

Resilient Cities

POLICY HIGHLIGHTS of the OECD Report (Preliminary version)





JUNE 2016

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For further information, please visit:

http://www.oecd.org/gov/regional-policy/resilient-cities.htm

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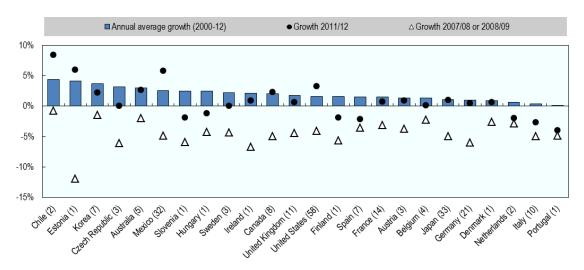
1. Why does resilience matter for cities?

Cities are complex systems, weaving together thousands of economic, social and institutional and environmental threads that affect individual and societal well-being. Across OECD countries, metropolitan areas cover only 4% of the land, but account for roughly half of the population and close to 55% of GDP (OECD, 2015a). The world's population is also driven by the growth of urban population, from less than 1 billion in 1950 to roughly 6 billion in 2050 (UN DESA, 2014). In OECD countries, the population in metropolitan areas increased by 12.5% from 2000 to 2014. As urban areas and the urban population continue to grow, so will the scale and impact of any shocks and stresses they face.

Cities experience a wide variety of shocks and stresses, such as industrial structural change (e.g. relocation or closure of a city's key firms); economic crisis (e.g. the global financial crisis of 2007/08 and the European debt crisis since 2009); population inflow/outflow; disasters (e.g. earthquakes, floods and hurricanes); disruption of the energy supply and leadership change.

For example, 175 among 281 OECD metropolitan areas had their lowest GDP growth rate in 2009, and 55 metropolitan areas in 2008 (Figure 1). Comparing the worst-performing year with 2012, GDP has increased by 6.3% on average in the 230 metro areas while Chile, Estonia, Mexico, Canada and the US recovered more than their average in 2000-2012. There are also wide differences in the level of increase. Metropolitan areas in Mexico increased by 10.6% on average from their lowest year to 2012, while those in Korea increased by 3.2%, and those in the Netherlands by only 0.9%.

Figure 1. Annual average GDP growth in OECD metropolitan areas with the lowest GDP growth rate either in 2008 or 2009



Note: The numbers in brackets after the names of countries show the number of OECD metropolitan areas with the lowest GDP growth either in 2008 or 2009 for the period 2000-2012. *Source*: OECD metropolitan database (2016).

Populations in metropolitan areas are aging. Metropolitan areas in 25 out of 29 countries have increased the older population (65+) (Figure 2). Metropolitan areas in 12 countries have seen their younger (0-14) population decrease, indicating that they may face a declining active labour force in the future.

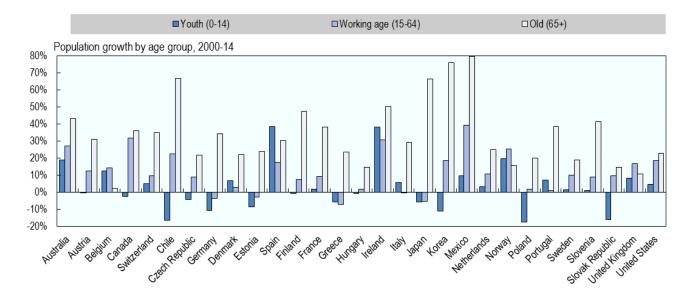


Figure 2. Population growth in OECD metropolitan areas according to age groups (2000-2014)

Large urban systems are particularly vulnerable to foreseen and unforeseen threats; any sort of shock to complex systems such as these will have significant economic, social, environmental and institutional repercussions. This report discusses cities' resilience to such shocks and stresses, and suggests policy approaches to build resilience.



Source: OECD metropolitan database (2016).

2. What are the drivers of resilience?

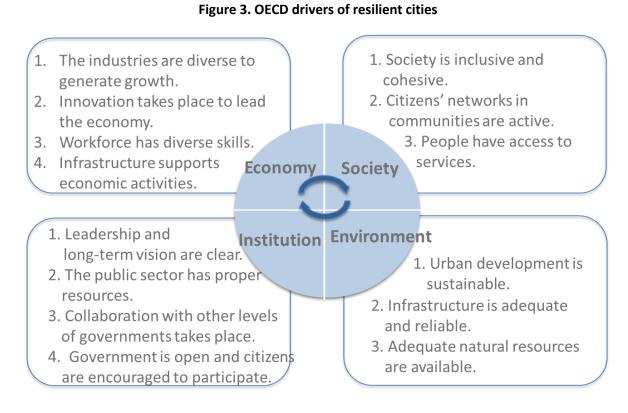
Resilient cities are those able to **absorb**, **adapt**, **transform and prepare for** past and future shocks and stresses in order to ensure sustainable development, well-being and inclusive growth. Resilience is made up of seven building blocks;

- Adaptive: An adaptive urban system manages uncertainty by evolving modifying standards, norms or past behaviour using evidence to identify solutions and applying the knowledge gained from past experience when making decisions about the future.
- **Robust:** A robust urban system can absorb shock and emerge without significant loss to its functionality. Robustness depends on a system that is well-designed, built and managed to absorb the impact of a shock and continue to operate.
- **Redundant:** Redundant urban systems are able to meet the need for spare capacity when faced with unexpected demand, a disruptive event or extreme pressure. This entails intentionally developing or having access to more than one source of action, service or service provider when necessary.
- **Flexible:** A flexible urban system allows individuals, households, businesses, communities and government to adjust behaviour or action in order to respond rapidly to change.
- **Resourceful:** A resourceful urban system can effectively and quickly restore the functionality of essential services and systems in a crisis or under highly constrained conditions, with the resources available.
- **Inclusive:** An inclusive urban system ensures that diverse actors and communities are fully consulted, engaged and empowered in the policy process, including in the policy design stage when possible.
- **Integrated:** An integrated urban system promotes a co-operative and, ideally, collaborative, or participatory approach to policy and programming that transcends sectoral and administrative boundaries to better ensure coherent decisions and effective investment.

Economic, social, environmental and institutional drivers to strengthen resilience

Four drivers to enhance resilience were identified by the OECD Ministerial Council 2014 and serve as the foundational structure for considering the resilience of cities: the **economy**, **society**, **environment** and **institutions** (Figure 3).

Building resilience demands a cross-sectoral, multidimensional effort and the co-ordination of diverse interests and groups. Resilience needs to be considered at a broader scale, for example, at the level of what the OECD identifies as metropolitan areas, defined as "functional urban areas".



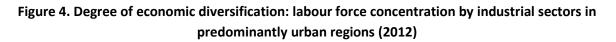
Source: Adapted from OECD (2014a), Overview Paper on Resilient Economies and Societies, Meeting of the OECD Council at Ministerial Level, 6-7 May 2014, Paris.

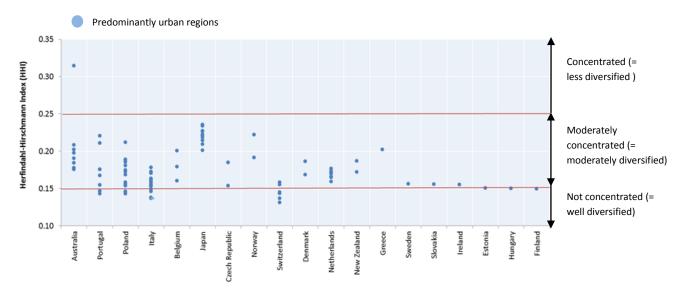
Important elements of drivers

Industries are diverse to generate growth

A diversified industrial base is a key driver for a resilient economy. Cities are more likely to be able to cope with changes in the industrial structure if they invest in diversifying the industrial mix and strike a balance between promoting existing industries and encouraging new ones. For example, in a city with low industrial diversification, any shift in demand for a city's dominant output can have a significant impact on the city's economy. If an economy is more diversified, it could attract a greater number and types of employment opportunities. It is worthwhile to note that diversification might reduce the degree of specialisation in an industry.

The degree of economic diversification can be measured by the Herfindahl-Hirschmann Index (HHI), which expresses to what extent industry is diverse in terms of, for example, labour force, among 10 industrial sectors (Figure 4). Among 95 OECD TL3 regions, where data was available, labour markets in 17 regions are assessed as being well diversified.





Source: OECD regional database (2016), own calculation.

Note: Herfindahl-Hirschmann Index (HHI) suggests to what extent the labour force is concentrated in specific industrial sectors or to what extent the labour force id diverse among industrial sectors. HHI below 0.15 is considered that the labour force is not concentrated in specific sectors.

Innovation takes place to lead the economy

Promoting innovation is also one of the major elements of the economic driver. A city with higher innovation capacity is likely to be more resilient. This is primarily due to the greater growth potential associated with innovation, and also to the possibility of greater economic diversification that can arise as a result of new products, services, and processes.

One way to measure innovation is the number of patent applications (Figure 5). Annual average growth ratio in the number of patent applications is high in metropolitan areas in Estonia (25.7%), Chile (22.9%), Portugal (14.7%) and Japan (10.0%). The number of applications per 1,000,000 habitants is larger in metropolitan areas in Finland, Sweden, Netherland and Denmark, but its annual growth is rather modest.

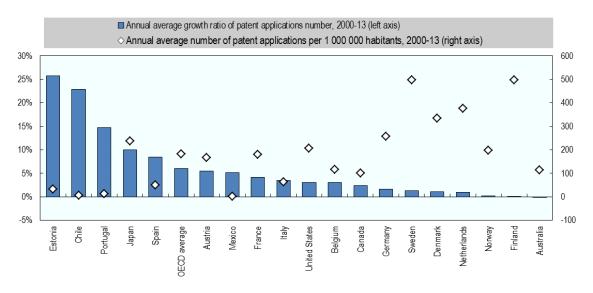


Figure 5. Patent application in OECD metropolitan areas, 2000-2013

Source: OECD metropolitan database (2016).

Workforce has diverse skills

A workforce with the appropriate skills helps the economy to become more flexible and responsive to economic and social change. The proportion of the labour force with tertiary education is a common proxy for measuring a region's capacity to generate innovation (OECD, 2013), and hence higher concentrations in tertiary educated labour force are generally associated with higher levels of economic stability in the long term (Figure 6). Countries such as Japan, Finland and the UK have relatively high concentrations in tertiary educated labour force on national average.

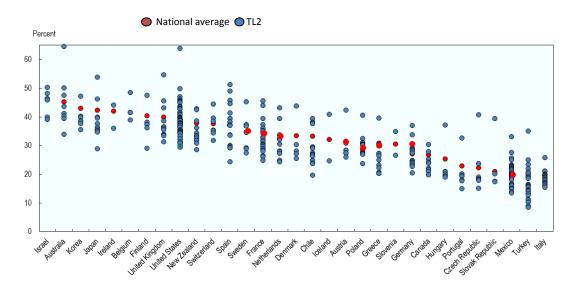


Figure 6. Share of tertiary education across the labour force, TL2 (2014)

Note: The data shows the share of the labour force with tertiary education (=education levels ISCED 5-8), out of the total number of people in the labour force.

Source: OECD regional database (2016).

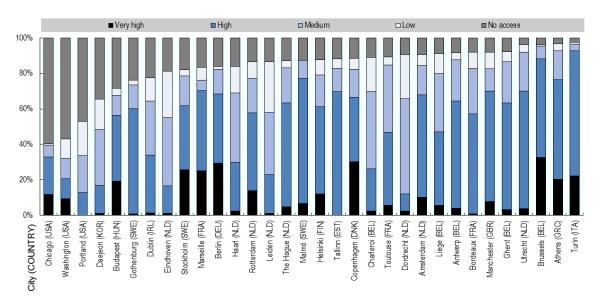
Society is inclusive and cohesive

Cities with higher levels of social capital, a stronger community fabric and more robust social infrastructure are more able to overcome shocks and stresses. While cities have the potential to provide jobs, better access to services and access to amenities that can build social capital, inequalities can be particularly striking in an urban context. Evidence suggests that inequalities tend to be greater in urban areas than in their respective countries as a whole, and that across OECD countries, income inequalities are on average higher in large cities (OECD, 2015a; 2014c).

When aiming to build a more resilient society, policy makers should consider the degree and causes of socio-economic inequality in a city, why it occurs, where and how it is most manifest, and how it may be affecting factors that can reduce resilience, such as poor education, poor health, low social capital, failing businesses, and environmental degradation. At the same time, the social infrastructure of individual communities should be taken into account, specifically the people, places and institutions that form each neighbourhood. This can provide some indication as to whether the community will collectively manage to withstand a sudden shock or long-term crisis.

People have access to public services

Opportunities to learn, work and contribute to the economic health of a city add to urban resilience. Access to services affects how people obtain what is necessary for their well-being and thus matters to urban resilience. Accessibility of public transport is one indicator measuring access to public services in cities (OECD, 2014c), which is a key element of the social driver (Figure 7). OECD has calculated the share of population and its varying degrees of access to public. Preliminary results for 32 OECD metropolitan areas show large differences in the access to transport in cities.





Source: OECD (2014c) How's Life in Your Region?: Measuring Regional and Local Well-being for Policy Making

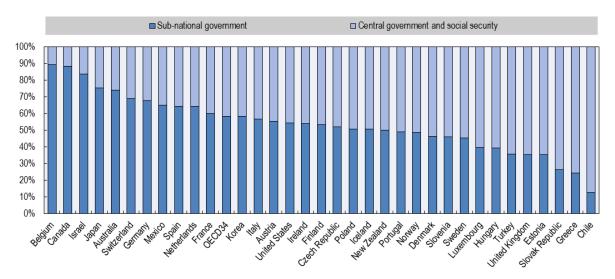
Urban development is sustainable

Addressing environmental factors that build a more resilient urban environment can also contribute to a more resilient society. Compact city policies, which involve dense development, good public transport and accessibility to local services and jobs (OECD, 2012), can help cities adjust their urban form to accommodate needs both for expanding and shrinking sustainably. It is important that such policies be supported by strategic land use for citizens and the private sector. They can also help cities cope with an ageing and shrinking population (OECD 2015c).

Collaboration with other levels of governments takes place

Collaboration with different levels of government, such as the national government and regional governments, is important for enhancing policy synergies and ensuring coherent decisions and effective investment. Collaboration with lower levels of government can also add value for policy making and implementation as well as horizontal collaboration among neighbouring cities. Collaboration across levels of government is all the more important for public investment, which is often shared between national and subnational governments (Figure 8). The share of subnational governments' investment varies, although in the OECD countries, an average of 59% of public investment is made by subnational governments. Co-ordination across municipal boundaries is especially important in metropolitan areas. It is a prerequisite for effective policies in many fields, because decisions in one municipality can have consequences on outcomes in other municipalities.

Figure 8. Composition of the national and subnational public investment as a percentage of the total in selected OECD countries (2013)



Source: OECD (2015b), Sub-national Governments in OECD Countries: Key Data, Paris, www.oecd.org/regional/regional-policy/Sub-national-governments-in-OECD-Countries-Key-Data-2015.pdf.

3. Policy approaches to build resilience

Cities are taking diverse policy approaches to enhance resilience in collaboration with other players, such as the national government, surrounding municipalities, NGOs, local citizens and the private sector (Table 1).

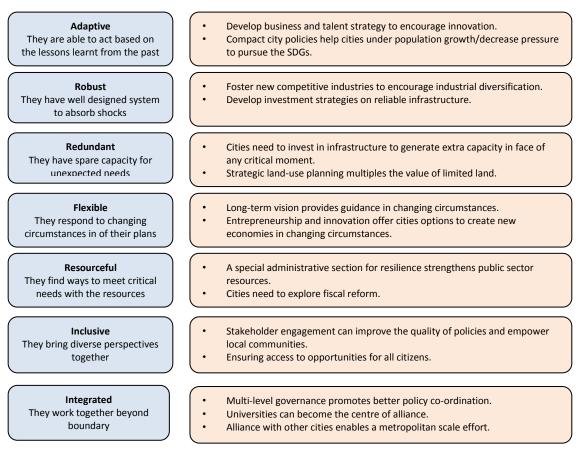


Table 1. Suggested approaches

Adaptive: Resilient cities act based on the lessons learned from the past experiences

Cities increasingly seek to promote their economic development and strengthen **adaptive** capacity by supporting innovation. **Tampere**, **Kobe** and **Lisbon** are good examples of cities redefining their business strategies on innovation and shifting their course, using their local resources, including people and universities. Similarly, compact city policies can help cities adjust their urban form to accommodate needs both for expanding and shrinking sustainably, improving the cities' **adaptive** capacity such as in **Toyama** and **Cardiff**.

Robust: Resilient cities have well-designed systems to absorb shocks

Diversifying the industrial mix and striking a balance between existing industries and new ones will favour the **robustness** of their economy, and provide a space to mitigate an industrial structural change. Industrial diversification can be achieved by attracting more firms to the city to encourage new industries, and supporting existing businesses in the city to expand their operations in another

industry. A clear commitment of the city and the firm is a key factor, backed by resources and welldesigned strategies, such as those in **Antalya** and **Ottawa**.

Redundant: Resilient cities have spare capacity for unexpected needs

Developing extra capacity for infrastructure in case of emergencies, and strategic land use, for example, can provide cities **redundancy** and a way to prepare for unexpected circumstances, as seen in the case of **Kobe**. It will enhance resilience to prepare for the future shocks and stresses by developing an alternative source of action, service or service provider when necessary.

Flexible: Resilient cities respond to changing circumstances in the scope of their plans

A well-designed long-term vision, such as those in **Cardiff**, **Ottawa** and **Kyoto**, gives cities a solid basis for governing their operations and helps them develop a **flexible** system that allows individuals, households, businesses, communities and government to adjust their behaviour in order to respond to rapid change. Encouraging entrepreneurship and innovation, such as in **Oslo**, also makes a city's economic base more diverse and **flexible**, to respond to any changes.

Resourceful: Resilient cities find ways to meet critical needs with the resources available

Establishing a designated unit responsible for resilience within the city administration, such as in **New York**, and fiscal decentralisation and granting cities autonomy to introduce a new local tax scheme, such as in **Yokohama**, can make cities more **resourceful** and able to restore the functionality of essential services and systems. **Kobe** reduced the fixed number of city employees and generated financial resource as part of its administrative and fiscal reform after the earthquake in 1995. Imposing tariffs and fees for access to city centres by car, as **Oslo** or **London** have done, can also provide revenue sources for cities.

Inclusive: Resilient cities bring diverse perspectives together

Ensuring that diverse stakeholders are fully consulted, engaged and empowered at every stage of the policymaking process makes cities **inclusive** and improves the quality of their policies. Citizen networks, such as those found in **Belo Horizonte**, may be one of the most important ways to help ensure resilience. Stakeholder engagement (e.g. in **Lisbon**) and social policies to improve the access of minority groups to employment (e.g.in **Antalya**) contribute to strengthening social cohesion and inclusiveness.

Integrated: Resilient cities work together beyond boundaries

Working closely with the national government and regional development agency, such as in **Bursa**, and forming an alliance with surrounding municipalities to address economic, social and environmental challenges common to the region, such as **Ottawa**, improve policy co-ordination and enable the cities to develop an **integrated** approach to ensure coherent decisions and effective investment. Universities can form the core of an alliance among municipalities, local industry and citizens, such as in **Kyoto**.

4. The way forward

While investing in areas such as industrial diversification, innovation, infrastructure, compact urban forms, community network development and capacities for the public sector will help ensure that a city can better respond to and rebound from challenges, crises and shocks, more needs to be done to promote a global policy debate on the resilience of the cities.

Most countries and cities still struggle to monitor the performance of policy measures in place and there is an empirical deficit in assessing and comparing the practices to increase resilience. There is a need to expand comparative data and develop benchmarks and indicators to measure resilience.

Enhancing resilience also requires a change of mind-set among citizens and all stakeholders. "Resilience-thinking" means investing for an unknown and unforeseeable future, and therefore depends on strong leadership as well as active citizen participation in the policy-making process. Participatory policy making should be more fully utilised to incorporate a wide range of perspectives into resilience-related policies.

In addition to initiatives by individual cities, close collaboration with the national government is important for building resilience. Most national policy frameworks for resilience stress the responsibility of the subnational governments as well as promote co-operation and the sharing of best practise across all levels of government (Table 2). For example, Japan's national policy framework on resilience was published after the Great East Japan Earthquake with an aim to strengthen the role of local authorities in resilience building by designing regional plans and appropriate assistance from the national government, as well as government-wide information sharing. Sufficient financial, regulatory, and institutional assistance from the national level are crucial for the cities to further develop their resilience.

Country	Framework	Role of cities
Japan	Fundamental Plan for National Resilience – Creating a Strong and Resilient Country (2014)	Local authrities are requested to have Regional Resilience Plans in collaboration with the national government.
Turkey	The Tenth Development Plan (2014- 2018)	This plan set the objectives and targets of local administrations to deliver more efficient, fast and qualified services; be participatory, transparent and environment friendly: care for the needs of the disadvantaged and be financially sustainable.
Portugal	The Road to Growth: A Medium-Term Reform Strategy for Portugal (2014- 2020)	Established a Municipal Fund to provide financial support to municipalities, to supervise fiscal adjustments and to increase transparency at local levels.
UK	Climate Resilient Infrastructure: Preparing for a Changing Climate (2011)	Cities should upgrade and adapt infrastructure to boost local resilience and minimise economic risks.
Finland	Action Plan for Disaster Risk Reduction (2012- revise every year)	This plan considers local authorities as key stakeholders in resilience building for natural disasters. It emphasises that collaboration among municipalities and rescue services should be enhanced.

Source: Cabinet Secretariat of Japan, <u>http://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/en/fundamental_plan.html;</u> Republic of Turkey Ministry of Development, available at:

http://www.mod.gov.tr/Lists/RecentPublications/Attachments/75/The%20Tenth%20Development%20Plan%20(2014-2018).pdf; Government of Portugal, <u>http://www.portugal.gov.pt/media/1424212/20140517%20Road%20Growth.pdf</u>; Department of Environment, Food and Rural Affairs of the UK, available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69269/climate-resilient-infrastructure-full.pdf; Ministry of the Interior of Finland, available at: http://www.intermin.fi/download/32948_142012.pdf.

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OECD (Organisation for Economic Co-operation and Development)

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to coordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan,Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD Public Governance and Territorial Development Directorate

OECD work on regional and urban development is concentrated in two divisions of the Public Governance and Territorial Development Directorate (GOV): the Regional Development Policy (RDP) Division and the Regional Policy for Sustainable Development (RSD) Division.

The Public Governance and Territorial Development Directorate is a leading international source of policy solutions, data, expertise and good practices for governments and other stakeholders seeking to strengthen public policy-making in the face of unprecedented economic, social and fiscal pressures. This involves:

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- Promoting the strategic capacity of government
- Reviewing the role of the state and its choice of policy instruments
- Improving the efficiency and transparency of public service design and delivery, focusing on innovation, trust and citizen engagement

• Fostering balanced, inclusive growth that maximises the potential of cities and regions as drivers of national performance. More information: www.oecd.org/gov.

RDPC (Regional Development Policy Committee)

With representatives from 34 OECD member countries, non-member countries and other organisations and networks, the Regional Development Policy Committee is a leading international forum for discussion and exchange of experience in the field of regional policy. The committee directs OECD work on territorial development policies to promote competitiveness and effective and innovative governance. Its Working Party on Urban Policy promotes urban policy exchange. More information: http://www.oecd.org/gov/regional-policy/wpurb-aboutus.htm. For further information, please visit: http://www.oecd.org/gov/regional-policy/resilient-cities.htm

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