

U R B A N TRANSITIONS ALLIANCE



**URBAN TRANSITION
INSIGHTS FROM INDUSTRIAL
LEGACY CITIES**

I.C.L.E.I
Local
Governments
for Sustainability

U R B A N TRANSITIONS ALLIANCE

**Industrial legacy.
Sustainable future.**

The Urban Transitions Alliance, an initiative led by ICLEI and funded by the Stiftung Mercator, presents an opportunity for industrial legacy cities across the world to demonstrate their commitment to sustainable urban development.

The Alliance is a growing network and knowledge-exchange hub of innovative urban transition policies and projects. It supports industrial legacy cities from across the globe to identify common challenges, share knowledge and develop solutions to successfully guide their individual sustainable transitions. The Urban Transitions Alliance cities shape the exchange focus according to their most-pressing needs and interests. They have jointly decided to explore the key topics of Infrastructure, Mobility, Energy, and Social Transition.

The knowledge captured from the Urban Transition Alliance exchanges in 2017/18 has been summarized in these Transition Insights from Industrial Legacy Cities.

More information on www.urbantransitions.org

ABOUT ICLEI

ICLEI - Local Governments for Sustainability is the leading global network of over 1,500 cities, towns and regions committed to building a sustainable future. By helping the ICLEI Network to become sustainable, low-carbon, ecomobile, resilient, biodiverse, resource-efficient, healthy and happy, with a green economy and smart infrastructure, we impact over 25% of the global urban population.

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INFRASTRUCTURE TRANSITION



Historically developed around extractive and manufacturing economies, deindustrialization has left many industrial legacy cities with an urban fabric no longer suitable for the 21st century. Vacant industrial land, idle factory buildings, and derelict railway tracks constitute examples of infrastructure systems in need of re-development. Urban Transitions Alliance cities have come a long way in transforming their outdated infrastructure and brownfields in an effort to re-invent themselves and meet their current and future needs.

KEY MESSAGES

- Many industrial legacy cities have been left with large tracts of unused industrial land and degrading infrastructure systems following their economic slowdown and the resulting downward spiral of job loss, population decline and disinvestment.
- By transforming outdated legacy systems into new assets, many industrial legacy cities have embarked on a path of transition and invested in large-scale redevelopment projects to re-invent themselves and create new visions of their urban future.
- Industrial site redevelopment can serve a variety of public policy objectives. Redevelopment projects can be used to generate public health and social benefits, create economic opportunities, attract investment and protect the environment by reducing urban sprawl.
- Elements of Industrial heritage can be strategically used to support the urban redevelopment process. They can either be incorporated into new developments or retrofitted for adaptive reuse purposes.

THE INFRASTRUCTURE DILEMMA OF INDUSTRIAL LEGACY CITIES

The decline of manufacturing and extractive industries left many formerly booming industrial cities of developed economies with vacant industrial sites and an outdated urban fabric. Quarries, factories and warehouses gradually turned into disused remnants of formerly flourishing economies scattered across the urban landscape. These sites were often neglected and left to degrade because of the costs and risks associated with their cleanup or simply due to a lack of demand or available investment. Railroads, harbors and other transport systems which were developed for industrial purposes were suddenly no longer needed. Other infrastructure systems like residential buildings were negatively impacted by the rising job loss and population decline that followed the economic downturn, turning once-lively neighborhoods into poverty-stricken, desolate areas. Disinvestment further exacerbated the deterioration of the physical landscape.

In order to renew economic growth and overcome the systemic effects of de-industrialization, industrial legacy cities have had to revitalize their post-industrial landscape, fostering a transition into a productive and stimulating place to live and work in that would restore residents' sense of place and attract investment once again. The knowledge and good practice examples created by these cities may be able to provide inspiration for other cities with industrial legacy features or cities following similar industry-driven development paths.

INFRASTRUCTURE TRANSITION

THE POTENTIAL OF RE-INVENTING THE POST-INDUSTRIAL URBAN LANDSCAPE

In an age of rapid global urbanization and urban growth, industrial legacy cities have come to realize the potential of their infrastructure assets. Many have embarked on a path of transition and invested in pivotal redevelopment projects that help to create new visions of their urban future. They have embraced the challenges around disused and under-invested land and infrastructure as unique opportunities to achieve a range of social and environmental objectives while simultaneously creating new economic prospects.

The regeneration of degraded post-industrial land offers a multitude of potential **public health and social benefits**. Remediating contaminated land is crucial to reduce the environmental health and safety risks that adjacent residents may be subjected to. Additionally, brownfield regeneration can serve as an essential neighborhood revitalization intervention, particularly where sites are situated within or next to disadvantaged and impoverished areas which could greatly benefit from a re-valuation of their surrounding public spaces. Such revitalization actions are often strategically used to advance social mix policy objectives such as deconcentrating poverty and enhancing social cohesion. In addition, redevelopment projects help to rebuild communities' sense of place and identity. In Dortmund, for example, a former blast furnace and steel plant site was turned into a 24-hectare lake that now constitutes a landmark of civic pride and local affiliation.





Closely linked to the social benefits is the range of **economic opportunities** associated with brownfield regeneration. Large-scale projects such as the redevelopment of former industrial sites often provide direct job opportunities for the local workforce. To this end, Baltimore's Center for Green Careers offers residents training in brownfield remediation to equip them with the necessarily skills to pursue such opportunities. In addition, many industrial legacy cities strategically have used urban regeneration projects to increase their attractiveness to prospective investors and the private sector. Measures include the adaptive reuse of existing legacy structures such as warehouses and factories to provide space for start-ups, research institutes, restaurants, and galleries, etc to name a few. As the good practice example of Gelsenkirchen demonstrates, brownfield redevelopment can be part of a larger strategy to promote job creation in less resource-intensive sectors that hold better economic prospects.

From an **environmental perspective**, the re-development of existing industrial sites is a key contributor to land conservation. It promotes urban densification and redirects development pressure away from the urban fringes and surrounding natural environment. If sites are contaminated, brownfield remediation is crucial to ensure healthy soils and groundwater. In addition, greening brownfields may directly contribute to urban biodiversity. Examples include the conversion of industrial facilities and their impermeable surfaces into urban parks, allotment gardens or wildlife meadows.

INFRASTRUCTURE TRANSITIONS IN PRACTICE

Urban Transitions Alliance cities have come a long way in re-claiming and repurposing their legacy systems into viable residential, industrial, and recreational sites. The concrete outcomes of these infrastructure transition processes are as diverse as the strategies they have been pursuing as the following examples showcase:

GELSENKIRCHEN'S TRANSITION INTO A SOLAR CITY

Previously known as the "city of 1,000 fires", Gelsenkirchen has reinvented itself into the "city of 1,000 suns". The conversion of a former coal-powered steel plant site into the Science Park Gelsenkirchen in the 1990s presented the starting point for the city's transition into a "Solar City". Equipped with 900 solar panels, the Science Park not only generates about one-third of its own electricity demand but it is also home to businesses and research institutes focusing on the development of clean energy technologies and strategies. Moreover, the Science Park's EnergyLab provides hands-on education opportunities for high school students to inspire the next generation of clean energy practitioners. Since the inauguration of the Science Park, several other post-industrial sites have been transformed into solar housing estates in line with Gelsenkirchen's solar city strategy.



INFRASTRUCTURE TRANSITION

FROM CONCRETE FACTORY TO MIXED-USE AREA IN HUIROU DISTRICT, BEIJING

Since 2015, Huairou District, Beijing, has redeveloped a disused concrete factory site into a mixed-use area. Once finished, the new site will encompass three zones: A science and technology research and development area, a culture creativity area as well as an exhibition area. Adaptive reuse has played an important role in Huairou District's redevelopment strategy. In the culture creativity area, for example, a former warehouse and silo have been repurposed into a hotel complex. Similarly, the old machine repair shop has been turned into an exhibition hall and the workers' club will be used as an exchange platform for research & development practitioners upon completion. Next to Huairou District's focus on adaptive reuse, it will create a forest park on the former mining site to provide a recreational area for its citizens.



KATOWICE'S CULTURE ZONE

Following the gradual decline of its heavy industry, Katowice has been investing in the creative economy. The transformation of the former coal mine "Katowice" into the Culture Zone showcases the city's commitment to expanding its cultural sector. The zone encompasses the new seat of the National Polish Radio Symphony Orchestra, the Spodek sports and entertainment hall, an international conference center as well as the new Silesian Museum. Situated in the heart of the city, the Culture Zone has become a major attraction for tourists and local residents alike with its multitude of concerts, shows and exhibitions. Moreover, the zone features attractive green spaces and unique architectural designs. The museum's building complex, for example, includes elements of the site's industrial past with its main exhibition area located in the old mine shaft at 14 meters underground.



MOBILITY TRANSITION



An eco-friendly and less car-dependent mobility system is a key element of industrial legacy cities' transition towards a more sustainable future. Urban Transition Alliance cities promote a modal shift towards local public transport and non-motorized transport like cycling and walking in order to improve air quality, reduce congestion and contribute to the well-being of their citizens and increase mobility services in previously disadvantaged city districts. Making urban freight systems and the way goods are moved through the city sustainable is another part of the same coin. Opportunities to repurpose existing infrastructure like industrial-era rail ways or highways that run through urban centres are among the specific advantages of industrial legacy cities. Urban Transitions Alliance cities aim to become frontrunners in integrated, socially inclusive and eco-friendly mobility systems by leveraging these opportunities to accelerate their mobility transition.

KEY MESSAGES

- Industrial Legacy cities aim to reduce car dependency in favour of walking, cycling and public transport.
- Combating air pollution to increase urban health is a major task for industrial legacy cities and in some cases a driver for an accelerated mobility transition away from fossil fuels.
- Transportation hubs can serve to bridge segregated urban districts while integrating transport modes.
- A major mobility planning challenge is to overcome the results of outdated city-planning practices that resulted in single-use districts or large scale infrastructure barriers that hinder spatial integration.
- Industrial legacy infrastructure like railways or highways can be used as assets for diversifying the modal split of industrial legacy cities and promoting sustainable transport.

An eco-friendly and less car-dependent mobility system is a key element of industrial legacy cities' transition towards a more sustainable future. Low emission development, meeting ambitious renewable energy targets and improving urban air quality by reducing NO₂ emissions require a shift away from fossil fuel powered vehicles towards. Increased connectivity and access to affordable, integrated and safe transport for citizens, particularly for those living in previously disadvantaged urban areas is a key component of a successful social transition that improves quality of life and economic opportunities for citizens. Achieving these goals requires a paradigm shift in mobility planning, promoting mixed-use spatial planning alongside multi-modal mobility planning with a focus on moving people and goods rather than moving vehicles, favouring mobility modes that serve the majority of the urban population over private vehicle use and related large scale infrastructure expansion.

OVERCOMING SEGREGATED AND SINGLE-USE URBAN PLANNING

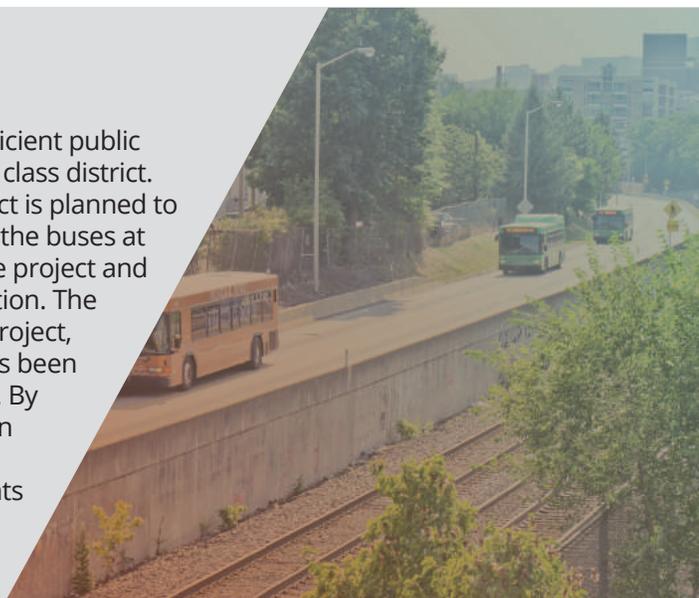
During the expansive growth periods of western industrial legacy cities in the 19th and 20th century, urban planning principles promoted single-use urban districts, separating residential from industrial areas, and distinguishing working class neighbourhoods on the urban periphery for a fast growing population of migrant workers from upscale urban centres. Until today, the socio-economic structure of many of these neighbourhoods remains at a disadvantage in terms of economic opportunities, social coherence and access to integrated, affordable and safe mobility services. In general, individual districts of industrial legacy cities are often cut off from neighbouring areas through natural barriers like rivers or large scale infrastructure like railways or highways with little opportunities for pedestrians, bicycle traffic or public transport to cross from one area to another, which can provide a major barrier for integrated city planning and the mobility transition at large. Monocentric city planning in some Chinese cities, which features high-speed ring roads for cars often physically cuts off urban centres from more peripheral urban areas. To already very high amounts of other air pollutants such as particulate matter of varying sizes (PM10, PM2.5) from energy generation, industrial production, households or non-transport sources.

REDUCING CAR DEPENDENCY

The major mode of transport in many industrial legacy cities are privately owned combustion engine cars, which benefit from car-centric infrastructure development promoted particularly in the second half of the 20th century, when many industrial legacy cities in Europe and North America reached their population peaks. Industrial cities in China have applied similar development modes particularly since the reform and opening period of the country in the last four decades. While public transport and cycling infrastructure in Chinese industrial cities has seen immense growth as well and some cities have started to restrict car traffic, the private car is still seen as the most comfortable, convenient and desirable mode of transport by a majority of residents.

PITTSBURGH'S ELECTRIC BRT BRIDGES UPTOWN AND THE GOLDEN TRIANGLE

The city of Pittsburgh is actively transitioning into an energy-efficient public transport system, while revitalizing a former industrial working class district. The Downtown-Uptown-Oakland Bus Rapid Transit (BRT) project is planned to provide an exclusive lane for buses including a prioritization of the buses at transit signals. Pittsburgh will purchase 25 electric buses for the project and therefore reduce greenhouse gas emissions and local air pollution. The district, which is expected to be the biggest beneficiary of the project, is the former industrial working class district Uptown, which has been struggling with disinvestment and seen a decline in population. By connecting Uptown with the central business district Downtown – colloquially known as the Golden Triangle - the BRT project contributes to Uptown's neighborhood growth and link residents to job centers, educational opportunities and cultural offers of Pittsburgh through sustainable public transportation.





COMBATING AIR POLLUTION

Congestion, noise and air pollution, carbon emissions and the disproportionate occupancy of valuable urban space by streets and parking areas are some of the resulting consequences shared by industrial legacy cities across the globe. NO₂ emission levels in most industrial legacy cities are frequently above limits set by national or supranational legislation as a direct result of car traffic. In Eastern European and Chinese cities this adds to already very high amounts of other air pollutants such as particulate matter of varying sizes (PM10, PM2.5) from energy generation, industrial production, households or non-transport sources.

REVITALIZING LEGACY INFRASTRUCTURE ASSETS

The spatial structure of Urban Transition Alliance cities show similar starting points for interventions in the mobility planning and provide locally specific opportunities for industrial legacy cities to define their own paths towards a more sustainable mobility system. Opportunities to repurpose existing infrastructure like industrial-era rail ways or highways that run through urban centres are among the distinct advantages of industrial legacy cities. Some of these transport ways provide an opportunity to be retrofitted as multi-modal pathways with public transport systems like passenger rail, bus rapid transit systems (BRT) and bike lanes and walkways that connect districts within the city or even provide opportunities for regional transport system integration. Similarly, urban regeneration actions that turn former industrial sites into recreation areas or mixed-use sites with both residential and commercial elements can create new socio-economic opportunities based on historical layout of industrial legacy cities. This would complement the mobility transition by increasing the attractiveness and usefulness of refurbished legacy infrastructure.

WALKABLE CITY CENTRES AND MULTI-MODAL HIGHWAYS

Some industrial legacy cities feature dense urban areas with narrow streets, which provide good conditions for car-free urban design with an emphasis on barrier-free walkability, space efficient public transport services and the refurbishment of parking infrastructure as public space or for multi-use development. North American industrial legacy cities often possess such features as they were designed for streetcars rather than automobiles, which may now be seen as an advantage for public transport oriented mobility transitions. In post-war-era industrial legacy cities, inner-city highways, broad streets and large parking lots are a common feature. Currently reserved for car use, these abundant can be utilized for increased bus traffic, additional bike lanes along main urban infrastructure corridors and provide a good opportunity for the creation of bicycle highways or other modes of transport.

TRANSPORT HUBS TO BRIDGE MOBILITY MODES AND URBAN DISTRICTS

A network of strategically located transport hubs, which integrate public transport, electric vehicle and bike sharing in one location via a single ticketing system, can provide access points for pedestrians to integrated mobility systems in these cities. The benefit of transport hubs can be particularly great if they are positioned at the intersection of urban districts that are traditionally separated by highways or rail lines, serving not only as an access point to the cities mobility system but also as a walkability bridge between urban areas.

MOBILITY TRANSITION

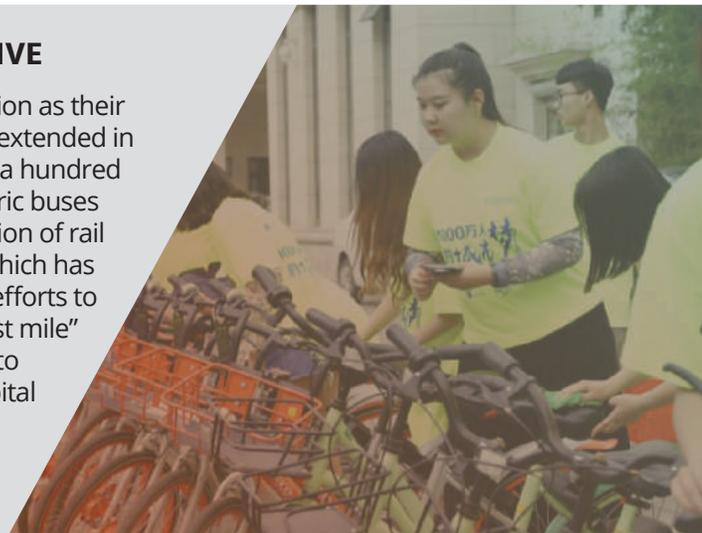
DORTMUND'S INDUSTRIAL RAILS BECAME A BIKE HIGHWAY

The city of Dortmund alongside with the other regional cities is using the old railway infrastructure in the coal mining region to develop a regional cycling-path network. The railway tracks were built between 1866 and 1874 and the freight train operation stopped in 2002. The cities recognized the potential are transforming the old tracks into a cycle highway with a minimum width of 4 meter to encourage the inter-city commuters to switch from car to bicycle. The promotion of cycling is one of the central aspects of the mobility transition in Dortmund in order to particularly tackle the high levels of air pollution in the inner city. With the 80 km long cycle highway Radschnellweg 1 (RS1) between Duisburg and Dortmund and an additional 21 Kilometers between Dortmund and the city of Hamm, over 50.000 car journeys can be saved in the region daily. Therefore, the city of Dortmund is actively planning on the RS1 section in Dortmund by working on the transformation of the streets into bicycle paths and on the changing of the priority regulations.



SHIJIAZHANG YUHUA'S GREEN MOBILITY INITIATIVE

The Yuhua District encourages citizens to use public transportation as their main mobility choice. In recent years, the bus routes have been extended in all directions in the district, allowing citizens to take a bus within a hundred meter's walk. At the same time, Yuhua has widely used the electric buses to reduce carbon emissions. Yuhua is accelerating the construction of rail traffic network, subway lines 1 and 3 are already in operation, which has conveniently facilitated citizens' mobility. The District has made efforts to standardize the management of sharing bicycles, solving the "last mile" problem in getting citizens from bus stops and railway stations, to their final destination. As Shijiazhuang was once China's bike capital with a bicycle modal share of 55%, Yuhua district also organizes bike races, brisk walking, hiking activities to re-ignite citizens' awareness on low-carbon lifestyle and green mobility.



ENERGY TRANSITION



Leading an energy transition can be complex and investment-heavy, especially for industrial legacy cities due to their historical reliance on carbon-based and extractive industries. However, these cities recognize that their pathway to a more sustainable future will be powered by clean energy. To ensure that the shift to low-carbon and renewable energy takes place, local governments need to comprehend the challenges and historical barriers they face. At the same time, by collectively using policy levers and innovative actions – industrial-legacy cities are already building momentum and support for their energy transition visions.

KEY MESSAGES

- Energy transitions provide a clear pathway for industrial legacy cities to move towards a more sustainable future. These cities have the opportunity to become front-runners in energy investment and innovation whilst also creating a healthier and more prosperous future for their citizens.
- Industrial legacy cities face specific challenges when attempting to transition their energy systems due to aging energy infrastructure and building stocks, energy inequality among residents as well as a need to change policies and conditions in energy systems so that they can support the expansion of renewables and investment in new economic sectors.
- Cities need to create a clear vision for their energy transitions and set clear, ambitious goals that can be followed through with actions led or supported by local governments.
- Industrial legacy cities can utilize existing tools, incentives and infrastructure to increase energy-related investment.
- Strong partnerships and community engagement will be vital components for achieving a successful energy transition.

A VISION OF A SUSTAINABLE ENERGY FUTURE

Energy transitions provide a clear pathway for industrial legacy cities to move towards a more sustainable future. These cities view their transitions towards sustainability as a catalyst for a **new wave of investment leading to** the renewal and replacement of aging energy systems with advanced technologies and efficient infrastructure that will improve service delivery, limit transmission losses and decrease carbon emissions.

Energy transitions hold the potential for a **new chapter of economic growth**. The clean energy industry is growing and evolving rapidly, creating green-job opportunities and fostering local investment in a forward-looking economic sector. Industrial legacy cities are strategically positioning themselves as hubs for new energy technology development and sustainable manufacturing. Existing industrial infrastructure, investment incentives and initiatives that provide renewable energy production, installation and maintenance training to local residents make industrial cities attractive locations for companies to invest in.

Energy transitions offer the **promise of healthier and more sustainable urban environments**. By expanding their use of renewables and energy innovation such as electric cars or low-emission heat sources, industrial legacy cities are making rapid progress in reducing their GHG emissions and curbing air pollution.

ENERGY TRANSITIONS NEED TO OVERCOME MULTIPLE SYSTEMIC CHALLENGES

To implement a comprehensive and integrated shift towards new clean and renewable energy sources, local governments need to tackle the full spectrum of energy-related challenges, particularly the challenges intensified by their industrial pasts.

Upgrading old buildings and infrastructure

Many industrial legacy cities face a need to update and maintain aging infrastructure, including an older building stock, which negatively impacts the overall energy efficiency. In many cities, these infrastructures were built several decades or even a century ago at the height of urban industrial growth. Due to de-industrialization and subsequent economic recessions, infrastructure systems in industrial legacy cities often suffered from severe under-investment and no longer meet energy efficiency requirements of a low carbon economy. Moreover, rapidly growing cities in China which still followed an industry-driven development model often see newly-built infrastructure becoming outdated at an accelerated pace.

Rising energy bills and lack of investment

Economic decline in industrial legacy cities has also led to **rising energy burdens on residents** – where low-income households spend a much higher percentage of their incomes on energy compared to an average-income household. Rapid job-loss and limited alternative employment opportunities for workers following the closure or relocation of industries can easily lead to rising inequality and poverty. This results in an increase in the number of households impacted by the energy burden. In addition, necessary upgrades and renovations to save energy require costly upfront investment that is too high for many for homeowners. Meanwhile, existing subsidy and support schemes can be complicated to navigate. Local governments aiming to promote new energy solutions will need to prioritize affordability of renewable energy solutions and easy access to energy efficiency programs to ensure that the opportunities and benefits arising from the transition can be distributed more equitably among residents.

Fostering a low emissions economy

Industrial legacy cities developed on the back of fossil-fuel energy systems. Shifting energy supply to low carbon renewable sources in many cases requires the development of new physical systems, business models, policies, procurement processes and regulations. Starting to develop and put these mechanisms in place can be a long learning process for cities. Air pollution also remains an issue in many industrial legacy cities, be it for electricity generation and industrial processes as seen in Shijiazhuang, residential heating like in Katowice, or transport-related emissions seen in many more industrial cities around the globe. Successful energy transitions will need to reduce harmful energy-related emissions.



BUILDING ENERGY TRANSITION MOMENTUM AT THE LOCAL LEVEL

Energy transitions can be a daunting task for local governments even without the additional challenges inherent to their industrial pasts. Setting strong examples and fostering collaborative action – cities in the Urban Transitions Alliance have showcased how a multi-faced approach is essential for implementing a city-wide shift to a clean energy future.

Setting clear commitments and goals

Announcing an energy transition target publicly helps to create impetus and transparency for local governments' actions. Public pledges also increase awareness and encourage active local participation accelerating a city-wide energy transition. Targets in Urban Transitions Alliance cities include 100% renewable energy commitments, CO₂ reduction targets as high as 95% compared to 1990, ambitious energy-efficiency and building refurbishment targets as well as projects for municipally-owned solar arrays aimed at exponentially increasing local renewable production. More importantly, industrial legacy cities need to commit to divesting from fossil-fuel use and investment, coal-production and fossil-fuel intensive industries.

Increasing access to incentives, support and assets

Local governments need to make the most of the tools they have at their disposal to propel their energy transitions forward. To start, municipalities can use multi-level climate action to their advantage by increasing awareness of public subsidies and incentives for renewable energy investment and energy efficiency building renovations provided by national, state-level governments or even non-state actors. Maximizing the use of these programs can provide additional financial support for local investment projects. Many of the Urban Transitions Alliance cities have set up advisory programs and information portals where local residents can access clear information on these resources.

Local governments can also make city-owned assets available for energy transition projects. Old industrial factories, rooftops of municipal buildings and vacant lots are just some of the under-utilized resources cities can be made available to expand renewable energy infrastructure. Essen encourages community investment initiatives by providing access to school rooftops for citizen-led solar array investment in residential neighborhoods while Gelsenkirchen turned old industrial buildings into a solar-science park.

Engaging in partnerships and supporting community initiatives

Local governments are also not the only active drivers of sustainable energy transitions. Implementing new energy solutions or even upgrading older energy infrastructure requires collaboration among all impacted stakeholders. Local governments can also utilize their energy transitions to bring new actors into the mix in order to generate new ideas that have a more sustainability focused-lens.

Across the Urban Transitions Alliance cities there are examples of strong local actors leading ambitious energy initiatives including resident associations, non-profit organizations, start-ups and forward-thinking companies. Cities that amplify the role and voices of these change agents by including and supporting their actions within overarching energy plans will ensure that the energy shifts are both efficient but also equitable. Pittsburgh has set up a partnership with Carnegie Mellon University for the Smart Data Utility Project. Dortmund on the other hand included residents as key partners when designing the city's energy transition Masterplan.

ENERGY TRANSITION

BEIJING E-TOWN'S ENERGY TRANSITION MASTERPLAN

Beijing's Economic-Technological Development Area (known as E-town), has already spent RMB 250 million (USD 41 million) on changing all its coal-driven generators to gas-driven ones, to reach its goal of cutting 38,000 tons of coal consumption. The establishment of coal-free zones is now a trend in China, but E-town aims for an unprecedented shift. The development area plans to replace all three power plants in the area, reducing sulfur dioxide emissions by an estimated 300 tons and nitrous oxide emissions by 70 tons. Six districts near the city center hope to be coal-free by 2020, with electricity and natural gas accounting for more than 90% of total energy usage in the city.



CINCINNATI - A CITY'S ROADMAP TO RENEWABLE

Cincinnati has been actively pursuing its goal to cut emissions by 80% by 2050 and achieve 100% renewable by 2035. Since 2006, the city has achieved an average annual carbon emission reduction of 2%. This has been accomplished through a number of city-led initiatives, support mechanisms and incentives. The city now has 1.8 MW of renewable generation on city facilities, and implements a city-wide Energy Aggregation Program that purchases 100% green energy for 80,000 households while simultaneously reducing participants' energy bills by 10%. The Solarize Cincinnati initiative boosts local solar production by bulk buying solar panels for residential homes and business premises leading to 20% savings on retail prices. As of January 2018, Cincinnati purchases 100% green energy for all city-owned facilities. This action was able to cut the local government's carbon emissions by 9.1%.



KATOWICE – ENERGY ACTION TO SAFEGUARD THE ENVIRONMENT

Taking urgent action on air quality and carbon emissions, Katowice has started to implement energy initiatives in line with the EU's 2020 climate and energy package. Katowice's Low-carbon Economy Plan outlines the energy transition strategy with a focus on increasing energy efficiency and improving energy management expertise. Actions include subsidies for low-emission heat sources, increased regulation on the incineration of waste and non-authorized fuels and plans to update bus fleets with new ecological units. The city has also announced that it will retrofit 21 urban buildings to become more energy efficient by the end of 2019.



SOCIAL TRANSITION



The social transition is about people. When industrial legacy cities re-structure their social and economic systems, a key concern is that no person or social group is excluded or left behind in the transition to a more sustainable future. Instead of playing environmental, social and economic aspects of the transition off against each other, local governments can leverage their synergies to increase social inclusion and equity. Cities across the Urban Transitions Alliance are continually exploring new ways to engage their citizens and create opportunities for them to thrive.

KEY MESSAGES

- Industrial legacy cities should place their citizen's needs at the center of their transition strategies. In order to improve opportunities for all social groups across the cities, equity and inclusion should be defined as the principal values that guide their policies.
- The social transition of industrial legacy cities provides a great opportunity to re-shape their urban identities and create a new sense of place and belonging for citizens. Shared visions that reconcile industrial legacies with new sustainable pathways are essential to building identification, cohesion and trust across the cities.
- To ensure that public investments meet citizens' needs, local governments need to proactively engage their local communities. The Urban Transitions Alliance cities are exploring innovative ways to ensure that their policies are informed by the diverse concerns and visions of their citizens, especially of those whose voices are often not heard.
- Industrial legacy cities need the support of local stakeholders and strong partners in order to build more sustainable, diverse and resilient local economies and provide support for citizens who have yet to fully benefit from sustainable transition actions.

Social transition is about people. Tied to the overall well-being and equity in cities, social transitions are the core of the fundamental restructuring currently underway in many industrial legacy cities around the globe. Often simplified dichotomies, like framing job creation and climate protection as mutually exclusive, play environmental, social and economic transition aspects off against each other. To counter this, cities in the Urban Transitions Alliance proactively seek to find synergies that will lead to more inclusive policies, fairer opportunities and stronger communities.

Four key elements are crucial for a successful social transition towards inclusivity and equitability. **Citizen engagement** practices help to incorporate diverse voices in the decision-making process and thus support social inclusion through consistent representation and participation for all demographic groups. To understand the different needs within the city, local governments need to interact with their citizens and provide meaningful access to governance processes. **Shared visions** that reconcile industrial legacies with new sustainable pathways are essential to building community identification with common goals, social cohesion and trust across the cities. Positive narratives help to increase the feeling of ownership in communities and attract investment. **Education and social capacity development** strategies empower citizens and enable them to participate in community life in a meaningful way. Targeted subsidies can release financial burdens and create space for creativity and innovation. **Social protection** schemes provide a safety net for those who are the least able to access and seize new opportunities. Additionally, anticipating future employment trends can help to calculate for financial stressors as well as identify new economic growth pathways at an early stage.

FACING SOCIAL TRANSITION CHALLENGES

The decline of fossil-fuel powered industries in developed countries has had a significant impact on cities that relied on industrial growth for their overall economic and social development. Many industrial cities have been confronted with surging unemployment and rapid population loss in relatively short periods of time, following a previous era of economic boom and urban expansion. With the loss of their economic engine, like the closing of mines or steel mills as major employers, often came a loss of local identity for the city as well. The remaining negative images of pollution and rising poverty reinforced trends of little investment prospectus and population decline in some cities. Loss in tax revenue often further diminished the cities' resources for social protection for those staying behind. In legacy sectors, prospects of job loss often come along with endangered company pensions. Already vulnerable social groups often faced the biggest hurdles when adapting to the new conditions. Following years of divestment, former workers' neighborhoods may still suffer from poverty, social exclusion and deterioration. Global trends of rising income inequalities and gentrification further add to the burden on the most vulnerable social groups.

Recognizing the need to re-structure their social and economic systems, the Urban Transitions Alliance cities have developed distinct measures and policies to navigate their transition.

ASKING THE CITIZENS – AND LISTENING TO THEIR ANSWERS

The Urban Transitions Alliance cities are implementing citizen engagement strategies to ensure that their policies reflect their communities' needs and conditions. Ideally, citizen conversations entail honest, eye-level exchange without predetermined conclusions that create space for criticism, new perspectives and unconventional ideas. A number of cities have successfully worked with community leaders and persons of trust as ambassadors or "contact brokers" to create opportunities for open conversations that give a voice to underrepresented social groups. Multi-stakeholder workshops that inform the cities' transition strategies are another valuable tool for more inclusive decision-making. New ways of outreach should be explored in consideration of their limitations. For example, social media tools can contribute to more direct and convenient communication but may exclude certain social groups who aren't familiar with social platforms and new media.

BUILDING A SHARED IDENTITY AND VISION ROOTED IN THE CITY'S LEGACY

The positive effects of strong narratives are multi-dimensional: Targeted campaigns can change the image of the city beyond its boundaries and thus spur investment and attract skilled professionals. Within the city, shared visions support social cohesion by creating identification and ownership. Industrial legacy cities have been creating new visions that redirect their urban development narrative and redefine their place identity. Together with their citizens, they re-tell their stories in a way that embraces their transition, using the reinvention process as an opportunity to question guiding imperatives and co-imagine more sustainable and just ways of living.



CREATING PROSPECTS FOR A BETTER LIFE

Investments in skills development and job creation empower citizens to define their own space within the city's transition. For the majority of Urban Transitions Alliance cities, the creation of a diversified employment landscape goes hand in hand with increased job quality and the provision of career education opportunities – taking into account diverse skill sets across the digital divide and other demographic differences. Needs for education and training usually vary in different communities, and these differences need to be taken into account when designing support measures that strengthen the value of education in different communities, equalize learning opportunities and increase social mobility. Thus, close cooperation with employers, schools and universities are essential to develop tailored education and re-training programs. To be even more effective, these interventions need to be addressed comprehensively throughout the education system with a cradle-to-career approach.

PROVIDING SOCIAL PROTECTION AND ANTICIPATING FUTURE STRESSORS

A fundamental aspect of safeguarding social transition progress is the anticipation of future social challenges and the creation of a safety net for those who fell behind during the transition. Schemes to provide social protection from hardships such as unemployment, disability, accidents, illness, old-age poverty and needs for care provide a base line for systemic social resilience as a foundation for social progress. Partnering with civil society organizations, trade unions and foundations can lead to more comprehensive strategies that cover diverse individual needs and may open the door to new funding and delivery models that increase the cities' social protection capacity. Social resilience also requires foresight and anticipation of future challenges, such as the aging of the urban population, value loss of specific skill sets for the future local economy or changes in family and household structures. Using research cooperation on demographic and economic trends and awareness on the future of work, some Urban Transitions Alliance cities are able to implement forward-thinking policies for future transition challenges.

ENSURING BALTIMORE'S VOICES ARE HEARD

Placing equity at the core of its sustainability efforts, the City of Baltimore applies distinct ways to ensure that different voices across the city are heard. Developed to inform Baltimore's 2018 Sustainability Plan update, the "Every Story Counts" campaign has sparked a city-wide conversation about developing a sustainable and resilient future. Stories from residents were collected and shared, especially focusing on the inclusion of those voices that have been marginalized or negatively impacted by the city's transition. Additionally, 125 sustainability ambassadors were engaged to interview their neighbors on challenges and ideas for their communities. The city supports the process with equity training, funding and evaluation measures. Through their stories and statements, the citizens' concerns and visions directly influence Baltimore's transition policies.



SOCIAL TRANSITION

ESSEN'S TRANSITION FROM GREY MOUSE TO GREEN CAPITAL

The city of Essen has long outgrown its legacy image as a “grey mouse”, referring to the industrial pollution that used to characterize the city. The city's ambitious and ongoing environmental cleanup and restoration has recently been rewarded with the title of European Green Capital 2017. Throughout the 2017 year, 453 projects and events engaged residents and visitors in Essen's transition to a green and livable city. Public funding for citizen-led projects successfully enables communities to take ownership of their city and shape their own vision of a sustainable future. The industrial legacy remains a core element of Essen's identity, allowing citizens to take pride both in their past and in their city's transition achievements. A tangible example is the Zollverein: The former coal mine was redeveloped into a museum, park and cultural hub in a socially and environmentally sustainable way. Today, it attracts investment and boosts local job opportunities while increasing biodiversity and natural green spaces.



INSPIRING ENGAGEMENT AND OPPORTUNITIES IN BUFFALO

Buffalo's Willert Park neighborhood had suffered from long lasting disinvestment and high poverty rates. The city's “green streets” revitalization project has combined citizen engagement with education and career information. Community meetings held with residents, block clubs, neighborhood council members and churches sparked the idea to bring green infrastructure in the form of rain gardens to two community centers. The gardens were realized in the “Water Worx” summer school: Kindergarten and school children have been educated to execute the design and layout themselves and they were also introduced to sustainability related career opportunities. “Water Worx” shows a true holistic approach: The environmental benefits are augmented by increased community ownership and career inspiration opportunities.





IMAGE CREDITS

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