raise the effectiveness of motorized private transport and take the regional conditions and requirements into account










- Consider the potentials of information and communications technologies for spatial development purposes

# Competitiveness

The map illustrates the concept only exemplarily.  
The symbols do not represent an planning provisions.



## Metropolitan regions

-  cores of the capital region and of existing European metropolitan regions
-  further locations of metropolitan functions
-  immediate metropolitan zones of influence
-  larger metropolitan zones of influence including rural areas
-  transition zones between metropolitan zones of influence
-  cores of metropolitan border regions (IMeG as of 2015)
-  immediate metropolitan zones of influence in metropolitan border regions (IMeG as of 2015)
-  metropolitan border regions (IMeG as of 2015)
-  examples of potential cross-border zones of influence

## Rural and urbanized economic growth regions










## Areas with special structural need for action



## Transport infrastructure

(according to Trans-European Networks: Regulation (EU) No 1315/2013 of 11 December 2013)

-  road network
-  rail network
-  international airport
-  international seaport
-  main shipping routes
-  Kiel Canal
-  maritime planning area

see also explanations on page 40

## Explanations

Among the sites with the highest concentration of metropolitan functions, those cities are marked with a special symbol as cores of metropolitan regions which are situated within the metropolitan regions laid down by the Standing Conference of Ministers responsible for Spatial Planning (MKRO) and which belong to such a region.

The map was updated as compared with the 2006 Concept with regard to further locations of metropolitan functions on the basis of the BBSR-study on metropolitan areas in Europe (2011).

Around the metropolitan cores is the immediate metropolitan zone of influence. The delimitation of the zone of influence can as a rule be assumed in those areas from which it is possible to reach the relevant metropolitan cores by passenger car within one hour. The colour gradient which is fading towards the edges indicates that it is becoming more difficult to reach the core region with growing distances to peripheral locations.

The depiction of metropolitan border regions was newly included. The delimitation and the depiction of the „cores of the metropolitan border regions“ and of the „immediate metropolitan zones of influence in metropolitan border regions“ relied on the maps submitted by the Cross-Border Metropolitan Regions Initiative (IMeG).

The following regions were included as examples of potential cross-border-zones of influence (mainly along the TEN transport arteries): Sønderjylland-Schleswig, Fehmarn-Lolland, Berlin-Stettin, Western Pomerania-Szczecin, Berlin-Posnan, Dresden-Prague, Cottbus-Wroclaw, Nürnberg-Plzen, Rosenheim-Salzburg, Münsterland-Enschede und Emsland-Groningen.

Rural and urbanized economic growth regions which are located outside the immediate metropolitan zones of influence and belong to the group of counties and cities not belonging to a county which show the highest overall economic growth rates during the period 2000 to 2012 and, moreover, account for up to 50 % of the growth of the German GDP. In addition, the regions around Rostock as well as Cottbus/Spree-Neisse were included which comply with the criterion in the period 2003 to 2012 and which, as centres of higher education, assume a special role in terms of spatial development policy within the spatial-functional divisions of functions.

Areas with a special structural need for action are characterized by a significantly higher unemployment rate (average figures of the years 2008 to 2012), a significantly lower growth rate of the GDP from 2000 to 2012 and a significantly higher rate of out-migration of persons from 18 to under 30 years of age in the time from 2001 to 2012. The mean value for East and West Germany was assumed as a basis for the cut-off limit, with „significantly“ meaning one half of a standard deviation above or below each mean value.

As compared with the 2006 Concept map, the TEN core rail and road network as well as the international airports and maritime port of the TEN core network now supplemented (basis: Regulation (EU) No 1315/2013 of 11 December 2013 (Official Journal of the European Union L 348 of 20 December 2013))

The main shipping routes in the North and Baltic Seas were represented on the basis of the maps of the traffic flows (Shipping movements) prepared by the Waterways and Shipping Administration of the Federal Government (source: Northern Region Office of the Federal Waterways and Shipping Agency)

For reasons of clarity and legibility of the map, the inland waterways were not included. Solely the Kiel Canal was shown in the map as an important maritime connection.

# Ensure the provision of public services

The provision of public services and infrastructures for basic needs is to be ensured in all sub-regions to guarantee equivalent living conditions. This includes above all the accessibility of the relevant facilities and services for all population groups. To reach this objective, a spatial and settlement pattern is to be established which provides the basis for a safe, efficient and cost-effective infrastructure.

Particularly in predominantly rural sub-regions with special demographic challenges the sustainability of facilities and public services is currently at risk.

## 2.1 Consistently apply the central places system

Especially in the light of the demographic development and the thinning out of stationary supply services in rural areas, the central places system continues to provide the basic settlement framework for handling regional adaptation processes in connection with the provision of infrastructure facilities. As a mandatory reference framework it ensures synergies for the various national and local but also for the non-governmental providers of facilities and basic services. Thus, taking economic, social and ecological aspects into account, the central places systems of the federal states create benefits for

- the citizens: by short distances to be covered when using several facilities,
- the operators of the facilities: by enhancing the attractiveness of the locations,
- the operators of local public transport: by the cost-effective concentration of the demand potential,
- the environment: by reduced transport volumes and land take,

- industry: by advantages of proximity.

The shaping of the central places system in accordance with the prevailing regional requirements as well as those specific to each federal state in the spatial plans remains a core and comprehensive task of spatial planning policy. The provision of everyday basic goods and public services is to be maintained in the low-order centres. The middle-order centres with their zones of influence offer a suitable setting to jointly coordinate the range of supplies to guarantee the provision of basic services in these interlinked regions. For this purpose, it is also necessary to pay greater attention to the diversity of innovative and flexible solutions achieved by cross-local authority and regional cooperative systems as well as to the interaction of the public sector, civil society involvement and the private sector.

### Approaches to action

- Systematically use the central places system to control the decisions on where to locate public institutions
- Jointly analyse the sustainability and accessibility of centralized local facilities of regional basic services as well as elaborate approaches, a task to be done by the specialized institutions and ministries and the spatial planning authorities at federal state level, e.g. within the framework of model projects of spatial planning
- Enhance the understanding of the population for adaptation measures which have to be taken for the provision of public services, especially by transparent communications and planning processes with the involvement and cooperation of the civil society and with civic engagement



## 2.2 Develop cooperative systems

The cooperation among municipalities across local authority boundaries with the intention to foster the development of sub-regions is to be supported and civic engagement is to be mobilized. The objective here is in particular to raise the degree of utilization of public service facilities and to reduce their maintenance costs.

Spatial planning is to reveal the requirements for cooperation structures across regional and local authority boundaries, monitor the transformation of supply structures and provide support by laying down specifications to this effect in the spatial plans. This also includes the adaptation of the retail structures to the central places system.

### Approaches to action

- Improve the provision of public services by creating the basis for the obligation under public law to provide public services and civic engagement to complement each other
- Communicate existing empirical values, guidance and new approaches gathered from model projects at European, federal and federal state level
- Further develop approaches to cooperation across local authority and regional borders in guaranteeing the provision of public services and extend and consolidate urban-rural partnerships in such a form as they are promoted for example by the „Programme of Action for the Provision of Regional Public Services“ of the Federal Ministry of Transport and Digital Infrastructure, even across borders, e.g. within the framework of urban and centre networks
- Prepare a contribution of spatial planning policy to a “National Coordination Framework to Ensure the Provision of Public Services and to Strengthen Economic Capacity” for the implementation of the demographic strategy of the Federal Government “Every Age Counts” (2012).
- Support a stronger division of functions

### 2.3 Ensure the supply of sparsely populated rural areas

In sparsely populated rural areas with a shrinking and aging population the provision of facilities and services of general interest needs to be ensured. For this purpose, flexible and spatially varied supply standards are to be considered and, in addition, innovative supply structures are to be created, for example by the extension of telematics systems. This requires greater concerted action between public, private and civil society players and closer cooperation among the agencies providing infrastructural facilities.

#### Approaches to action

- Contribute to the elaboration of integrated stabilization and development strategies for areas with special need for action, particularly with regard to demographic and structural developments
- Identify areas especially affected by demographic change and where the sectoral policy standards for the provision of public services must possibly be applied more flexibly
- Implement and transpose alternative solutions from spatial planning pilot projects and others in an exemplary manner

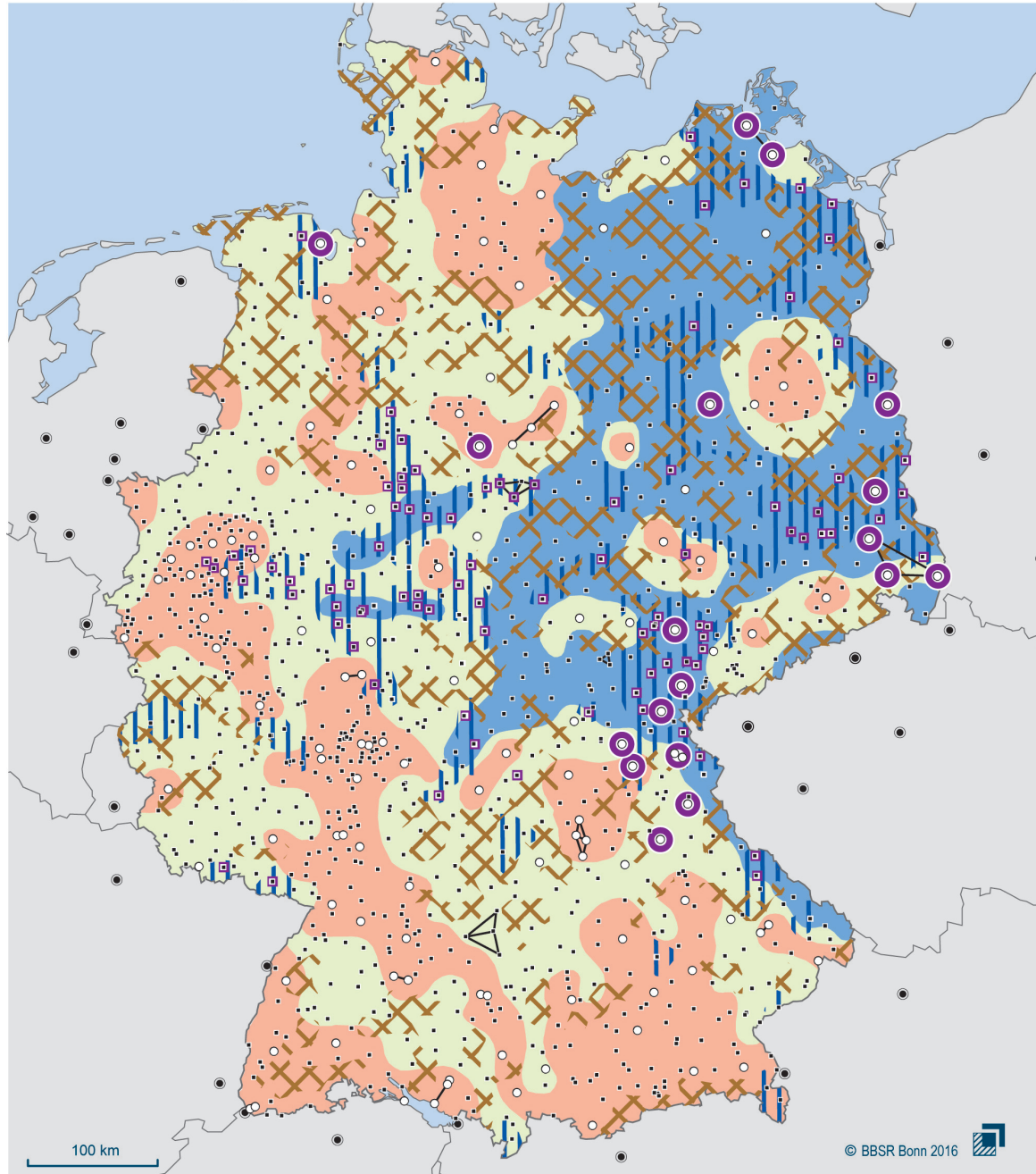
## 2.4 Ensure accessibility

The quality of public transport services must be maintained and improved in order to guarantee the accessibility of central places and mobility while at the same time bearing the question of how acceptable and sustainable it is in mind. In addition, alternative forms of provision as well as organizational structures and models are to be increasingly tested and used.

### Approaches to action

- Involve the transport operators in cooperation with the responsible local governments and active associations as well as with citizens in the development of creative and tailor-made regional solutions for public transport on the basis of sustainable funding
- Ensure the cooperation of public, private and civil society stakeholders to create mobility services in line with regional requirements and to guarantee the accessibility of infrastructural facilities and services of public interest, especially to
  - supplement the traditional local and regional transport by new and tailor-made solutions on the basis of collective and individual mobility services and
  - elaborate new strategies and flexible solutions in the sector of goods and services mobility
- Create cross-company fare systems, interregional fares as well as optimally adjusted and easily understandable timetables and attractive fares even beyond county and state borders, together with local governments, associations and operators
- Optimize the interfaces to make local public transport accessible

# Services of general interest



The map illustrates the concept only exemplarily.  
The symbols do not represent any planning provisions.

## Need for action due to demographic reasons - affectedness by ageing and decline of the population

- low
- middle
- high

## Carrying capacity of services of general interest und supply quality

- high-order centre the carrying capacity of which has to be secured
- middle-order centre the carrying capacity of which has to be secured
- areas the carrying capacity of which has to be secured
- accessibility of supply facilities to be ensured

## Central Places as of 2014

- high-order centre
- middle-order centre
- network of high-order centres
- network of middle-order centres
- Cities with high-order functions in neighbouring countries

see also explanations on page 40

## Explanations

The need for action due to demographic reasons is using an index which is composed of the following indicators:

- population density and distribution,
- current and future population decline,
- current and future changes of the age-specific demand for social infrastructure due to demographic trends.

The general conditions of settlement patterns are on the one hand illustrated on the basis of the large area situation of the population potential and, on the other, of the populations and settlement density at local level. The components concerning ageing and the population trend are in each case determined for the recent past (2001 to 2012) and for the forecast development in the medium run (2012 to 2035). The age groups are selected in such a way that they can be approximately linked to different demand groups and types. The indicators are individually standardized and added together according to their weighting.

The high-order and middle-order centres the carrying capacity of which has to be secured were identified on the basis of the current 2035 population forecast of the BBSR. Since in many sub-regions the population decline forecast in 2006 is already far advanced, compared with the 2006 Concept lower threshold levels are assumed for the population dynamics:

The middle-order centres the carrying capacity of which has to be ensured are classified if they meet a significant decline in the population of at least 5 % below a threshold level of 25,000 inhabitants in the zone of influence and/or a decline in the population of more than 20 % thus falling below a threshold level of 30,000 inhabitants in the zone of influence.

The high-order centres the carrying capacity of which has to be ensured are classified if they meet a significant decline in the population of at least 5 % below a threshold level of 250,000 inhabitants in the zone of influence and/or a decline in the population of more than 20 % thus falling below a threshold level of 300,000 inhabitants in the zone of influence.

The areas the carrying capacity of which has to be secured are defined on the basis of the population forecast until 2035 for the intermediate zones of influence (BBSR methodology). The delimitation is indeed largely based on regional planning specifications but also refers to internal BBSR analyses. By depicting all intermediate zones of influence which will presumably have less than 30,000 inhabitants in 2035, the sustainability problems for wide areas of the infrastructure supply are once again highlighted more clearly in their spatial dimension and concentration as compared with the „point by point“ depiction.

The representation of the areas where the accessibility of supply facilities has to be ensured is based on the analyses of the journey times to the in each case nearest middle-order centre by motorized individual transport and by public transport. For the public transport sector, these analyses were for the last time performed for the timetable of October 2012. The impacts on the representation of this spatial category resulting from a change of classification as a central places were reviewed and adjusted in the map. The map depicts the areas with deficits as to their accessibility proved by threshold values of 45 minutes of journey time by public transport and/or 30 minutes by motorized individual transport.

The representation of the central places (middle-order and high-order centres) was updated as at July 2014.

# Control and sustainably develop land uses

Spatial planning policy should, at an early stage already, tackle the increasing conflicting uses of space by cross-sectoral coordination and communication. Special attention is to be attached to resource conservation, the development of cultural landscapes, the reduction of land take, the development of renewable energy and of the networks as well as to the adaptation of the spatial functions and uses to climate change.

Adapted land uses and the protection against avoidable impairment will guarantee the sustainable safeguarding of the living environment, the long-term usability of the natural resources such as soil, water, air, the biodiversity and, thus, the quality of life for and the supply of the population, even for future generations.

Planning processes are to be made more open and transparent and the acceptance of planning procedures is to be enhanced by involving towns and cities, the citizens as well as stakeholders as early as possible.

## 3.1 Minimize spatial conflicts of use

The specifications in the spatial plans and the spatial planning reviews are intended to coordinate different sectoral concerns, to minimize supralocal conflicts of interest at an early stage, to inform the citizens in good time and, thus, to offer local governments and investors a sound basis for planning. The structures and activities of regional development are to be strengthened. Development processes are to be initiated, moderated and coordinated in close co-operation with the regional stakeholders. Cooperation across local and regional authority borders (even crossing national borders) is to be supported.

## Approaches to action

- Strengthen the active role of spatial planning at federal state and regional level in cooperative processes of regional development with the involvement of towns and cities as the agencies of municipal planning competence
- Improve communication and participation by interlinking the potentials of internet communication, geoinformation and monitoring systems
- Establish a central internet platform for spatial plans and spatial planning reviews
- Develop guidelines for maritime spatial planning by merging the spatial plans of the Federal Government and the federal states to one spatial planning synopsis and include the guidelines in a transnational approach to maritime spatial planning at EU level
- Link up spatial planning projects and measures with measures of land organization and land consolidation as well as with compensation measures to minimize conflicts
- Mediate and settle conflicts in the course of federal state and regional planning procedures with the participation of towns and cities as well as the citizens



### 3.2 Create large-scale open space networks

It is intended to create large-scale open space networks – also across federal state borders - in order to preserve the importance of the high-quality open space to agriculture, forestry, biodiversity and biotope networks, ecology, settlement structures and recreational purposes. In densely populated areas high-quality open spaces are to be integrated into the open space network and, thus, upgraded. If necessary, public open spaces are also to be recovered here in order to establish continuous greenway linkages, to reduce the damage potential in flood-prone areas or to sustainably protect areas with valuable soils.

#### Approaches to action

- Develop standards for the creation of regional open space networks (in terms of environmental protection, nature conservation and spatial planning)
- Include the requirements of the biotope network, of biodiversity, water protection and large-scale compensation in spatial plans
- Adapt land uses by national and transnational cooperative systems of spatial and land use planning, water management, agriculture and forestry
- Safeguard large-scale unfragmented areas and sections of plantation forest and open farmland as well as their expansion by interlinking
- Concentrate infrastructures and conversion areas to preserve open spaces
- Take account of increasingly competing uses in open spaces, e.g. in cultural landscapes, small-scale reserves or valuable farmland
- Contribute to the Federal Defragmentation Programme (2012) to reconnect habitats for man, animals and nature by providing the bases under planning law
- Contribute to the elaboration of the „Federal Strategy on Green Infrastructure

### 3.3 Shaping cultural landscapes

The diverse cultural landscapes with their distinctive characteristics and cultural and natural monuments are to be evolved carefully. The aim is to strike a balance between the preservation of regional assets and new requirements as to their use and shape. Uses at the urban fringe such as renewable energy sources, the extraction of raw materials, the upgrading of the network, landfill sites as well as other technical installations are to be integrated in a compatible way into the cultural landscapes.

#### Approaches to action

- Elaborate regional concepts for the preservation and development of different cultural landscapes and special cultural landscape areas
- Support international and interdisciplinary approaches and measures to develop cultural landscapes

### 3.4 Reduce new land take

The spatial planning policy of the Federal Government and of the federal states, spatially relevant sectoral policies and the development planning at local government level are to decisively contribute to significantly reduce the new land take for settlement and traffic purposes by 2020 and limit it to the necessary extent (the Sustainability Strategy of the Federal Government aims at a reduction of new land take to 30 hectares per day by 2020). To this effect, it is increasingly necessary to implement measures and make use of existing as well as new instruments to strengthen inner urban development. The re-use of already serviced land helps to reduce the follow-up costs for the infrastructure.

Quantitative and spatial restrictions of the settlement development aim at reducing the land take and at the protection of the open spaces, of valuable soils and their use for agricultural and forestry purposes. At the same time, centre-oriented steering processes for new settlement areas contribute to the development of energy-saving and compact settlement patterns which reduce the need to travel. This aim is supported by an increasing building density. The concentration and high density of settlements at the nodal points of local public transport leads to more energy-efficient transport services and a better utilization of existing infrastructures. This applies particularly to growing and shrinking regions. In this connection, the concentration and higher density of built-up areas has to take more and more account of the requirements which result from an increased warming, especially in the city centres, which is attributable to climate change.

In prospering areas of economic growth, problems frequently arise with regard to the development of the housing market which may make it necessary to use new land. When weighting all aspects involved this has to be taken into consideration, also in view of social issues such as the provision of adequate housing for socially disadvantaged groups in the large cities.

### Approaches to action

- Consistently use measures and instruments to strengthen inner urban development, especially with regard to a better survey and use of the space potentials
- Re-use derelict settlement and industrial sites
- Concentrate and cluster built-up areas at the local public transport arteries
- Make greater use of measures to reduce land take for the realization of infrastructure projects
- Substantiate regulations and planning instruments
- Implement measures to raise awareness and improve information
- Provide support for the elaboration of strategies to restore the soil functions of surfaces which are no longer necessary for traffic, settlement and commercial purposes
- Contribute to the preservation of agricultural and woodland areas as the basis for the production of food and renewable resources (also for renewable energy)

### 3.5 Sustainably control the use of mineral resources and other subterranean uses

The exploitation of raw materials is also in the future to be coordinated with competing land-use requirements such as the settlement development or the shaping of cultural landscapes and to be ensured at suitable sites on the basis of spatial plans. A precautionary coordination in terms of time and space will remain necessary to protect the natural assets and for the spatially compatible use of raw materials which are tied to a fixed location.

The use of the geological subsoil for commercial purposes has been strongly on the increase for some time. Apart from well-established uses - such as the extraction of spa, mineral and thermal waters from deep underground, the underground extraction of raw materials, underground oil and gas reserves, geothermics and the operation of underground landfills - new possible uses are developing which will play an even greater role in the future. These uses include deep geothermal application, the storage of energy sources from renewable energy (e.g. hydrogen, methane, pressurized air), the extraction of non-commercial hydrocarbons and the underground storage of CO<sub>2</sub>. This does not only extend to areas above ground surface or near surface but also to areas which may be located some kilometres below the surface of the earth.

In the future, it should be possible to safeguard these economic areas by adopting appropriate spatial plans.

Therefore, uses and risks are always to be assessed and their impacts on regional development are to be communicated in good time and thoroughly evaluated.

### Approaches to action

- Endeavour to also include a spatial planning clause in the mining regulations
- Elaborate and implement regional strategies for re-cultivation and subsequent uses
- Address knowledge deficits and improve the information density and quality in the long run for spatial planning in the underground space

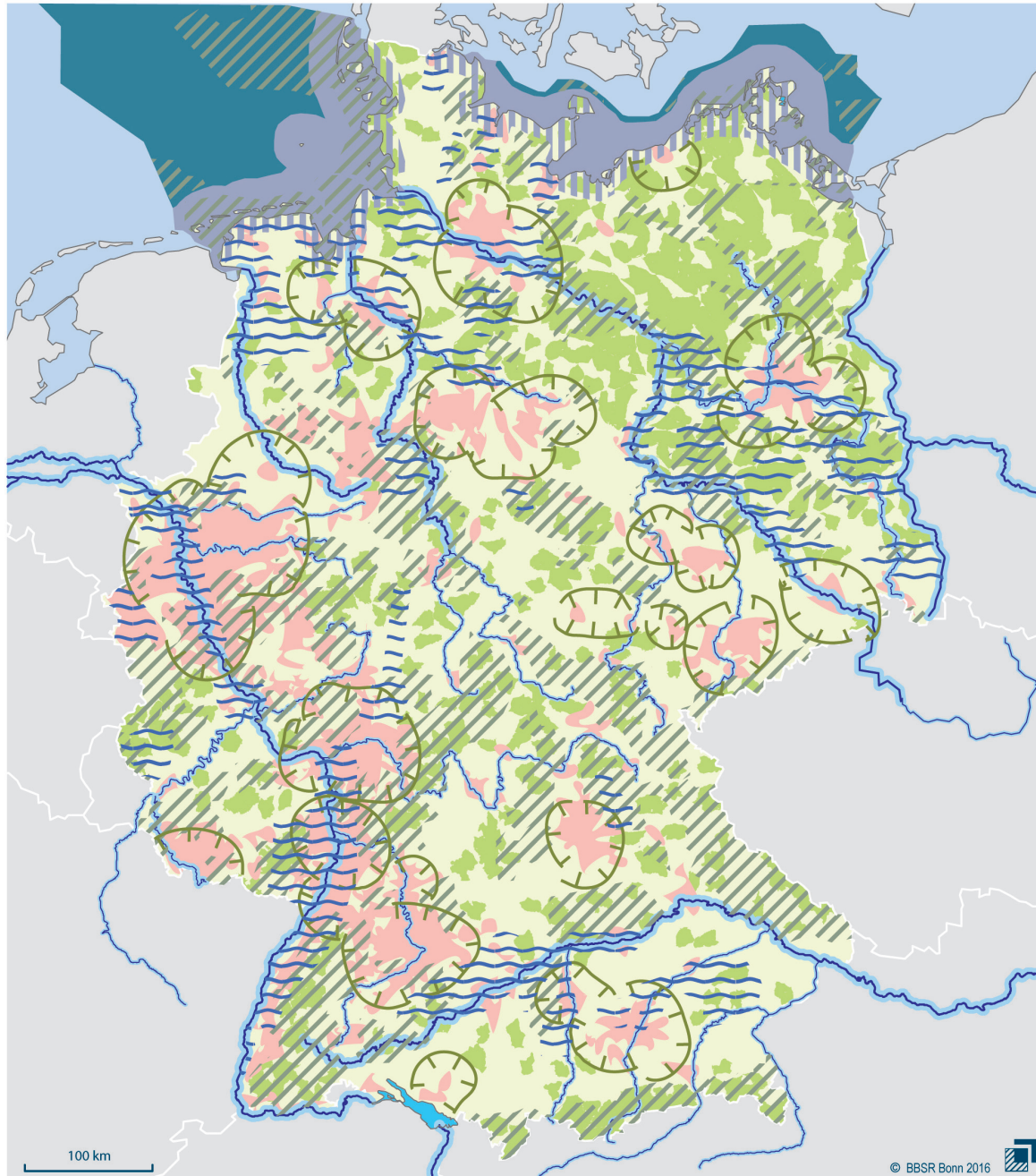
### 3.6 Sustainably use coasts and seas

The natural potentials of the coastal and maritime areas are to be sustainably used and developed. The various interdependencies between the uses of the seas and those of the adjacent land areas and increasing conflicts are to be considered in an integrated manner and sustainably solved by means of maritime spatial planning.

#### Approaches to action


- Develop a transnational maritime spatial approach
- Closely integrate coastal regions and islands in maritime spatial planning and project planning
- Apply the “Integrated Coastal Zone Management (ICZM)” which is based on the principle of sustainability as an informal instrument


# Land uses





The map illustrates the concept only exemplarily.  
The symbols do not represent any planning provisions.

## Shape and carefully develop urban and rural cultural landscapes


 urbanized areas with a high degree of competing uses


 supraregional unfragmented areas with low traffic density

 open spaces with increasingly competing use


 large protected landscapes with a special nature conservation value (national parks, biosphere reserves, nature parks, "Alpenplan")


 open space alliances to provide recreation facilities in close proximity to settlement areas and with climate compensation functions

 significant ground water resources

 preventive flood control in river corridors

## Protect and sustainably use marine landscapes

 minimizing conflicting uses in the exclusive economic zone

 reconciling conflicts of use by spatial plans and Integrated Coastal Zone Management, ensure coastal flood protection



## Explanations

The representation of the urbanized areas is based on the urban-type areas according to spatial type 2010 - reference: BBSR settlement (BBSR 2012, Raumabgrenzungen und Raumtypen des BBSR, Analysen Bau. Stadt. Raum, vol. 6,. p. 17)

The dataset „supraregional unfragmented areas with low traffic density“ is based on a recollection of data in 2010 by the Federal Agency for Nature Conservation. It covers all areas nationwide which, within a zone of more than 100 square kilometres, are not intersected by one of the following transport arteries:

- Roads (motorways, federal highways, regional and county roads) as from a traffic volume of 1,000 motor vehicles per day
- Double-track railway lines and single-track electrified railway lines, which have not been decommissioned
- Canals with the status of a federal waterway of category IV or higher.

Moreover, the areas of airports and settlements are cut out.

Areas outside the urbanized areas as well as the supraregional unfragmented areas with low traffic density are represented as open spaces with increasingly competing uses.

The depiction of the large protected landscapes with a special nature conservation value (large-scale conservation areas, including national parks, biosphere reserves and nature parks) was updated compared with the 2006 Concept. In addition, the large-scale Habitats Directive sites in the area of the exclusive economic zone (EEZ) are represented.

The illustration of the significant ground water resources was taken over from 2006 and supplemented by further large-scale water protection zones.

As in 2006, the issues of developing preventive flood control in river corridors as well as open space alliances to provide recreation facilities in close proximity to settlement areas and with climate compensation functions are depicted.

A different approach as the one taken in 2006 was adopted for the two legend elements concerning the subject of protecting and sustainably using marine landscapes.

The element of minimizing conflicting uses in the exclusive economic zone shows the planning area of the exclusive economic zone.

The element of reconciling conflicts of use by spatial plans and an Integrated Coastal Zone Management, ensuring coastal flood protection is now depicted separately for the territorial sea as well as for the coast.

# Shape climate change and the transformation of the energy system

The spatial planning policy of the Federal Government and of the federal states supports the objective of limiting global warming to 2° C by the turn of the century and, for this purpose, to reduce the greenhouse gas emissions in order to alleviate the risks of climate change in the long run. It is, however, not possible to avoid all nuisances. It is necessary to make adaptations to climate change at regional level.

An essential contribution to tackle climate change are energy conservation and the transformation of the current energy supply system towards a safe, economically efficient and environmentally acceptable energy supply. In particular, the development or renewable energy is also a task of and a challenge for spatial planning policy. The envisaged increase of the share of renewable energy

- in the gross final energy consumption from 12.0 % (2013) via 18 % (2020), 30 % (2030) to 60 % (2050)
- in the gross electricity consumption from 25.3 % (2013) via at least 35 % (2020), at least 50 % (2030) to at least 80 % (2050)

will affect the regions to varying degrees by additional land take and the increasing land use conflicts thus resulting. The growing disintegration of the existing sites of conventional energy generation, the sites of renewable energy generation and the high-demand areas makes it necessary to adapt the transfer and distribution infrastructure. For this reason, the conversion of the energy supply system is of high and long-term spatial relevance, affecting all planning levels and all regions. The reorganization of the energy supply towards

a system based on renewable energy offers opportunities for the economic development, technological progress and regional value creation. Structural change in those regions where the conventional energy generation is still a decisive sector of the economy is to be used as early as possible to set the course for a sustainable regional development.

## 4.1 Adapt spatial structures to climate change

Climate change with its various forms and possible impacts as well as the related requirements and avoidance and adaptation measures remains a permanent and dynamic task of spatial planning. It is mainly influenced by the regional and local circumstances and covers all land uses.

On the basis of spatial analyses to determine the susceptibility of the spatial structures and uses to the impacts of climate change, the current objectives and policy decisions as well as the spatial forms of the specifications laid down in plans and programmes are to be reviewed, if necessary, newly assessed and extended or differentiated accordingly from the technical and spatial perspective (climate proofing/climate change impact assessment). The focus will be on the following fields of action:

### Flood control

As a consequence of climate change, the incidence of flooding and the discharge regime may also be subject to changes in those areas which are affected by snow and glaciers and an increase in precipitation and changes of its temporal distribution and even intense rainfall events have to be expected.

The focus of the planned precautionary flood control measures are the protection of existing and the reclamation of flood zones as natural flood storage areas as well as the improvement of the water retention in the catchment areas

of the rivers, risk prevention in potential floodplains and the securing of potential sites for flood protection.

Therefore, a cross-border coordination in close partnership between upstream and downstream parties is inevitable in river catchment areas on the basis of national and international flood defence programmes.

### **Coastal protection**

The long-term safeguarding of coastal protection in view of the outline conditions which have become tighter due to climate change is an indispensable prerequisite to also in the future ensure an area to live and work in which is as safe as possible for the people living there and to guarantee a sustainable use of the coastal regions. The sea level rise, the risk of storm surges and changes of the state of the sea require already today precautionary measures and risk additions for plans and measures with a spatial impact.

The key elements are the safeguarding of suitable catchment areas for cohesive soils for dyke construction on the mainland as well as of marine sand extraction sites for coastal protection, the non-admission of competing uses in areas in front of and behind coastal protection installations and the minimization of risk in areas with no adequate protection against storm surges.

### **Protection in mountainous regions**

For mountainous regions, especially the Alpine Space, it can be assumed that the risk of extreme weather events and of changes in the natural landscape will increase on an above-average level. The increasing vulnerability of the mountainous regions which has to be expected requires on the whole an intensification of scientific research, a better exchange of information concerning regional adaptation strategies and the harmonization of measures for their implementation.

Spatial planning policy is to provide the necessary support for the protection of the sensitive habitat of the Alps and the population there against natural hazards while taking further development opportunities for the economy and the population into account and taking the reference cards and management plans prepared by specialist planners (e.g. hazard maps, avalanche risk maps, risk management plans for torrents) as a basis.

### **Protection against the effects of heat**

In the future, longer lasting heat waves will have to be expected more frequently which affect the individual sub-regions to varying degrees, especially in the regions with high bioclimatic impact. The instruments of spatial planning contribute to safeguard or newly create large-scale areas which are suitable for the protection against heat-waves (e.g. open spaces which are relevant for the urban climate, cold air production areas, fresh air lanes). The basis for the safeguarding and development of climate-relevant compensation areas and air exchange corridors in terms of spatial planning is an improved knowledge about each regional climate.

### **Handling water shortages**

In regions with increasing summer droughts (up to severe droughts) and a general decline of the annual precipitation, a lower ground water formation has to be expected.

The focus is on a stronger protection of water resources (reserve regions), the increase of ground water formation and the re-use of recycled grey water, the support provided to preserve and/or improve the soil moisture regime and the careful management of uses with a high water consumption.

### **Maintain and improve the natural carbon sequestration potentials**

Natural carbon sinks are ecosystems such as forests, bogs (mires and fens) and wetlands which can remove more carbon from the atmosphere and store it than they can emit in the form of CO<sub>2</sub> or methane. The preservation and restoration of such areas with a high sequestration potential for carbon, especially of the large-scale moorlands - using spatial planning instruments - are, therefore, of major importance to climate change mitigation. Moreover, spatial planning targets to reduce the use of carbonaceous soils can support the natural carbon sequestration.

Synergies between climate change mitigation and the strategies to adapt to the consequences of climate change in the sectors of nature conservation, preservation of biodiversity, improvement of the hydrological regime and preservation of the soil fertility and, thus, the food production base, are to be increasingly applied. Adaptation strategies have to be developed as early as possible to cope with temporary conflicts of use.

### **Climate-induced changes in tourist regions**

In many tourist regions in Germany, especially in the coastal and mountainous regions, climate change will presumably lead to major changes (opportunities and risks). Here, it will be increasingly necessary to adopt adaptation strategies. These strategies should include all relevant regional stakeholders.

### **Climate-induced changes in the habitat for fauna and flora**

Climate change is likely to entail changes in the range of species, in the structure of whole ecosystems and a shifting of natural ranges.

The main tasks are the safeguarding of a transregional and

transnational as well as functionally connected network of open spaces of ecological importance to overcome the isolation of biotopes and/or whole ecosystems and to enable the migration movements as well as the minimization of further landscape fragmentation.

### **Energy-saving and traffic-reducing settlement patterns**

Settlement structures which are designed to save energy and reduce traffic are to prevent climate change emissions as far as this is possible. For this purpose, the advantages and disadvantages of the spatial concentration of settlement and transport infrastructures with regard to sub-regional climate sensitivity and susceptibility (e.g. to heat/drought, heavy rainfall/flood) are to be investigated and evaluated from a more differentiated perspective within the framework of the territorial and environmental impact assessment.

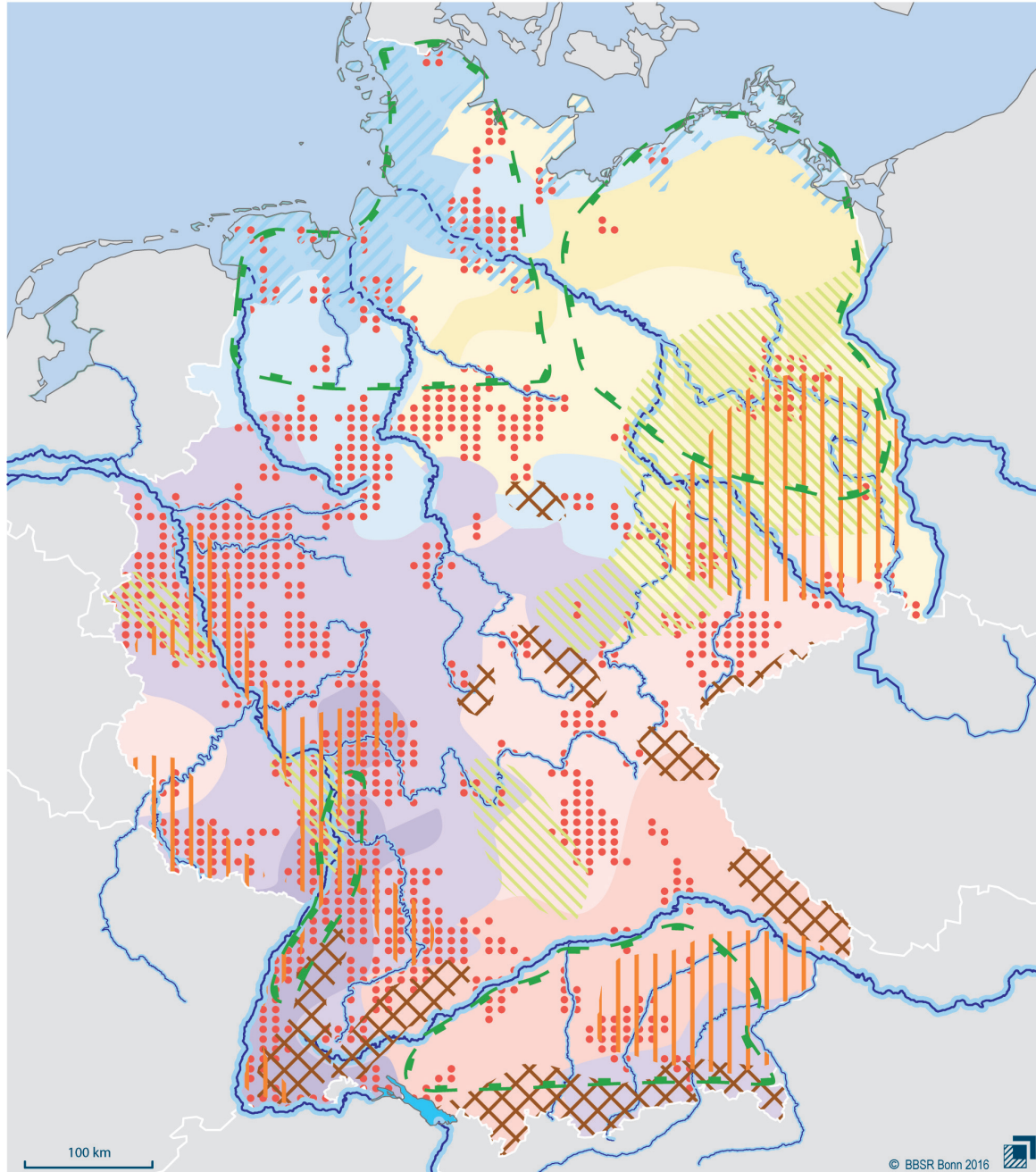
## Approaches to action

Implement the „Spatial Planning Concept for Action for Avoidance, Mitigation and Adaptation Strategies with regard to the Spatial Consequences of Climate Change“ of the MKRO (2013), inter alia:








- Elaborate guidance for climate change impact assessment
  - Coordinate methods and indicators with sectoral planning, in particular with regard to the identification of vulnerabilities and to climate change monitoring
  - Evolve the spatial planning toolkit
  - Orient spatial planning and development planning towards energy efficient settlement structures where traffic can be avoided
  - Ensure and/or work towards a revitalization or renaturalization of natural carbon sinks in spatial plans
  - Introduce measures for the preservation and improvement of the natural sequestration of carbon in bog soils
  - Adopt climate-sensitive precautionary measures to ensure the availability of water resources and to avoid uses conflicting with ground water management
- Adapt to the consequences of climate change, e.g. by an extended preventive flood defence and coastal protection planning as well as by the safeguarding and development of open spaces with climate compensation functions
  - Elaborate adaptation strategies for agriculture and forestry as regards the consequences of climate change
  - Create further semi-natural floodplains along the watercourses, for example by relocating dykes
  - Support the planning authorities and scheme promoters for an integrated risk management, inter alia by the improvement of the data base for regional risk and hazard maps as the main basis for taking account of climate change consequences
  - Enhance the acceptance of spatial specifications on the adaptation to climate change, even in view of uncertainties which possibly exist
  - Develop and ensure a transregional and transnational as well as functionally connected network of open spaces of ecological importance in order to make the climate-induced migration of species possible



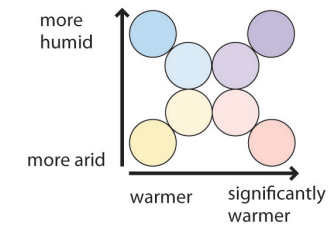
# Climate change



The map illustrates the concept only exemplarily. The symbols do not represent any planning provisions.

-  preventive flood control in river corridors
-  coastal protection
-  protection in mountainous areas
-  areas with a bioclimate with an adverse impact on health (impacts from hot spells)
-  areas with a bioclimate with an adverse impact on health (impacts from hot spells in urbanized areas)
-  areas affected by drought
-  sensitive natural carbon sinks

Background map: future trend of temperature and precipitation development (changes between 2071-2100 compared to 1961-1990)





## Explanations

The basis for the depiction of the map element developing preventive flood control in river corridors is the element which has been existing since 2006 and is also illustrated in the Concept map „land use“.

In the wake of climate change, a sea level rise and a higher number of storm surges, increasing coastal erosion and the breaking away of cliffs has to be expected and also on shore more flood events in the coastal area. The spatial delimitation of the map element coastal protection is based on a recommendation (source: <http://www.kuestenschutzbedarf.de>, download: 14 April 2015) of the North German Climate Office concerning the need for coastal protection in areas to be protected against storm surges: North Sea (storm surge 1962 + 1.1 m by 2100) and Baltic Sea (storm surge 1872 + 80 cm by 2100).

The basis for the map element protection in mountainous areas are the upland regions exceeding 800 m and their immediate surroundings as well as the Alpine space.

The depiction of the areas with a bioclimate with an adverse impact on health (impacts from hot spells) is based on the areas affected by bioclimate effects according to Jendritzky (Jendritzky et al: Das Bioklima in der Bundesrepublik für die Periode 1970 bis 2000 (the bioclimate in the Federal Republic of Germany from 1970 to 2000), (Freiburg/Breisgau 2003) with a relatively high impact modified by spatial delimitations which can be derived from the climate projections for the central heat-related climate signals (BBSR 2012: Raumordnungsbericht 2011 (spatial planning report), p. 102, 103).

The representation of the areas with a bioclimate with an adverse impact on health (impacts from hot spells in urbanized areas) is based on the urban-type areas according to spatial type 2010 - reference: BBSR settlements.

Areas affected by drought are roughly supraregional areas with a strongly negative mean annual total of the climatic water balance (less than 200 mm) in the period 2041 to 2050 (Potsdam Climate Impact Research Institute (PIK) 2012: Bericht zur Konferenz Klimafolgen für Deutschland (report on the conference on climate change consequences for Germany, 24 October 2012).

The basis for the element sensitive natural carbon sinks is a map of the Federal Agency for Nature Conservation according to Schopp and Guth, 1999. Wide-area delimitations are provided for moor landscapes in north-west and north-east Germany, the Alpine foothills and the Upper Rhine Valley.

The background map shows the results of an analysis concerning the definition of regional types of climate change carried out within the framework of a preliminary study on the research field of KlimaMoro (Spatial Development Strategies for Climate Change) (Federal Ministry of Transport, Building and Urban Development 2010: Klimawandel als Handlungsfeld der Raumordnung (climate change as a field of action of spatial planning): Results of the preliminary study on the „Raumentwicklungsstrategien zum Klimawandel“ demonstration projects, Forschungen, issue 144). These regional types of climate change illustrate the changes in climate conditions which are relevant for spatial planning in Germany by the period 2071 to 2100 regarding their spatial distribution. They do, however, not contain any information about the problems or the requirement for action which this entails. All in all, the background map shows a combination of a temperature-related factor (rise of the average annual temperature, very hot days and decrease of summer precipitation) and a precipitation-related factor (increase of winter precipitation, heavy rainfall and decrease of frost days) depicted in the standard scenario variant A1B (balance in the use of energy sources) in the period 2071 to 2100 as compared with the period 1961 to 1990.

## Control the development of renewable energy and of networks

The development of renewable energy is a prerequisite for compliance with climate change targets as well as the mandatory requirement for mastering the transformation of the energy system, i.e. the phasing out of nuclear energy. Therefore, the coordinated development of renewable energy in line with the requirements of spatial planning and of the related optimized distribution and transmission networks as well as the creation of new grid connection points is a priority spatial planning task of great political importance to be tackled by the Federal Government and the federal states in the next few decades.

Spatial planning policy will ensure the compatibility of the development of renewable energy with spatial planning objectives, especially in the wind energy sector. While taking account of a phased development, the opportunities of an adapted multiple use and of repowering as well as the generation of energy as close as possible to consumption points, spatial planning policy is targeted at a site selection and land take which involves less conflict and reduces demand for network extension.

The power transmission and distribution networks as well as power storage capacities, which have to be adapted to the changed generation structure and to the European energy market, should also be developed in a coordinated manner in compliance with demand and the objectives of spatial planning. In this connection, it has to be taken into consideration that the development of renewable energy is synchronized with the extension of the power grids. Great importance is attached to the existing grids since they can be used to feed in the power from renewable energy close to the consumers. Spare grid capacities are to be identified and used with priority.

In order to accelerate the planning and approval procedures for significant supraregional supply lines on land and at sea, a close cooperation of the federal sectoral planning with the spatial planning authorities at federal and at federal state level is to be initiated. Regional energy strategies support the integration of the transformation of energy supply into spatial planning. The aim here is to ensure the safe, cost-efficient and environmentally sustainable energy supply as well as to obtain broad-based acceptance among the general public.

The development of renewable energy and of decentralized supply systems may create development opportunities especially for predominantly rural areas and be used as a potential for regional value creation and as an impetus for regional development. In urbanized areas, the utilization of existing roof surfaces and derelict sites can reduce the demand of open spaces for photovoltaic installations.

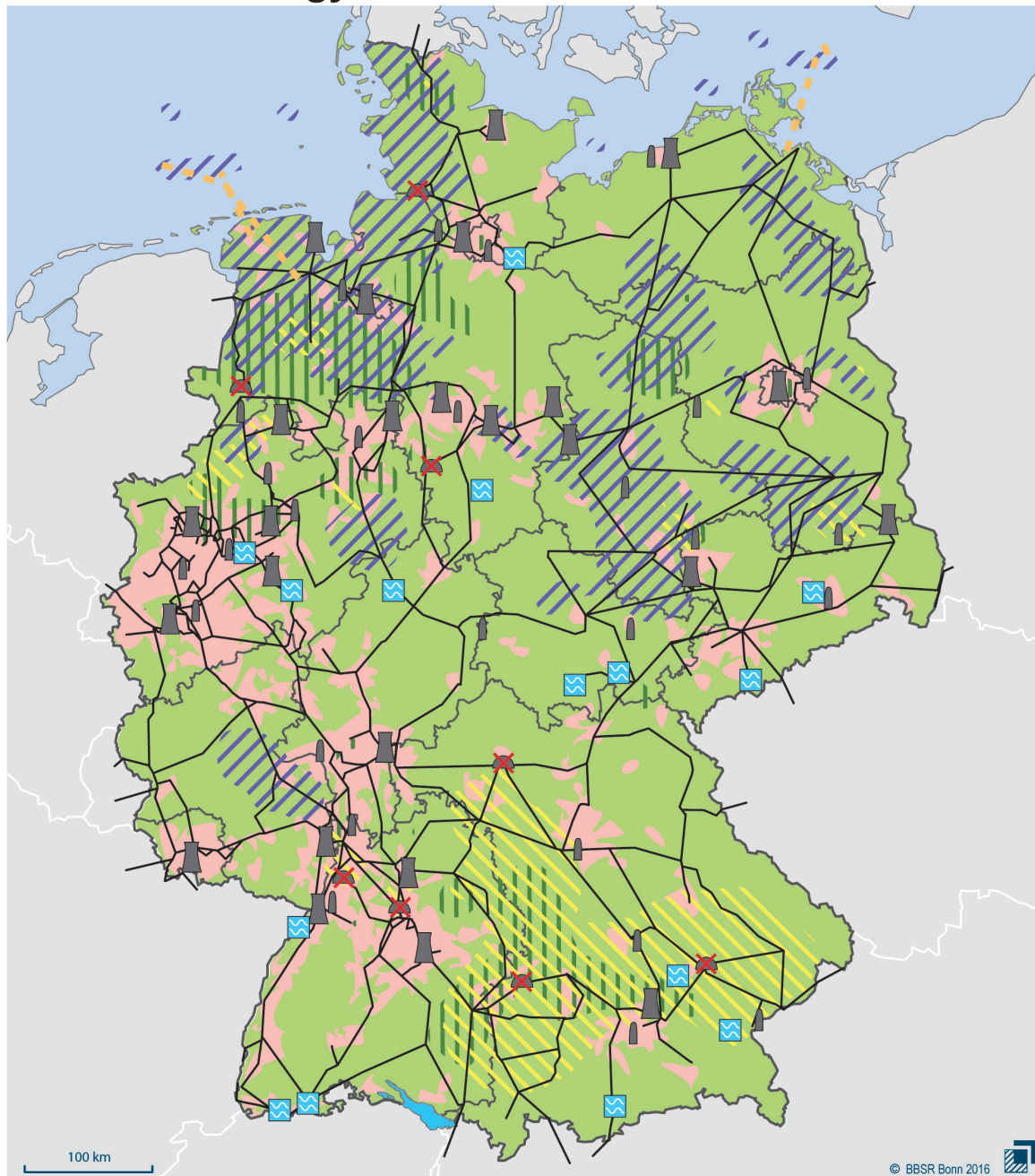
Regional climate and energy strategies are to be supported by spatial planning and the spatially relevant results are to be integrated into spatial plans. A broad-based discussion in the regions is to contribute to finding spatially compatible solutions for the generation and use of renewable energy and the necessary extension of the grid and to gain acceptance in this respect.

## Approaches to action





- Analyze and coordinate projects with a spatial impact with the participation of towns and cities as well as the citizens
- Evolve the methodology and data quality for spatial suitability and resistance analyses to improve the medium- and long-term development planning for renewable energy, storage capacity and transmission networks
- Support the possibilities of participation and involvement for the citizens as well as for the regions and local authorities to enhance acceptance for the development of renewable energy
- Extend and evolve regional energy strategies as a new instrument of regional planning
- Reduce conflicting uses by coordinated supralocal planning for the use of wind energy including re-powering

# Renewable energy sources and networks




The map illustrates the concept only exemplarily.  
The symbols do not represent any planning provisions.





## Existing priority areas for renewable energies

-  wind energy (as of 12/2013)
-  solar energy (as of 12/2013)
-  biomass (as of 12/2013)
-  hydropower (as of 06/2015)



## Existing priority areas of conventional energy generation (as of 06/2015)

-  nuclear power (potential grid connection point)
-  coal
-  gas

## Transmission network corridors

-  expansion of the offshore wind farms (Offshore Grid Development Plan 2014)
-  existing high-voltage transmission network including planned expansions (as of 03/2014)

## Spatial structure

-  urbanized areas
-  semi-rural and rural areas

see also explanations on page 40

## Explanations

Sub-regions with a high installed capacity of already existing facilities for power generation from wind, solar energy, biomass and hydropower are represented as existing priority areas for renewable energy. The wind, solar energy and biomass sectors are delimited in accordance with the register of installations of the Renewable Energy Sources Act of the transmission system operators as of 31 December 2013. The data of the register of installations with regard to the installed nominal capacity refer to about 22,000 locations in the area which register the facilities for power generation from renewable energy with an accuracy of 3 km. On the basis of this locational module, not only the installed nominal capacity in 2013 for each of these locations on the site itself but also within a radius of 100 km is added up with provision made for distance weighting.

Since the level of the whole installed nominal capacity in the case of wind and solar energy is almost identical (at national level the wind energy accounts for just under 36,000 MW, solar energy for just under 37,000 MW) but is significantly lower in the case of biomass (7,000 MW), the threshold levels for biomass are chosen lower at a 1 to 5 ratio for the class formation of the regional index value determined for the relevant nominal capacity. For the wind and solar energy sectors, all areas with a regional index of more than 2000 MWp\_el are depicted, for the biomass sector all areas with more than 40 MWp\_el.

The list of power plants established by the Federal Network Agency as at 1 June 2015 is taken as a basis for the representation of the sites of hydro-electric power plants. Power plants with a net nominal capacity of at least 100 MW are depicted.

The depiction of existing priority area of conventional energy generation is also based on the list of power plants established by the Federal Network Agency as at 1 June 2015. The individual power plants or clusters of power plants are marked by the symbols for nuclear power, coal and gas. Power plants with a net nominal capacity of at least 100 MW are depicted.

Furthermore, the subject of transmission network corridors is also included in the Concept map. The map shows the existing high-voltage grid (as from and including 220 KV, basis: Open Street Map as at March 2014) and the extension projects in accordance with the Offshore Grid Development Plan (2014) confirmed by the Federal Network Agency. The Offshore Grid Development Plan does not define specific alignments of transmission lines. In each case, the necessary transmission demand between network nodes is determined. The broken lines in the Concept map show the shortest distance between the network nodes.

In the background of this new Concept map, the spatial structure broken down by urbanized and semi-rural and rural areas is depicted. The urbanized areas represent the central areas of consumption. They are based on the 2010 spatial type - reference: BBSR settlements (BBSR 2012, Raumabgrenzungen und Raumtypen des BBSR, Analysen Bau. Stadt. Raum, vol. 6., p. 17).

## General explanations concerning the Concept maps

For a better understanding of the Concept maps, the analytical bases of the contents of the maps as well as the specific Concept-related intentions of the representations are explained in the following.

The maps visualize the underlying facts and problems as well as the strategic approaches resulting from the four chapters of the Concept text. In this respect, the maps only serve the purpose of illustrating the Concept principles and are no planning specifications.

Since not all the Concepts addressed in the text can be cartographically represented, the maps only show a section of the problems and strategies connected with the Concepts. For the data analyses, as a rule, nationwide criteria were used so that region-specific distinctive features are not necessarily reflected by the scale of the Concept maps.

The objective of the Concept maps is to transpose the complex concepts into spatial images for the whole of Germany. They thus indicate the development perspectives and challenges which the Concepts assign to the individual regions. The principles set forth in the text are transposed into concrete spatial images by the maps which are important to the further discussions at political and sectoral level.

Even if the maps do not constitute a binding planning statement, their spatial representation calls for a further more specific analysis of the contents of the Concepts.