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Towards COVID-19 recovery and greater resilience in Zuid-Holland, The Netherlands

This paper aims to provide guidance to the Zuid-Holland province (The Netherlands) and its partners on developing their post-COVID 19 Joint Growth Agenda. It draws on broader OECD analysis of cities' policy responses to the COVID-19 crisis, the OECD Principles on Urban Policy and the OECD Territorial Review of the Metropolitan Region of Rotterdam-The Hague (2016).

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Keywords: COVID-19 recovery; Regional development; OECD Principles on Urban Policy

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This paper was authorised for publication by Lamia Kamal-Chaoui, Director, Centre for Entrepreneurship, SMEs, Regions and Cities, OECD.

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Executive summary

In 2016, the OECD conducted an in-depth review of the Metropolitan Region of Rotterdam-The Hague (MRDH), just after a new metropolitan authority was set up to promote transport planning and economic development across its 23 member municipalities. The OECD Review underlined that further economic integration within the MRDH area and closer collaboration between the metropolitan authority and the province of Zuid-Holland could help unlock agglomeration benefits (OECD, 2016).

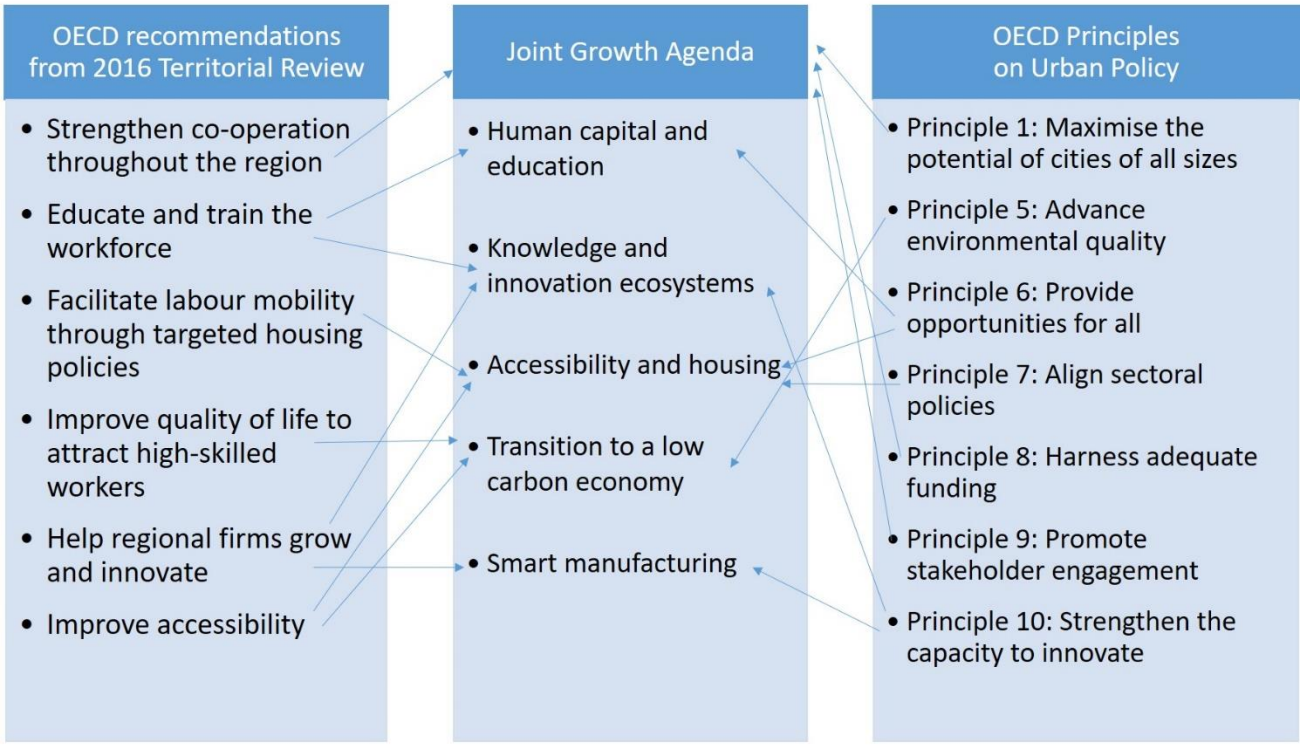
The province of Zuid-Holland represents around a fifth of the Dutch economy. It is the most densely populated among the twelve provinces of the Netherlands and it hosts strong economic sectors, with a mix of world-class large companies (for example KPN, Unilever, Shell, Port of Rotterdam) and SMEs. It is also home to three top-ranked universities, the national government and a host of multiple international NGOs and institutions. Despite such assets, however, over the past decade, Zuid-Holland's GDP growth has fallen behind that of other provinces, such as Noord-Brabant (which grew 10% faster) and Noord-Holland (which grew 15% faster).

With the aim of fostering national growth, in September 2019, the Ministry of Economic Affairs (EZK) announced the creation of a national investment fund to finance projects that have promising potential to boost the economy. The MRDH has worked with the province of Zuid-Holland and a range of key stakeholders to design a Joint Growth Agenda (JGA). The JGA brings together existing initiatives, with the aim of leveraging the potential of the broader region to harness knowledge and innovation, bolster the transition to a low-carbon economy and advance national goals of prosperity and well-being.

While the JGA was under development, the COVID-19 pandemic, which is profoundly shaking the foundations of economies and societies, hit the Netherlands and Zuid-Holland. Although Zuid-Holland seems to have been impacted to a lesser extent than other provinces, the first four months of the 2020 saw an increase in unemployment benefits of 60.1% compared to the same period a year earlier (Economic Board Zuid-Holland; InnovationQuarter; Zuid-Holland; Rotterdam The Hague Metropolitan Area, 2020). At the same time, the crisis has provided an opportunity, as well as a need, to refine the JGA especially given the heightened impetus behind achieving more sustainable and inclusive growth.

This paper aims at providing a broad, high-level assessment of how the Joint Growth Agenda can help further implement the policy recommendations from the 2016 Metropolitan Review, align with the OECD Principles on Urban Policy (Box 0.1 and Figure 0.1), and help address the impacts of the COVID-19 crisis.

Figure 0.1. Mapping the Joint Growth Agenda against the 2016 OECD recommendations and the OECD Principles on Urban Policy



Box 0.1. The OECD Principles on Urban Policy

The OECD Principles on Urban Policy consolidate the lessons from the past 20+ years of work on cities to guide policymakers in building smart, sustainable and inclusive cities. They were co-developed with a diverse range of stakeholders, including international organisations, development banks, networks of cities and local governments, research institutes and academia, and the private sector. The Principles were welcomed by Mayors and Ministers during the 7th OECD Roundtable of Mayors and Ministers on 19 March 2019 in Athens, Greece. Mayors, Ministers and partner institutions supported the implementation of the Principles through the Athens Pledge.

While the Principles were developed in a pre-pandemic context, they offer a critical tool to inform the new urban paradigm that the COVID-19 crisis has called for:

- **Scale**: lockdowns have brought to the fore some episodes of urban exodus and highlighted the underexploited potential of cities of all sizes (particularly midsize cities) to drive growth and well-being (Principle 1), at a time where remote working has also risen significantly (Principle 2). These changes reinforce the importance of urban-rural interdependencies (Principle 3).
- **Strategy**: with trillions of dollars spent on stimulus and recovery packages around the world, the role of National Urban Policy (NUP) in restoring cities as engines of national growth is more critical than ever (Principle 4), including for tackling climate objectives (Principle 5) and closing inequalities (Principle 6). The new urban paradigm for smart, sustainable and inclusive recovery will also require close alignment across previously siloed sectoral policies (Principle 7), matched with adequate funding at a time where subnational finance is suffering a major "scissor effect" with the concurrent drop in revenues and massive rise of expenditure needs (Principle 8).
- **Stakeholders**: Both national and city governments have risen to the occasion to engage stakeholders more closely, better understand their needs and shape more inclusive recovery strategies (Principle 9).The crisis has also offered a unique opportunity to harness urban innovation (Principle 10). It will be critical to set up monitoring, evaluation and accountability mechanisms to take stock of recovery initiatives in cities (Principle 11).

Figure 0.2. OECD Principles on Urban Policy



Source: OECD. (2019). OECD Principles on Urban Policy. Retrieved 02 08, 2021, from https://www.oecd.org/cfe/urban-principles.htm.

Key findings

- The province of Zuid-Holland has strong development assets, including high levels of human capital and robust innovation policies. It also provides good quality of life for residents. However, COVID-19 has highlighted both the urgency and the momentum to tackle pre-existing challenges in Zuid-Holland, especially regarding house prices, the environment (e.g. air pollution) and inequalities.
- Before the COVID-19 pandemic hit, a large range of stakeholders within Zuid-Holland joined forces to elaborate the Joint Growth Agenda (JGA) in response to a call for projects launched by the Dutch national government. Since its inception, the JGA has enabled a participatory process to set a shared vision for the future of the province and to define key areas for progress.
- The elaboration of the JGA is a very positive illustration of the significant improvement in collaboration among key stakeholders in Zuid-Holland since the OECD Territorial Review of the Metropolitan Region Rotterdam-The Hague in 2016. These include the municipalities, the metropolitan authority of Rotterdam/The Hague – MRDH, and the province, with the MRDH also playing an important role in voicing the interests of municipalities.
- Five pillars form the basis of the JGA – Human capital and education, Knowledge and innovation ecosystems, Accessibility and housing, Transition to a low carbon economy and Smart manufacturing (this fifth pillar was later added as a way to address the unfolding COVID-19 crisis). These are well positioned to tap into the growth potential of the region in light of previous OECD recommendations and the OECD Principles on Urban Policy, whose call for maximising the potential of cities of all sizes in delivering growth and well-being, integrating sustainability and inclusion objectives within a coherent policy framework and engaging all stakeholders takes on a renewed relevance in the COVID-19 new urban paradigm.
- The JGA not only aims at increasing growth within the region, but also at accelerating the transition towards a more sustainable future. The JGA was developed in a way to foster cross-sectoral synergies between the five pillars. Supporting human education and skills, for example, is necessary for the creation of knowledge and innovation ecosystems, which, in turn, can support the transition to a low carbon economy. Improving accessibility by investing in public transport infrastructure can also yield benefits beyond the infrastructure itself, to advance further economic integration and support more sustainable urban and regional development.
- The JGA has further potential to advance inclusive growth and reduce inequalities, which have been brought to the fore by the COVID-19 crisis. Mainstreaming inclusive growth more clearly throughout the agenda could help pave the way towards a resilient, sustainable and inclusive recovery.
- Even though the JGA was not designed as a recovery strategy per se, it has significant potential to reinforce the recovery strategies currently being developed at local and provincial level. It also matches several of the seven flagship areas defined in the European Commission's Recovery and Resilience Facility (RRF). Ensuring coherence and synergies between the JGA and other strategies will be critical to make the most of limited resources and build a stronger region.

1 Trends, challenges and opportunities in the Zuid-Holland province

A context of close co-operation within the province

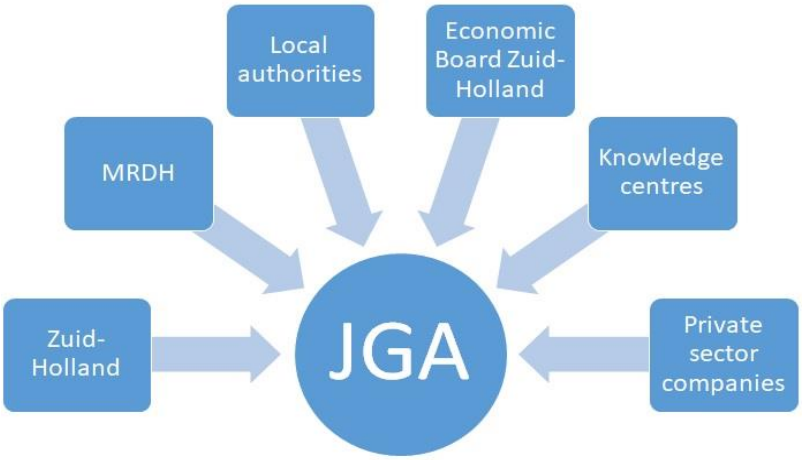
As highlighted in the 2016 OECD review, when the Metropolitan Region of Rotterdam-The Hague (MRDH) body came into formal existence in January 2015, it entered a crowded field of institutional actors, networks and platforms in regional economic development. The Netherlands is a decentralised unitary state with a three-tier system, which consists of local, provincial and national government (SNGWOFI, 2019). In addition to those three levels of governments, following the abolition of eight city-regions, the Dutch government allowed for the creation of metropolitan areas such as MRDH and the Amsterdam Metropolitan Area [Metropoolregio Amsterdam, MRA]. This move reflected the government's willingness to tailor its urban policy to the specific needs of different urban areas, as opposed to imposing a uniform setting across the entire country (OECD, 2016). However, the distribution of responsibilities between the province of Zuid-Holland and the MRDH used to be unclear, particularly in terms of economic development.

Since 2016, co-operation within the different levels of government and among different stakeholders of the Zuid-Holland province improved significantly. This co-operation has been reflected in the development and implementation of regular meetings, joint networks and joint investments, for example. This trend is in line with the OECD Principles on Urban Policy, which call for the promotion of stakeholder engagement in the design and implementation of urban policy (OECD, OECD Principles on Urban Policy, 2019). The impact of the 2016 OECD findings, together with a new political leadership following municipal elections in 2018, seem to have contributed to strengthening collaborative governance.

The development of the Joint Growth Agenda (JGA) could be considered as a consecration of this strengthened co-operation. To reboost national economic growth, the Ministry of Economic Affairs (EZK) announced in September 2019 that it would provide a national investment fund to finance projects that have a strong potential to stimulate the economy and support the transition to a low carbon economy. The three main goals of the national government are to improve the growth rate, labour participation and labour productivity by focusing on six thematic areas: i) skills and education, ii) skills development over time, iii) participation in the labour market, iv) research and innovation, v) accessibility, and vi) transition to a low carbon economy. Based on this announcement, different stakeholders within Zuid-Holland joined forces to develop together a Joint Growth Agenda (JGA), which aims at revitalising and strengthening the economy of the province by investing in growing sectors and on developing skills. The JGA goes beyond traditional co-operation between public and private bodies. Stakeholders involved in the development of the JGA cut across different levels of government (the province of Zuid-Holland, MRDH and local authorities such as Rotterdam and The Hague) and include other stakeholders such as the Economic Board Zuid-Holland, universities and companies (including the Port of Rotterdam, Shell, DSM, KPN) (Figure 1.1). Stakeholders also worked closely with line ministries of the central government to develop the JGA. For instance, the

fifth pillar (on accessibility) was developed in close co-operation with the Ministry of Infrastructure and Water Management. However, civil society organisations and citizens were not directly involved in the design of the Joint Growth Agenda. Stakeholders reported that this was mostly due to the short timeframe of approximately 7 months to develop it and the fact that the strategic thematic areas had already been set by the national government.

Figure 1.1. Stakeholders involved in the development of the Joint Growth Agenda



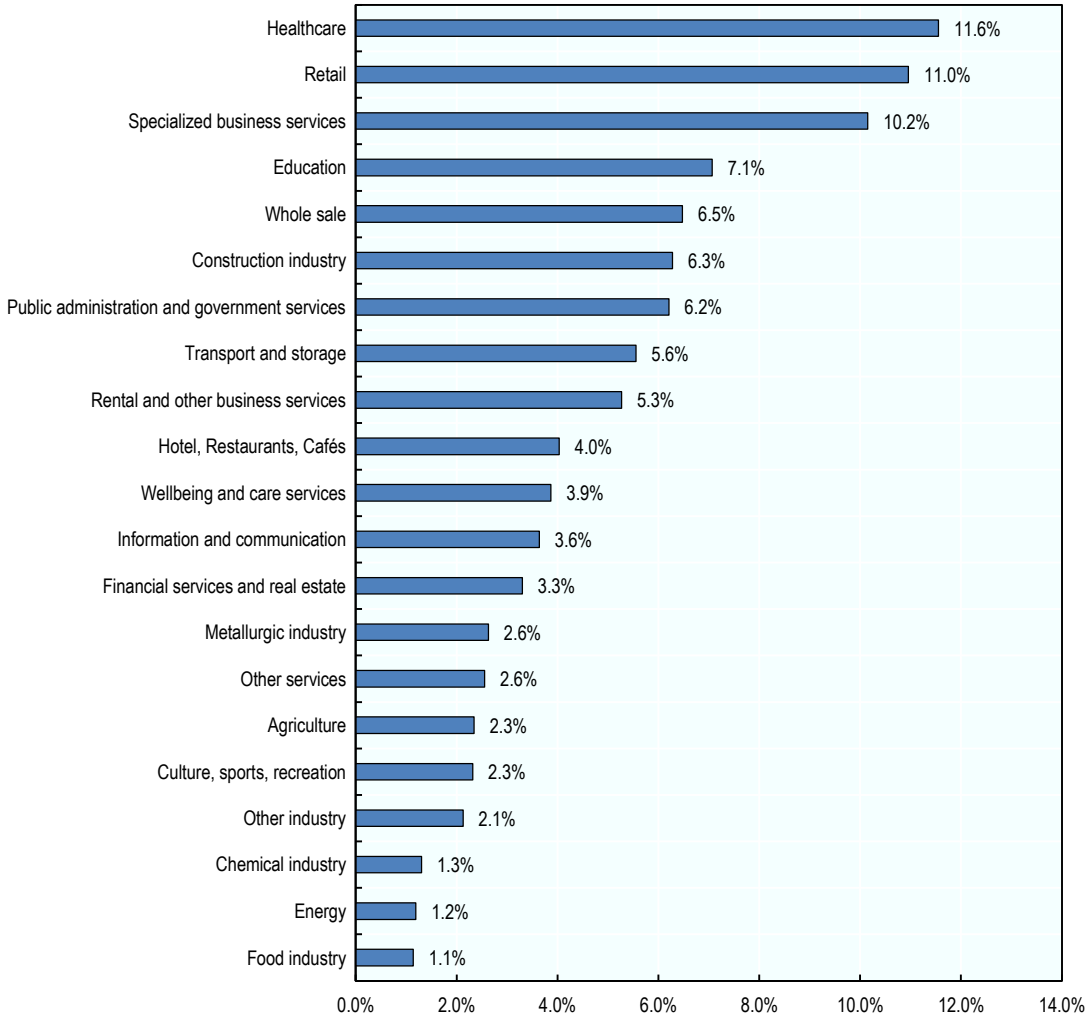
Municipalities highlighted the key role of MRDH in voicing their interests and concerns vis-à-vis provincial and national levels of government. Co-operation between the MRDH and municipalities located in its region has also tightened, which was one of the recommendations from the 2016 OECD report. For instance, MRDH has played a key role in voicing the concerns of municipalities within the region to the national government. MRDH has also actively involved municipalities in preparing strategic agendas such as the regional energy strategy, the sustainable mobility programme and the MRDH Strategic Agenda.

The region has strong assets but also potential to improve its economic growth

An engine of the Dutch economy

Zuid-Holland contributes over a fifth of the Dutch GDP. Wholesale, retail activities, public administration and health care generate together over 50% of employment in the region (Figure 1.2). Rotterdam, the largest city in Zuid-Holland, is home to the busiest port in Europe, which in turn directly employed 121 800 workers in 2017. The Western part of Zuid-Holland also hosts a major horticulture sector.

Figure 1.2. Employment by sector in Zuid-Holland

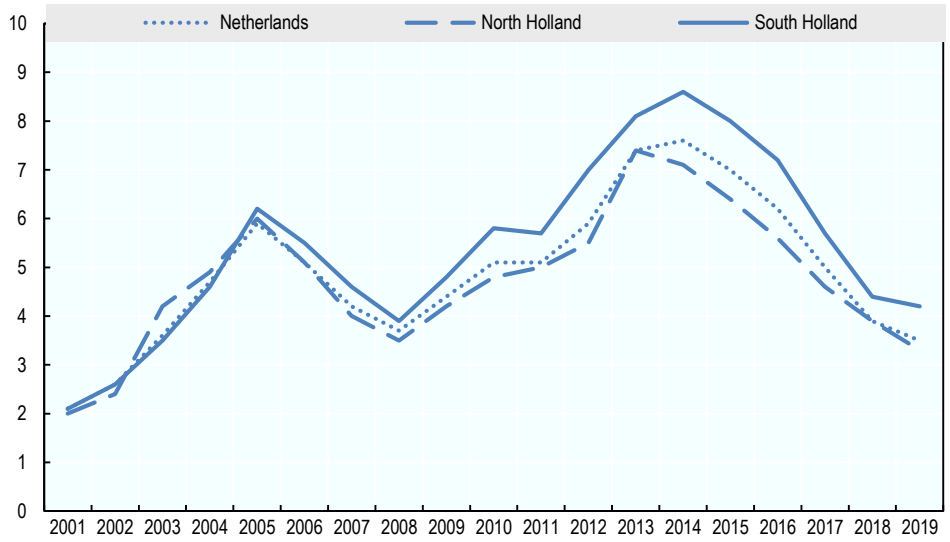


Source : Arbeidsmarktinzicht.nl. (2019). Arbeidsplaatsen Zuid-Holland 2019. Retrieved from https://data.arbeidsmarktinzicht.nl/data/state/2343#tab-visibility.

The relatively high share of employment in care and public administration is estimated to have contributed to the region's resilience compared to other provinces in the face of the COVID-19 crisis (Economic Board Zuid-Holland; InnovationQuarter; Zuid-Holland; Rotterdam The Hague Metropolitan Area, 2020).

Unemployment in Zuid-Holland spiked in 2014 in the aftermath of the financial crisis of 2008, and has steadily decreased in the years since ((OECD, OECD Regional Database: Regional Economy)) before the COVID-19 crisis. While the unemployment rate of Zuid-Holland (4.1%) was under the EU average in the second quarter of 2020, after the start of the COVID-19 crisis (CBS, 2020), it is higher than both the national unemployment rate and that of North Holland, the region including Greater Amsterdam. Before the COVID-19 crisis, youth and long-term unemployment in Zuid-Holland (7.8% and 1.3%, respectively) were also higher than the national average (6.7% and 1.1%, respectively) in 2019.

Figure 1.3. Unemployment rate in South Holland, North Holland and the Netherlands, 2001-2019



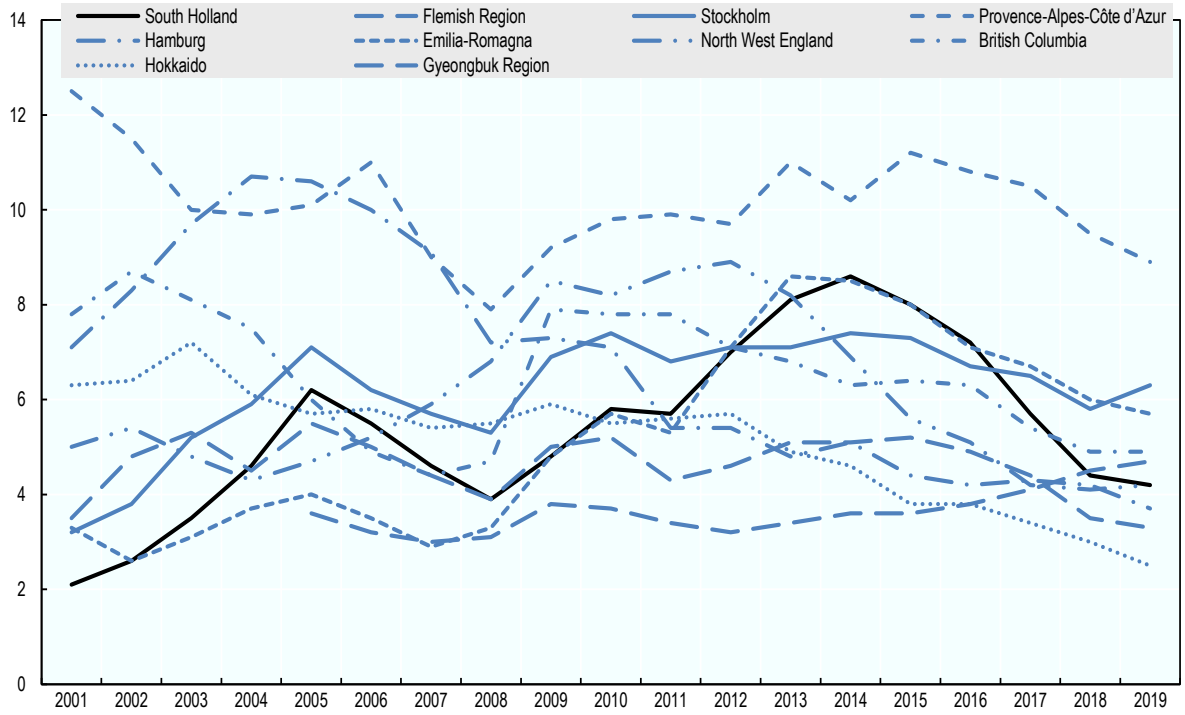
Source: OECD. (2020). OECD Regional Database: Regional Labour. Retrieved 02 08, 2021, from https://stats.oecd.org/Index.aspx?DataSetCode=REGION_LABOUR.

Box 1.1. Selection of OECD regions comparable to Zuid-Holland

The OECD defines "regions" as administrative tiers of subnational government. Large regions (OECD Territorial Level 2 – called TL2) correspond to the 12 provinces in the case of the Netherlands. In order to put Zuid-Holland in an international perspective within a sample of ten large regions, three criteria were chosen: population size, level of GDP, and presence of a port. On the basis of these criteria, the following regions were selected to allow for international comparisons where data was available:

- Stockholm (Sweden)
- Hamburg (Germany)
- British Columbia (Canada)
- Northwest England (UK)
- Flemish Region (Belgium)
- Gyeongbuk Region (Korea)
- Emilia-Romagna (Italy)
- Provence-Alpes-Côte d'Azur (France)
- Hokkaido (Japan)

Figure 1.4. Unemployment rate in Zuid-Holland and selected OECD regions, 2001-2019



Source: OECD. (2020). OECD Regional Database: Regional Labour. Retrieved 02 08, 2021, from https://stats.oecd.org/Index.aspx?DataSetCode=REGION_LABOUR.

High levels of human capital but relatively low share of high-tech manufacturing

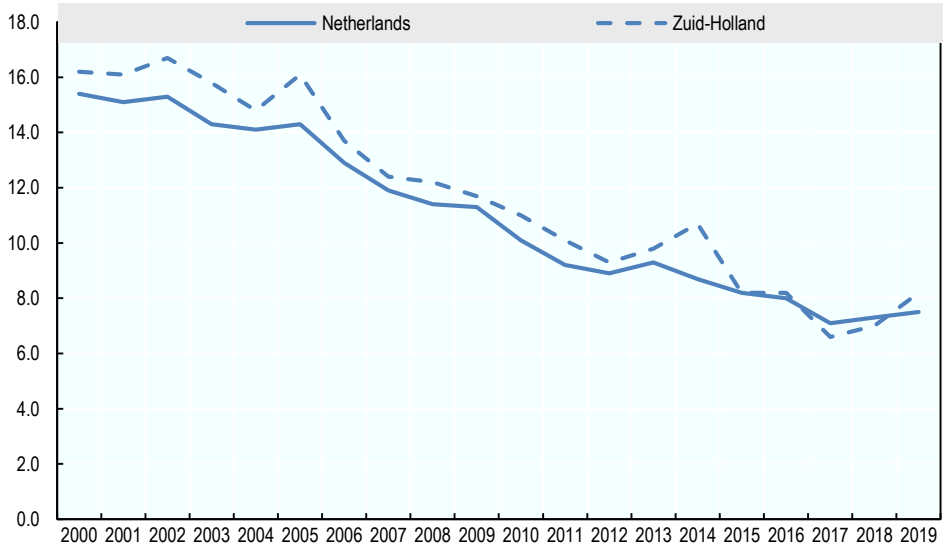
The Zuid-Holland labour force is highly educated. Almost half (49.8%) of 30-34 year-olds in Zuid-Holland have completed tertiary education (i.e. short-cycle tertiary education, bachelor's or equivalent level, master's or equivalent level, and/or doctoral or equivalent level), which puts Zuid-Holland above both national and EU-28 averages, which are at 46% and 40.7% respectively.

Despite high levels of education, the quality of education could be improved and the content better match the needs of the labour market. Quality of education should be monitored closely considering the decrease in Dutch PISA scores. In the Netherlands, mean performance in reading in 2018 was below the level observed in any previous assessment, while mean performance in mathematics and science remained closer to the level observed in 2015. However, when considering all comparable assessments, the long-term trajectory was clearly negative in mathematics and science (OECD, The Programme for International Student Assessment (PISA): Results from PISA 2018, 2019). As gaps between the highest- and lowest-performing students increase, care should be taken to ensure that every student can access quality education.

One positive trend is the rate of early leavers from education and training. This rate has decreased in the past two decades, from over 16% in 2000 to just over 8% in 2019, meaning the rate of early leavers in Zuid-Holland has effectively been halved (Figure 1.5). It is below the EU average, and lower than the rates in comparable regions such as Provence-Alpes-Côte d'Azur (France), Hamburg (Germany) and North-West UK (UK). However, it picked up again from 2017 to 2019, and it is higher than in regions such as Stockholm (Sweden) and the Flemish Region (Belgium).

Figure 1.5. Early leavers from education and training in Zuid-Holland and the Netherlands, 2000-2019

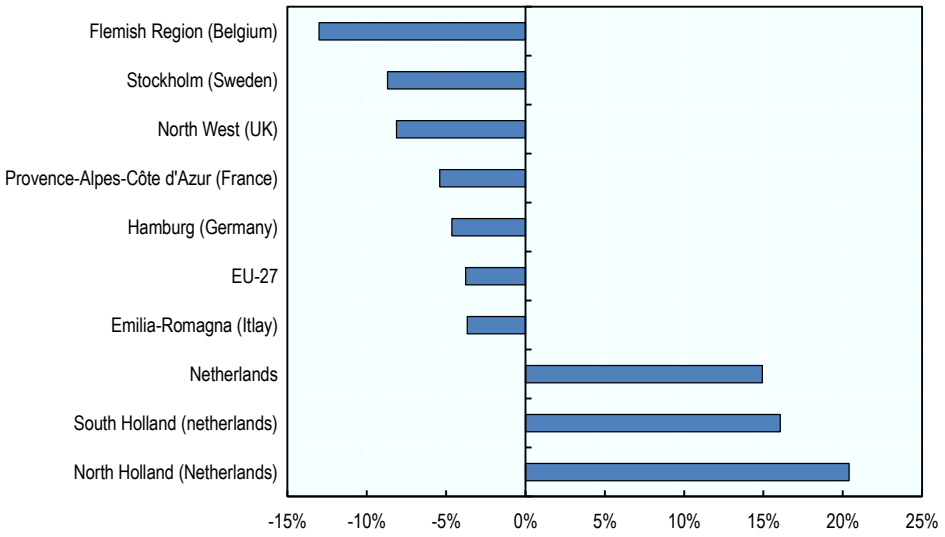
% of 18-24 year olds who attained at most lower secondary education and are not involved in further education or training



Source: Eurostat. (2020). Early leavers from education and training by sex and NUTS 2 regions. Retrieved 02 08, 2021, from https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=edat_lfse_16&lang=en.

From 2013 to 2018, the number of students enrolled in upper secondary vocational training increased by 16.07% in Zuid-Holland. This is slightly higher than the national average, and represents an exception compared to other European regions, where enrolment in vocational training has decreased since 2013 (Figure 1.6). Vocational training is a common pathway for Dutch students. Although the Netherlands spends close to the OECD average on primary education per student, at secondary level the Netherlands spends 30% more per student than the OECD average, with the higher expenditure largely driven by higher expenditure per vocational student. Spending per vocational student reached USD 14 530 in 2016, compared to the OECD average of USD 10 922 (OECD, 2019).

Figure 1.6. Percentage change of pupils enrolled in upper secondary vocational training, 2013-2018

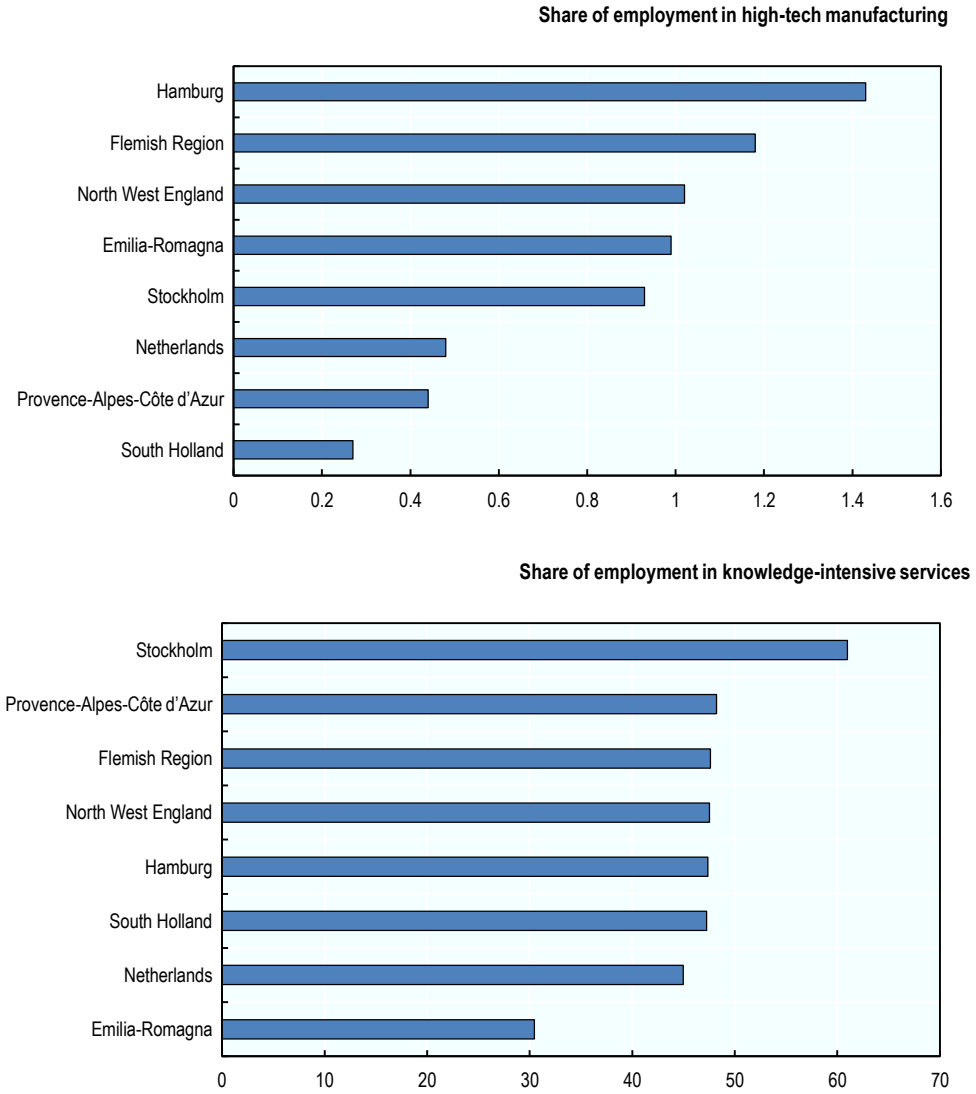


Source: Eurostat. (2020). Pupils enrolled in upper secondary education by programme orientation, sex and NUTS2 regions. Retrieved 09 18, 2020, from http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_uoe_enrs06&lang=en.

Employment in high-technology manufacturing in Zuid-Holland is fairly low compared to similar regions (Figure 1.7). In the last decade, the percentage of those employed in high-tech manufacturing in Zuid-Holland has dropped further from 0.4% in 2008 to 0.27% in 2018, below the national average of 0.48%. While many regions comparable to Zuid-Holland have observed a similar decrease in employment in high-tech manufacturing (such as Provence-Alpes-Côte d'Azur in France and Stockholm in Sweden), other regions such as Hamburg have registered a steady increase (from 1% to 1.43% from 2008 to 2018). Considering the JGA pillar focused on smart manufacturing, there is potential to stimulate high-tech manufacturing more actively.

Figure 1.7. Share of employment in high-technology manufacturing and knowledge-intensive services in Zuid-Holland and comparable regions

% of total employment, 2018



Source: OECD. (2020). OECD Regional Database: Knowledge and high technology industries. Retrieved 09 18, 2020, from http://dotstat.oecd.org/Index.aspx?DataSetCode=AIR_EMISSIONS#.

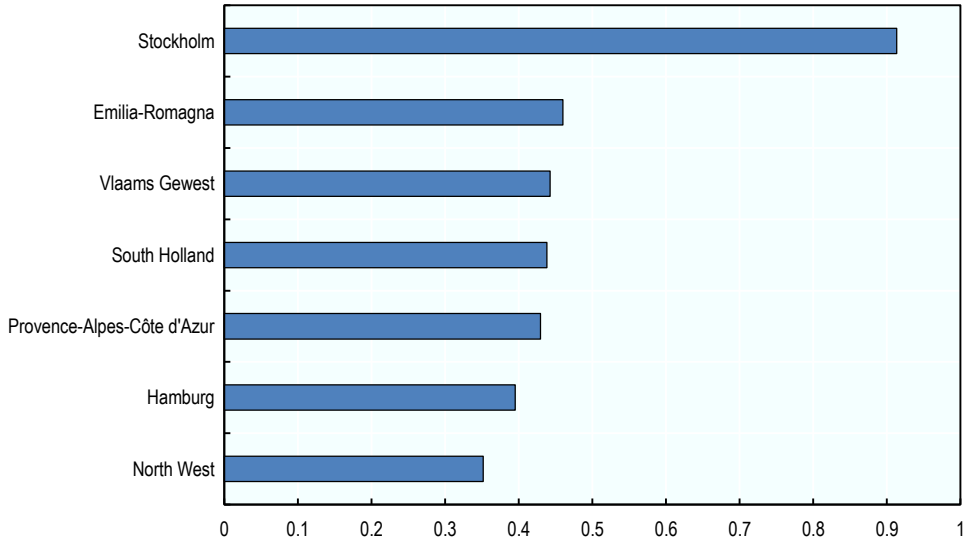
Innovation and digital infrastructure are strong, but require more private investment

Zuid-Holland ranks average in the number of PCT (Patent Co-operation Treaty) patent applications when compared to other OECD regions of a similar size and GDP (Figure 1.8). Zuid-Holland has one of the highest shares of public spending on R&D, but private spending on R&D from the business sector lags behind public spending and is lower than that of many comparable regions (Figure 1.9). This points to further potential to engage the private sector in R&D investment. In 2018, R&D intensity (the percentage of GDP spent on R&D) in the Netherlands is slightly above the European average (2.16% against 2.11%).

While the Europe 2020 strategy set the target for R&D expenditure at 3% of GDP, the Dutch ambition is to reach 2.5% due to the country's specific sectoral structure[1].

Figure 1.8. PCT patent applications in Zuid-Holland and selected OECD regions

Normalised score given for the most recent year

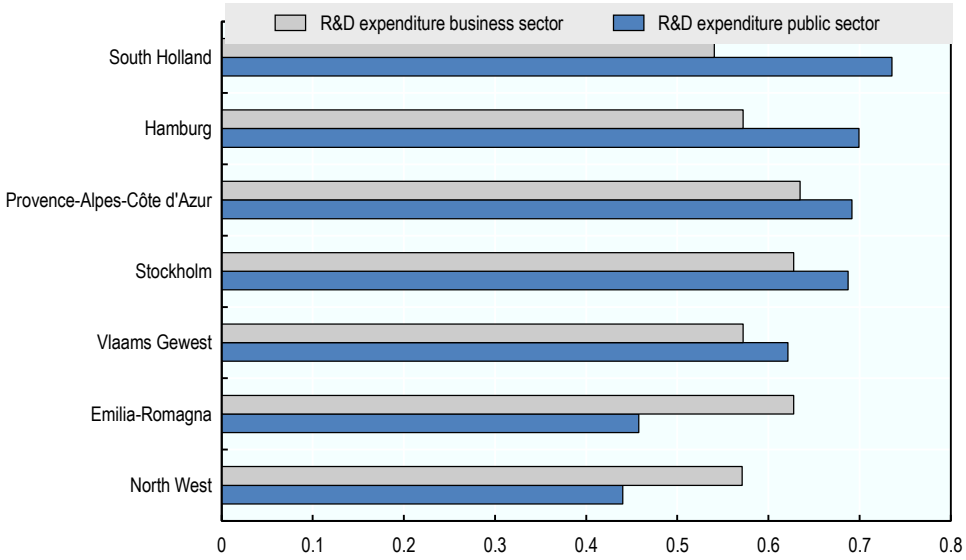


Source: European Commission. (2019). Regional Innovation Scoreboard | Internal Market, Industry, Entrepreneurship and SMEs. Retrieved 09 17, 2020, from https://ec.europa.eu/growth/industry/policy/innovation/regional_en.

[1] A number of studies show that the Netherlands' very specific sector structure explains the low level of spending on R&D. Haveman and Donselaar (Haveman & Donselaar, 2008) showed as early as 2008 that 60% of the Netherlands' arrears in spending can be explained by its sector structure. ING has also pointed out that the Netherlands would score much higher on R&D intensity if its sector structure were taken into account (ING, 2014). The OECD has calculated that R&D intensity in the Netherlands would increase by more than half a percent if its sector structure were comparable to the OECD average (OECD, 2017).

Figure 1.9. R&D expenditure by region, business and public sector in Zuid-Holland and selected OECD regions

Normalised score given for the most recent year



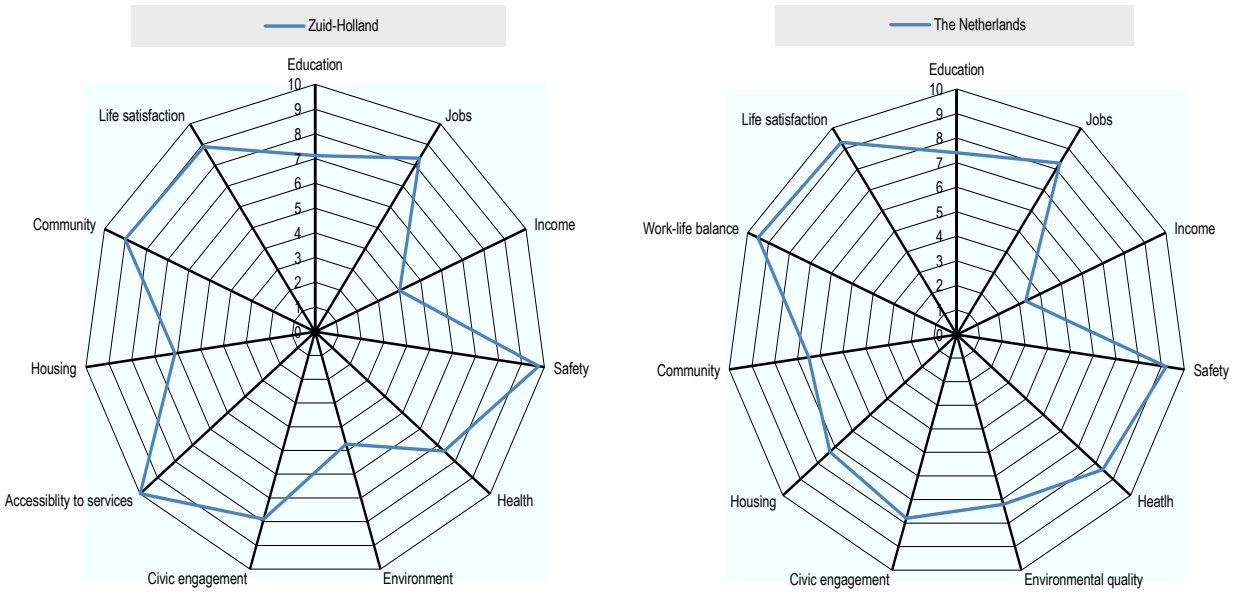
Source: European Commission. (2019). Regional Innovation Scoreboard | Internal Market, Industry, Entrepreneurship and SMEs. Retrieved 09 17, 2020, from https://ec.europa.eu/growth/industry/policy/innovation/regional_en.

Zuid-Holland fares unevenly in different dimensions of well-being

The economic performance of a region alone does not provide a comprehensive picture of the living conditions of residents. Assessing the level of well-being requires looking not only at how the economy is functioning, but also at the diverse experiences and living conditions of people. To help better gauge people's well-being at the scale where they experience it, the OECD has developed a Regional Well-being framework around three key domains: material conditions, quality of life and sustainability, which are subdivided in 11 dimensions. The mix between different well-being dimensions is unique to each community where people live, study, work and connect. Improving people's lives requires making where they live a better place. (OECD, Measuring Well-being and Progress: Well-being Research)Well-being measures need to be explicitly brought into the policy-making process to spur public support for action and to create a mechanism for prioritising resources. .

Zuid-Holland ranks well in terms of safety, community and life satisfaction. However, indicators related to the quality of life (environment) and those related to material conditions (such as income and housing) show important gaps (Figure 1.10). While Zuid-Holland's score for income is higher than the national score of 3.3, the region has fallen behind the national performance on the environment and housing, scores for which are much lower than the national average (OECD, OECD Better Life Index: Netherlands, 2019).

Figure 1.10. Well-being indicators in Zuid-Holland and the Netherlands



Note: The national and subnational well-being data sets are not directly comparable due to slight differences in the selection and availability of indicators.

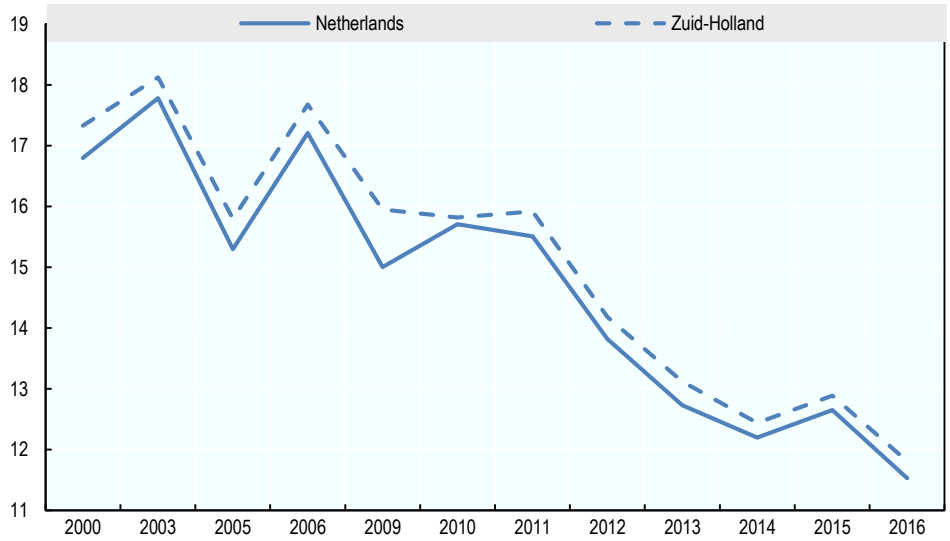
Source: OECD. (2018). South Holland | OECD Regional Well-Being. Retrieved 09 12, 2020, from https://www.oecdregionalwellbeing.org/NL33.html, OECD. (2019). OECD Better Life Index: Netherlands. Retrieved 09 18, 2020, from http://www.oecdbetterlifeindex.org/countries/netherlands/.

Climate adaptation and mitigation remains a challenge

Since 2000, the level of $PM_{2.5}$ emissions decreased by almost a third in the province (-32% between 2010 and 2016). However, Zuid-Holland still registers the third highest level of air pollution in the Netherlands, with an average level of $PM_{2.5}$ at 15.1 µg/m³, well above the OECD average of 13.2 (Figure 1.11). Compared across all OECD regions, Zuid-Holland ranks in the bottom 34% in the Regional Wellbeing Index in the "Environment" dimension. Zuid-Holland also ranks lower in environmental issues than other Dutch regions. In particular, it ranks much lower than other regions in terms of air quality, light pollution (presence of artificial light in the night environment) and heat stress (Planbureau voor de Leefomgeving, 2019).

Figure 1.11. Evolution of PM2.5 in Zuid-Holland and the Netherlands, 2000-2016

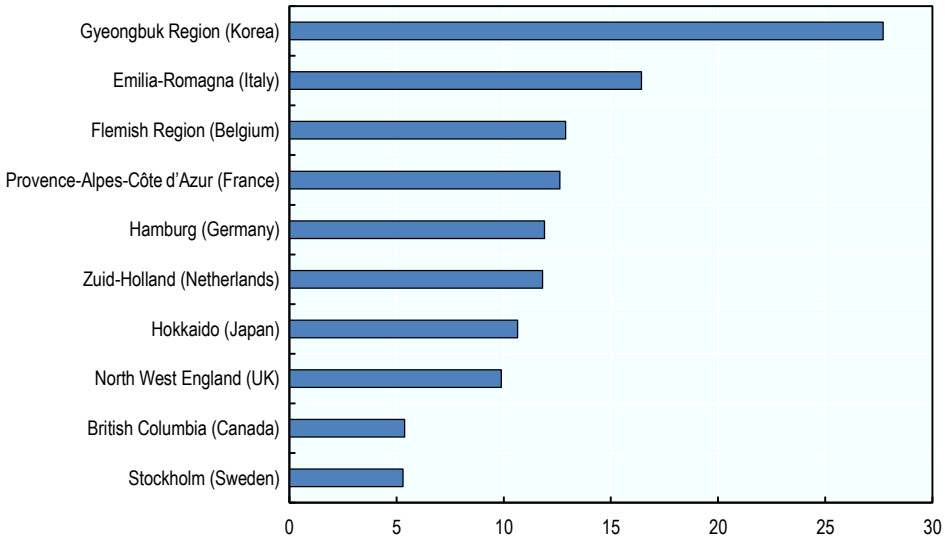
Average level in µg/m³ experienced by the population



Source: OECD Regional Database OECD. (2020). OECD Regional Database: Regional Social and Environmental indicators. Retrieved 09 08, 2020, from https://stats.oecd.org/Index.aspx?DataSetCode=REGION_SOCIAL.

Figure 1.12. Air pollution in Zuid-Holland and selected OECD regions, 2016

Average level in µg/m³ experienced by the population



Source: OECD Regional Database OECD. (2020). OECD Regional Database: Regional Social and Environmental indicators. Retrieved 09 08, 2020, from https://stats.oecd.org/Index.aspx?DataSetCode=REGION_SOCIAL.

Zuid-Holland cut its CO2 emissions from 23.1 million tons in 2010 to 22.8 million tons in 2017, which represents a decrease of around 1.3%. The decrease in emissions has been particularly high in the built environment, i.e. emissions have decreased the most in homes and businesses. However, CO2 emissions from industry, energy, recycling and water increased in the region over the same period.

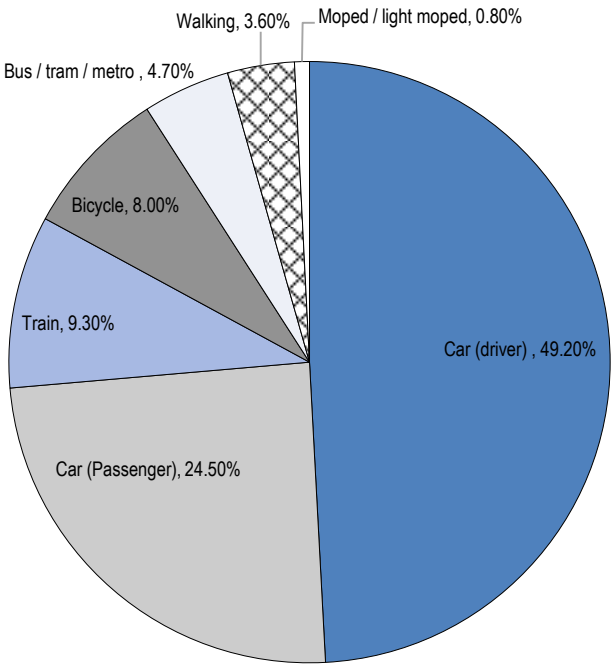
Zuid-Holland has a good level of accessibility, but more can be done to promote multi-modality

The province of Zuid-Holland has higher accessibility to the European market than the average Dutch region, but also higher accessibility relative to Noord-Holland, home to Amsterdam. This is due in part to port-related infrastructure in Rotterdam. Zuid-Holland has about 550 kilometres of provincial roads, 130 kilometres of provincial waterways, 250 kilometres of shoreline and almost 700 bridges, locks, viaducts, tunnels and culverts.

Despite the high accessibility of the region, the increase in emissions related to passenger transport points to further potential to encourage low-carbon alternatives. Looking at the modal split of Zuid-Holland (Figure 1.13), almost three quarters of total passenger kilometres are travelled by car (including both passengers and drivers), which is just below the national average. Compared to other urbanized regions, car dependency is high in Zuid-Holland, in the MRDH specifically. The share of public transport (combining the categories of train and bus, tram and metro) is higher than in the Netherlands, but the share of bicycle is a fraction lower. Although more people use public transport and fewer people use cars than on average nationally, train stations are not as conducive to multi-modal solutions as they could be. An analysis carried out by the province of Zuid-Holland to assess Transit-Oriented Development in the region (Staat van Zuid-Holland) used 21 indicators that a successful station environment should ideally meet. Only 6 of 67 train stations met these criteria and it was found that stations were heavily car-oriented, with large parking lots but lacking other facilities. Station environments could thus be made more conducive to walking and cycling.

Figure 1.13. Modal split in Zuid-Holland, 2017

Share of transport mode in total passenger miles



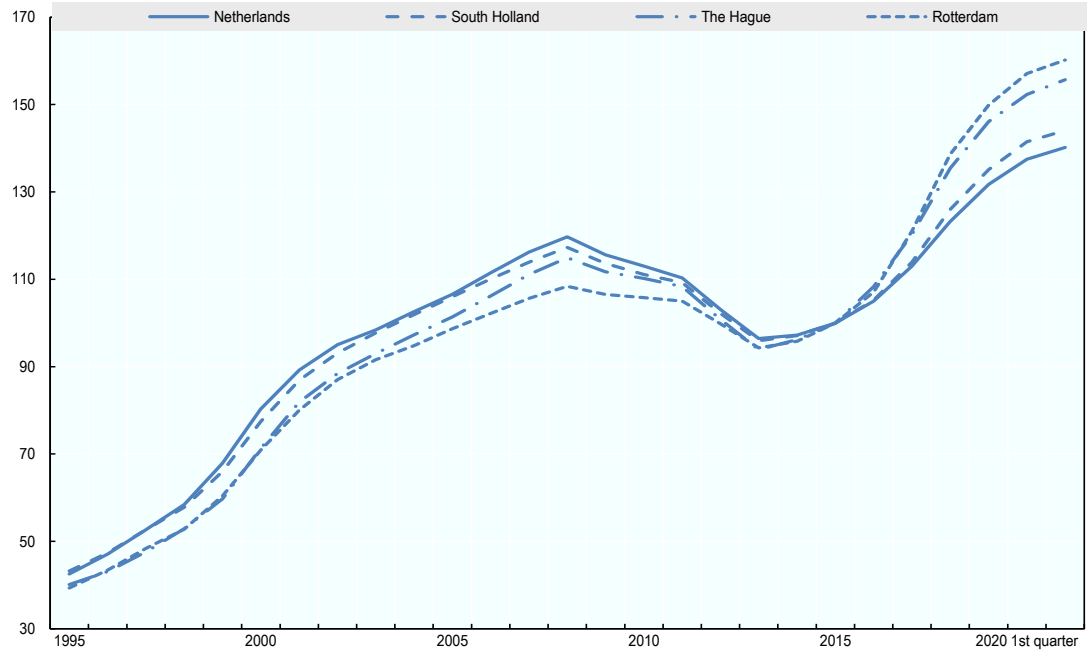
Source: Zuid-Holland (2019), *State of Zuid-Holland: Mobility Behavior*, https://staatvan.zuid-holland.nl/portfolio_page/mobiliteitsgedrag/ (accessed on 18 September 2020)

Housing prices are on the rise, especially in cities

House purchase prices have increased dramatically in Zuid-Holland (average purchase prices increased by 38% from 2015 to 2019), at the same pace as the national average (Statistics Netherlands, 2020). However, prices in some cities such as Rotterdam have increased even faster (Figure 1.14). This is largely due to increased demand spurred by continued migration to large cities in the Netherlands, and has been found attributable to scarcity pricing (Hekwolter, Nijskens, & Heeringa, 2017). Zuid-Holland has the third highest housing cost ratio in the Netherlands, which indicates that people are spending a larger percentage of their income on housing. This is especially the case for renters in Zuid-Holland, who spent 38.9% of their income on housing in 2018, as opposed to 28.6% for homeowners (Statistics Netherlands- CBS, 2019). Zuid-Holland actually registers the highest housing cost ratio for tenants in the Netherlands.

Figure 1.14. Evolution of the price index of existing houses, 1995-2020

Price index purchase prices, 2015=100



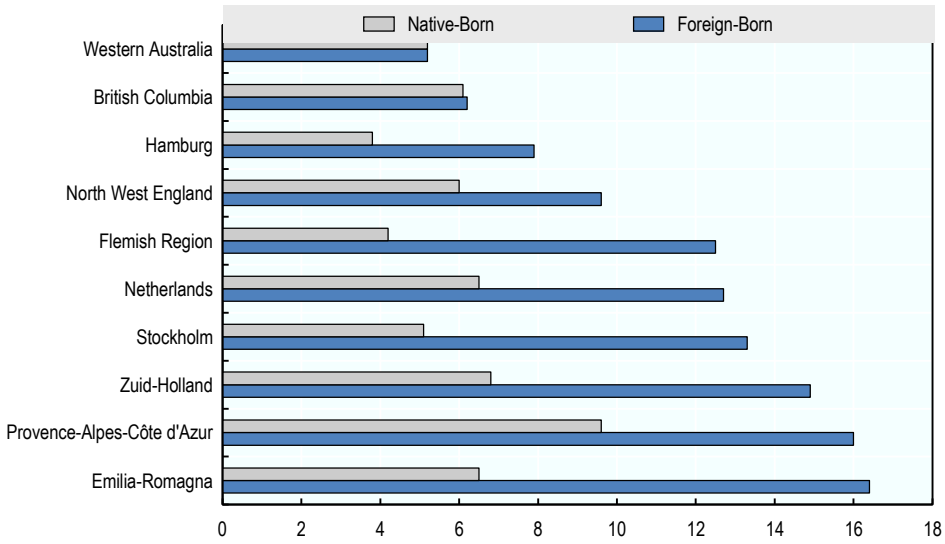
Source: Statistics Netherlands- CBS. (2019). Housing costs of households by region. Retrieved 09 18, 2020, from https://opendata.cbs.nl/statline/portal.html?_la=en&_catalog=CBS&tableId=84488ENG&_theme=1092.

Despite a high quality of life, inequalities persist

Even though quality of life in Zuid-Holland is relatively high, inequalities exist in the region and need to be addressed to create a sustainable and liveable region for all. With 15% of its population at risk of poverty, Zuid-Holland ranks above the national average of 13.2% (Eurostat, At-risk of poverty rate by NUTS regions, 2020), indicating that Zuid-Holland's population is vulnerable compared to the national population. Within the region, foreign-born residents in Zuid-Holland are more than twice as likely to be unemployed (14.9%) than native-born residents (6.8%) (Figure 1.15). This difference is especially striking when it comes to youth unemployment: 17.1% of foreign-born youth in Zuid-Holland is unemployed, compared to 7.1% of youth born in the Netherlands.

Figure 1.15. Regional unemployment rates for native- and foreign-born in Zuid-Holland and selected OECD regions, 2015

%



Source: OECD. (2018). OECD Regional Database: Database on Migrants in OECD Regions. Retrieved 09 12, 2020, from https://stats.oecd.org/Index.aspx?DataSetCode=REGION_DEMOGR.

A mix of development strategies in Zuid-Holland

All three levels of government in Zuid-Holland – province, MRDH and municipalities – have adopted their own development strategies to address challenges:

- The province of Zuid-Holland adopted the Coalition Agreement for 2019-2023 (South Holland), which puts forward eight pillars:
  - Working together in Zuid-Holland: Involving residents, organisations and companies in decision making at an early stage
  - Accessible Zuid-Holland: Efficient, safe and sustainable roads water and rails
  - Clean energy: clean and affordable energy
  - Competitive Zuid-Holland: Economic diversity and strengths
  - Attractive rural areas: Contribution to the quality of life
  - Strong cities and villages in Zuid-Holland: Accelerating housing construction
  - Health and Safe Zuid-Holland: Protect and promote a healthy, safe living environment
  - Finance and organisation: Working together on a sustainable management of the provincial government.
- In the "Zuid-Hollandse economie" programme, Zuid-Holland focuses on three strategic ambitions: stimulating innovation, the transition towards a sustainable and digital economy, and the creation of an attractive business climate.
- In 2019, the MRDH adopted its strategic agenda for 2022 (MRDH, 2020). The Agenda was developed by the 23 MRDH municipalities in consultation with the Province of Zuid-Holland, the

Economic Board Zuid-Holland and the water boards. In line with the MRDH mandate, the agenda focuses on the economic renewal of the metropolitan region and on improving accessibility.

- Municipalities in Zuid-Holland also adopted a strategic agenda to respond to the challenges they are facing at the local level. For instance, The Hague developed its economic strategy "The Hague +2030" and a mobility transition strategy. Delft developed its "Agenda 2020", with a focus on six topics: i) Delft as a high tech capital, ii) tourism, iii) housing, iv) climate actions, v) energy efficiency, and vi) accessibility in and outside the city.

While each of those strategies depends on the mandate of its respective organisation and on the local context, most of the strategies cover similar topics: accessibility, developing the local economy, climate actions and clean energy, innovation and the development of the high-tech sector (Table 1.1). This recurrence of priority areas highlights the fact that many challenges are shared across Zuid-Holland and the potential synergies to join forces in tackling them. Such common priorities are also reflected in the JGA, as discussed in section 3.

Table 1.1. Priority areas in strategies developed by different levels of government in Zuid-Holland

	Economic development/ Business climate	Innovation/ Hi-tech sector	Clean energy	Climate action	Accessibility (mobility, housing)	Digitalisation	Well-being	Tourism
Zuid-Holland	X	X	X		X	X	X	
MRDH	X	X	X	X	X	X		X
The Hague	X	X	X	X	X			
Rotterdam	X		X	X		X		
Delft		X	X	X	X			X

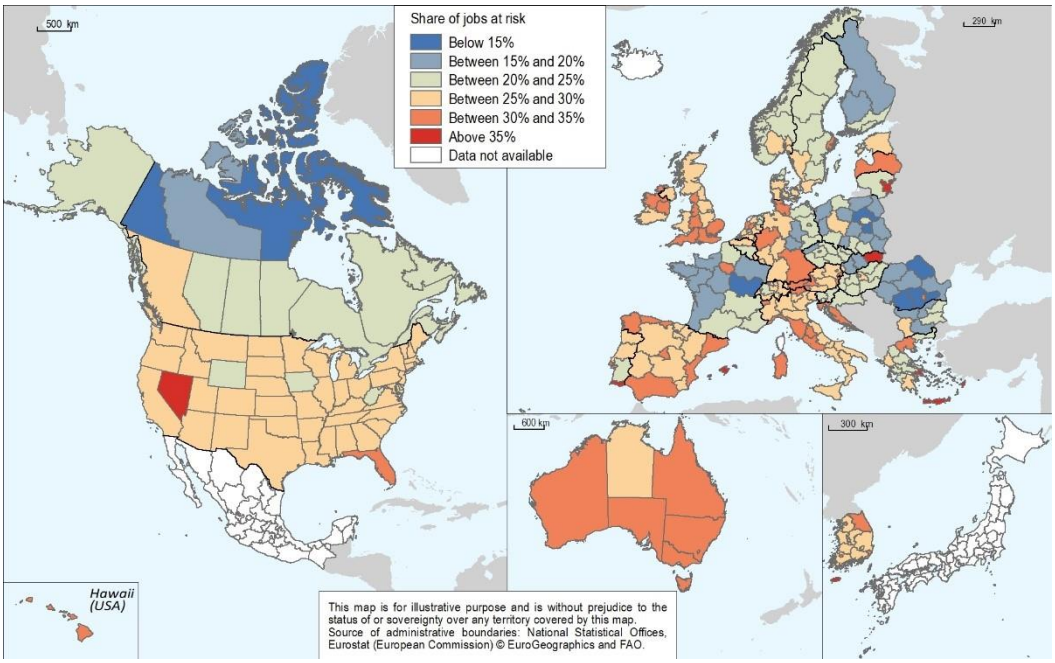
Source: Author's elaboration based on data provided by MRDH

COVID-19 highlighted further the urgency to tackle pre-existing challenges in Zuid-Holland

The impact of COVID-19 on Zuid-Holland

Both the health crisis and the economic and social crises triggered by COVID-19 have had an asymmetric territorial impact across and within OECD countries. On the health front, the virus emerged locally and often concentrated in specific regions before spreading further across countries. On the economic and social front, the impact depends on factors such as the sectoral composition of the local and regional economy, trade openness and the composition of the labour market. For example, regional economies that rely heavily on the tourism industry have been more affected than other regions by lockdowns and the freeze in global movements of people. Capital regions and other large metropolitan regions also have a relatively higher risk of job disruption than other regions (OECD, The territorial impact of COVID-19: Managing the crisis across levels of government , 2020) as they tend to have a higher concentration of jobs, especially in service industries that have been affected. The OECD analysis shows stark regional disparities in the share of jobs potentially at risk in the short term as a result of confinement measures (Figure 1.16). The share of jobs at risk ranges from less than 15% to more than 35% across 314 regions in 30 OECD and 4 non-OECD European countries. The share of jobs at risk in Zuid-Holland has been estimated to be 26.7% (OECD, The territorial impact of COVID-19: Managing the crisis across levels of government , 2020). Zuid Holland therefore registers the fifth-highest estimated share of jobs at risk in the Netherlands, with the highest being Flevoland with 29.8% (very closely followed by North Holland with 29.6%) and the lowest being Groningen with 21.5%.

Figure 1.16. Share of jobs potentially at risk from COVID-19 containment measures



Source: OECD. (2020). The territorial impact of COVID-19: Managing the crisis across levels of government. Retrieved 05 04, 2020, from https://read.oecd-ilibrary.org/view/?ref=128_128287-5agkkojaaa&title=The-territorial-impact-of-covid-19-managing-the-crisis-across-levels-of-government.

An unprecedented economic and social shock

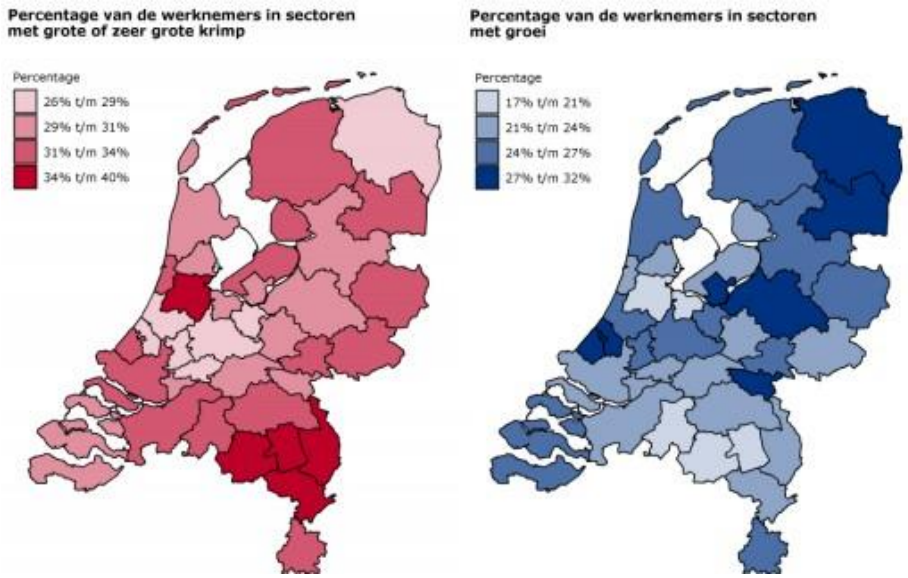
With a strong reliance on international trade and professional services, the Netherlands has been hit hard by the COVID-19 pandemic. Sectors that account for 36% of the Dutch economy, including horticulture, were directly affected by the lockdown, although sectors such as construction and retail trade could continue subject to distancing measures (OECD, OECD Economic Outlook , 2020)

According to OECD estimates released in June and September 2020, all OECD countries are projected to experience a deep recession in 2020. Newer projections from December 2020 (OECD, 2020) estimate that vaccination campaigns, concerted health policies and government financial support, are expected to lift global GDP by 4.2% in 2021 after a fall of 4.2% in 2020.

Analysis conducted in the Netherlands suggests that Zuid-Holland is among the least impacted provinces in the country. This could be explained by the sectoral composition of the economy. Analysis by Rabobank has found that regions that produce a lot of added value in sectors with relatively strong contraction (such as catering, transport and storage, other business services and industry) are likely to shrink more as a result of the COVID-19 crisis. In contrast, for regions with a lot of production in sectors with limited shrinkage (such as healthcare, the agricultural sector and the government), shrinkage is likely to be lower (Aalders & Raspe, 2020). For instance, the ‘Healthcare’ and ‘Government’ sector together represent 23% of the economy of Zuid-Holland, while on average these sectors represent only 19% of the Dutch economy, possibly explaining the lower impact in the region. The impact in terms of GDP for the region has been evaluated around - 6% for 2020, with a slow recovery in 2021 (+1%). Data from the Dutch Employee Insurance Agency highlights the different impact on employment between the regions and within the region (Figure 1.17). It is estimated that Zuid-Holland is less affected by the crisis than other regions, and that even though the economy will contract sharply, the contraction will remain lower than the contraction of the Dutch economy as a whole (South-Holland, 2020). Forecasts have shown, for example, that the economy of The Hague is expected to contract by 4.4%, as opposed to the national average of 5.2%.

Figure 1.17. Expected impact of the COVID-19 crisis on regional employment in 2020 by labour market region in the Netherlands

Percentage of employees in sectors with large or very large shrinkage (left) and growth (right)



Source: Economic Board Zuid-Holland; InnovationQuarter; Zuid-Holland; Rotterdam The Hague Metropolitan Area. (2020). Coronamonitor South Holland. Retrieved 09 17, 2020, from https://mrdh.nl/nieuws/coronamonitor-zuid-holland.

At the same time, a survey of Techleap among 445 Dutch start-ups highlighted that 86% of firms surveyed were expecting the financial impact of COVID-19 to become critical within 6 months (Techleap.nl, 2020). In the horticulture sector, for example, the export value of flowers and plants decreased by over 30% in March 2020 (and by 77% in the last week of March alone). The turnover of the transport sector decreased by 1.5% in the first quarter of 2020 due to the shock on aviation services and on the port of Rotterdam. Statistics Netherlands calculated that in the first quarter of 2020, the total transhipment was 9.3% lower compared to the first quarter of 2019. While the port of Rotterdam expected a drop of 30% in throughput in the second quarter of 2020, mainly due to its strong reliance on China, data now shows that total transhipment was 9.1% lower in the first 6 months of 2020 compared to 2019. While this drop is directly linked to the COVID-19 crisis, the activities of the port had already started to drop earlier due to the transition to clean energy in the Netherlands and in Europe. Additional sectors such as retail and tourism have also been badly affected. Finally, R&D is forecasted to decrease, which will undermine the efforts to modernise the economy, and may endanger the regional collaboration that has been strengthened since 2016.

As in many regions, some groups are particularly jeopardised, such as young graduates and low skilled workers who are more dependent on high-risk jobs such as flexible jobs or part-time jobs. The crisis is also poised to exacerbate inequalities, with long-lasting consequences. Young graduates who are unable to find a job will likely add to unemployment rates; and if companies cannot invest in R&D, productivity and competitiveness are likely to fall, further dimming growth prospects.

… with a strong fiscal impact

Subnational government finance across OECD countries has been seriously eroded, with massive pressure on expenditure and shrinking revenues, thus increasing deficits and debt. While the crisis has put short-term pressure on health and social expenditures and on categories of revenue, it is in the medium term that the strongest impact is to be expected. National governments, associations of local governments,

and individual entities have started to estimate the fiscal impact in the short and medium term, in order to prepare and adjust budgets, and to design appropriate measures to support subnational finance (Box 1.2) (OECD, The territorial impact of COVID-19: Managing the crisis across levels of government , 2020). In the case of Rotterdam, the city estimates that loss of revenue since March 2020 due to the COVID-19 crisis exceeds EUR 130 million. In the city of The Hague, this amount ranges between EUR 80 million and EUR 130 million.

Box 1.2. COVID-19's fiscal impact on subnational government

- In Austria, the COVID-19 crisis is strongly affecting state and municipal budgets. A 7%-12% drop in state tax revenues is forecasted. At the municipal level, it is estimated that the crisis can cost up to EUR 2 billion in 2020 because of additional spending needs. This corresponds to a 5%-11% loss in revenue compared to 2019.
- In Finland, in April 2020, the Ministry of Finance estimated the cost and lost revenue effects of COVID-19 to municipalities to be around EUR 1.6 – 2 billion for 2020 i.e. around 4% of total municipal revenues.
- In France, estimates from May 2020 indicate that lost revenue among subnational governments could reach EUR 7.5 billion in 2020. This is split into a loss of EUR 3.2 billion for the municipalities and their groupings, EUR 3.4 billion for the *départements* and EUR 0.9 billion for the regions.
- In Germany, many state governments have seen a sharp deterioration in their budgetary performance in 2020, given falling revenues and rising expenditure. Data published by the Federal Ministry of Finance in May indicated a loss of tax revenue about 11% for the Lander and 15% for the municipalities compared to estimates made in November 2019. The local level is especially affected by a 25% drop in local business tax receipts, a tax that represents 44% of municipal tax revenues.
- In Italy, the Association of Italian Municipalities (ANCI) developed three scenarios for the loss of municipal revenues due to COVID-19 : i) A low risk scenario with a loss of revenue among municipalities of about EUR 3.7 billion (down 9% compared to 2019), ii) A medium risk scenario, with an estimated municipal revenue loss of about EUR 5.6 billion (a decrease of 14% from 2019), and iii) a high risk scenario estimating a loss of EUR 8 billion (a drop of almost 21% over 2019). Regional governments also face financial difficulties. Most of their expenditure is concentrated on health (85% on average), which will increase. To this is added a drop in receipts from the regional tax on productive output (IRAP), the regional surtax on the personal income tax and the regional tax on vehicles.
- In the United States, preliminary data from 46 states indicates a total state tax decline of 49% in April 2020 compared to a year earlier. Personal income taxes declined 63%, sales taxes dropped 15.8% and corporate income taxes fell 63%. Cities, towns and villages can expect to face a USD 360 billion budget shortfall from 2020 through 2022, as two-thirds of city revenues nationwide are vulnerable to immediate losses due to local economic decline. City budget shortfalls are prevalent regardless of city size, but vary significantly by state. These losses could

lead to significant cuts in critical public safety services, parks and recreation, and pay and jobs cuts. This could also affect infrastructure investment.

Source: OECD. (2020). The territorial impact of COVID-19: Managing the crisis across levels of government .Retrieved 05 04, 2020, from https://read.oecd-ilibrary.org/view/?ref=128_128287-5agkkojaaa&title=The-territorial-impact-of-covid-19-managing-the-crisis-across-levels-of-government.

The crisis requires both short- and long-term actions aligned across levels of government

At national level, the Dutch government has implemented a series of short-term measures aiming at saving jobs and the national economy (Government of the Netherlands, 2020). Such measures include paying up to 90% of the wage bill of affected companies (at an estimated total cost of 1% of GDP), direct cash support to companies, and eased access to social assistance for the self-employed. Additional off-balance-sheet support has been provided by means of deferring taxes and social security contributions and extending credit guarantees. Financial institutions' capital requirements have been relaxed, market regulations adapted, and new mechanisms implemented to support corporate restructuring and mediate bankruptcy disputes (OECD, OECD Economic Outlook , 2020). In addition, the government released a fund of EUR 540 million to support innovative firms by providing a bridging loan to bring them through the crisis. According to InnovationQuarter, given the high demand, only 30% of firms that applied for the fund could benefit from it.

The provincial and local governments have also been active in providing short-term responses to the COVID-19 crisis. For instance, Zuid-Holland implemented non-financial measures such as developing a market place in the province to match supply and demand of temporary labour capacity in the region, providing a platform for innovative companies to offer solutions to challenges raised by the COVID-19 crisis, and appointing ambassadors who will support business associations (South-Holland, 2020). The province also subsidised some emergency projects including workshops for SMEs and projects with the TU Delft on face masks. Various cities also took measures such as delaying obligations to pay taxes and rent for public buildings. These measures are in line with the actions that other OECD cities took to manage the economic and social impacts of the COVID-19 crisis in the short term. A selection of recovery plans and measures from cities can be found in Box 1.3.

Box 1.3. Examples of inclusive, green and smart recovery plans in cities across OECD countries

Inclusive recovery

- Local business support and employment

  On 29 May, the city council of **Madrid** (Spain) reported lowering taxes to promote the recovery of commerce, leisure, hospitality and culture. The reduction will lead to a drop of more than EUR 66 million in business taxes. Moreover, by 2020, the requirement to maintain employment is eliminated in order to maintain all economic activity and accelerate the recovery, although those companies that maintain it will see the bonus in the Economic Activities Tax (IAE) extended to 2021

  On 29 May, **Nice** (France) launched an employment pact to support the economic recovery after COVID-19. The mayor announced an additional budget of EUR 3.5 million, aimed at the most vulnerable entrepreneurs and public authorities, as well as strategic SMEs in the region. The programme is targeting the economic sectors most strongly impacted, such as tourism and trade, but also industry and innovation in order to strengthen economic attractiveness.

- Affordable housing construction and renovation

  Liverpool (UK) developed a GBP 1.4 billion recovery plan, which includes the development of more than 200 new modular homes and community centres, and the renovation of 4,000 homes for vulnerable households in the most deprived neighbourhoods, which are also most at risk from COVID-19. The plan is estimated to provide an additional 12,000 construction jobs and 25,600 jobs in total.

- Support to vulnerable people

  Vienna (Austria) seeks to help young people who were severely affected by COVID-19 due to its impact on the labour market. Vienna invests EUR 17 million to help out the more than 16,000 young people currently without a job. The package includes intra-company vocational training, qualification passports, assistance for catching up the missed time and offers to enter into professions in health, care and IT, dedicated to the young generation.

Green recovery

- Sustainable urban mobility

  Seoul (Korea) will continue to pioneer smart green mobility options by implementing driverless vehicles, delivery of goods via robots and smart parking lots. These measures come in addition to fast tracking a bike lane system with express way, with an objective of attaining a modal share of 15% for bikes in 2030.

- Energy Efficiency

- **Lille** (France) is injecting about EUR 32 million, in the form of different business support systems, into its local economy. The “Rebound Fund” will allocate EUR 20 million to small businesses, such as shopkeepers, craftsmen, and farmers, who will have to pledge in favour of an ecological or energy transition to benefit from the fund. A new facility dedicated to small companies or associations with less than ten employees has been created, which will provide loans up to EUR 6.6 million that can be paid back over a 3-to 5-year period

Smart recovery

The adaptation strategy 2020 of **Milan** (Italy) includes a section on digital services, planning for expansion, simplification and acceleration of the provision of these digital services for citizens, and the strengthening of the ICT network to support it. Digital tools are leveraged to support and complement

public initiatives and sectors. For instance, the plan aims to develop a contagion monitoring system. In an effort to increase access to culture, the plan also expands online library catalogues, and promotes online cultural initiatives, alongside "traditional" live events. Finally it will develop a digital platform for the city of Milan to rethink delivery logistics and encourage local consumption

Source: OECD. (2020). Cities Policy Responses to COVID-19. Retrieved 09 16, 2020, from http://www.oecd.org/coronavirus/policy-responses/cities-policy-responses-fd1053ff/#section-d1e4306.

In light of the tremendous impact of the crisis on subnational government finance, both the Dutch national government and subnational governments agreed on the need to compensate for the additional costs and the loss of income resulting from the COVID-19 crisis. A special working group was established, bringing together experts from ministries and umbrella organisations of local governments including VNG, to discuss the amount of the compensation. The result of this work will feed into the Administrative Consultation on Financial Relations (BOFv) (OECD, The territorial impact of COVID-19: Managing the crisis across levels of government , 2020). Municipalities, provinces and water boards have received a second stimulus package of EUR 777 million to compensate for lost income and extra costs due to COVID-19. Additionally, a support package for national and regional public transport companies has been agreed upon, earmarking approximately EUR 1.5 billion in 2020 and EUR 750 million in 2021.

Like in Zuid-Holland, subnational governments across OECD countries are currently rethinking how to deliver services, plan their space and reactivate economic growth. Many recovery plans take a broader view than "returning to normal" and seizing the momentum to create more equitable and sustainable cities. Post-crisis efforts can be turned into an opportunity to accelerate efforts to tackle pre-existing challenges and inequalities, improve people's lives and stimulate innovation, with measures ranging from extensive uptake of digital solutions to decentralised production and restructuring of supply chains to respond to shortages of goods (Box 1.4 and Box 1.5). The post COVID-19 recovery has the potential to build a "new normal" in cities through an inclusive, green and smart recovery (OECD, Cities policy responses to COVID-19, 2020).

Box 1.4. Example from the UK Core Cities: leveraging regional partnerships to weather the crisis

Core Cities, an association of eleven large cities in the United Kingdom (Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield), leveraged their partnership as a platform to reinforce each other on the path towards regional recovery and elevate their collective priorities with the UK civil service. Confronted with a second wave of COVID-19 Core Cities are focusing on supporting employment, reducing inequalities and deprivation, and better targeting policies to local contexts. The recovery plans of the cities aim to restart the economy while ensuring that recovery benefits all residents and businesses.

Box 1.5. Recovery and renewal in Aix-Marseille-Provence (France)

The metropolitan region of Aix-Marseille-Provence was not spared from the social and economic impact of COVID-19, and has had to contend with a second wave of the outbreak. The region was particularly vulnerable to detrimental effects from the crisis due to factors such as a relatively low-skilled workforce, poor quality of the housing stock, significant flows of goods linked to the port, and strong tourism activity. Aix-Marseille-Provence is seizing the crisis as an opportunity to rethink the internal organization, priorities and development model of the region. Eight themes were selected as priorities to revive the economy, promote social inclusion and advance the ecological transition, including:

1. Massively support hard-hit economic sectors, which can generate jobs and local benefits
2. Invest heavily in sectors that are essential to the economy that "we want" and quality of life: health and low carbon activities that cannot be relocated
3. Engage in a “relocation pact” for productive activities
4. Rebuild the social bond, reduce fractures (social, territorial, digital), and act through education and integration to give everyone a chance
5. Aim for EUR 350 million in investments each year in transport alternatives to individual automobiles
6. Engage in transformative urban projects promoting short urban distances and resource-efficiency, and strengthen the cores of cities and villages
7. Strictly protect and enhance agricultural and natural spaces… even in cities
8. Develop food autonomy and encourage local food systems

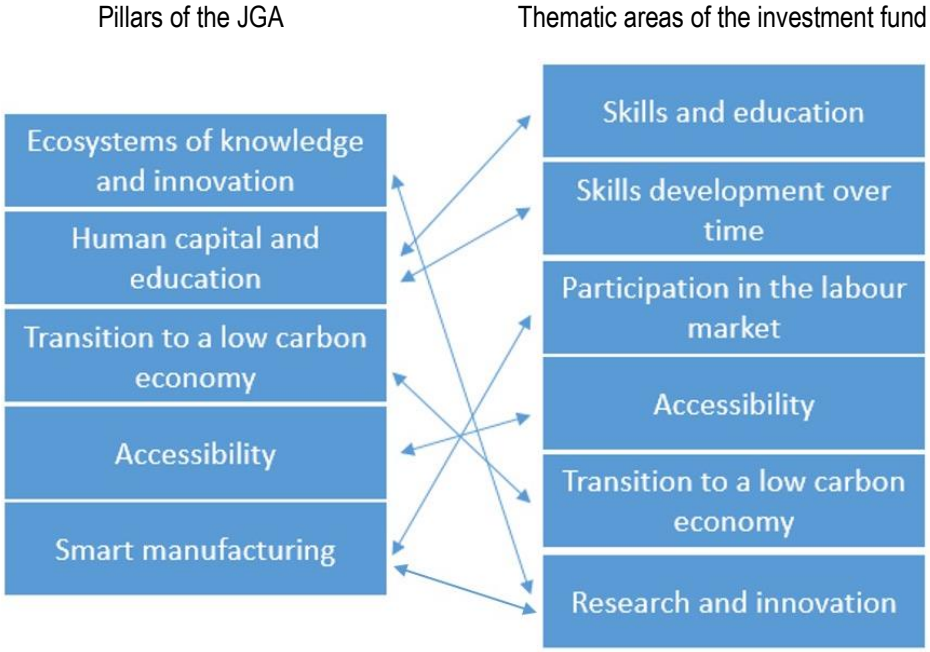
The Dutch national long-term recovery strategy was released in September 2020. The national investment fund that aimed initially to support regions in pursing their strategic vision and for which the JGA was developed will now be used to finance projects that will primarily boost national growth while also promoting green, smart and inclusive strategies. As a consequence, the stakeholders in Zuid-Holland have refined the JGA to address the challenges that pre-existed and were magnified by the COVID-19 crisis. In particular, a new pillar was added on local manufacturing in response to the COVID-19 crisis (see below). At the same time, cities such as Rotterdam and The Hague are preparing their own local long-term recovery strategy. The city of The Hague will finalise its recovery plan in the autumn of 2020, with a focus on innovation, investment and human capital.

2 Leveraging the Joint Growth Agenda to advance COVID-19 recovery and greater resilience

A flexible and iterative process to develop the Joint Growth Agenda

The Joint Growth Agenda has followed a participative, multi-stakeholder process since its inception. Following the announcement from the Ministry of Economic Affairs (EZK) in September 2019 on the creation of a national investment fund to support projects that are expected to boost the economy and accelerate the transition to a low carbon economy, a set of different stakeholders in Zuid-Holland joined forces to develop the Joint Growth Agenda (JGA). The JGA was built around five pillars: i) Ecosystems of knowledge and innovation, ii) Human capital and education, iii) Transition to a low carbon economy, iv) Accessibility and, v) Smart manufacturing (added after the outbreak of the COVID-19 crisis). The development of those pillars was designed to match the objectives of the national fund and its six thematic areas (Figure 2.1).

Figure 2.1. Links between the JGA and the six thematic areas of the national investment fund



Source: Author's elaboration based on the JGA and letter of the Ministry of Economic Affairs and Climate Policy to the Dutch Parliament.

While a “light” version of the JGA was adopted by the different stakeholders in July 2020, the JGA is a “living document” and was further refined in light of the COVID-19 crisis, for example by incorporating a new pillar on smart manufacturing. For each pillar, task forces were established to lead the work. Different projects were submitted for each pillar and the selection was made based on an assessment of their return on investment, their contribution to the economy and their alignment with national or regional strategies. This assessment was performed by consultancy studies contracted for this purpose. Selected projects are expected to have a strong multiplier effect. While some projects were developed specifically for the JGA, others were developed before the announcement of the Ministry of Economy but required additional funding to be implemented.

Overall, the process of defining the Joint Growth Agenda is a very positive initiative that has enabled stakeholders to come together, set a shared vision for the future of the Province and define concrete key areas for progress. Although the JGA was initially not designed as a COVID-19 recovery strategy per se, but rather as an economic and industrial growth agenda in response to the call from the national government to finance projects that have a promising potential to boost the economy within the new national investment fund, the “living” and agile nature of the document allows it to adjust quickly in the face of the ongoing COVID-19 pandemic and become a critical tool to weather the crisis. The Joint Growth Agenda could therefore do more to contribute to an equitable, resilient and sustainable future growth in Zuid-Holland. This section explores each of the five key pillars of the JGA before discussing the potential to strengthen its contribution to recovery and the next steps for an effective implementation.

Spotlight on the key pillars of the Joint Growth Agenda

Human capital and education

Human capital and education is a key pillar of the JGA, with important implications for the other pillars. This pillar is based on the observation that Zuid-Holland registers the largest labour shortage in the Netherlands. A relatively large part of the population (20%) is not participating in the labour market (OECD). Zuid-Holland ranks 10 out of the 12 provinces in terms of the activation of untapped labour potential, meaning that it has the third lowest labour participation rate of the country. Around 20% of companies in ICT, agriculture, horticulture, trade, transport and storage and industry sectors report that they do not have enough qualified workforce.

The pillar has been built around five axes:

- i) human capital (which is part of all the pillars of the JGA),
- ii) the acceleration of campus development for research and innovation in Zuid-Holland (strengthening existing campuses and stimulating cooperation between them),
- iii) the deployment of vocational education and business campuses (MBO-HBO),
- iv) ‘‘lifelong learning’’, and
- v) attracting and retaining international talents.

The 2016 OECD review had highlighted human capital as one of the most important determinants of the economic performance of a region and called for strengthening the education and training of the workforce in the MRDH area (OECD, 2016). The OECD Principles on Urban Policy also underline the need to promote equitable access to quality education, especially for low-income youth, and to foster collaboration between higher education institutions, businesses, local and regional governments, and civil society, to foster inclusive labour markets for all segments of the skills spectrum (Principle 6) (OECD, OECD Principles on Urban Policy, 2019).

The pillar of the JGA on Human capital and education is also supporting the targets of the “Human Capital Agreement”, which was signed in June 2019 by various stakeholders within the region -- including

companies, knowledge institutions and governments – to strengthen the regional labour market. The agreement foresees concrete targets built around eight projects for employed people (who constitute 76% of targeted people), unemployed people and employers. For example, one measure for those targeted who are already employed consists in helping them move jobs across sectors or move between boundaries (targeting 12% of all employed people). Data also shows that 18% of targeted people are flex workers and only 2% of them are unemployed, which suggests that projects within this pillar are primarily aiming at ensuring smooth sectoral shifts.

Table 2.1. Projects under the Human Capital Agreement

	Targets
Project SMITZH-3- People to work (High-tech manufacturing)	-Offer 2000 employed people a development perspective -Support 100 employers to make better use of their labour
Project form work to work Greenport West-Holland (Horticulture)	- Offer 3750 employed people a development perspective - Support 500 employers to make better use of their labour - Offer 2000 flex workers a development perspective - Get 500 job seekers to work
Project We IT South-Holland	- Offer 4750 employed people a development perspective - Support 100 employers to make better use of their labour - Offer 1500 flex workers a development perspective - 1500 transitions across sector and regional boundaries
Project Cybersecurity Orientation	- Offer 2500 employed people a development perspective - Support 50 employers to make better use of their labour - Offer 500 flex workers a development perspective 500 transitions across sector and regional boundaries
Project Joint Training life sciences sector	- Offer 2500 employed people a development perspective - Support 20 employers to make better use of their labour - Offer 250 flex workers a development perspective - 150 transitions across sector and regional boundaries - Increasing the amount of work of 250 underutilized part-time workers. -Attracting 75 international employees.
Project International Talent (sectors such as cyber security, maritime)	-Attract 1000 international employees - Support 10 employers to make better use of their labour
Project from the financial sector to the construction sector	- Offer 250 employed people a development perspective - Support 100 employers to make better use of their labour - 250 transitions across sector and regional boundaries
Regional deal Drechtsteden/Gorinchem	- Offer 750 employed people a development perspective

Source: data provided by MRDH

The choice of human capital as a key pillar is spot-on to secure future growth in Zuid-Holland. The pillar targets major policy issues such as lifelong learning, which will play an important role to help the economy of Zuid-Holland shift to a low-carbon economy. However, many of the goals within the pillar rely on buy-in and funding from the national government that has not been guaranteed yet. The next steps of the JGA may hinge on a larger reform of the primary and secondary education system by the national government, in which more focus is to be put on competencies rather than specific knowledge. Previous OECD reports regarding skills in the Netherlands have recommended fostering more equitable skills outcomes and promoting a culture of learning (OECD, 2017). Long-term goals also include creating space for regional interpretation of educational frameworks. These goals do not only require funding from the national government for specific projects, but also substantial policy changes without which the effectiveness of these policy goals is likely to be undermined.

This pillar of the JGA also has the potential to support more specifically those impacted the most by the COVID-19 crisis. In many cities across OECD countries, the economic fallout of the pandemic has frozen the labour market and hit young people particularly hard. Some cities, such as Vienna (Austria), have offered targeted support to young people, with a package including intra-company vocational training, qualification passports, assistance for catching up the missed time and offers to enter into professions in health, care and IT, dedicated to the young generation (OECD, Cities Policy Responses to COVID-19, 2020). While similar initiatives were developed in Zuid-Holland, these could be scaled up further. For example, in the early days of the COVID-19 crisis, Zuid-Holland developed a "market place" to match the temporary labour supply and demand in the region. Such a marketplace could be made permanent and help strengthen programmes to support youth and the long-term unemployed. Information on growing sectors could be systematically provided to students to guide their educational choices. In light of the focus on cybersecurity and IT in several projects of the JGA, the agenda could address more specifically the effect of digitalisation on the skills needed in the population by helping expand digital literacy and the potential to provide e-government services.

Knowledge and innovation ecosystems

Innovation plays a major role in improving labour productivity and quality of life. The 2016 OECD review recommended the MRDH to foster close dialogue with the private sector to accompany the economic transition of the region towards innovative and sustainable types of activity. The OECD Principles of Urban Policy also call for strengthening the capacity of actors in cities to innovate and fulfil their duties efficiently and inclusively (Principle 10).

In line with these recommendations, the JGA dedicates a specific pillar to knowledge and innovation ecosystems. It aims at leveraging the position of Zuid-Holland as i) the economic engine of the country, ii) the most knowledge-intensive region in the Netherlands, and iii) a region with world-class sectors in international value chains. This pillar focuses on artificial intelligence (AI), quantum, biotechnology and medtech. The region plans to further develop and strengthen knowledge and innovation ecosystems together with the national government through proposals for national action agendas.

- *Artificial intelligence* (AI) projects mentioned in the JGA have four aims: (i) strengthening the knowledge cluster (Hub) around Leiden, Delft and Rotterdam; (ii) launching a large-scale education programme for talent development, investing in the ecosystem for start-ups and scale-ups; (iii) taking a leading role in Europe in securing social acceptance, frameworks and inclusion in close connection with the headquarters of the European network CLAIRE (Confederation of Laboratories for Artificial Intelligence Research in Europe) in The Hague; and (iv) achieving strong innovation chains within the key fields of application at the international level (i.e. port industrial complex, logistics and maritime, security, peace, justice, horticulture aerospace, energy & sustainability.). AI is transforming every aspect of people's lives. It promises to help solve global challenges such as climate change and access to quality medical care. The OECD Principles on Artificial Intelligence promote artificial intelligence that is innovative and trustworthy and that respects human rights and democratic values (OECD, OECD Principles on Artificial Intelligence). The Ministry of Economic Affairs of the Netherlands has asked the AI Coalition (NL AIC), a Dutch public-private partnership between the government, the business community, educational and research institutions and civil society organisations that connects AI initiatives and accelerates AI developments, to develop a national agenda on AI. In February 2020, on behalf of different stakeholders in the region, Zuid-Holland submitted the AI propositions for the region. The projects foreseen in the JGA are in line with the proposition of Zuid-Holland. The contribution requested from the national investment fund has been estimated to be EUR 1 billion, out of a total of approximately EUR 2 billion.
- *Quantum technology* is regarded as a key technology with the potential to become a game-changer in many social and economic sectors. Examples include healthcare, agriculture, water and food, climate and safety. The Netherlands is a vibrant international hotspot for quantum technology, with

leading science, technology and talent. Universities and knowledge institutes are leaders in the development of qubits, quantum networks, quantum algorithms and post-quantum cryptography and act as a magnet for global business investment and talent. In the region there are two major quantum research hubs and affiliated universities and research centres, out of a total of five in the Netherlands. Quantum Delft is a vibrant ecosystem and can be seen as the physical heart of the national Quantum Delta. The projects mentioned in the JGA area aim to implement the National Agenda Quantum Technology and the renewal of the national cleanroom infrastructure (NanoLabNL). The projects focus on forging strong bonds between the five major quantum research hubs and affiliated universities and research centres and the applications in three catalysts (CAT) programmes. Other aims are to strengthen large-scale facilities across the country in five locations for nano-technological research in a National Cleanroom Infrastructure programme and kicking off four action programmes to facilitate research and co-operation that will boost social readiness levels. The contributions requested from the national investment fund have been determined to be EUR 635 million for a period of 7 years. The Dutch government is already investing EUR 23.5 million in quantum technology over a 5-year programme. This initial investment will be used to fund the high priority actions identified in September 2019 by the National Agenda on Quantum Technology.

- The *biotechnology* sector has been growing fast in the last decade. The projects foreseen in the JGA have a total cost of approximately EUR 280 million. The contribution requested from the national investment fund is about EUR 125 million. The interest group of biotech companies in the Netherlands, HollandBIO, contacted South Holland to submit joint propositions for a national biotech R&D programme within the national investment fund. This co-operation resulted in a LSH kick start proposal, which has two main national biotech proposition lines (one on REGMEDXB production lines, and another on health research infrastructure).
- *Medtech* is particularly relevant in light of demographic ageing in South Holland. While the Dutch healthcare system is robust, it must contend with rising healthcare costs in addition to understaffing challenges and administrative inefficiencies. The projects foreseen in the JGA include investments in developing or strengthening campuses, investment in five R&D flagships (Health Data science, Biomedical imaging, Molecular medicine, Smart instruments and interventions and innovative medicine research and development.) As the most knowledge-intensive region in the Netherlands, it is in the interest of South Holland to strengthen knowledge and innovation in the region. To this end, the scaling up of existing initiatives with funding from the national government, while also establishing ambitious new initiatives, is a welcome step forward. However, the ripple effects from the largest projects should also be carefully considered in light of the other pillars. For example, one of the main projects within the medtech focal point is the creation of a “Smart Tech campus” (working title) in co-operation between the Technical University of Delft and the Erasmus Medical Centre. This large-scale infrastructure project will have implications on the urban environment and transport infrastructure in the region, which should be carefully assessed and monitored. Furthermore, while the JGA enumerates the number of jobs that could be created by investing in AI and other innovative technologies, there is also a risk of jobs being lost to automation. For example, the port of Rotterdam and its surroundings (which provides 20% of the added value and 13% of the jobs in the South Holland economy) may certainly benefit from AI, including through predictive planning of freight transport (TUD, RSM, harbour, Prorail and business partners), automated docking, optimizing port call (SwarmPort), and agent-based decentral planning of inland shipping. However, there is also a share of jobs potentially at risk, which is not mentioned in the JGA but should be taken into account and given support to reskill in light of digital technologies.

As the most knowledge-intensive region in the Netherlands, it is in the interest of Zuid-Holland to strengthen knowledge and innovation in the region. The projects set forth in the Joint Growth Agenda have the potential to cement Zuid-Holland’s position as an innovation leader while preparing the region for the future. To this end, the scaling up of existing initiatives with funding from the national government, while also

establishing ambitious new initiatives, is a welcome step forward. However, the ripple effects from the largest projects should also be carefully considered in light of the other pillars. For example, one of the main projects within the medtech focal point is the creation of a "Smart Tech campus" (working title) in co-operation between the Technical University of Delft and the Erasmus Medical Centre. This large-scale infrastructure project will have implications on the urban environment and transport infrastructure in the region, including new public transport infrastructure needs, which should be carefully assessed and monitored. Furthermore, while the JGA enumerates the number of jobs that could be created by investing in AI and other innovative technologies, there is also a risk of jobs being lost to automation. For example, the port of Rotterdam and its surroundings (which provide 20% of the added value and 13% of the jobs in the Zuid-Holland economy) may certainly benefit from AI, including through predictive planning of freight transport (TUD, RSM, harbour, Prorail and business partners), automated docking, optimizing port call (SwarmPort), and agent-based decentral planning[2] of inland shipping. However, there is also a share of jobs potentially at risk, which is not mentioned in the JGA but should be taken into account and given support to reskill in light of digital technologies.

This is especially relevant in the wake of the COVID-19 crisis, when urban residents are increasingly relying on digital solutions at a time of social distancing. The COVID adaptation strategy 2020 of Milan (Italy), for example, includes a section on digital services, planning for expansion, simplification and acceleration of the provision of these digital services for citizens, and the strengthening of the ICT network to support it. The plan also aims to increase access to cultural services by expanding online library catalogues and promoting online cultural initiatives alongside "traditional" live events. Milan's adaptation strategy will develop a digital platform for the city to rethink delivery logistics and encourage local consumption (OECD, Cities Policy Responses to COVID-19, 2020). Considering Zuid-Holland's extensive innovation infrastructure and experience, the JGA pillar on innovation could therefore also help expand access to digital services and advance a more inclusive recovery.

Accessibility and housing

Accessibility is key to support the economic integration of Zuid-Holland and balanced development of the region. Improving accessibility by investing in public transport infrastructure has benefits beyond the infrastructure in itself, including improving further functional integration and increasing agglomeration benefits, supporting a modal shift toward more sustainable modes of transportation and accommodating population growth through the development of compact and sustainable cities. The 2016 OECD review underlined the key role of transport in achieving greater functional integration within the MRDH. For instance, around half of the people working in Rotterdam live in another municipality. The OECD Principles on Urban Policy also called for designing and planning transport policies that increase the accessibility of urban residents and users to economic, social and cultural opportunities; improving multimodality; encouraging and harnessing soft mobility and new forms of clean urban mobility; combining supply-side and demand-side transport management policies (Principle 7) (OECD, OECD Principles on Urban Policy, 2019). Accessibility and the development of new public transport infrastructure are also critical for the development of compact and sustainable cities. As demand for housing in Zuid-Holland grows, the region aims to preserve green space, improve agglomeration economies and advance the mobility transition by supporting housing development in already built-up areas. Development along public transportation routes can support these aims.

Such recommendations take even more relevance in a context in which the COVID-19 has triggered a shift in mobility patterns and provided cities with a momentum to rethink their approach towards urban space and suggest alternative options. For example, numerous cities across OECD countries, ranging from Bogota to Paris, have promoted clean forms of mobility such as cycling in the post-confinement period as

[2] Agent based planning models are a class of computational models for simulating the actions and interactions of autonomous agents

part of the tactical urbanism movement. Shifting towards more long-term and permanent strategies, cities are investing in active mobility infrastructure, improved public transport safety and accessibility, and low emission transport options, such as electric vehicles and scooters (OECD, Cities policy responses to COVID-19, 2020).

Transport investments will be critical to continue to strengthen regional integration within Zuid-Holland. The MoVe programme (*Mobiliteit en Verstedelijking*, or Mobility and Urbanisation), a collaborative programme of ministries, the Province of Zuid-Holland, the MRDH and the municipalities of Rotterdam and The Hague, aims to address these issues and challenges related to transport and urbanisation. In this regard, the MoVe Program Council approved the Adaptive Development Strategy for Metropolitan Public Transport and Urbanisation. The main goals of MoVe are "i) scale leap in public transport in conjunction with urbanization along the main axes of public transport; ii) improving logistics efficiency and accessibility in the region, iii) development of smart networks, in which public transport, bicycles and cars form integral chains (MoVe, Mobiliteit en Verstedelijking).

Given the central role of accessibility to advance further economic integration, support a modal shift and build more sustainable cities, the JGA rightfully dedicates a specific pillar to this horizontal topic. Looking further ahead, a key sector that needs to be planned in close co-ordination with transport is housing. These two sectors have a major impact on the cost of living and quality of life for residents, while also shaping broader economic and environmental outcomes. Integrating housing and transport policies is essential to avoid inefficient management of land that can lead to urban sprawl, dispersed and discontinuous urban growth, and more expensive and inefficient infrastructures. Integrating housing and transport can also help increase labour mobility, as spatial mismatches on the labour market may inhibit productivity. In this respect, the 2016 OECD assessment of the MRDH had recommended increasing labour mobility through targeted housing policies. In order to leverage the potential of the Joint Growth Agenda at its fullest, effective co-ordination between transport and housing policies in Zuid-Holland can also help address trade-offs between competing land uses such as housing, transport, industry and commerce. Improving the flexibility of the land market could give firms greater flexibility in developing land that is already zoned for commercial use or in renovating or re-purposing existing sites. Considering the competition between different land uses within the region, some form of joint regional spatial planning would be beneficial to allocate space throughout the region more effectively for all different needs: housing, transport, manufacturing, green industries, etc. Within the Province, discussions have started in order to update laws and instruments to ensure more integrated planning, but progress on this front has remained slow.

The JGA concedes that "land requires efficient, multifunctional usability, which includes the commitment of governments to an integrated area development approach to further develop cities efficiently and at the same time increase their quality and appeal." Additionally, awareness of Transit-Oriented Development (ToD) has spread in Zuid-Holland, for example with a study finding that 61 of the 67 NS stations in Zuid-Holland do not take surroundings of the station spatially into account, serving cars without providing housing or facilities (Staat van Zuid-Holland). However, a concerted effort to change the regulatory framework to provide more flexibility must be made in order to reduce inefficiencies and create a more attractive and sustainable region. Specific issues related to construction costs should also be closely monitored. EU laws on nitrogen emissions had halted construction projects in the Netherlands, and especially in The Hague, even prior to the COVID-19 crisis.

While the COVID-19 crisis has caused construction around the world to slow down, recovery plans for Zuid-Holland will need to ensure enough housing construction, especially given the increase in housing costs in the region. The challenge of supporting construction in order to bolster housing affordability has been addressed in recovery plans in many OECD cities such as Liverpool (UK). The city has developed a GBP 1.4 billion recovery plan that includes the development of more than 200 new modular homes and community centres and the renovation of 4,000 homes for vulnerable households in the most deprived neighbourhoods. This plan is estimated to provide an additional 12,000 construction jobs and 25,600 jobs in total (OECD, Cities Policy Responses to COVID-19, 2020), and thus addresses housing affordability

and the labour market at the same time. Zuid-Holland's JGA addresses housing and accessibility jointly through the MOVV project, which is integrated with regional plans to construct 170,000 new housing units along new or upgraded public transportation lines. Policies on local and regional levels have been aligned in regional networks such as the "Verstedelijkingsalliantie", in which eight municipalities, the province of Zuid-Holland and the MRDH co-operate on joint ambitions in mobility and housing.

Transition to a low carbon economy

Environmental sustainability is a major challenge for Zuid-Holland, particularly in relation to three sectors: the port industrial complex, the Greenport and the logistics sector. The OECD Principles on Urban Policy call for advancing environmental quality and the transition to a low-carbon economy (Principle 5) (OECD, OECD Principles on Urban Policy, 2019). In line with international commitments and agendas such as the Paris Agreement and the United Nations Sustainable Development Goals, many countries around the globe are setting ambitious environmental agendas with clear CO2 reduction targets. In September 2019, the Netherlands adopted the Climate Act with the target to reduce greenhouse gas emissions by 95% by 2050, compared to their level in 1990. The ambition is to reach this target gradually with a 49% reduction by 2030. From the information provided by MRDH, more than 20% of national CO2 emissions come from Rotterdam, with the port area responsible for approximately 90% of these emissions. Although progress has been made through CCS (Carbon Capture Utilisation and Storage) projects such as PORTHOS in Rotterdam, which aims to transport CO_2 from industry in the Port of Rotterdam and store it for future use, further work is needed to reach emission targets and ensure a sustainable future.

The port of Rotterdam contributes directly and indirectly to the Dutch economy with 6.2% of GDP and 4.2% employment. The transport and logistic sector is the largest employer in Zuid-Holland, with 95,000 jobs and an added value of more than EUR 9 billion. The export value of Dutch vegetables and floriculture amounted to approximately EUR 17 billion in 2019. Around half of the Dutch greenhouse horticulture is located in Zuid-Holland, with 80% located in Greenport West-Holland. At the national level, horticulture accounts for approximately EUR 7.6 billion of annual exports and employs more than 125,000 people. Greenport is not only about the cultivation of vegetables; it is a cluster including agrological functions, suppliers, research and educational institutions. Home to the largest port in Europe, the province also serves as a logistical hub for Europe, which requires sustainable infrastructure, including for transporting energy.

Within the port industrial complex, three ecosystems have been identified in the proposition for the growth fund: Hydrogen, Electrification and Circularity. While those ecosystems are interlinked, the Hydrogen ecosystem is predominant. To operate this transition, significant investments are required to decrease the cost of production through economies of scale. This would be achieved by upscaling the application and production of electrolysers and the applications of green hydrogen and green electrons within energy-intensive sectors. On 8 July 2020, the European Commission released a communication on a hydrogen strategy for a climate neutral Europe (Box 2.1). In the framework of this strategy, the European Clean Hydrogen Alliance will help build up a robust pipeline of investments. As part of the Commission's recovery plan, funding instruments of Next Generation EU, including the Strategic European Investment Window of the InvestEU programme and the ETS Innovation Fund, will enhance financial support and help bridge the investment gap for renewables generated by the COVID-19 crisis (European Commission, 2020). Rotterdam is developing several hydrogen terminals that will allow the city to import hydrogen in addition to producing it, preparing the city for a role in the low-carbon economy that closely mirrors its current role in the oil economy (Figure 2.2). Considering the increasing demand for hydrogen projected both in the Netherlands and in neighbouring countries, especially Germany, this plan puts the region in a good position to secure its future in the hydrogen field. The plan also attempts to consider uses of hydrogen for other sectors, including as a heat source for the horticulture sector and households and companies in the region. Concerning the Greenport, the transition to a low carbon economy relies on investments in energy and related infrastructures. Investing in logistics, including shipping and freight transport, will be necessary to ensure more sustainable transport infrastructures.

Box 2.1. Hydrogen strategy for a climate neutral Europe

Hydrogen is enjoying a renewed and rapidly growing attention in Europe and around the world. Hydrogen can be used as a feedstock, a fuel or an energy carrier and storage, and has many possible applications across industry, transport, power and buildings sectors. Most importantly, it does not emit CO2 and almost no air pollution when used. It thus offers a solution to decarbonise industrial processes and economic sectors where reducing carbon emissions is both urgent and hard to achieve. All this makes hydrogen essential to support the EU's commitment to reach carbon neutrality by 2050 and for the global effort to implement the Paris Agreement while working towards zero pollution.

Yet, today, hydrogen represents a modest fraction of the global and EU energy mix, and is still largely produced from fossil fuels, notably from natural gas or from coal, resulting in the release of 70 to 100 million tonnes CO2 annually in the EU. For hydrogen to contribute to climate neutrality, it needs to achieve a far larger scale across Europe and its production must become fully decarbonised.

The priority for the EU is to develop renewable hydrogen. In the short and medium term, however, other forms of low-carbon hydrogen are needed. The hydrogen ecosystem in Europe is likely to develop through a gradual trajectory, at different speeds across sectors and possibly across regions and requiring different policy solutions. The strategy will be implemented in three phases:

- **In the first phase, from 2020 up to 2024**, the strategic objective is to install at least 6 GW of renewable hydrogen electrolysers in the EU and the production of up to 1 million tonnes of renewable hydrogen.
- **In a second phase, from 2025 to 2030**, hydrogen needs to become an intrinsic part of an integrated energy system with a strategic objective to install at least 40 GW of renewable hydrogen electrolysers by 2030 and the production of up to 10 million tonnes of renewable hydrogen in the EU.
- **In a third phase, from 2030 onwards and towards 2050**, renewable hydrogen technologies should reach maturity and be deployed at large scale to reach all hard-to-decarbonise sectors where other alternatives might not be feasible or have higher costs.

Source: (European Commission, 2020)

Figure 2.2. Hydrogen economy in Rotterdam



Source: Port of Rotterdam. (n.d.). Hydrogen in Rotterdam. Retrieved 07 17, 2020, from https://www.portofrotterdam.com/en/doing-business/port-of-the-future/energy-transition/hydrogen-in-rotterdam.

To support the implementation of the National Climate Act, different strategies and actions at the level of the province and cities such as Rotterdam have been developed, including the *Rotterdam Climate Agreement*. However, significant investments are needed to transition to a low carbon economy. This pillar will require a total investment of EUR 2 billion with a contribution of EUR 710 million expected to come from the central government. Based on the calculations of Zuid-Holland, those investments will reinforce crucial sectors in the Netherlands that currently generate an added value of around EUR 17 billion annually and will provide around 100 000 jobs in the future. While the private sector can lead some investments, the national funds currently available are insufficient to cover the further investment that would be needed. The different projects planned in the pillar on the transition to low carbon economy are described in Table 2.2.

Table 2.2. Projects to support the transition to a low carbon economy in the framework of the JGA

		Investment amount (by 2030) in EUR
Port Industrial Complex	Infrastructure	€ 1.2 billion. - € 1.4 billion. .
	Knowledge, R&D, Innovation	€ 5.4 billion - € 9.7 billion per year
Greenport	Energy transition Westland	X
	Energy transition Oostland	X
	Campus development	X
Logistics	Programmatic approach to Freight transport corridors East and Southeast	€ 5 billion.
	Freight transport by water - infrastructure	€ 0.5 billion.
	Freight transport by rail - infrastructure	€ 200 million.
	Robust connections Corridor Rotterdam Antwerp	€ 3.5 billion. - € 5 billion.
	Greening inland shipping	€ 200 million.

Source: author's elaboration based on information provided by MRDH and Zuid-Holland

Given the urgent need for climate action to reduce CO2 emissions and shift to alternative energy models, this is a very welcome proposition. Transitioning Zuid-Holland to a low-carbon economy is an essential goal, which could be broadened even further. Cities are using this time to invest in urban upgrading, which can allow their buildings to operate at maximum energy efficiency after COVID-19, and save on energy bills. Lessons learned from past green stimulus packages have shown that certain fields, such as investing in energy efficiency and retrofitting, contribute significantly to job creation and economic activity in the construction sector while reducing emissions (OECD, Cities Policy Responses to COVID-19, 2020). Targeting households and municipal buildings for energy efficient upgrading could help Zuid-Holland reduce its greenhouse gas emissions while also reducing energy bills for households who might be overwhelmed by increased energy costs in the wake of the COVID-19 crisis (from teleworking, home schooling, using household appliances more often than before, etc). Zuid-Holland could also use the JGA in order to support SMEs in their transition. For example, Lille (France) is injecting EUR 32 million into its local economy, in the form of different business support systems. The "Rebound Fund" will allocate EUR 20 million to small businesses, such as shopkeepers, craftsmen, and farmers, who will have to pledge in favour of an ecological or energy transition to benefit from the fund. A new facility dedicated to small companies or associations with less than ten employees has been created, which will provide loans up to EUR 6.6 million that can be paid back over a 3-to 5-year period (OECD, Cities Policy Responses to COVID-19, 2020)

Smart manufacturing

Smart manufacturing was added as a new pillar into the JGA in response to the COVID-19 crisis, with the objective to strengthen regional value chains and boost the manufacturing industry. In addition, smart

manufacturing can contribute to the green transition towards a sustainable system of energy production, conversion and storage. The assumption is that it costs less to produce outside the country to enhance production sovereignty in regional production chains. This pillar aims to produce those products locally that have a high level of complexity and are produced in low quantities, while importing products that have low complexity and are needed in high quantities. New value chains are needed to achieve that.

The smart manufacturing pillar also aims at tackling the challenge of job insecurity for low-educated people who rely on flexible or part-time jobs. This will require a thorough analysis of the sectors that are most relevant for the national and European economy.

The COVID-19 crisis has re-ignited an old debate about the supply chain risks associated with international production. It also highlighted both the strengths and weaknesses of global value chains, including for the supply of essential products. Experiences from the past suggest that international production networks can be disrupted and play a role in the propagation of economic shocks across countries and industries. However, they also help firms and countries to recover faster (OECD, COVID-19 and global value chains: Policy options to build more resilient production networks, 2020).

The region aims at 4 different value chains: energy production, conversion and storage, robotisation of agriculture and food, secure data exchange, and flexible manufacturing. A digital supply system operating between companies, in company and between individual machines is needed to have tactically and strategic control and product sovereignty.

In the context of the COVID-19 crisis, the restructuring of supply chains to respond to goods shortages has been a key topic for several cities. The city of Barcelona (Spain), for example, has established an economic recovery project, called "Barcelona Never Stops", with the implementation of a series of measures aimed at the regeneration of the economic and social tissue of the city. One component of the plan is to encourage local consumption by supporting new and innovative business models (OECD, Cities Policy Responses to COVID-19, 2020). The JGA's smart manufacturing pillar could therefore be broadened to support vulnerable populations who may not have ready access to the labour market, and stimulate local consumption patterns.

Potential to strengthen the Joint Growth Agenda

While the Joint Growth Agenda offers an actionable plan to advance the province of Zuid-Holland, some areas could still be strengthened. In particular, the COVID-19 crisis has exposed inequalities in cities while also providing an opportunity to change behaviours. The JGA has more potential to advance overarching goals, including inclusive growth, broadening the pillar on the transition to a low carbon economy, and leveraging urban-rural linkages to improve quality of life in the region more generally.

Reducing inequalities

In many cities, the COVID-19 crisis has highlighted the importance of addressing already existing, deeply entrenched social inequality. Although the crisis affected all segments of society, it had a disproportionate impact on vulnerable populations such as the elderly, the homeless, minorities, women and children (OECD, Cities Policy Responses to COVID-19, 2020). The JGA is facing an opportunity to close the social gaps created by this crisis and address structural inequalities that were already present and have been exposed through the COVID-19 crisis. Cities that have taken measures to address inequalities by including inclusive growth in their recovery plans have focused on several topics, including local business support and employment, affordable housing construction and renovation and support to vulnerable households. The JGA could advance its agenda for inclusive growth in most of its pillars by mainstreaming inclusiveness in its strategy. For example, the pillar on human capital could directly address the needs of those who have difficulties entering the labour market by scaling up immediate responses to the crisis. Similarly, the

transition agenda and the smart manufacturing pillar could do more to clarify which jobs will be created and for whom. The Joint Growth Agenda seeks to improve the material conditions of all residents in Zuid-Holland by boosting economic growth, but addressing inequalities and mainstreaming inclusive growth throughout the agenda can ensure that everyone benefits from the region's recovery and help make growth more sustainable.

Broadening the transition agenda

There is a clear momentum to make bold decisions and change behavioural patterns in the wake of COVID-19, which can help accelerate the just transition agenda. The JGA includes many projects aiming at improving the environment – the "what''. However, there is also a need to integrate environmental aspects in processes, for example those related to procurement and investment: the "how''. Those processes may include award criteria, technical specifications and contract performance clauses. Public procurement accounts for a substantial proportion of taxpayers' money in OECD Member and Partner countries. It represents on average 12% of GDP and 29% of government expenditure, with almost two thirds of expenditure occurring at the sub-national levels including states, regions and cities (OECD, 2019). As highlighted in the OECD Recommendation on Public Procurement, public procurement is a critical pillar of services delivery for governments and has become a strategic tool for achieving a variety of key policy objectives, including the development of SMEs, environmental growth, social inclusion, innovation and the and promoting socially responsible supply chains (OECD, OECD Recommendation of the Council on Public Procurement, 2015). Zuid-Holland's JGA could therefore broaden its transition pillar to acknowledge and address the role of citizens, SMEs, and public procurement in the transition to a low-carbon economy.

Harnessing the urban-rural continuum

OECD analysis shows that economic growth increases with proximity to large cities (OECD, 2015). For example, rural regions close to a city have narrowed their productivity gap vis-à-vis urban regions by 3 percentage points since 2010. The OECD Principles on Urban Policy also call for supporting "interdependencies and co-operation between urban and rural areas by i) leveraging the spatial continuity and functional relationships between urban and rural areas to inform public investment and programme design; and ii) carrying out joint strategies and fostering win-win urban-rural partnerships, as appropriate, to promote an integrated development approach" (Principle 3) (OECD, OECD Principles on Urban Policy, 2019).

The Joint Growth Agenda could further harness the link between urban planning and the environmental transition by building on the MOVV project and other policies against urban sprawl in order to exploit the potential advantages of urban density and urban form (compact or sprawl),. Changes stemming from COVID-19 can inspire lasting behavioural shifts to make cities more resilient and more efficiently connected with rural areas, in terms of the way goods are produced, energy consumed and transport organised (OECD, Cities Policy Responses to COVID-19, 2020). Building compact cities by prioritising Transit-Oriented Development instead of sprawling developments can reduce the pressure on land, a limited resource in a fairly urbanised region. Given the increasing competition between land uses, higher urban density can free up space to implement green and nature-based solutions, including green buildings, sustainable public transport, and renewable energy.

Zuid-Holland is a leading province in agriculture and horticulture. As highlighted earlier, around half of the Dutch greenhouse horticulture is located in Zuid-Holland, with 80% generated in Greenport West-Holland. The sector has been hit hard by the COVID-19 crisis. However, the JGA mentions horticulture mainly in the pillar on transition to a low carbon economy and could do more to leverage horticulture to support local consumption. In May 2020, the European Commission approved the funding of a EUR 650 million Dutch scheme that compensates companies in the floriculture, specialty horticulture and potato sectors for the loss of revenue or additional costs related to the collapse in demand for their products to be in line with EU

State aid rules (Commission, 2020). However, the impact of COVID-19 in the coming months and years is still highly uncertain. Given the economic crisis, the horticulture sector might continue to suffer from a shrinking demand, and a lack of adequate workforce. In this context of uncertainty, the Joint Growth Agenda could offer an opportunity to support local chains of consumption

Towards an effective implementation of the Joint Growth Agenda

Prioritising the projects

The JGA puts forward a set of projects that require a co-financing scheme with the central government. Not all projects can be implemented without the support of the national government given the fiscal stress at the local level. Some projects could be developed at a smaller scale or in a longer timeframe than planned initially. Local authorities' tax collection capacities have decreased with the COVID-19 crisis. Given the uncertainties around the recovery phase, it will be essential to prioritise the different projects. For example, one of the criteria for the prioritisation of projects could be the overall assessment of the value for money of each individual project, but taking into account the strong linkages between the projects and the pillars. This assessment could be made based both on quantitative outcomes (such as cost/benefit analysis) and on qualitative outcomes that seek to establish the overall societal return (such as the impact on employment, on well-being and inequalities).

Leveraging synergies between the pillars of the JGA and with EU agendas

The OECD Principles on Urban Policy call for a national multi-level urban policy approach that sets incentives to align and integrate sectoral policies to jointly promote development and well-being (Principle 7) (OECD, OECD Principles on Urban Policy, 2019). In line with this approach, the JGA was also developed in a way to foster complements between the five pillars. While the pillars of the JGA are interconnected, synergies could be further developed to take advantage of investments that could advance multiple goals. Implementing sectoral policies without optimising the relationships between these and other issues can lead to initiatives that overlap, or leave gaps that are hard to fill. Mobilising complementary issues is thus in the interest of Zuid-Holland if investments are to leverage their full potential. For example, the link between innovation and accessibility is clear, as knowledge spill-overs are generated by physical proximity. Accessibility also has a major effect on the environment. In 2016, transport accounted for 30% of CO2 emissions in OECD countries and 16% of all CO2 emissions in non-OECD countries. Unlike in other sectors, emissions from transport have continued to increase in recent years both in OECD and in non-OECD countries, in spite of concurrent technological advances and the implementation of mitigation measures (IEA, 2018[5]) (ITF Outlook 2019). In a current ambition scenario where current and announced mitigation policies are implemented, worldwide transport CO2 emissions are projected to grow by 60% by 2050. (ITF Outlook 2019). Linking all three of these dimensions is the proposed campus development in the innovation and knowledge environments pillar. In addition to being a project improving the innovation environment, it seeks to improve access to public transport through three new public transportation routes, which is also part of the MOVV project. By improving access to and quality of public transport, this project will also improve quality of life for residents and improve the attractiveness of the region, which in turn can attract skilled labour and investment.

Boosting the synergies between pillars of the JGA could also contribute to a more holistic strategy for the region. Although the JGA was conceived as an economic strategy before COVID-19 hit, the magnitude of the crisis makes it necessary to address recovery as well. Around the world, cities are perceiving recovery efforts from COVID-19 as an opportunity to challenge current models and implement bold changes towards more sustainable, equitable and resilient societies (OECD, Cities Policy Responses to COVID-19, 2020). The COVID-19 crisis has exposed existing vulnerabilities and inequalities, while the drastic disruptions to

our previous way of life during lockdown has made people more ready to accept radical changes. The time may therefore be ripe for a more holistic strategy for the future of Zuid-Holland. One example of a holistic recovery plan is that of Milan (Italy). In its Adaptation Plan 2020, it is using recovery from the crisis to question fundamental characteristics and expectations of the city and its scale, and addressing the need for increased wellbeing. The key questions raised for its approach to the recovery include: “Which societies and which communities do we want to be and to build after the crisis?; Is it our main goal just to come back as fast as possible to what we had 'before’?; Are we looking to 'benefit' from the crisis and take a leap forward to improve our city and quality of life?” (OECD, Cities Policy Responses to COVID-19, 2020). Zuid-Holland can use the momentum from this massive disruption to implement more in-depth changes that cut across several pillars and policy areas jointly.

The JGA also mirrors many of the priorities of the European Commission’s Recovery and Resilience Facility (RRF), which aims to help the EU emerge stronger and more resilient from the current crisis. The Facility will provide an unprecedented EUR 672.5 billion of loans and grants in frontloaded financial support for the crucial first years of the recovery. The Commission has identified seven flagship areas through their relevance across the EU and their potential to create jobs and growth and reap the benefits from the green and digital transitions in which investments are strongly encouraged. These are:

1. Power up – The frontloading of future-proof clean technologies and acceleration of the development and use of renewables.
2. Renovate – The improvement of energy efficiency of public and private buildings.
3. Recharge and Refuel – The promotion of future-proof clean technologies to accelerate the use of sustainable, accessible and smart transport, charging and refuelling stations and extension of public transport.
4. Connect – The fast rollout of rapid broadband services to all regions and households, including fiber and 5G networks.
5. Modernise – The digitalisation of public administration and services, including judicial and healthcare systems.
6. Scale-up – The increase in European industrial data cloud capacities and the development of the most powerful, cutting edge, and sustainable processors.
7. Reskill and upskill – The adaptation of education systems to support digital skills and educational and vocational training for all ages. (European Commission, 2020).

The JGA does already address several of these flagship areas, most specifically the promotion and development of future-proof clean technologies and renewables (areas 1 and 3) and the reskilling and upskilling of the population (area 7), showing that Zuid-Holland is on the right track for recovery and growth in the wake of the COVID-19 crisis. Concentrating some effort on the remaining flagship areas, for example by addressing energy efficiency in buildings within the “Accessibility and housing” or “Transition to a low carbon economy” pillar, or including the digitalisation of public administration and services and broadband rollout in the “Knowledge and innovation economies” pillar, would benefit the JGA and Zuid-Holland.

Aligning the JGA and post-COVID 19 recovery strategies

Even though the JGA was initially not designed as a recovery strategy, it has significant potential to reinforce the recovery strategies developed at local and provincial level. For MRDH, the JGA serves as the main long-term economic recovery strategy as it covers the two main areas that constitute its mandate: transport and economic development. The Province is currently developing a long-term recovery strategy and the JGA is planned to be part of it. Local governments such as Rotterdam and The Hague are also in the process of developing their long-term strategy, which will aim to align with the JGA while tackling specific local challenges. Due to the collaborative way it was designed and the key priorities it is targeting, the Joint Growth Agenda could help serve as a unifying framework for the future of the region, broadening

from a purely industrial strategy to a more holistic policy agenda. Coherence and synergies between the JGA and other strategies will be key to make the most of limited resources and achieve recovery.

Using the JGA as an agile and flexible tool for recovery and resilience

The JGA supports the vision of the region to achieve economic sustainability and regional integration at three scales: within the region, at the national level, and at the European and international level. It is based on long-term targets with concrete project proposals. Although it was not intended as a recovery plan, its success requires a certain degree of flexibility to adapt to a fast-changing socioeconomic environment. The implementation of JGA projects will also ultimately be conditioned to the support from the national investment fund. Beyond securing funding, monitoring the implementation of projects will also be critical to ensure they contribute to advancing economic, social and environmental goals. Since 2016, key economic, environmental and social indicators are reported in the *Regioverkenning*, a yearly report. However, those indicators only concern projects within the MRDH and do not include any comparison with initial forecasts. Implementing a clearly structured framework to monitor the outcomes of the projects in the overall province of Zuid-Holland would help track and stimulate progress in the region.

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