The Netherlands in 2040: A country of regions
Spatial Outlook 2011

English translation of the summary of the Dutch report 'Nederland in 2040: een land van regio's. Ruimtelijke Verkenning 2011'

Corresponding authors: Hans Hilbers and Daniëlle Snellen
2011, PBL Netherlands Environmental Assessment Agency

Summary

Growth, shrinkage and uncertainty

- For many years, spatial and mobility policy have focused on stimulating and managing growth. The population, the housing stock, and the number of jobs and kilometres travelled have shown continuous growth. However, those days are gone and the Netherlands is on the eve of change.
- The new PBL regional scenarios show that spatial policy in the Netherlands will be faced with three types of regional development. While some parts of the country will almost certainly experience growth and others shrinkage, a large part of the Netherlands could experience either, depending on future economic and international developments.
- Developments in housing, employment and mobility do not always take place at the same rate within a region; therefore, future visions may vary per region.
- In certain areas, such as the river region of the Netherlands, the Veluwe and parts of the Green Heart, it is uncertain whether population, mobility and employment will in fact grow or decline. Urban regions such as Almere, Groningen, Arnhem/Nijmegen and Utrecht are highly likely to continue to grow, whereas regions at the periphery of the Netherlands, such as east Groningen and the middle of Limburg, are fairly certain to experience shrinkage.
- The continued decrease in the average size of households means, under the high scenario, that the demand for housing will continue to increase in all regions up to 2040. Under the low scenario, the demand for housing will increase almost everywhere up to 2020 but will subsequently decrease in more and more regions (first only in e.g. Rijnmond, Flevopolder and south-east Utrecht, and from 2030 in a large part of the Netherlands).
- The size of the potential labour force will also decrease, due to the ageing of the population. Employment, expressed as the number of jobs, will level off or decrease in large areas of the Netherlands, at first in the peripheral regions. The scenarios predict that employment will be concentrated in the urban regions – in particular, in central areas of the Netherlands.
- Mobility, expressed as the number of kilometres travelled per capita, is likely to continue to increase in a large part of the Netherlands; especially, in the next ten years. After 2020, mobility may level off, as well, or start to decrease in large parts of the Netherlands. The amount by which mobility will increase differs considerably between the two scenarios.
- Congestion will continue to increase in the high scenario, especially in the Randstad and around the other large urban centres, even if investment in infrastructure continues at the current rate. The low scenario predicts that congestion will be halved.
- Accessibility, expressed as the number of jobs that can be reached from home within an acceptable amount of time, is expected to level off or decrease in many regions. In the low scenario, this is due to a reduced number of jobs; in the high

scenario, it is due to increased congestion. An increase in the number of jobs, perhaps in combination with reasonable congestion levels, could improve the accessibility of employment locations in central areas of the Netherlands and several urban regions.

- Calculations show that if centralisation and concentration policies and the protection of buffer zones and national landscapes are relaxed with regard to housing location policies, the result from a national perspective will be a concentration of development in the Randstad area with, from a regional perspective, local deconcentration within this area, leading to a higher growth in housing development in areas situated at some distance from the urban centres, such as the Green Heart and the river region of the Netherlands. This kind of spatial pattern leads to greater spatial contrast between the Randstad and the rest of the Netherlands, extra pressure on already strained infrastructure and a decrease in accessibility.

Policy strategies

- The different types of regional growth (growth, shrinkage and either growth or shrinkage) require different spatial policy strategies. These strategies may sometimes need to be applied in unison as developments in population, household size, the labour force, employment and mobility do not always take place at the same rate within a region. Policy instruments should therefore be able to deal with growth, shrinkage and uncertainty.

Strategy in case of growth:

- Although it may be certain that growth will take place, this does not mean there is certainty about the level of growth. In general, the bandwidth between the high scenario and low scenario is particularly wide in growth regions. For example, the demand for housing in Almere is expected to increase by about 10% of its current size under the low scenario and by about 90% under the high scenario (in which Almere nearly doubles in size). Such wide margins require flexible planning, within which space must be reserved and projects realised in smaller sub-projects.

Strategy in case of shrinkage:

- There are three possible pathways for a policy strategy in case of shrinkage: regional cooperation to prevent a worsening of the situation as a result of passing on problems to neighbouring municipalities, timely consideration of how to finance the redevelopment required during the transition period, and consideration of the last growth investments well before shrinkage might start. It may make more sense to allow for a temporary housing shortage, for example, or to use temporary accommodation, rather than allow an oversupply to build up in the long term.
- Construction of, for example, new housing or offices, must comply with the long-term strategy for a qualitative stock composition. At a later stage, lower quality homes then could be demolished, so that the supply would be better matched to the demand.
- Provinces have an important role to play in shrinkage areas and need to act firmly; for example, by encouraging municipalities to reach housing development agreements and stick to them.

Strategy in case of uncertainty:

- Adaptive planning, a form of planning that allows a fast response to developments as they take place, is required today in regions in which it is uncertain whether they will experience growth or shrinkage and where the extent of the future spatial and infrastructural challenge is therefore as yet unclear. Robust investments that are consistent with all scenarios must take priority. Other investments must be specified for as short a term as possible and large projects planned and carried out in phases. Any temporary peak in demand can be met by

ensuring some degree of flexibility in the spatial and infrastructural challenge. Examples of such flexibility are to use temporary buildings, change the function of existing buildings or to reserve land for possible future use.

- Adaptive planning requires a monitoring system that tracks the direction and speed of relevant developments based on signal indicators, such as relocation patterns, price changes and business investments.
- The benefits of expanding the capacity of the road network largely depend on the mobility growth rate. However, as future developments in mobility are uncertain, it is necessary to think about more flexible ways of improving accessibility, such as mobility management or some form of pricing policy.
- National government could support local government by providing information about uncertain prospects for future growth or shrinkage and possible policy strategies. As in situations of shrinkage, provincial authorities can take on a regional coordination function.

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Introduction

Although spatial planning in the Netherlands for many decades has been characterised by accommodating growth, this is no longer the case. Several regions are already experiencing decline and many more may do so in the years to come. This is possible but by no means a certainty. Many regions are just as likely to experience growth as they are shrinkage. The main policy task for the coming decades is to respond effectively to this uncertainty. In addition to the shrinkage regions and the large number of regions faced with uncertainty, there is also a group of regions in which growth is likely to continue, even in a situation of reduced national demographic and economic development.

Whether a region faces growth, shrinkage or uncertainty, the aim of the government is always to adapt the spatial environment to the changing needs of society. Such needs include housing, offices and business locations that meet demand, the good accessibility of these locations and pleasant surroundings. A growth region requires a different approach from a shrinkage region or a region in which it is uncertain whether growth or shrinkage will take place. In a growth region, expanding residential areas and business locations can ensure that supply better meets demand. In shrinkage regions, the part of the stock for which there is less or no demand can be demolished. In regions in which future developments are uncertain, there may be a short-term need for expansion, but this may result in extra demolition in the long term. These regions therefore need to be aware of overinvestment, although excessive restraint can result in underinvestment.

This Spatial Outlook analyses the long-term regional demand for housing, employment and mobility up to 2040. This provides insight into which regions will experience growth, which shrinkage and which are just as likely to experience either growth or shrinkage. Future demand was calculated based on future scenarios that were regionalised for the purpose of this study using integrated modelling tools. This takes into account regional developments in housing, employment and mobility and their interactions. Future developments are expressed in the scenarios as number of inhabitants, households, jobs or kilometres travelled. After all, these are the numbers that determine the context of the spatial challenges. This report shows where policy must take growth, shrinkage or uncertainty into account for 47 regions in the Netherlands (see Chapter 3 of the Dutch report).

Scenario development and model calculation

The scenarios in this Spatial Outlook have been based on scenarios from the report Prosperity and Quality of the Living Environment(WLO) (CPB/MNP/RPB, 2006). Although based on the theoretical and numerical national developments in the WLO scenarios, the actual situation in 2008 was used as the start point rather than that of 2002. Therefore, although the Spatial Outlook scenarios follow a slightly different development pathway compared with the original WLO scenarios, the outcome for 2040 does match the WLO data. The spatial scale between the two reports is different: the WLO divided the country into three parts, whereas 47 regions were identified in the Spatial Outlook.

High scenario

The high scenario was derived from the WLO Global Economy scenario: High population growth, international cooperation and market-focused processes. This scenario assumes more immigration and a greater decrease in the average size of households, with the higher growth in prosperity leading to increased car ownership.

Low scenario

The low scenario was derived from the WLO Regional Communities scenario: Low population growth, little international cooperation and low economic growth. There is less immigration, a lower decrease in the average size of households and a much lower increase in car ownership.

Unchanged policy

Both scenarios assume a continuation of the current housing development programmes. For road infrastructure, the expansions included in the 2010 Multiannual Programme for Infrastructure and Transport (MIRT) are assumed up to 2020. The trend is continued for the subsequent period, with road expansion taking place for heavily used sections of the network, at an annual cost of two billion euros. For public transport, the improvements as set out in the MIRT are incorporated, which includes the High-Frequency Rail Transport Programme. No kilometre pricing is assumed.

Regional developments

The regional calculations for expected developments in population, employment and mobility were made using the Tigris XL model (Willigers et al., 2010). The demographic component was expanded to improve consistency with the PEARL model (Projecting Population Events at Regional Level). The model takes into account regional differences in birth and death rates and international migration. The assumed housing construction programme is based on regional demand and the policy responses to date. The Tigris XL model projects regional employment based on national forecasts for sectoral employment from the WLO study and sectoral sensitivities to location, accessibility and available space. For the mobility calculations, the Dutch national model (LMS version 7.0) was included as an integral part of Tigris XL. The higher oil price and recent predictions regarding fuel use as a result of European guidelines were also included. Calculations were carried out at municipal level but were subsequently reported for 47 regions: these are the 40 COROP (Regional Research Programme Coordination Commission) areas plus another 7 subdivisions.

Further information

The modelling tools used and the assumptions made in the various scenarios are explained in greater depth in Chapter 3 of the Dutch report.

Two regional-level scenarios were developed in this study – one that represents high economic and demographic growth and one that represents low economic and demographic growth. These regional scenarios were based on two existing national

scenarios from the study Welfare, Prosperity and Quality of the Living Environment (WLO) (CPB/MNP/RPB, 2006a)[1]. The WLO Global Economy scenario was used as a basis for the high scenario and the Regional Communities scenario for the low scenario (see also text box).
The new regional scenarios together define the bandwidth within which future spatial challenges for regions in the Netherlands are expected to lie. Of course, themes such as water security, agricultural, nature and recreation also need to be addressed in future spatial policy, but this study is limited to the themes of housing, employment and mobility and their interaction. The other themes have been addressed in the PBL publications: *Ruimtelijke opgaven in beeld [spatial tasks in view, in Dutch]* (Kuiper and Evers, 2011a), *Natuurverkenning [Nature Outlook 2011–2040, English summary available]* (PBL, 2011a) and *Climate Adaptation in the Dutch Delta* (PBL, 2011b).

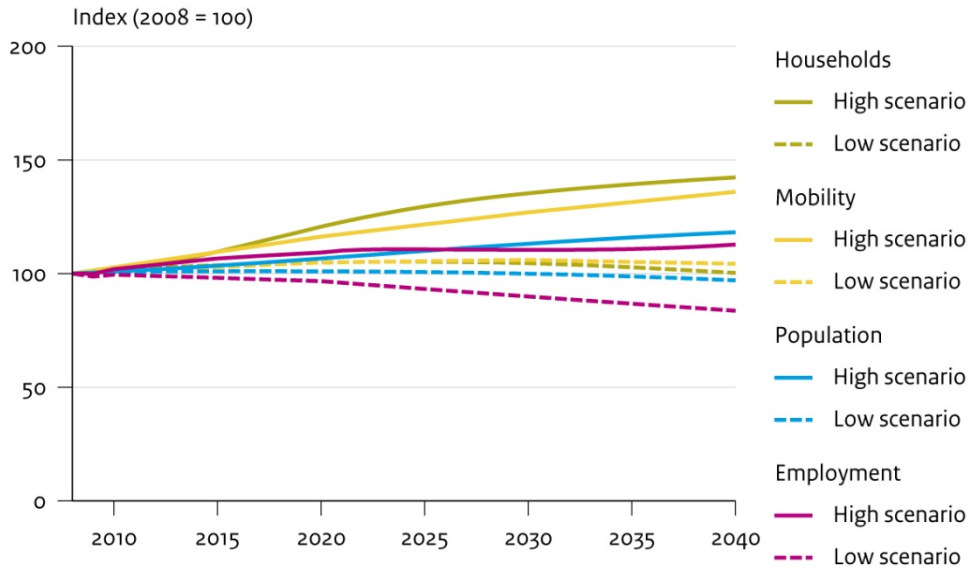
Future: Expected developments up to 2040

The scenarios show that, should policy remain unchanged[2], the population of the Netherlands will continue to grow in the coming decades. Population decline at the national level is not expected before 2020. The number of households will continue to increase due to the decrease in the average size of households, so that even if the population starts to level off or decline, the demand for more housing will continue for some time. Mobility (number of kilometres travelled) will also continue to grow, both in the low and the high scenario. Employment may fall, due to the decrease in the size of the potential labour force that can be expected fairly soon as the Netherlands experiences increased ageing of the population. Whether and when growth or shrinkage will take place at the national level varies per theme and scenario and there is often a considerable bandwidth between the high and the low scenarios (see Figure 1).

Figure 1

[1] As found in the recent Bestendigheid van de WLO-scenario's (Durability of the WLO scenarios) study (Hilbers and Snellen, 2010), these scenarios can still be used at the national level to outline the bandwidth of possible developments in housing, employment and mobility.
[2] Unchanged policy here means the policy applied before the new National Policy for Infrastructure and Spatial Planning.

Core indicators in the Netherlands per scenario

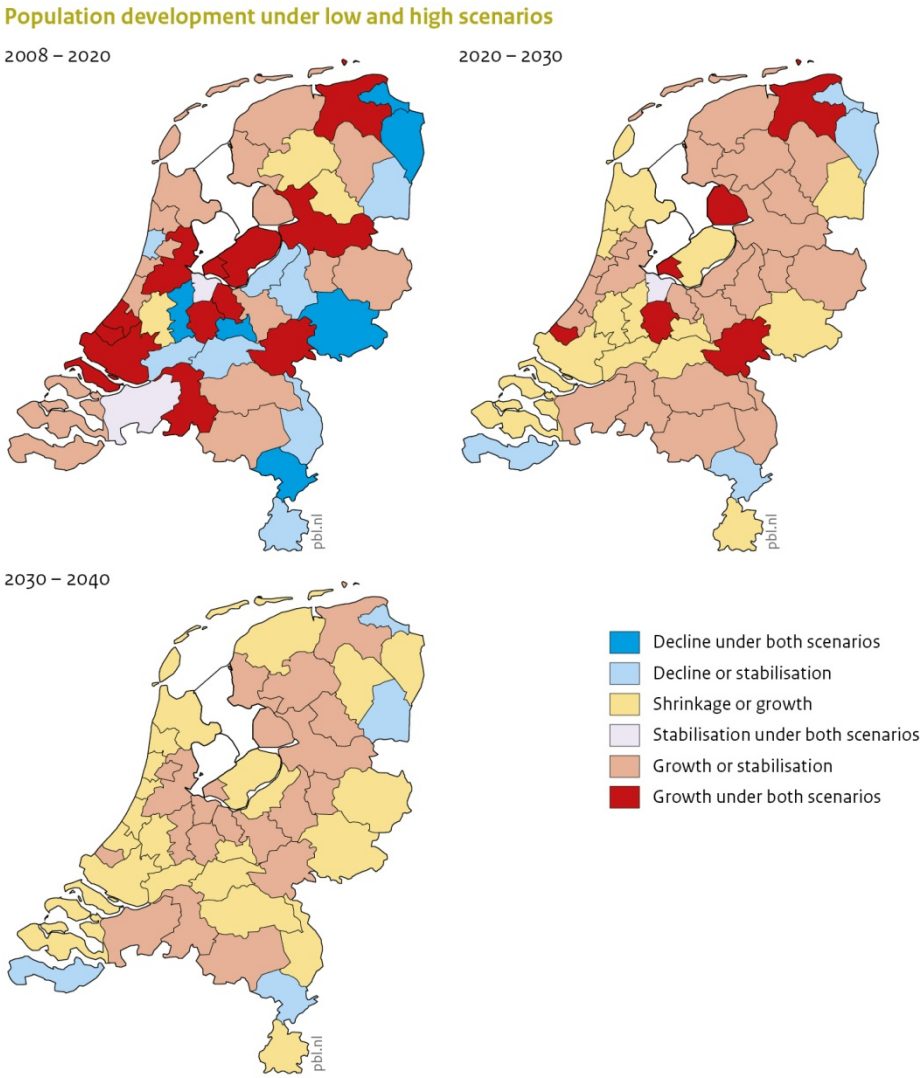


Population and households

The population has long increased more rapidly in the Randstad (the urban conurbation in the Netherlands consisting of the four largest cities of Amsterdam, Rotterdam, The Hague and Utrecht and surrounding areas) than in the rest of the Netherlands. This will continue to be a clear trend up to 2020 (Figure 2). In both the high and the low scenario, population growth is highest in the Randstad, due to higher natural growth and international migration. Population growth outside the Randstad is much lower, and in many regions the population may decline between 2008 and 2020. The differences between the Randstad and the rest of the country will become smaller after 2020.

There will also be large differences within the Randstad and within other areas of the Netherlands. For example, clear growth will be seen in and around the large urban centres, where new housing is largely concentrated. This applies to the cities of the Randstad as well as to Groningen, Zwolle, Arnhem/Nijmegen and Tilburg. Much lower growth, or even shrinkage, will be seen in more rural areas where housing development is subject to more restrictions, such as in ‘t Gooi and the Green Heart. Under the low scenario, decline will quickly gain the upper hand between 2020 and 2040 and large areas of the Netherlands will be faced with population decline. This applies not only to regions at the periphery of the country, such as in east Groningen/Drenthe, the Achterhoek region and the province of Limburg, but also for example the south-western part of the Randstad and the Green Heart. Under the high scenario, continued population growth after 2020 means that stabilisation or slight population growth will be seen throughout the country. The above-average population growth in the Randstad of the first period will decrease to the national average, but in the high scenario this still represents a population growth in the Randstad of almost 900,000 new inhabitants in the 2020–2040 period.

Figure 2[3]



There remains a clear difference in population growth between the Randstad and the rest of the Netherlands up to 2020. In both scenarios, population growth will be highest in the Randstad. Population growth outside the Randstad will be much lower and in many regions the population may decline before 2020. The differences in population growth between different areas of the Netherlands will become smaller after 2020. There are also large differences within the regions.

The driver behind the increase in the number of households under the high scenario, in addition to population growth, is the decrease in the average size of households. Continued individualisation means that the average household size will decrease by about 20%. This will be limited to 5% under the low scenario. The decrease in the average size of households will be strongest in regions in which the household size is still relatively large, therefore outside the large urban centres and the Randstad.

[3] The map shows the expected change in the population per region and timeframe between 2008 and 2040. Data for both scenarios are shown on the same map. The map should be read as follows: in a region that is coloured dark blue, shrinkage will take place in both the low and the high scenarios. In a yellow region, both shrinkage and growth are possible. In a pink region, there will be stabilisation of the population in the low scenario and growth in the high scenario. The other maps use the same system.

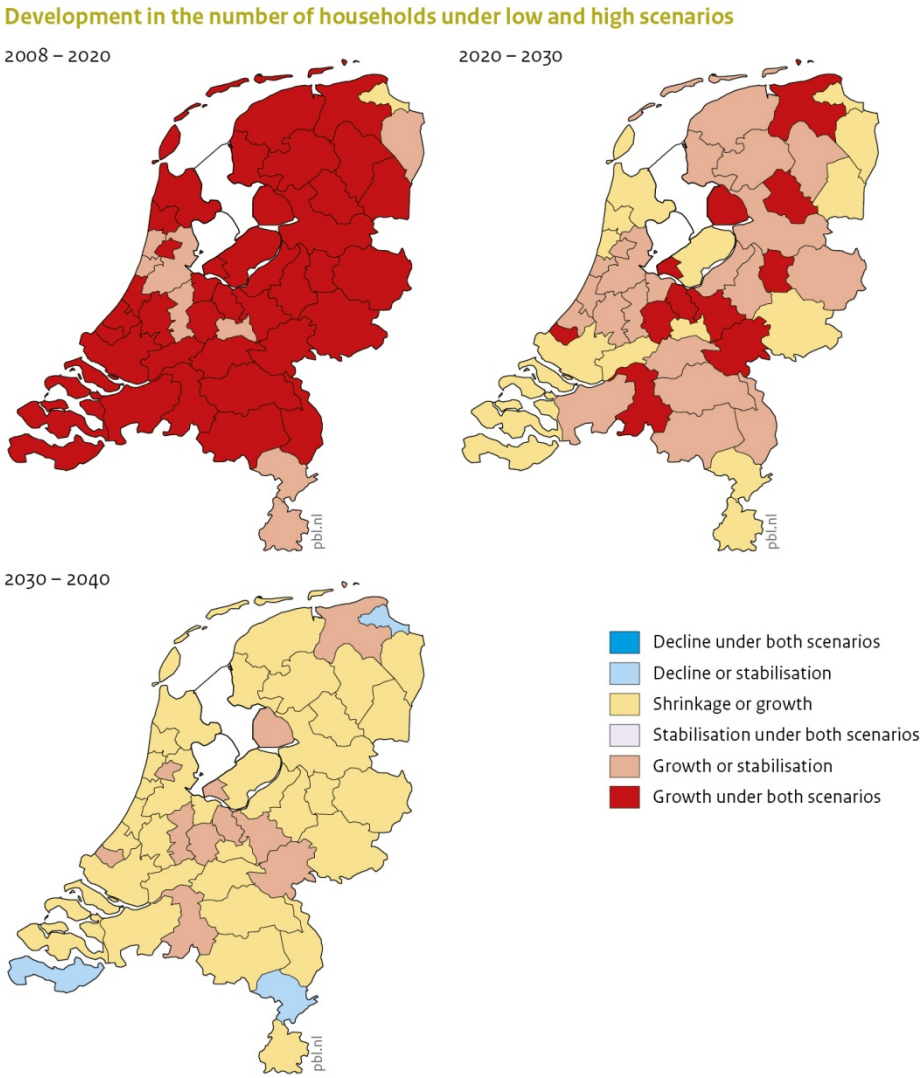
The decrease in the average size of households means that the number of households will increase in almost every region up to 2020 (Figure 3), which will also result in an increase in demand for housing. The development in the number of households is uncertain after 2020, and it is therefore unclear how the national housing construction programme will be further implemented after this date.

Under the high scenario, the need for housing will increase fairly evenly throughout the Netherlands as the number of households will increase everywhere. It may become more difficult to find sufficient housing development locations in the Randstad and this could result in some overflow to Flevoland, North Brabant and Gelderland. Even under the low scenario, however, if less expansion is required there will still be a qualitative housing need as the supply of existing housing will no longer meet demand. Average income levels are expected to increase, so that people will be able to buy more expensive homes and expect more of these homes. This will need to be met by replacing and improving the existing housing stock.

The differences in population and household growth will mainly be seen within regions from 2020 to 2040, and less between the regions. Relatively large growth is expected for regional urban centres, such as Groningen, Arnhem/Nijmegen, Utrecht and Tilburg, and shrinkage is likely in more peripheral regions, such as east Groningen, south-east Drenthe, Zeeuws-Vlaanderen and the middle of Limburg.

It is important that the government makes enough land available for housing development to meet demand in areas in which the population and number of households are expected to increase. This can in fact stimulate housing production. There is a risk that the government will not reserve sufficient land in growth regions; for example, in response to the current decrease in housing production due to the price cuts. The current stagnation in the housing market due to the credit crisis (Haffner and Van Dam, 2011) may be over in a few years in those areas in which the population continues to grow (Eskinasi, 2010). This can cause a bottleneck in the system if not enough land has been reserved.

Figure 3



Source: PBL

A continued increase in the number of households is expected in almost all regions up to 2020. This will become less certain after 2020, and after 2030 either shrinkage or growth will be possible in almost every region. There will be a relatively higher chance of growth around urban centres, such as Groningen, Arnhem/Nijmegen, Utrecht and Tilburg. Shrinkage may be seen in a number of peripheral regions.

The excessive house price increases of the 1990s are not expected to return. Under the high scenario, the housing stock will need to grow by about 2.5 million houses up to 2040. Under the low scenario, there will be a slight decrease in the population and the number of households. In this case, a vigorous housing construction programme will no longer be required and it may be necessary to demolish some buildings to prevent undesirable vacancies.

Employment

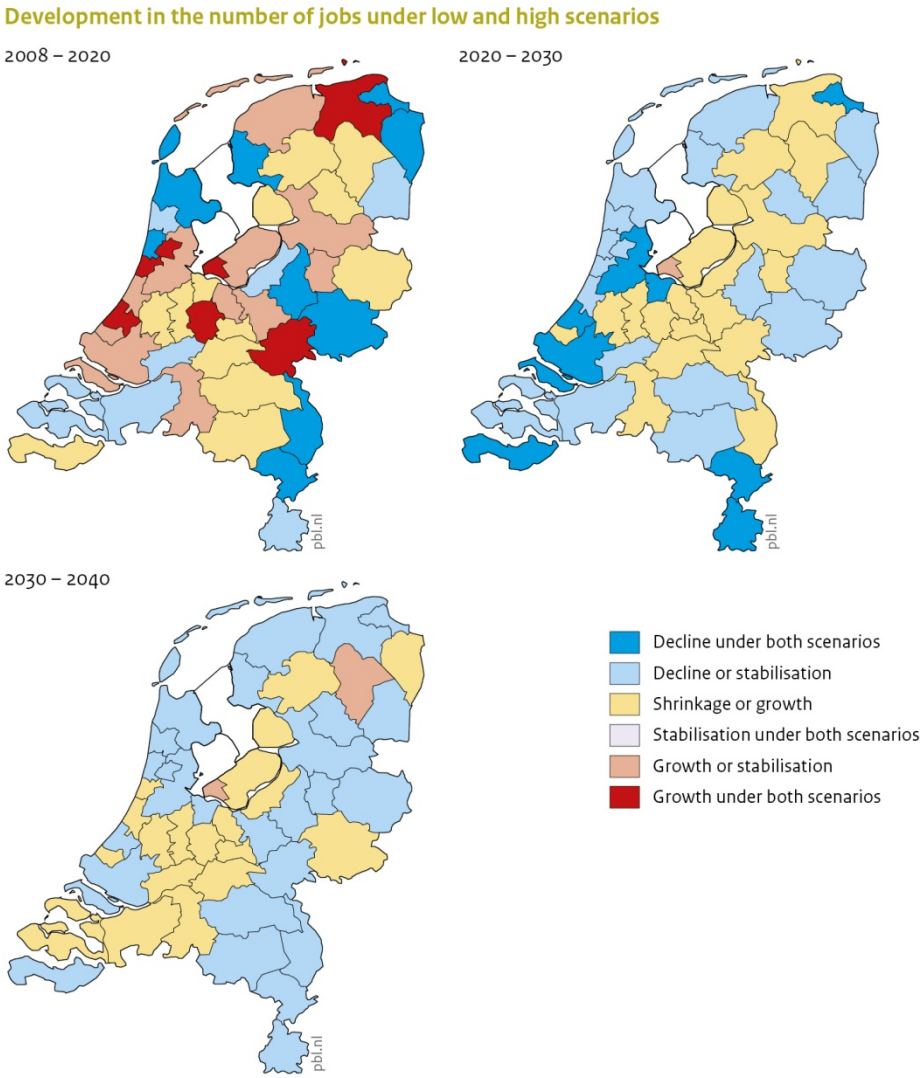
Changes in employment, expressed as the number of jobs, are strongly related to changes in the labour force. Despite a slight increase in labour participation, the labour force will decrease due to the ageing of the population. A decrease in the labour force is associated with lower employment. The type of employment will also change. There will be fewer jobs in agriculture and industry and more jobs in government and public sector

services (such as healthcare). Changes will also take place in the composition of the labour force. Older generations, with on average a lower education level, will leave the labour force and younger generations, often with a higher education level and a higher proportion of working women, will enter the labour force.

A number of factors determine regional employment: the sector profile, changes in the population and labour force, location and available space. Different sectors will develop differently in the future and regions with sectors that do well will therefore develop better than regions with sectors that do not. Changes in employment in some sectors, such as the retail trade, government and public sector services, are closely related to changes in the population. For agriculture, industry and logistics, available space and location are more important factors. As far as business services are concerned, changes in the population and labour force, as well as the geographical location are important.

The projected change in the number of jobs varies greatly according to the future scenario (see Figure 4). Under the high scenario, the number of jobs increases by over 10% at the national level; under the low scenario it decreases by over 15%. In both scenarios, the share of jobs in the Randstad increases up to 2020. The retail trade, business service, government and public sector service are projected to do well, and these are well-represented in the Randstad. Also, these sectors are sensitive to changes in the population, and population growth during this period is greater in the Randstad than elsewhere. The number of jobs in urban regions within the Randstad (with the exception of Rijnmond) is expected to develop particularly favourably. There will be fewer jobs in relatively more industry focused regions, such as IJmond and Rijnmond, and in more rural regions, such as ‘t Gooi and the Green Heart. Outside the Randstad, there will be an above-average increase in the number of jobs in urban regions with higher population growth; for example, in Groningen, Zwolle, Arnhem/Nijmegen and Tilburg. The relatively greater share of jobs in the Randstad compared with the rest of the Netherlands will decrease after 2020, as both the high and the low scenarios predict that the business services sector, which provides many jobs in the Randstad, will decline after 2020. The reason for this is that the broader application of ICT is likely to modify growth in the number of jobs in this sector (Huizinga and Smid, 2004). In addition, population growth in the Randstad will become more in line with national developments after 2020. As a result, the number of jobs will either stabilise or decline in a large part of the western Netherlands after 2020. Both shrinkage and growth are possible in a belt that runs from the middle of North Brabant to Groningen.

Figure 4



The share of jobs in the Randstad increases up to 2020. There will be fewer jobs in the relatively more industry focused regions, such as IJmond and Rijnmond, and in the more rural regions, such as 't Gooi and the Green Heart. Outside the Randstad, the urban regions with high population growth will show above-average development. The relative advantage of the Randstad disappears after 2020, when shrinkage or stabilisation also become realistic possibilities there.

Commuting, mobility and accessibility

If the number of jobs available in a region is in balance with the number of people of working age, less commuting between regions will be required. Figure 5 shows the relationship between the number of jobs in each region and the number of people of working age who live there. Areas that contain a large urban centre (such as Amsterdam) often have more jobs available than there are people of working age. The situation is usually reversed in rural areas, such as the *Kop van Noord-Holland* region. This creates commuter traffic between the urban centres and surrounding areas.

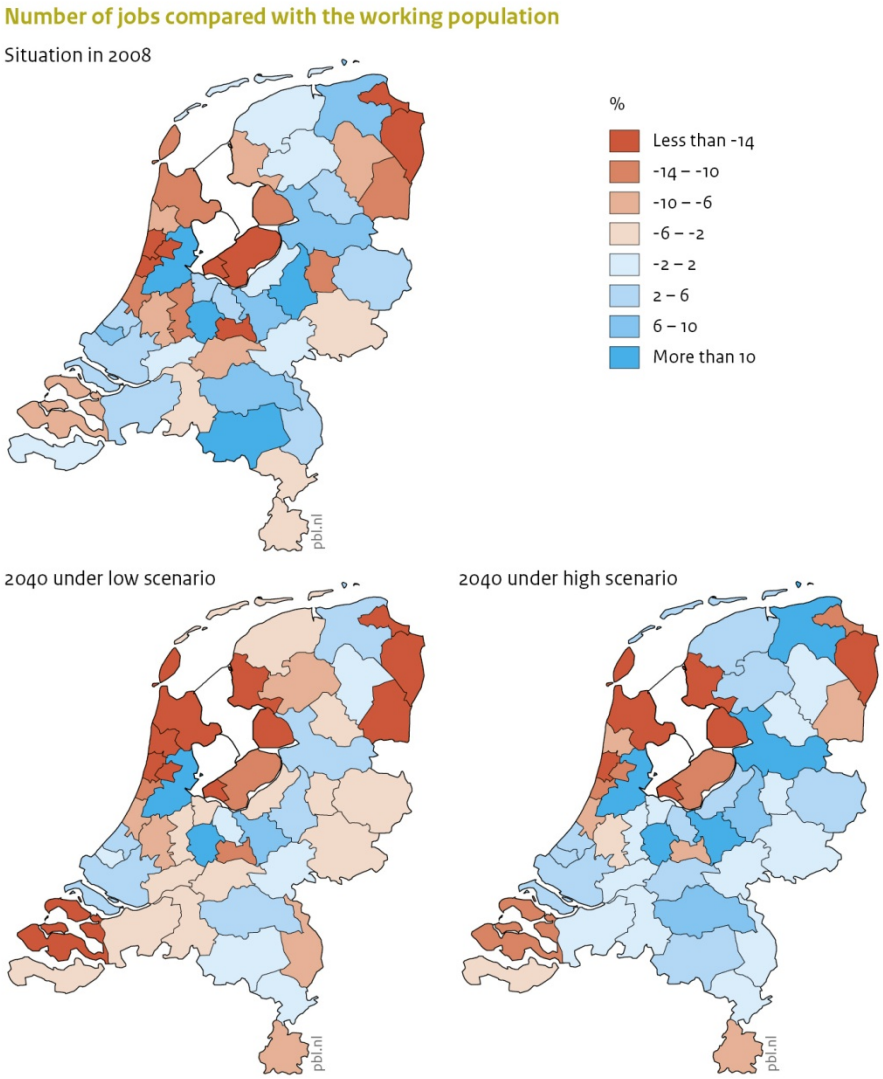
The relationship between the number of jobs and the number of people of working age is expected to remain fairly stable in most regions. Both the number of jobs and the number of people of working age are expected to spread a little more evenly within regions in the future. The current distribution is related to some extent to the current

housing construction programmes, in which housing development is mainly concentrated in and around the urban centres. There have also traditionally been more jobs in the cities.

Although mobility, expressed as the number of kilometres travelled per capita, will increase up to 2040, the rate at which it does will level off. Both scenarios project growth in mobility in most regions up to 2020 (Figure 6). Stabilisation or shrinkage will mainly be seen in more peripheral regions, such as south Limburg, middle of Limburg and east Groningen. Mobility may also stabilise or decline in other regions, such as west and south-east Utrecht. If policy remains unchanged, little housing development is to be expected in these regions and population growth may be low.

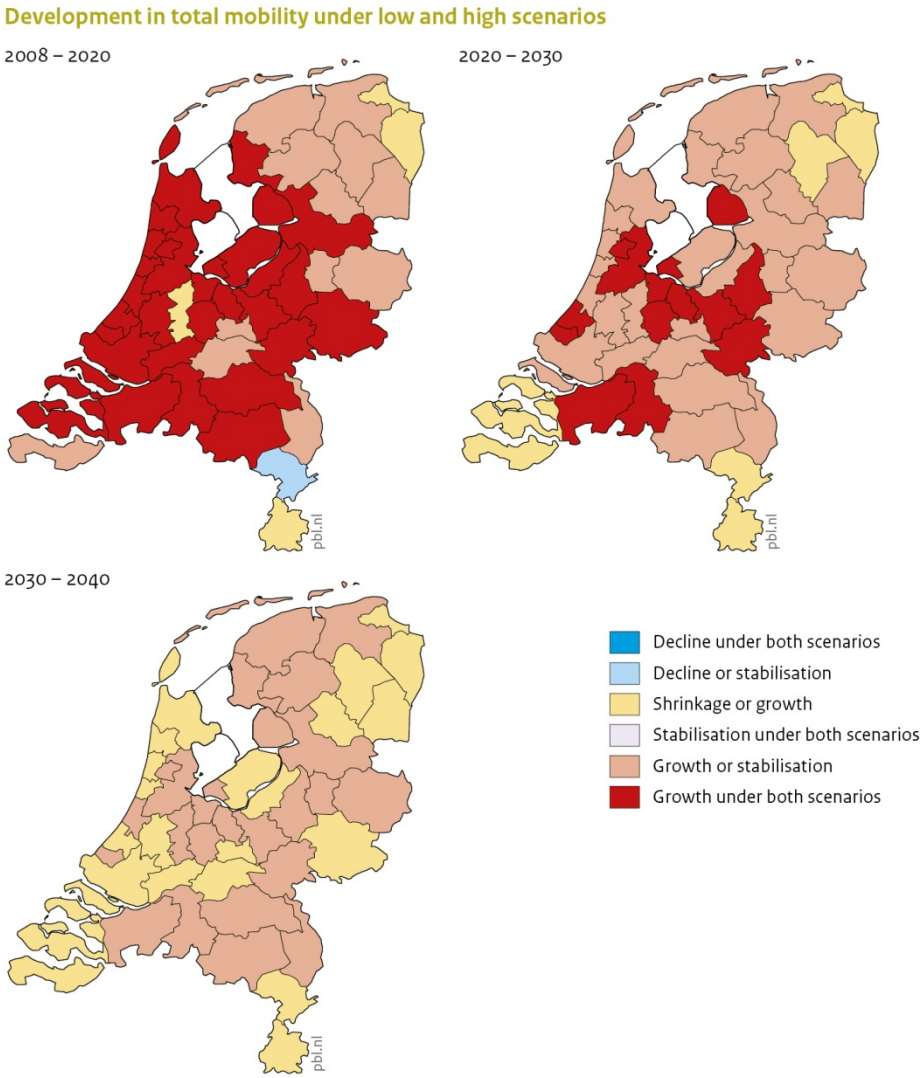
Under the high scenario, mobility will continue to increase after 2020. Under the low scenario, it will stabilise and may decrease slightly from 2030. The difference is due to differences in population growth, labour participation and income. Under the high scenario, not only will the population be larger, but income growth is also expected to be higher. This results in an increase in the number of kilometres travelled per capita and in car ownership and use. Therefore, the bandwidth of changes in mobility and car use in particular is larger than, for example, changes in the population. The large bandwidth for changes in mobility means that the return on infrastructural investments varies greatly depending on the scenario in many regions.

Figure 5



Areas that contain a large urban centre (such as the northern wing of the Randstad and Amsterdam) often have more jobs available than there are people of working age. The situation is usually reversed in rural areas, such as the Kop van Noord-Holland region. The result is commuter traffic between these areas and the cities. The relationship between the number of jobs and the number of people of working age is expected to remain fairly stable in most regions.

Figure 6



Source: PBL

Mobility (expressed as the number of kilometres travelled per capita) will continue to grow up to 2020 in most regions. Stabilisation or a decrease is more likely in peripheral regions, but also in western Utrecht or the Dutch river region. After 2020, growth is no longer certain in large parts of the country, and after 2030 a decrease in the number of kilometres travelled is also possible in many regions, including parts of the southern wing of the Randstad.

The daily commute brings together the three themes of housing, employment and mobility. The ease with which workers can reach their jobs is important for the functioning of the labour market as well as the regional economy. The car, public transport and the bicycle are all used to reach job locations from residential areas. In the baseline scenario (2008), most accessible jobs (see Chapter 4 of the Dutch report for a further explanation of this indicator) are in the Randstad, simply because this has the highest job density. There are therefore on average more jobs within an acceptable travel time of the Randstad than in other regions. The average travel speed is higher outside the Randstad, but this does not compensate for the difference in availability.

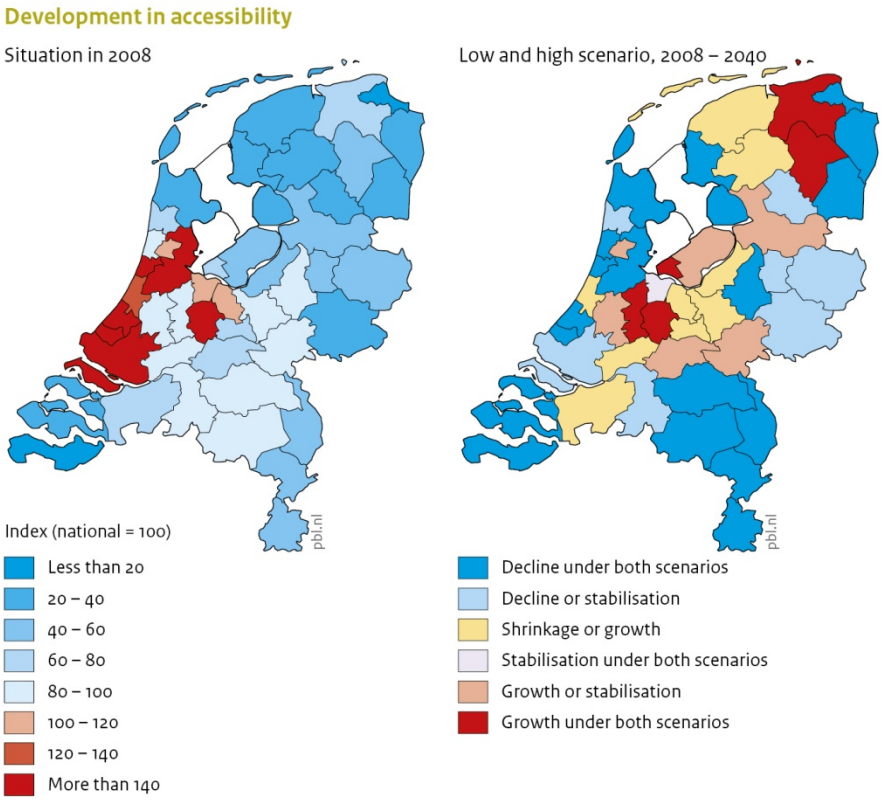
Up to 2020, the size of the potential labour force and employment will increase more strongly in the Randstad than elsewhere. This will increase the proximity of jobs; relatively more people will live in areas with plenty of jobs close by. This increase will level off after 2020, when the proximity of jobs will be roughly the same in the Randstad as it is in the rest of the Netherlands.

Travel speeds using public transport will increase, partly due to the High-Frequency Rail Transport Programme, to start in 2012. It is less clear how travel speeds by car will develop. Under the low scenario, travel speed will increase as there is only limited growth in mobility and the assumed infrastructure will be more than enough to halve congestion on the primary road network.

The number of accessible jobs is predicted to increase by 6% to 9%, up to 2020, under the low and high scenarios, respectively. After this time, it will decrease due to a decrease in the total number of jobs and a decrease in travel speed. Accessibility will vary per region. In the regions around Groningen, Utrecht and Amersfoort, accessibility will increase under both scenarios, due to a combination of favourable developments in employment and good transport links. Accessibility is expected to decline in some peripheral regions, mainly due to a decrease in the number of jobs. Accessibility may either increase or decrease in a large part of western and central Netherlands. Decrease under the low scenario could be due to a decrease in the number of jobs and under the high scenario due to increased congestion. Only in the Amsterdam region, an increase in the number of accessible jobs is not expected under the high scenario, due to congestion.

If the growth in mobility levels off, the question rises whether it is necessary to continue to expand the road infrastructure after 2020 at the same rate as currently planned in the Multiannual Programme for Infrastructure and Transport (VenW, 2010) for the years up to 2020. Halting expansion in capacity in either 2020 or 2030 would mean a respective cost saving of 40 or 20 billion euros. The effects of this on mobility, congestion and accessibility were analysed in this Spatial Outlook. Less extra road infrastructure, under the high scenario in particular, would lead to more congestion, especially in the Randstad. This area would also become less attractive to households and businesses. The spatial effect however would be limited; there would be a few thousand households and jobs less in the Randstad and more elsewhere in the Netherlands.

Figure 7



The change in the number of accessible jobs varies considerably between regions. The map on the left shows the situation in 2008 and the map on the right the projected developments. Job accessibility may decrease in large parts of the Netherlands; in more peripheral regions mainly due to fewer jobs, and in more central regions due to increased congestion. A few central regions and regions along the Groningen-Assen axis have the greatest chance of achieving improved accessibility.

There is a significant effect on flow of road traffic. Under the high scenario, congestion in the Netherlands will more than double and accessibility will decrease by 5%. Under the low scenario, 40 billion euros less capacity expansion equates to a 4% decrease in accessibility. However, the lower growth in mobility means that congestion and travel speed remain more or less at the 2008 level. Continuing to invest in capacity expansion after 2020 would have a positive effect on accessibility, under the high scenario; the return on investment is more than four times that under the low scenario, as journeys take less time. There is less congestion under the low scenario, and road expansion is therefore a less effective instrument for improving accessibility. Under both scenarios, congestion is highest in the Randstad, in the regions around Amsterdam and Rotterdam, and less investment in infrastructure here will quickly lead to more congestion and a decline in accessibility. However, less investment in the region around Eindhoven, for example, will have almost no effect, as the investments that already have been carried out and are planned in the MIRT mean that the infrastructure around Eindhoven is sufficient for the long term.

Expanding the infrastructure capacity remains a fairly expensive solution for structurally improving accessibility. In the case of high growth, it is quickly insufficient, and in the case of low growth less may be required. It will continue to be necessary to consider other more flexible ways of improving accessibility, such as mobility management and

forms of pricing policy. These may contribute to the better use of and better traffic flow on the existing infrastructure.

Present: changing policy

This Spatial Outlook was written in a period during which the Dutch Government was making plans to revise its spatial policy. Future developments will therefore depend to some extent on the policy that is eventually implemented. As part of the policy revision process, the draft National Policy for Infrastructure and Spatial Planning (*Ontwerp Structuurvisie Infrastructuur en Ruimte*) was published in June 2011 (IenM, 2011)[4]. The main aims of the new spatial and mobility policy outlined in this document – a competitive, accessible, liveable and safe Netherlands – are not fundamentally new. The move towards decentralisation and liberalisation furthered in the draft policy has been in place for some time. The new element is the greater emphasis placed on the economy, the thorough reassessment of responsibilities, in particular in the spatial domain, and the integration of the two policy fields of space and mobility.

Less restrictive housing location policy

The thorough reassessment of responsibilities in the spatial domain means a significant change in housing location policy. Until now, housing development was strictly regulated at national and regional (municipality and province) levels. This has resulted in a concentration of housing development at large sites near urban centres but has also restricted development options. This restrictive housing policy has been subject to criticism for some time; for example, in a paper by Besseling et al. (2008), *De Nederlandse woningmarkt en overheidsbeleid: over aanbodrestricties en vraagsubsidies*. Besseling et al. argue that a restrictive housing location policy results in high costs to society due to the resulting shortage of building locations. The draft National Policy for Infrastructure and Spatial Planning indicates that the national government plans to discontinue this policy. The effect of this will depend very much on how this is addressed elsewhere in government. It is unclear whether national-level liberalisation and decentralisation will also result in liberalisation at provincial and local levels (see also Van der Wouden et al., 2006). Should the provinces maintain a restrictive policy, the effect will be minimal. If however other levels of government also apply more liberalisation, this will make it easier to develop new locations.

In anticipation of the publication of the draft National Policy for Infrastructure and Spatial Planning, calculations were made for this Spatial Outlook regarding the possible effect of a less restrictive housing location policy. Given the decreasing and uncertain demand for housing, the policy is expected to have several consequences. There will for example be an increase in the number of small-scale urban expansion locations. Such locations are relatively easy to develop and involve limited financial risk. If expansion is possible at more locations, the price of land at these locations will decrease. Urban redevelopment and centralisation locations will become relatively more expensive and therefore less attractive. See also Chapter 3 of the Dutch report.

Fewer restrictions will result not only in a different spatial development pattern, but will also create a new form of uncertainty. Regional demand may be influenced by the extent to which neighbouring regions maintain a restrictive policy. The lack of certainty as far as this is concerned means that large-scale expansion entails more risk as it is less certain

[4] The findings and conclusions from this PBL Spatial Outlook were included in the policy process that resulted in the draft National Policy for Infrastructure and Spatial Planning. PBL made a first response to the new policy in the *Ex-ante evaluatie Structuurvisie Infrastructuur en Ruimte* (ex-ante evaluation of the National Policy for Infrastructure and Spatial Planning study) (Kuiper and Evers, 2011b). The results of this Spatial Outlook were also applied in this report, as well as in the *Ruimtelijke opgaven in beeld* (Spatial Challenges) report (Kuiper and Evers, 2011a), which provides an overview of the main spatial policy challenges for the coming years.

that there will be sufficient demand and there is less control over a possible competing supply.

If decentralisation in the housing location policy also means that all regions throughout the Netherlands abandon their restrictive spatial policies to the same extent, this is predicted to create a larger concentration of households and jobs in the Randstad at the expense of other regions. In total, this will mean between 50,000 and 120,000 additional households and between 40,000 and 80,000 additional jobs in the Randstad compared with the unchanged policy situation. Areas near the large urban centres (such as the Green Heart and the Dutch river region) in particular will experience a strong growth in the number of households if the housing location policy is relaxed. This would result in extra decline in the shrinkage regions but would also be at the expense of growth in large parts of the rest of the country, including the urban regions of for example Almere and Utrecht.

In summary, therefore, such a policy strategy could result in development being concentrated in the Randstad, but spreading to the suburban areas within. Such a development is in line with the predictions of the CPB *Stad en Land* (city and countryside) study (De Groot et al., 2010), which predicted a preference for development around the large urban centres. This means that the Randstad will continue to develop as the economic centre of the country, and that the rest of the Netherlands, and in particular the urban regions on the periphery, will show much less growth than if the restrictive policy were to continue. The contrast between the Randstad and the rest of the Netherlands may therefore increase, and with it spatial inequality, under the influence of a less restrictive housing location policy.

The concentration of development in the Randstad has consequences for mobility and accessibility. It will mean a disproportionate increase in pressure on the infrastructure in an area of the country in which infrastructure is already under great pressure. If infrastructure and mobility policies remain unchanged, extra congestion will be the result, particularly under the high scenario. The more suburban locations are also less accessible by public transport and bicycle. Together (more congestion and less favourable locations for public transport and the bicycle), this means that a less restrictive housing location policy may result in a decrease in accessibility, in particular in the Randstad.

Three types of policy strategy

Policymakers need to take uncertain future developments into account when deciding on long-term policy choices and planning spatial investments. This is nothing new – dealing with uncertainty has been an element of spatial planning since the 1960s, for example when making strategic choices. However, this often concerned uncertainty about the extent and rate of growth, but the fact that growth would take place used to be fairly certain. Such certainty no longer exists, as part of the Netherlands may experience shrinkage, and a large part also needs to take into account both types of development: shrinkage under the low scenario and growth under the high scenario. There is an additional complication due to the way in which spatial developments are funded. Such funding up to now has depended largely on growth, with profits from land-use changes and project developments being used to pay for public amenities and expensive redevelopment projects. A transition to a situation without growth means much lower incomes and therefore much less money for quality improvements.

If it is uncertain whether growth or shrinkage will take place, policymakers need to plan more carefully and weigh up the risk of overinvestment against that of underinvestment. It is no longer possible to halt an overly optimistic investment programme at some later stage, as this would require a major policy change. It will therefore become even more important to conduct social cost-benefit analyses (SCBA) to determine the costs and benefits of investments made under both low and high scenarios.

Three types of future vision, therefore, require three different sets of policy strategies. Regions that are fairly certain that current growth will continue can pursue their traditional policy of accommodating growth. This policy, however, must be adapted to current developments, such as new climate and energy objectives. Shrinkage regions need to manage rather than resist shrinkage, and regions in which shrinkage is just as likely as growth face a completely new challenge. Should these regions change their policy and focus on preventing overinvestment, or should they invest to avoid shrinkage? Plus, what should national government do about national-level investments in these areas? These regions will need to coordinate their plans and be aware that it may sometimes be better to wait until the situation becomes clearer.

A comprehensive policy strategy detailing how the regions should tackle future problems is beyond the scope of this study. A brief summary, therefore, is given here for growth regions, shrinkage regions (current or future) and regions in which it is still uncertain whether growth or shrinkage will take place. The category a region belongs to may differ depending on the issue (population, number of households, labour force or employment). Many regions will therefore need to combine two or more strategies.

It is also not the case that growth necessarily equates to development and shrinkage to demolition. Ageing of the stock and changes in demand will also require new housing and demolition, even if no growth or shrinkage takes place. In the case of growth, there will be more construction than demolition; in the case of shrinkage the reverse will occur. The challenge is to match the supply (quantitative and qualitative) to the changing demand, whether there is growth, stabilisation, shrinkage or uncertainty.

Strategy in growth areas

There are not many regions in the Netherlands or the rest of Europe that can depend in all likelihood on growth in all areas over the next 30 years. In the Netherlands, the only region to which this applies is Almere. Considering only population or number of households, there are more growth regions – the urban areas of Utrecht, Arnhem/Nijmegen, Groningen and Amersfoort being typical examples.

A growth situation is not new for most governments and strategies for accommodating such growth usually come naturally. However, even in a growth situation, an old form of uncertainty – how big growth will actually be – still needs to be taken into account. After all, it is in the growth areas in particular that there is such a broad bandwidth between high and low scenarios. For example, projected growth for Almere under the low scenario is 10% of the current level and under the high scenario this is 90% – a significant difference.

Therefore, even regions that as yet need not fear a transition towards shrinkage are faced with a complex challenge; that of managing urban and infrastructure growth while being unable to predict how many homes and roads will be needed. The problem is that a long planning period is required for spatial and infrastructural investments, sometimes as much as 15 years, so the decisions cannot be delayed for too long. Many of our recommendations for regions facing uncertainty, therefore, also apply to growth areas. This is particularly the case for the implementation of adaptive planning; reserving space and ensuring development remains flexible by dividing it into smaller sub-projects.

Strategy in shrinkage areas

East Groningen and Zeeuws-Vlaanderen are well-known shrinkage regions in the Netherlands. However, population decline will also be seen in several other regions in the years to come; for example, in the Achterhoek region and the middle of Limburg. Most of these regions are relatively rural areas located at some distance from the nearest large urban centre. Young people and families leave these areas, the birth rate is low and the death rate is high due to the ageing of the population. Shrinkage has recently also been seen in a different group of regions, such as ‘t Gooi and the urban area of Haarlem. Very

limited housing development has taken place in these areas, partly due to the high spatial limitations, so that the decrease in the average size of households has resulted directly in a lower population.

Shrinkage is not necessarily a disadvantage for the people who live in a particular area. After all, the result is less pressure on the road network and nature and there are advantages for buyers on the housing market. Housing services and land also become relatively cheaper. However, the reduction in demand will result in fewer public and private amenities, such as public transport and shops, and sellers will have to accept much lower prices for their homes. In time, a new equilibrium will develop between the lower demand from the smaller population and the reduced supply that can be maintained by the private and public sectors in response to this demand. The societal problems are mainly caused by the transition towards this new equilibrium and the accompanying long process of deterioration. Amenities and houses no longer in use are not maintained, but neither are they demolished as the cost of doing so could not be covered by any income generated from the new land use.

A strategic policy for shrinkage, therefore, needs to focus primarily on anticipating this transition process (Verwest and Van Dam, 2010). In this way, it can contribute to a shorter transition period and help limit the negative effects. These negative effects are mainly related to the properties in built-up areas that are no longer occupied or maintained; in particular, in areas already less popular before shrinkage began. These properties are an eyesore and decrease the value of other properties in the area. The result is that other residents see their capital fall even further, which can mean more of them leave the area, until only those people are left who cannot afford to take the loss.

Demolition of the empty buildings and urban redevelopment of the area is expensive and unsustainable in areas in which the traditional sources of income from a growing economy no longer exist. Many municipalities try to maintain the demand for amenities and housing by attracting new residents, jobs and tourists from elsewhere. However, these are short-term solutions. Such a strategy has in fact negative effects in the long term and for the region as a whole; in a region in which shrinkage is unavoidable, one municipality simply transfers the problems to neighbouring municipalities and therefore adds to the problem (in a race to the bottom).

A policy strategy that alleviates the social and financial transition problems in shrinkage areas could consist of three pathways:

1. Coordination between regions and municipalities regarding their spatial policies and other policies to prevent a race to the bottom.
2. Timely consideration of a financial structure to pay for redevelopment costs during the transition.
3. Consideration of the last growth investments well before shrinkage starts. Would it perhaps be more sensible to allow a temporary shortage to be created? Local and regional authorities should also take future redevelopment into account when dealing with their final expansion activities.

As with changes to the housing stock, regional synergy is difficult to achieve in shrinkage areas. This is mainly due to problems of funding and coordination. Redevelopment and demolition are costly and cannot, or only just, be funded using the revenues from new development in shrinkage areas.

Coordination problems also hinder construction, demolition, redevelopment and regional synergy in shrinkage areas. Municipalities are often wary of moderating their housing construction programme, and there is a fear that neighbouring municipalities will fail to comply with regional agreements and therefore profit from the fact that other municipalities do. It is very important that solutions be found that break this deadlock.

If the regional approach to shrinkage is to succeed, financial agreements (regarding settlement) are crucially important. Such agreements will aid the implementation of regional policy regarding construction, demolition and redevelopment. After all, municipalities will only be prepared to build less in the interest of the region if they also profit financially from development elsewhere in the region.

The province has an important role to play in achieving agreement between regions and municipalities in shrinkage areas. The province needs to act firmly, for example, by encouraging municipalities to reach agreement concerning their housing development plans and to stick to these agreements. Provinces also need to include regional agreements in their own provincial policy. The new Spatial Planning Act (Wro) provides the province with various instruments for doing this.

Now that both shrinkage and growth regions are found in the Netherlands, it would be preferable to tailor the involvement of national government to the different regions to better allow for regional shrinkage. National government should particularly focus on stimulating demolition and redevelopment; for example, by supporting regions experimenting with new financial resources, such as regional settlement or a regional demolition fund. The Netherlands could look for inspiration to policies in the United Kingdom and Germany, which focus specifically on areas with shrinkage-related problems.

Strategy in areas facing uncertainty

In many regions it is unclear whether shrinkage will take place and, if so, when, in what form and to what extent. Typical examples of such regions are the Veluwe, south-east Gelderland, south-east Utrecht, west Utrecht, Alkmaar and the Kop van Noord-Holland region. These are often relatively rural areas situated at some distance from the Randstad. Under the low scenario, shrinkage will take place in these regions due to the lower birth rate and the lack of people relocating to the area. Under the high scenario, many people do relocate to the area from the large urban areas of the Randstad.

In an uncertain world of decreasing growth and possibly even shrinkage, there is a risk of government officials competing for the last crumbs of growth. After all, whoever manages to build the last successful urban development district or office complex in the region laughs longest. Although this delays shrinkage in the local region, it in fact shifts the consequences onto neighbouring regions, as they see businesses and residents moving to the new locations in the other region. People are more likely to respond in this way if there is a large uncertainty regarding the rate and extent of the decreasing growth – after all, growth may still continue. As with shrinkage, regional coordination is required in the face of uncertainty to prevent such competition resulting in a race to the bottom.

Three key features are here identified for a policy strategy for uncertainty:

1. Apply adaptive planning
2. Construct a monitoring system that provides a timely indication of whether policy change is required
3. Develop a decision framework for making high-risk investment decisions

Adaptive planning is a strategy in which investments are specified for the shortest period possible or in such a way that changes can be made at a minimum cost. Monitoring is then carried out to see whether future planned investments are still required, given the latest developments. Large, high-risk investment projects are divided into sub-projects that can be introduced in phases or cancelled if the prognosis is less favourable than expected. Plans, therefore, are constantly being adjusted, hence the name adaptive planning. This enables policymakers to minimise the risk of overinvestment or underinvestment.

An adaptive policy also includes a no-regret policy; the construction of what is considered necessary under both high and low scenarios. In applying this strategy, government officials aim for robust and flexible investments; robust because only those projects are carried out for which there is a guaranteed future need in every scenario, and flexible so that projects that do carry risk can be adapted to changing circumstances up to the very last moment, and at minimal cost. It is also possible to respond to uncertainty by making more use of pricing as a flexible and affordable instrument to deal with shortages in the mobility infrastructure. For example, a peak in mobility demand projected for several years can be bridged by the temporary implementation of a pricing policy, preventing the need for expensive investments in infrastructure.

Adaptive planning is often associated with higher costs, but these are negligible compared with the costs to society of making the wrong investment decisions. This is particularly the case if the expected demand does not materialise, as the damage done is permanent – not so much perhaps at the location of the last project, but at the locations where there is now no demand as a result of this project. The current unoccupancy of old office complexes is an example of this.

The new Spatial Planning Act provides sufficient opportunities for a reservation strategy in a general regulation, as included in the forthcoming Order in Council for Spatial Development or the provincial Spatial Ordinance. Coordination at the regional level is required for the reservation of space (PBL, 2010). The national government can, and perhaps should, also play an important role. National restrictions that aim to maintain open spaces and nature were usually felt to be particularly strict in areas in which demand is highest, such as the Randstad. Here too, a compromise needs to be found between these restrictions and the need to reserve space for urbanisation.

Adaptive planning requires a monitoring system that tracks the development of a number of indicator variables. These variables should follow the direction, extent and rate of the underlying driving forces. Examples of indicator variables are changes in composition of the regional population and the regional economy. Relocation patterns, pricing developments and business investments are examples of indicators that provide an early indication of the direction in which things are going.

Although adaptive planning may help policymakers limit the risks of underinvestment or overinvestment, it cannot prevent them altogether. There will always be some large projects that determine the spatial structure in an area for a significant length of time but that cannot be delayed or carried out in phases. For these projects, a sensible decision framework is required that weighs up the risk of overinvestment and the resulting social costs against the risk of underinvestment and the associated costs. Costs and benefits that lie in the distant future should weigh less heavily than those in the near future. Naturally, this decision framework should be based on social cost-benefit analyses and balanced score cards – methods developed especially for these kinds of investment decisions.

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