

PROMOTING SUSTAINABLE ECONOMIC GROWTH AT THE LOCAL LEVEL

A study to spotlight local initiatives for laying a roadmap
for prosper and inclusive future for all





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Published By

United Cities and Local Governments Asia Pacific (UCLG ASPAC)
Belt and Road Local Cooperation

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The Report has used official data released by central, regional and local governments, and additional information gathered by the UCLG ASPAC research team from other reliable sources. It is important to acknowledge that data varies according to definition and sources. The reports tries to highlights the initiatives taken by the local governments especially by the countries implementing projects of the Belt and Road Initiative. The report also brings and shares the experience on COVID-19's responses, challenges and strategies from different regions and nations of the world for building more robust pandemic management system at local level and make local governments pandemic-proof.

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About UCLG ASPAC

UCLG ASPAC is the largest regional section of the United Cities and Local Governments (UCLG), a worldwide association and the only local government organization recognized by the United Nations. UCLG was established on 01 January 2004 and is headquartered in Barcelona, Spain.

UCLG ASPAC was established in Taipei on 14 April 2004. UCLG ASPAC is the key knowledge management hub on local government issues in the Asia Pacific region. Its scope of work includes advocacy, capacity building, policy and research, programme and projects, and decentralized cooperation. The Asia and Pacific region has linkages to more than 7,000 local governments. It represents well over 3.76 billion people, making up more than half of the world's population, and incorporates economically fast-developing countries such as China, India, and Indonesia.

UCLG ASPAC members are mostly individual city and local governments and their associations. UCLG ASPAC Secretariat is hosted by the Capital City Government of Jakarta, Indonesia.

About BRLC

UCLG ASPAC Committee on the Belt and Road Local Cooperation (BRLC) was inaugurated at Thematic Session on People-to-People Connectivity at the first Belt and Road Forum for International Cooperation in Beijing. BRLC is founded, within the framework of UCLG ASPAC, by Hangzhou Municipal Government and the Chinese People's Association for Friendship with Foreign Countries (CPAFFC) with the Secretariat located permanently in Hangzhou.

With the mission of Openness, Cooperation, Sharing and Win Win, BRLC, based on the UCLG ASPAC, is committed to integrating the Belt and Road Initiative into exchange and cooperation among local governments with various practical exchange and cooperative programmes and activities; to building a cooperation platform to share experience and resources for mutual benefits and win-win outcomes in the fields of economic development, culture and education, urban governance, rural development and internet economy, thus achieving “people-to-people bonds” and “state-to-state relations”. Meanwhile, BRLC will form a work pattern which is dominated by the Committee and participated by social forces so as to utilise social resources and integrate forces from all parties to jointly conduct international exchange and cooperation.

BRLC warmly welcomes members of UCLG ASPAC and other regions of UCLG, cities along the Belt and Road route, Hangzhou's sister cities and other related cities or organisations.

Foreword

The Covid-19 pandemic has emerged as a multilayered pandemic that is causing multiplier effects on diverse aspects of human lives. Apart from causing excessive strain on healthcare systems, infecting and killing millions of people worldwide, it halted economic activities in urban centres, raising concerns about sustaining the livelihoods of citizens.

In these difficult times, the issue of Local Economic Development became decisive for addressing the concerns of livelihoods of citizens, especially those from the vulnerable social groups. Local governments have also take care of their fiscal health and impact on their works for the achievement of sustainable development goals that have taken a beating because of ravaging impacts of the pandemic on urban systems across the world.

The effects of the pandemic are gradually coming to the surface and exposing the weaknesses of existing systems. The economic shock has reversed the progress made in decades to alleviate poverty after millions of people globally lost their livelihood. Economic activities around the world were disrupted.

With rolling out of vaccines, the IMF studies suggest that the faster rebound would deliver \$9 trillion of economic boost by 2025. Promoting Sustainable Economic Growth at the local level can put the recovery on a fast track and help the marginalized groups be back on their feet quicker. It is an idea whose time has come to make our cities economically sustainable and resilient to crises. LGs can effectively lead the demographic and sector-based policy response easily. They can also bring people working in the informal sectors into the mainstream.

Cities—the engines of growth—have gradually started revving at high speed, but the economic rebound has to be different. It must promote sustainable economic growth at the local level for serving the dual purpose of financial sustainability and achieving targets under Sustainable Development Goals (SDGs). Both can be achieved using an integrated and overarching approach. This will require strategic interventions from local governments, community groups, public and private stakeholders at the local level to improve the quality of life in their regions. Local Governments cannot go back to the old ways of running city systems. They have to be innovative in their approach to making themselves sustainable. New economic models such as creative economy, circular economy, and the sharing economy are emerging. These models can be customized to suit local requirements for making the growth story a sustainable one.

Globally, in every country, the concentration of economic activities differs from one region to other. The physical development of the territory and the quality of life of local citizens also depend on how economically prosperous a region is. It becomes visible when we look at the availability and quality of infrastructure facilities like roads, airports,

electricity, internet connectivity, etc., in a specific region. Hence, sustainable local economic development is essential for improving the quality of life of local people.

Local economic development calls for the engagement of all stakeholders for playing complementary roles. Local Governments have to innovate and build institutions to support local actions for improving the financial performance of their regions. They can play an anchoring role in integrating civil society efforts, local communities and private players for sustainable economic growth at the local level. Ultimately, the success of the measures depends on the performance of all participatory actors.

This report aims to assess the current status of Local Sustainable Economic Development along the Belt and Silk Road and how local governments in the region are responding to evolving requirements of the changing situation. The comprehensive approach to address this issue would include looking at the local governance models, devolution of more economic powers to local authorities, optimizing the use of available local resources, skills for economic growth, and a profound understanding of the local environment. When LGs are in charge of economic growth, they can integrate economic activities with sustainable development so that both objectives could be achieved without obstructing the other.

Going forward, global economic development will depend on policies developed within cities suiting local environments. Hence the role of local governments will be significant in how we transform our world and make it inclusive and sustainable.

Every local government has to have a sustainable economic growth model and be self-sufficient. For this, all major stakeholders, local governments, civil society, community groups, local entrepreneurs will have to make collective efforts, and the economic growth has to be socially and environmentally responsible.

UCLG ASPAC is committed to address the evolving challenges of a fast-changing world and offer tailor-made solutions to Local Governments for building robust economic systems at the local level to ensure inclusive, prosperous and sustainable development of all. We are hopeful that the LGs will find this report a helpful reference for framing their actions and policies for promoting sustainable economic growth at the local level.

Best,

Dr Bernadia Irawati Tjandradewi

Secretary-General

UCLG ASPAC

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1. Roadmap to Economic Sustainability	
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Chapter 1

Local Sustainable Economic Development in Present Context

- 1) Overview Of Sustainable Local Economic Development (LED)
- 2) Role of Local Governments in Driving Sustainable Local Economic Development
- 3) Local Economic Development, Belt & Road Initiative and Sustainability

1. Overview of the Sustainable Local Economic Development (LED)

The 21st century is markedly defined by the rise of rapid globalisation and advances in economic growth and technological innovation. Despite a vast amount of wealth creation and most countries liberalising their economies to pursue prosperity, development trajectory has been starkly disproportionate with scant signs of trickling down of wealth. In other words, economic inequalities have risen, particularly in recent decades. At the same time, unchecked economic growth has put pressure on the environment, which has propelled multiple problems threatening the ecosystem and life on earth. If the Global Financial Crisis of 2008 wasn't enough evidence, the COVID-19 pandemic has undoubtedly revealed the unsustainability of the hegemonic system. One of the worst economic depressions has reversed any progress made in the world regarding poverty alleviation.

These concerns have generated a consensus on redefining our social and economic progress through cohesive metrics. The notion of sustainable and inclusive growth is one such metric. Moreover, localisation has also increasingly been emphasised in recent decades to achieve the dual goals of poverty elimination and environmental sustainability. Going beyond just economic growth, local economic development (LED) advocates for economic development, most notably in the Global South, through a collaboration between local governments, citizens, and private stakeholders in cities and districts to improve the quality of life and employment definitive region. Since many social, economic and environmental challenges are deeply asymmetric and dependent on prevailing local conditions, straightforward national level policies cannot be applied universally. With the increasing complexity in the systems fuelled by climate change, local governments have to adapt quickly and efficiently mitigate the impacts of existing economic systems.

LED is a process of contextualising unique sub-national challenges which leads the local bodies to plan, formulate and implement tailored solutions by using the local assets to meet the basic requirements of a local or sub-national community. Recognising that marginalised groups often live-in specific regions where poverty is concentrated, localisation can play an essential role in uprooting poverty and other socio-economic challenges in these areas in a targeted way. Since local governments have immediate access to the workforce and resources, essential services like access to clean water, sanitation, education, health, energy, etc., can be delivered best locally. Given the devastating consequences of the ongoing pandemic, LED can ensure a faster and equitable recovery.

According to the International Labour Organization, LED strategies have emerged in response to the challenges of globalisation (ILO, n.d.), especially pertaining to the uneven distribution of developmental progress in recent decades. Given the ongoing COVID-19 pandemic, which has substantially increased economic inequalities, local governments will play a vital role in the post-pandemic economic recovery for closing the widening economic gaps. At the same time, LED has to be sustainable, centring around socio-environmental justice after the dust of the pandemic settles due to the ever-increasing environmental pressures exacerbated by climate change. With rapid urbanisation, the Sustainable Development Goals (SDGs) formulated in 2015 declared that the role of local and regional governments is critical in achieving many of the 2030 agendas of social justice and environmental sustainability. At the local level, the environment is prioritised and recognised more since a healthy and unpolluted environment is essential for any community or city. With 65% of the indicators relevant to local authorities and requiring urban responses, the effective implementation of Agenda 2030 and SDGs depends on the local ownership and

involvement of various stakeholders at the local level (Sustainable Development Goals Knowledge Platform, n.d.).

Today, more than half of the world's population lives in urban areas, more prominently in highly dense cities. With increasing levels of urbanisation, the per capita Gross National Product (GNP) has also risen more significantly in the developed countries – more than USD 2500 per capita GNP for around a share of 65% urban population (Ritchie & Roser, 2018). Thus, cities have emerged as the engines of economic development and major drivers of climate change. By 2050, it's estimated that approximately 7 billion people will be living in urban areas (Ritchie & Roser, 2018), which will further exacerbate the environmental pressure without a sustainable pathway.

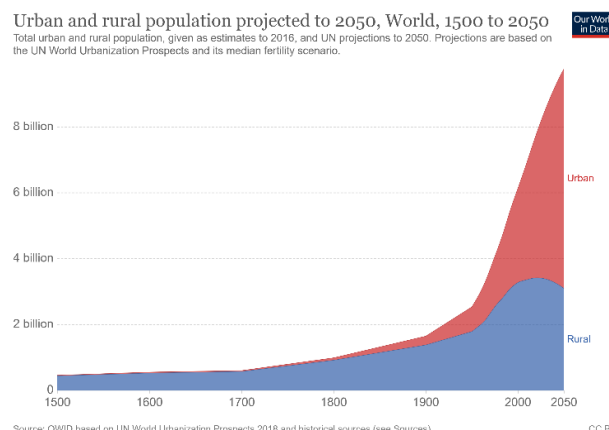
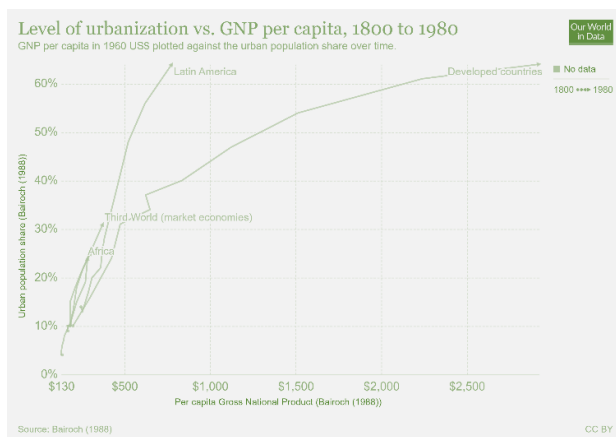


Figure 1: Level of Urbanisation Vs Per Capita GNP, (Our World in Data).

Figure 2: Projected Urban and Rural Population

The United Nations Environment Program has reported that cities are responsible for nearly 75% of global CO2 levels, with transport and buildings being the largest contributors (UNEP, n.d.). In the coming decades, hundreds of millions dwelling in cities are likely to be affected by rising sea levels, increased precipitation, floods, frequent and stronger cyclones, storms, and more extreme heat and cold periods. The urban poor will be the most vulnerable section in the cities. This will negatively impact the most vital physical and social infrastructure situated in urban areas (UN-Habitat, n.d.). In light of these contemporary problems, cities are considered important centres to lead a sustainable LED. Devolving central power to local authorities accordingly is thus imperative in the coming decades, particularly during the post-pandemic recovery.

Cognizant of these consequences, equipping cities with adequate urban planning policies to make them climate-resilient is crucial. The concept of sustainable economic development has its roots in national-level initiatives built on local economies' unique assets to address individual challenges (Center for Local Economic Strategies, n.d.). Only by investing and improving the urban and local communities will the overall economy of a country can strengthen. A holistic, sustainable development broadly has the following features, although non-exhaustive: improvement in quality of life by reducing poverty and enhancing public infrastructure, minimising resource depletion and global warming, phasing out fossil fuels and installing renewable energy, green architecture, protection of natural habitat, etc. In this context, urban and local governments will play a critical role in transforming our world and making it more inclusive and sustainable. Sustainable LED is a bottom-up approach that ultimately strengthens the overall economic growth of a country.

The challenge is that several cities around the globe have not adequately addressed the risks posed by climate change on cities due to a lack of action plans, regulation on urban and environmental planning which are not adapted to climate change, slow responses due to inadequate capacity, etc. (UN-Habitat, n.d.). However, both international and national stakeholders have undertaken several existing projects to prop up new resources for making local and regional governments more resilient. The following section will discuss some cases of sustainable LED currently existing and have been successful.

2. LGs Driving Sustainable Local Economic Development

There is an urgent need to empower the cities with climate change action plans and remove regulations that impede the local authorities from taking important steps towards reducing climate change. A good place to start would be to draw lessons from already existing local and urban plans that have successfully implemented sustainable policies. Cases of sustainable LED policies are already aplenty globally and range from green economic growth, improving public transportation, incentivising small business, imposing environmental regulations, etc. (UN-Habitat, 2013).

These policies have not only improved the environment but have generated revenues, and raised well-being in the local communities. For example, the municipality of Volta Redonda – a city in Brazil – constructed a biodiesel power plant in 2007 to address the environmental problems associated with the improper disposal of cooking oil. In doing so, the plant generated jobs and revenues for local schools in the area (UN-Habitat, 2013).

In Surat, a city in India, the municipal corporation has rapidly transformed its urban environment by implementing smart city projects in transportation and mobility, and sustainable integrated development (Press Trust of India, 2018). Under the transport and mobility category, the city has installed an efficient Bus Rapid Transit System (BRTS) for easy, affordable, and eco-friendly mobility. Given that 74.5% of global transport emissions come from road vehicles, like private cars and freights (Ritchie, 2020), effective sustainable transport planning is crucial for LED and sustainable urban planning, which reaps several benefits of socio-environmental well-being and accessibility.

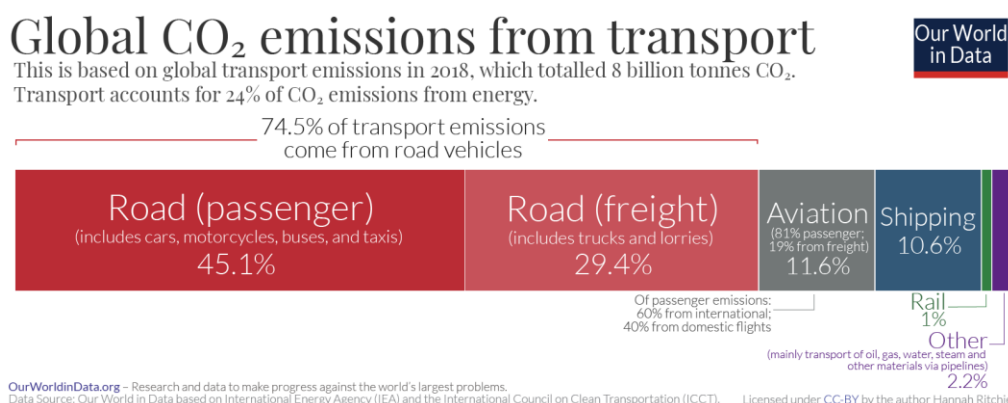


Figure 3: Global transport sector's share of CO₂ emissions (Our World in Data)

There have been several international efforts as well in mobilising local governments. The UN-Habitat supports 60 local governments across the world to tackle climate change by accelerating

urban low emissions development strategies (Urban LEDS). This project aims to reduce GHG emissions in cities and towns in the emerging economies (Brazil, India, Columbia, Indonesia, South Africa) and least developed countries (Bangladesh, Lao PDR, Rwanda) (ICLEI South Asia, n.d.). The strategies include accounting for GHG emissions in recent years, and based on this accounting, implementing lower-carbon or carbon-neutral alternatives, especially in infrastructure development in the cities. This will ensure a transition to carbon-neutral cities, green economy & infrastructure, urban resilience and energy security. The achievements of Phase I of the Urban LEDS, which ran from 2012-15, include a reduction of 5.9 megatons of carbon dioxide equivalent (MtCO₂e) in 2016 in 37 cities expanding in 12 countries (Urban LEDS, 2016). The Phase II of the project included adding four countries and further strengthening the partnerships with local governments, and achieving a reduction of 12MtCO₂e of emissions (Urban LEDS, 2019).

Beyond the emerging and least developed economies, cities in the developed economies must take the lead in climate change mitigation and adaptation since they consume more energy and contribute more to global emissions than the developing countries (Wijaya, 2014). The European Union has actively promoted a local development policy since the 1990s and thus has a large stock of experiences in the area of LED. Several pilot projects have been implemented since the 1990s, such as experimental local policies to remove long-term unemployment, rural development projects, etc. These have revealed that LED practices have helped improve local conditions by integrating different approaches and enhancing coordination (European Union, n.d.).

The city of Freiburg in Germany is the best case of sustainable urban development, which started as early as the 1970s, a time when international environmental concerns were still nascent. The city has successfully implemented smart, sustainable transport policies, resultantly creating a strong orientation to walking, bicycling, and public transport whilst restricting the use of cars (WWF, 2012). This could be successful since Freiburg is a city of short distances consisting of high-quality compact urban designs. Apart from this, the city has improved its urban liveability and safety, tackled energy and climate change issues and democratic issues (WWF, 2012).

3. LED and Belt & Road Initiative

Several multilateral economic initiatives have emerged in recent decades due to the continued expansion of globalisation. These initiatives are transboundary partnerships agreed between the national governments based on international rules. One such multilateral undertaking is the Belt & Road Initiative (BRI), also known as the New Silk Road, the largest infrastructure project promulgated by China.

The project expands from East Asia to Europe, all the way to parts of Africa to form critical trade linkages and enhance "Asian connectivity" by constructing railway routes, energy pipelines, highways, etc. The BRI plan is two-pronged: the land-based Silk Road Economic Belt and the Maritime Silk Route (Chatzky & McBride, 2020). Much has been discussed by scholars and political experts about the staggering scale of the project. However, what's less discussed is that the initiative has several implications on global sustainable development, especially in the context of LED. Two questions come to mind when analysing the BRI and sustainable development: i) How are multilateral economic agreements like the BRI aligning with the goal of sustainable development? ii) Can the role of local governments in realising the goals of sustainable development extend to simultaneously fulfil the ambitions of large-scale international infrastructure projects like the BRI?

Now, China has pledged "open, clean and green" approaches to infrastructure development under this ambitious initiative. (Towers & Staats, 2020). Renewable energy now constitutes most of China's BRI energy investments since the share of wind, solar, and hydropower made up 57% of China's total energy infrastructure investments in 2020 – up from 38% in 2019 (Shepherd, 2021). To understand the role of local governance in the BRI context, it's essential to look at strategic inclinations under the initiative.

Since more and more countries, including the ones in the BRI, are recommitting their climate change goals for the coming decade and systematically divesting away from coal, China has been strategic in keeping up by incorporating its sustainable development policy in the BRI by emphasising the green economy via the Green Silk Road Economic Belt (Gong et al., 2021). The Chinese government has also informed the Bangladeshi government in February 2021 that it is looking to not consider projects with high pollution and high consumption (Hillman & Tippett, 2021). But considering the worldwide patterns of sustainable LED and a global shift towards sustainable and climate-conscious futures, China will follow through for the BRI to become a success.

In contemporary times, subnational diplomacy or para-diplomacy has come to the forefront of sustainable development. Several central governments are decentralising powers to local and regional governments to implement climate action plans as noted in the previous sections. Since the 1980s, the Chinese government has decentralised and empowered provincial governments of the state that influence their foreign policy and international cooperation (Gong et al., 2021).

Local governance is key to implementing sustainable development policies in the BRI projects. China devolved its central authorities to provincial governments of Heilongjiang, Jilin and Liaoning, wherein they could influence the Arctic where China has built the Polar Silk Route (Gong et al., 2021). This provincial influence on the international sphere is key to making the BRI climate-conscious. Most coal-fired power plants worth USD 65 billion backed by China for the BRI projects have been either shelved, mothballed or cancelled since 2014 (Wang, 2021). Considering China has started investing in renewable energy now, local-level initiatives will follow.

The ambitious projects of the BRI include the construction of six economic corridors, which are considered transformative in their potential ability to make landlocked regions more accessible (especially in Central Asia). In recent years, Asia's frontier regions have been considered strategically important (from a security point of view) and economically prominent in that they are now used to build trade linkages.

One of the economic corridors consisting of four countries – Bangladesh, China, India and Myanmar-Economic Corridor (BCIM-EC) – has generated many interests in the region in terms of development (Yhome, 2017). The role of local governments will emerge stronger for supporting any economic activity under the project. The BRI can be instrumental in mobilising the local governments, especially in the frontier regions is of utmost importance. Given China's recent commitment to become carbon neutral by 2060, it's all the more critical that the country re-aligns the BRI to go greener. Since urban resilience forms a major part of achieving carbon neutrality, the role of local governments in a greener BRI will go a long way.

In conclusion, it's time that the idea of sustainable LED is taken seriously and incorporated as the central part of the post-pandemic recovery. Since cities contribute majorly to climate change, it becomes imperative to transform the urban areas sustainably first. Multiple cases of sustainable LED exist in the world – from the case of Volta Redonda in Brazil, Surat in India, to Freiburg in Germany. Many innovative case studies from cities have been shared in the following chapters

for local governments to take inspiration from. In contemporary times, multilateral agreements require the partnerships of several stakeholders, including the local governments. As large infrastructure projects are undertaken, the concern for the environment has subsequently grown due to the heavy use of fossil fuels. This chapter analysed the cases of the BRI.

It is to be noted that China's Belt & Road Initiative is making efforts to shift away from coal-fired power plants to more renewable alternatives. It has further emphasised on green economy and becoming carbon neutral by 2060. While the role of local governments is not distinctly palpable in the BRI regions, the para-diplomatic strategy and decentralisation efforts globally can push local governments' role in sustainable economic development in the BRI region and make the initiative more impactful.



Chapter 2

Circular Economy for Sustainable Economic Growth at Local Level

- 1) Circular Economy: A Must for Sustainable Economic Growth
- 2) Local Impetus for Circular Economy
- 3) Global Initiatives and Circularity
- 4) From Circular to Sharing and Collaborative Local Economy
- 5) Key Takeaways

1. Circular Economy: A Must for Sustainable Economic Growth

Everyone, governments, businesses, individuals, is increasingly becoming aware of the negative impacts of economic activities on the natural ecosystem. In 2019, a report published by the World Economic Forum says that over 90 billion tonnes of materials were extracted, processed. Such regular activities for running economic activities are not just depleting finite resources but also causing extensive CO₂ emissions. The report highlights that such extraction and processing contributed to almost half of global CO₂ emissions that year.¹ In addition to this, it added to humongous waste generation, pollution, and negative effect on the environment and health. The majority of the waste generated ends up in landfill (See Figure 1). It is the need of the hour to amend the take-make-dispose approach for financial gains. To do this, local and sub-national governments have to be at the forefront of this crusade. The report also measures the potential economic gains from the transition. It underlines that the transition to a circular economy has a huge scope for growth as only about 8 per cent economy is circular. It can yield up to 4.5 trillion-dollar gains by 2030².

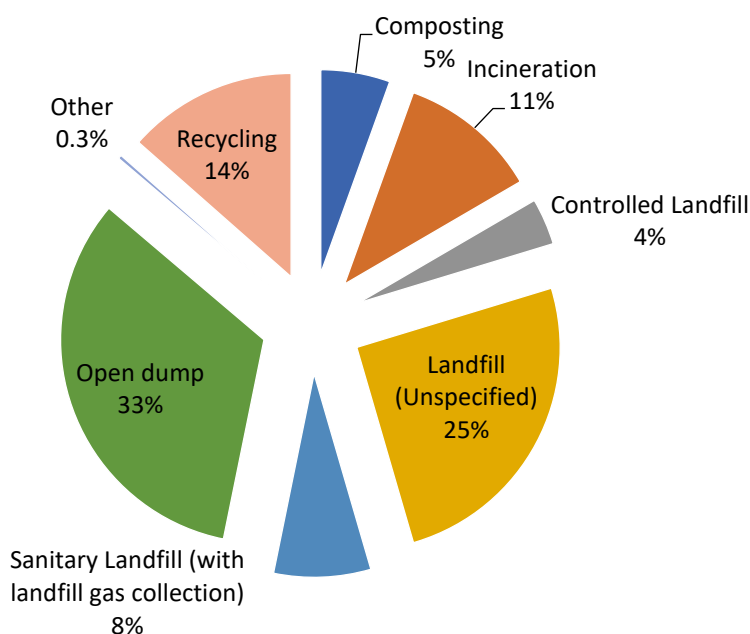


Figure 3: Global treatment and disposal of waste (per cent)³

The concept of circular economy is gaining gradual momentum in developing countries. It could be the key to attaining sustainable economic growth at the local level. For this, local governments must be equipped with knowledge and capacity to support the smooth transition from a linear to a circular economy. The Belt and Road Initiative (BRI) is playing a central role in promoting the idea among the local and sub-national governments in the member countries as the BRI is collaborating with many stakeholders for implementing a range of economic, industrial, infrastructure, social, and cultural projects which can be integrated with the global mission for transition to circularity.

¹ World Economic Forum. From a report published as part of Shaping the Future of Global Public Goods. Retrieved from <https://www.weforum.org/projects/circular-economy> on June 6, 2021

² Ibid.

³ Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development; Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/30317> License: CC BY 3.0 IGO.

Several local governments of the member countries have shown how to go about and augment the pace. Further in the report, it has been illustrated how cities are transforming themselves to build a green, sustainable and inclusive economic model.

The International Resource Panel (IRP) report, 'Global Resources Outlook 2019', estimated that over 90% of total biodiversity and water stress impacts caused globally are due to the world's material resources extraction and processing. It accounts for just about half of global greenhouse gas emissions, and it does not include the climate impacts related to land use. About one-third of the health impacts due to particulate matter can be attributed to this. These results illustrate the central role of resource management to achieve goals under the 2030 Agenda for Sustainable Development, the Paris Agreement, and the Convention on Biological Diversity.⁴

In addition to laying a solid and robust foundation for building a sustainable and inclusive economy, the circular economy approach protects the environment, enables resource efficiency, and assists in building local resiliency.

The concept of circular economy has been with us for centuries. The earlier generations had been practising it for ages. The most straightforward rule of circular economy is to keep the products and materials in use for the maximum possible time. Everyone must have witnessed the application of this concept in their families. With changing times and the advent of globalisation and the consumption economy, people started to discard things for new things. It has resulted in wastage of natural resources and energy and created mounds of garbage or, say, landfill sites at the periphery of almost every urban habitation in the world.

The ever-evolving market of mobile phones is a good example. Earlier, people use to have the same telephone for several years, but now consumers these days discard their smartphones in a couple of years and sometimes in months for want of the latest model. It is valid for other sectors such as automobile, textile, consumer electronics, etc. People are mindlessly consuming and discarding things. The way people consume today puts a severe strain on available resources that cannot be sustained for long. Unsustainable consumption is one of the major reasons for many climatic, environmental and urban problems.

The linear economic model of 'takes, make and dispose' of threatens our health, prosperity, and the environment itself. It is necessary to design an approach to production and consumption based on circularity to achieve and promote sustainable and inclusive economic development at the local level. In contrast to the linear economic model, a circular economy encourages recovery, repurposing, and reusing resources in the systems for the longest possible duration and lessens natural resources. It has become evident that there is a strong connection between resource usage, generation of industrial waste, biodiversity loss, and climate change. The transition to circularity can lessen impacts on citizens in the long run and support initiatives such as environmental injustices, social inequity, and equitable work opportunities.

The circular economy can become instrumental in making resource efficiency feasible, reduce the burden of urban waste on landfill sites, and address the three most challenging global issues of our times—climate change, nature biodiversity loss, and pollution and waste.

To mitigate these problems and repair our planet, adopting sustainable production and consumption following the tenets of circular economy is essential. Policymakers and

⁴ IRP (2019). Global Resources Outlook 2019: Natural Resources for the Future We Want.

governments primarily have focused on directing the increasing material waste streams back into the same industry or other industry as resource material and close the loop. These initiatives have propelled the sub-national governments to make their waste management policies in sync with the circular economic activities and set explicit targets relating to urban municipal waste. But there is good scope for improvement in designing policies that could mean extensive advocacy programs, innovating new approaches, scaling up and improving existing systems, and engaging many stakeholders.

2. Local Impetus for Circular Economy

Localisation is central to the advancement of the circular economy concept as the success of circularity depends on how the local economy functions and response to national or international initiatives relating to green and sustainable growth. Many local governments, especially those in developing countries, find it difficult to reach a starting point to prepare them for sustainable economic development.

Building local industrial symbiosis is the key to success, and LGs can design and plan it. Industrial symbiosis is integral to the development of an ecosystem for circularity. It is about a mutual arrangement between businesses and industries to exchange or share materials, by-products. LGs can develop an industrial area where businesses or industries can get raw materials from other industries' waste' and share physical infrastructure. Generally, local governments decide the development course of their regions; hence local or sub-national governments have a role in every stage of circular economic practices by local businesses. From the extraction of materials, production of goods, consumption, waste management and finding the market for secondary raw materials, sub-national governments can strategically design and formulate policies to drive the agenda. The application of the practices can help LGs create a sustainable ecosystem and improve livability for their citizens in their regions.

A report published by the UN Environment tells that the application of circular economy policies in Chinese cities shows substantial potential to reduce air pollution, reduce material use, create economic savings and avoid premature mortality of more than 45,000 people annually. Studies of eco-industrial parks in China estimate material and energy savings and employment benefits and monetary savings.⁵

So, the evidence suggests that the application is favourable for local governments too. LGs, in consultation with all stakeholders, have successfully created enabling environment at the local level for circularity to thrive and grow. LGs, with support from a consortium of LGAs, national governments and international agencies, can assist in strengthening the circularity ecosystem as cities are the places where diverse stakeholders remain available in proximity, and it makes urban spaces fertile ground for promoting circular economic activities with ease.

Circularity has cross-cutting linkages with all stakeholders, from the businessman, industrial workers, to consumers. Local Governments world over are the links that connect them all in their

⁵ UN Environment, 2017. Sustainable Urban Infrastructure Transitions in the ASEAN region: A resource perspective. Retrieved from https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/sustainable-urban-infrastructure-transitions-in-the-asean-region-summary_0.pdf on June 8, 2021.

respective regions. Sub-national governments can bring all the relevant stakeholders on board and address the evolving challenges as they forge ahead.

The benefits of the concept are not limited to improving designing processes and policies for resource efficiency. Still, it is directly connected with the change in the consumption pattern of end consumers too. Here the LGs can provide necessary impetus using their edge of having a direct connection with local communities. By adapting to new and sustainable ways of doing business, local bodies can prepare themselves for future opportunities emerging from the imminent green economic movement and lead the movement in their respective countries.

Apart from creating industrial symbiosis, the local governments can also plan urban regeneration for business and industrial purposes based on available local resources. Creating a regional value loop integrated with local industrial symbiosis can bring brilliant results by ensuring resource efficiency. For example, Panaji in Goa, India, has become a landfill-free city using the circular waste management system.⁶ Municipal Corporation of the City of Panaji has established over 100 compost stations at the compost level for handling the wet waste that is segregated at the source and sent to these stations. For managing the large volume of wet waste from hotels, food courts, and vegetable markets, the corporation has set up biogas stations that send the biogas back to the local businesses. It has several categories of segregation of waste material that provides raw material to local businesses to make masks, helmets, and furniture for handling dry waste collected from households and businesses. And, the remaining waste is sent to local cement factories for co-incineration. The whole process ensures that no waste is sent to landfill sites. This initiative of the local corporation has resulted in long-term cost savings for the municipal corporation, and increased job opportunities for locals in the coastal city, which are mainly dependent on the tourism industry affected because of the pandemic situation adversely. Such a local economic development plan can solve some critical local issues and provide financial sustainability and diversify economic activities.

Similarly, Baltimore City has developed a Waste to Wealth program to generate livelihoods and reduce waste sent to landfills by capturing valuable waste and reusing them elsewhere. For example, the Housing department of Baltimore city made deconstruction a part of housing demolition contracts. After sorting the construction waste, the salvaged and recycled materials are sold as reprocessed materials. Zero-waste pilot cities and districts in China creating an action plan to control solid waste by repurposing sorted waste for resource and energy, utilizing agricultural waste, and prohibiting illegal dumping of solid waste.⁷

By developing more resource-efficient cities, subnational governments can address local air and water pollution, control urban and industrial expansion to ecologically valuable land, enable low-cost supply chain mechanisms, improve its people's health and well-being, and address global carbon emissions and climate goals. It can also reduce their dependence on inflows of resources from different regions and cities.

⁶ Urban Transition Alliance Report. Retrieved from https://drive.google.com/file/d/1_667_iNMVBSnsbSvxHkRXXBCHylcHK3n/view on June 8, 2021.

⁷ Yuanhao Xu. China Water Risk (2019). Welcome To China's Zero Waste Cities. Retrieved from <https://www.chinawaterrisk.org/resources/analysis-reviews/welcome-to-chinas-zero-waste-cities/> on June 9, 2021.

3. Global Initiatives and Circularity

Circularity has been gaining traction the world over due to its economic, social and environmental gains. Global demand for resources is estimated to double in the next three decades—by 2050. To arrest the demand for new resources and optimise existing resources, various stakeholders from national governments, regional cooperation, local government associations, civil society, corporate houses and citizens have collaborated in many regions to promote circular economic activities.

The initiatives of circular economic provide gains at multiple fronts. It also debunks the myth that decarbonising economic activities would conflict with economic growth. However, climate change, assist them in attaining objectives under the international goals such as the Sustainable Development Goals (SDGs), New Urban Agenda (NUA), and build economic resilience to natural and health crises.

GLOBAL INITIATIVES

- World Circular Economy Forum (WCEF)
- Coalition for Green Development on the Belt and Road,
- Global Alliance on Circular Economy and Resource Efficiency by the European Union,
- African Circular Economy Alliance the Platform for Accelerating the Circular Economy (PACE),
- 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns / One Planet Network (10YFP/OPN),
- Regional Coalition on Circular Economy of Latin America and the Caribbean,
- Partnership for Action on Green

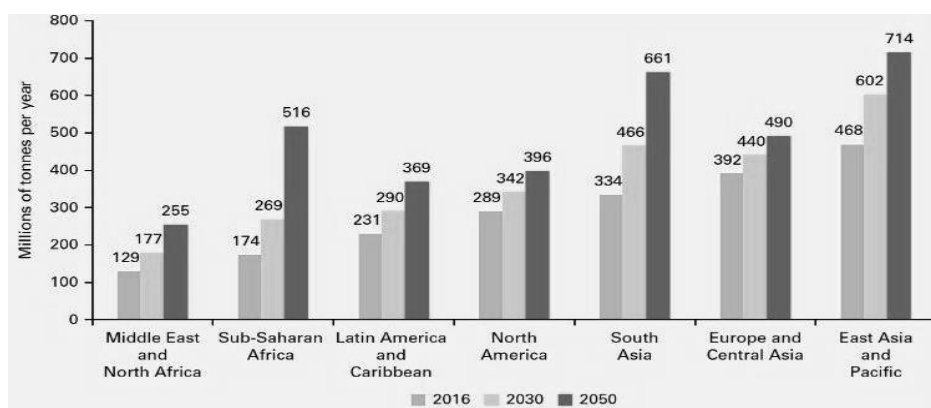


Figure 4: Projected waste generation, by region (millions of tonnes/year)⁸

When the world is grappling with the worst health crisis in 100 years, the economic recovery plans in many regions have integrated a circular economic approach in their recovery plan. Ellen MacArthur Foundation has published a report titled 'The circular economy: a transformative

⁸ Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development; Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/30317> License: CC BY 3.0 IGO.

Covid-19 recovery strategy' that calls for low carbon and resilient economic recovery.⁹ It underlines how the transformative policies can pave the way for resilient and sustainable economic recovery by focusing on optimal resource use in five key sectors—built environment, fashion, food, mobility and plastic packaging.

Globally, many initiatives are supporting the transition from a linear to a global circular economy. Some of these collaborative initiatives include the World Circular Economy Forum (WCEF), Global Alliance on Circular Economy and Resource Efficiency by the European Union, the African Circular Economy Alliance the Platform for Accelerating the Circular Economy (PACE), 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns / One Planet Network (10YFP/OPN), the Regional Coalition on Circular Economy of Latin America and the Caribbean, and the Partnership for Action on Green Economy (PAGE). Apart from these joined projects, many countries have been taking giant strides individually and are the lighthouse for others. Sustainable Infrastructure Guidelines for Overseas Chinese Enterprises developed by China International Contractors Association in 2016 also contribute to the green and circular economy agenda.

In 2015, the European Commission announced its "Closing the Loop" action plan and gave a broader definition of municipal waste. It no longer limits the definition simply to waste collected by local governments.¹⁰ The EU's transition plan to a circular economy is associated with the EU's 2050 climate neutrality target and European Green Deal. Some cities have developed circular economy indicators to track their progress. London, Brussels, Amsterdam, and Melbourne are a few of them.

Germany is among the few best-performing nations. Only five per cent of waste in the country goes to landfill while about 65 per cent is recycled and 30 per cent is used for energy generation through its Waste to Energy Plants.¹¹ The Netherlands in Europe has also committed itself to become a 100 per cent circular economy by 2050. Indonesia has elaborated on the CE concept in its Vision Indonesia 2045. China, South Korea and Japan have also implemented circular economy-based practices for the last two decades. Eco-industrial parks of China are among the leading successful examples. Belt and Road Forum for International Cooperation in 2017 also highlighted that the BRI would be guided by green development and promote green, low-carbon, circular, and sustainable life and work. Other countries such as Indonesia, Turkey, UAE, Egypt, South Africa, India, Vietnam, Philippines and are also joining the group of these countries. Still, most of these initiatives are fragmented and require integration for scaling up.

4. From Circular to Sharing and Collaborative Local Economy

The circular economic approach has led the way to the evolution of many innovative and sustainable financial models. Cities are increasingly facing a strain on available resources. To address this, sharing or collaborative economy is evolving in cities and towns in a new avatar. The latest development is not just creative, resource-efficient and sustainable but also solving several urban issues. Many cities and local governments have lapped up this opportunity to generate new

⁹ Ellen MacArthur Foundation. The Circular Economy: A Transformative Covid19 Recovery Strategy. Retrieved from <https://www.ellenmacarthurfoundation.org/assets/downloads/The-circular-economy-a-transformative-Covid19-recovery-strategy.pdf> on June 8, 2021.

¹⁰ Glasgow Government. Circular Economy Route Map for Glasgow 2020-2030. Retrieved from <https://www.glasgow.gov.uk/councillorsandcommittees/viewSelectedDocument.asp?c=P62AFQDNDX2UT1NT> on June 12, 2021.

livelihood opportunities for local citizens by maximising the use of available assets and monetising themselves.

Citizens have been using shared assets owned by the governments for years, but the use of pooled car service, unused home apartments for staying, even the office printers and lighting as service is new. One can use the product or service till it is required. After this, it is not discarded or remains unused in stores but can be used by others in need. People and a majority of businesses can go about their day-to-day lives without owning anything. This model of operation is efficient and environment-friendly. People did thumb a lift in the past, but now this can be done through a Smartphone. One of the key benefits of the sharing economy model is that the community already weights its significance and approve, and the government need not promote the idea. However, it is the role of local governments to supports the efficient administering.

With access to technology, the sharing economy is growing at a fast pace. Many of these initiatives have become global and can be used in any city for using local services. Sharing economy platforms are available in almost every sector from goods, food, transport, logistics, tourism, healthcare, money and hundreds of services providing various trading forms, such as buying, renting, lending, giving, exchanging and sharing.

Amsterdam: The Sharing City- To achieve the objectives instilled in local, sustainable economic growth, cities have been innovating. In this journey, some unique ideas have caught attention by promoting optimal utilisation of resources using several creative means and methods.

It is also known as the collaborative economy. It can be defined as "economic systems of decentralised networks and marketplaces that unlock the value of underused assets by matching needs and haves, in ways that bypass traditional institutions."¹² Many urban users have already experienced it as a user or a provider without the extensive intermediary role of governments or any existing formal systems. But these innovations and policies around them are evolving.

Amsterdam is emerging as the first Sharing City in Europe to benefit from sharing economy in sustainability, social cohesion, and economy. The initiative is the brainchild of share that wants to build on the strengths of the city. Survey findings from Pieter van de Glind's research on the consumer potential of Collaborative Consumption showed that more than 84% of the 'Amsterdammers' are willing to share.¹³

The city is also trying to find answers to evolving challenges in the sharing city concept. City leaders and the executive board have come up with an action plan to popularise the idea. The focus is to prioritise city requirements. The city is promoting sharing instead of owning. The space, tools, stuff, skills, and services in the city can be shared. The plan says, "Why do we choose to fill our streets with cars when we could easily fill them with parks, playgrounds, and BBQ spots? Why not use Snappcar or mywheels as solutions? Why do we fill our houses with things that we use one time a month? Why don't we share the least used items through platforms like Peerby?"¹⁴

For example, citizens in Amsterdam can borrow and rent private consumer goods bypassing traditional retailers; rent accommodations through Airbnb; bypassing the traditional hotel; request

¹² Welcome to the collaborative economy ecosystem — shareNL. Retrieved from <https://www.sharenl.nl/welcome-to-the-collaborative-economy-ecosystem> on June 12, 2021

¹³ Amsterdam Sharing City. Retrieved from <https://www.sharenl.nl/amsterdam-sharing-city> on June 12, 2021.

¹⁴ Ibid.

a ride through the Uber app without the use of conventional taxi service.¹⁵ These services are available in many cities worldwide, but Amsterdam is among the first few cities that have regulated and provided an enabling environment to the sharing or collaborative economy. In 2014, the city introduced regulations for holiday rentals and a year later launched the Sharing Economy Action Plan to ensure it serves all citizens under minimum but required regulations. Today, the city is known as the leader in the sharing economy. The city government is addressing multiple new governance issues that may conflict with existing governance models in transport, the safety of citizens, pollution, waste management, sustainable mobility solutions, and many others. It is still a work in progress, and cities worldwide can optimise resource usage at individual and community levels and deburden city's infrastructure and services.¹⁶

KEY TAKEAWAYS

- **Circular economy stands on five pillars— Recover, Reduce, Reuse, Redesign and Regenerate.** For ensuring its success, a well-collaborated and coordinated local approach with global push is needed.
- By promoting circular economy, LGs can ensure resource and energy efficiency at local level. It will not just reduce burden on natural resources but also create new livelihood opportunities for sustainable economic development.
- Zero-waste cities of China, 100% landfill free Panaji, Waste to Wealth program of Baltimore City have shown the way how waste could be used as a resource and energy alternative for industries.
- Taking citizens, local communities along the journey of economic sustainability is a must for the success.
- 'Closing the loop' action plan for resource use can arrest the increasing demand for resources globally.
- Sharing and collaborative economic model can be explored to promote sharing things and service rather owning by people and businesses.

¹⁵ Ibid.

¹⁶ Urban Sharing In Amsterdam. Urban Sharing Team (2019) Retrieved from <https://static1.squarespace.com/static/581097b4e3df28ce37b24947/t/5da46c7b6b739e6f84c8528a/1571056875497/Cityreport1Amsterdam.pdf> on June 12, 2021.



Chapter 3

Pioneering Innovations and Technology for Sustainable Local Economy

- 1) Creative Economy and Sustainable Economic Growth
- 2) Technology and Innovations for Economic Sustainability
- 3) LGs and Management of Creative and Digital Economy
- 4) Exploring New Avenues of Support for Sustainable Growth
- 5) Key Takeaways

1. Creative Economy and Sustainable Economic Growth

Creativity can address complex problems efficiently. Creative economy offers such creative options to local governments to explore new avenues of economic growth that do not harm the environment and do not entirely depend on limited resources a city has. Instead, it promotes the use of citizens' skills and builds on them. Its application at the local level has multilayered benefits. It is manifested in the growing share of the creative economy in many countries' national gross domestic products. A report from UNCTAD shared the data that covers the period 2002 to 2015. It shows the creative economy's contribution to world trade over this period doubled from \$208 billion in 2002 to \$509 billion in 2015.¹⁷ Globally, it is growing at a fast rate and providing livelihood to almost 30 million people.

China has emerged as a leading exporter and importer of creative goods and services. With the launch of the Belt and Road Initiative, it is on a higher pedestal to promote and advocate for promoting the creative economy industries in member countries. China has been the foremost proponent of the creative economy. Between 2002 and 2015, China has recorded an average annual growth rate of 14% in the trade of creative goods. In this period, it witnessed an exponential growth from USD 32 billion in 2002 to USD 191.4 billion at the end of 2014. There was a drop in 2015 as China did USD 168.5 billion in trade in creative goods. Despite that, China maintained the lion's share of the business in creative goods. The data suggest that Chinese exports were four times that of the United States in the same year.¹⁸

Having the upper hand in the creative economy, China can play a leadership role in advocating creative economy connections between countries and cities, which are part of the Belt and Road Initiative. The initiative can be instrumental in taking the concept to the local level and developing an ecosystem for a sustainable economy. Laying a foundation of robust and inclusive economic

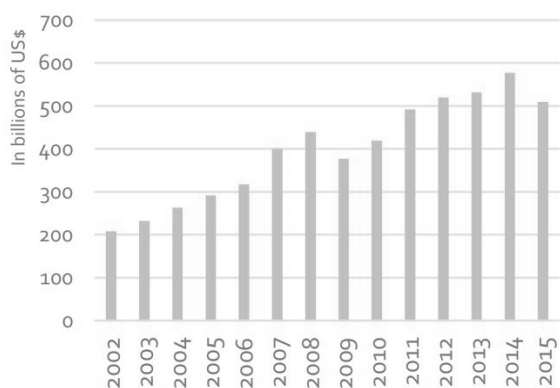


Figure 5: World Export of Creative Goods¹⁹

growth at the local level requires promotion and support to a creative economy that can foster innovations and technology to provide equitable opportunities to all for inclusive and sustainable economic growth.

In September 2019, United Nations, in its resolution, recognised that "the creative economy, known as the "orange economy" in several countries, revolves on knowledge-based economic activities and the interplay between human creativity and ideas, knowledge and technology, as well as cultural values or artistic, cultural heritage and

other individual or collective creative expressions."¹⁹ It was also declared that 2021 would be the International Year of Creative Economy for Sustainable Development, 2021. Indonesia mainly sponsored the proposal supported by a group of countries, including China, Australia, India, Mongolia, the Philippines and Thailand. The world is increasingly accepting that it is among the

¹⁷ Creative Economy Outlook: Trends In International Trade In Creative Industries. UNCTAD, 2015. Retrieved from <https://unctad.org/press-material/creative-economy-bucks-trend-grows-despite-slowdown-global-trade> on June 22, 2021.

¹⁸ Ibid.

¹⁹ UNCTAD (2019). International Year of Creative Economy for Sustainable Development, 2021: revised draft resolution. Retrieved from <https://digitallibrary.un.org/record/3835223?ln=en> on June 23, 2021.

fastest-growing sectors of the global economy and provides an opportunity to local and sub-national governments to create more sustainable jobs and fuel local economic transition to a green and sustainable economy.

With global push and support from digital technology, the economy is growing at a fast pace worldwide. It is still a new concept for many nations. It is difficult to define a creative economy as it has been evolving and embracing many sectors. Many emerging industries have borne out of digital technologies such as Artificial Intelligence, Internet of Things, and Internet-supported knowledge industries as part of the creative economy that includes many conventional age-old industries. The film industry, performing arts, theatre, photography, architecture, research, and development has been part of the creative economy. In today's world, software, video games, YouTube, podcasting, and thousands of digital services and knowledge-based digital products are the lifeblood for many. Creative economic activities are also instrumental in integrating culture and commerce. And, the excellent aspect of expanding circular economic activities is that the potential of expansion and continuation is huge provided that LGs develop an enabling environment for skill development and operational ease. As its integration in the formal economy evolves, evaluating its economic and social impact is still being developed.

According to a UNESCO report, ' Cultural times: The first global map of cultural and creative industries ', Cultural and creative sectors capitalise USD 2,250 billion and creating 29.5 million jobs globally. The industry has significant non-monetary values encompassing sustainable urban development, contribution to the 2030 Agenda, social and cultural development and people to people connection.²⁰

Several local governments worldwide are adopting the creative cities concept to plan their economic and development strategies. LGs can use this for expanding cultural and creative activities, generate inclusive job opportunities by enhancing city to city connect, focused skill development around the creative and cultural economy, and sustainable development in line with the targets under Sustainable Development Goals.

2. Technology and Innovations for Economic Sustainability

Technology is making the path of sustainable economic transformation easier. Digital technology is significantly impacting every industry. Every industry, whether it belongs to the creative industry or any other, has changed for good. It has transformed the way we go about our day-to-day businesses. It was starkly visible, especially during the Pandemic when people were restrained in their homes. Technology made it easy for them to conduct their business and assisted them in working from their homes and get daily essential at the tap of a button.

Many local governments in Indonesia, India, and many other countries supported local economic activities by providing them digital platforms to sell their produce during the lockdown. The Internet revolution followed by Smartphone one has opened up a range of platforms for new creative expressions. The blending of art, culture, local skillsets, and technology has boosted creative economy activities. The creative economy has given birth to many big industries. For

²⁰ Cultural times: The first global map of cultural and creative industries. UNESCO (2015). Retrieved from https://en.unesco.org/creativity/sites/creativity/files/cultural_times_the_first_global_map_of_cultural_and_creative_industries.pdf on June 23, 2021.

example, a report from the British Council says that the video game industry's present economic value is larger than the film industry that is hundred years old. It gives an idea that a physically non-existent sector can help generate jobs for many without having a colossal direct environmental impact. Similarly, communication technology has made it easier for governments to promote sustainable consumption and include the core principle in how they go about their business.

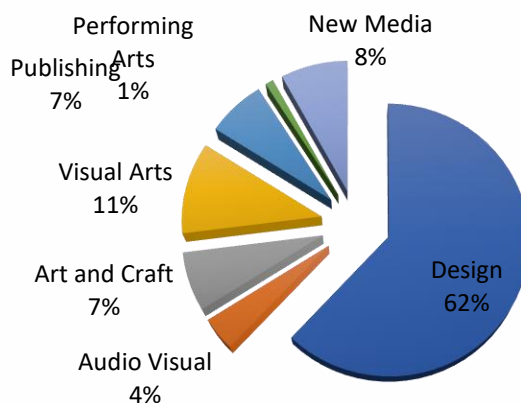


Figure 6: Composition of Creative Economy²¹

With Smart Cities coming up in almost every country, the use of data, sensors and AI tools is paving the way for sustainable, resource and energy-efficient urban management systems. Even the delivery of urban services and urban operations has become energy and cost-efficient. Sub-national governments can help the local economic actors become sustainable and resource-efficient by sharing the knowledge and resources available.

Artificial Intelligence, robotics, and automation are making life easier and efficient, but such advancements may impact traditional jobs in the absence of local economic diversification. Cities have to prepare their industries to cushion back the blow and build economic resilience from any eventuality. A study by Oxford University estimated that machines in the next 20 years could replace as many as 47 per cent of jobs in the USA. For the United Kingdom, the figure is 35% per cent. Another study, 'Creativity vs Robots', has underlined that the creative sector is immune to the threat.²² LGs need to promote adequate diversification of sectors for sustainable and resilient economic growth.

Local economic development will have to adopt technological advancements, but a new economic ecosystem must be developed. It will require strategic changes in the way cities are designed for economic growth. The most crucial component would be diversification.

Sustainable economic growth also requires moving towards an energy-efficient society. Technology affects almost every aspect of urban life; it can also be utilised for sustainable economic development. For this, industrial process and financial activities should be in tune with the local agenda of energy efficiency. The role of municipalities is more prominent in this transformation because every region has specific requirements for sustainability. Cities can tailor-made their approach to deal with local industrial and environmental issues without disturbing any.

²¹ UNCTAD, based on official data reported to UN COMTRADE Database.

²² John Newbiggin. What is the creative economy? British Council. Retrieved from <https://creativeeconomy.britishcouncil.org/guide/what-creative-economy/> on June 23, 2021.

The promotion of renewable energy resources in industries, buildings and private transportation can be amplified with incentives from local governments. In most sectors, technologies are available. The third tier of governments can be instrumental in the diffusion of such energy-efficient innovations in the industries where they are needed the most.

Local governments should empower themselves and access tools and technologies for monitoring industrial and economic activities in their jurisdiction. The scientific advancement in satellite monitoring and fibre optic networks has provided governments with tools to monitor the environment's health in real-time. They can classify industries harming the environment or emitting pollution and will be able to implement national policy compliances at the local level effectively. Technological innovations can strengthen the capacity of LGs to protect the environment, minimise industrial pollutions, advocate for sustainable consumption at the local level, and make economic activities in their jurisdiction green and sustainable.

3. LGs and Management of Creative and Digital Economy

Local or sub-national governments have been administering their physical territories since inception, but the virtual space is becoming crucial in all areas of local economic development and effective urban management. Civic services are increasingly becoming online. Globally, the cities are updating their physical infrastructure of high-end servers and data centres while protecting their social and cultural distinctiveness.

Local governments can use the creative economy to propel economic transformation and building more inclusive, culturally prosperous societies. Since the creative economy depends on the skill and talents of individuals or of a community, its promotion requires localised and specific initiatives. The historical evidence suggests that conventional trade in creative goods and services has supported local economies.

Every city has its strengths, and every LG has existing streams of CE activities that can be expanded by providing policy support. It will not just increase economic alternatives but help in leveraging the existing talents and human resources available in a particular creative economic activity. The creative goods and services sector opens new doors of economic opportunities together with e-commerce and the digital economy. In addition to having environmental, cultural, social advantages, it can help LGs forge a sustainable development path.

Many sectors within the creative economy have grown so big that they have threatened traditional businesses in the same domain and some industries; it has created substantially additional livelihoods for the local people. So, it is a path on which the local economies must tread carefully to make it inclusive and sustainable. With a large employment generation in the creative economy and its allied industries, its significance is growing globally. The emergence of digital technologies has made it possible for local economies, even those in developing and underdeveloped nations of the global south, to leapfrog and build a sustainable economic model for themselves.

However, there are many areas where government interventions and the development of compliance systems are necessary. The local Government need not just create an efficient ecosystem for registering for copyright and trademark with the practical legal and regulatory framework. LGs shall ensure that such compliances are enforced strictly. Local governments will

have to formulate policies for its promotion and application under economic, industrial, cultural and, education policies. Local governments' policy response should also address specific demands from local citizens relating to livelihood support, education, social inequalities, environmental concerns, and cultural identity.

It has been witnessed that the financial contribution of the creative economy has not been given due importance in the economic systems of the world. Still, its growing significance has made the nations rethink. Local governments can take the lead in this and measure the financial contribution of creative goods and services generated locally. Since these activities majorly depend on developing intellectual property by talented individuals, it has immense scope to grow under the right environment.

In 2008, United Nations published a survey of the global creative economy. It spotlighted that every continent is witnessing the growth of 'creative and cultural industries. The report highlighted, "The interface between creativity, culture, economics, and technology, as expressed in the ability to create and circulate intellectual capital, has the potential to generate income, jobs, and exports while at the same time promoting social inclusion, cultural diversity, and human development. This is what the emerging creative economy has begun to do."²³

Combining culture and commerce through creative economic activity can also help build a distinct image of the city. Every city has a cultural or heritage icon around which cultural districts are formed, combining cultural and commercial activities to support local artisans and citizens. Such cultural districts can be found in most cities with famous cultural icons such as the Great Wall of China, France's Eiffel Tower, Australia's Sydney Opera House, and India's Taj Mahal.

Cities can also be upbeat in forging collaboration between industries and other cities and towns. Local Government Associations, city networks, and peer-to-peer partnerships can help in enhancing the overall social, cultural and economic impact. The Belt and Road Initiatives can drive the agenda of sustainable economic development and local cooperation among cities in member countries for partnerships and associations.

For example, Hello Shenzhen is a bilateral residency exchange programme connecting makers in the UK and China. It aims to build robust, productive connections between the two countries for deepening learning and taking advantage of each other expertise to create excellent products. Other benefits include collaborative solutions and research, responding to shared issues and interests.

Another example is the European Creative Hubs Network. The main objective of this peer-led network is to boost the impacts of the sectoral benefits in Europe and neighbouring countries. It is supporting the growth and development of the industries in the region. Similarly, municipalities can shape the development contours of the creative economy industry with effective administration, policy support, enhancing social, environmental, and cultural impacts with instruments of trade, technology and tourism. The digital economy would require skilled human resources and access to innovative tools. It could be augmented with local governments' cooperation with the community and making the data open to find sustainable economic solutions for a city or a district.

²³ Creative Economy: A feasible development option. UNCTAD (2010). Retrieved from https://unctad.org/system/files/official-document/ditctab20103_en.pdf on June 23, 2021.

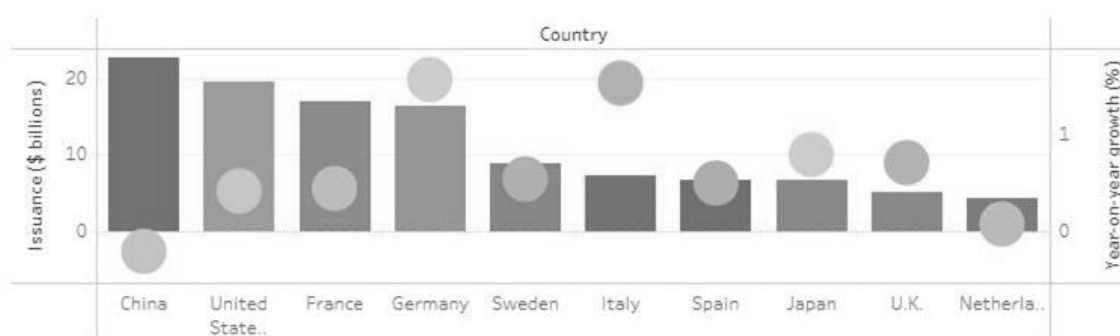
4. Exploring New Avenues of Support for Sustainable Growth

To ensure sustainable economic growth at the local level, local governments need to be sufficiently funded to assist local industries and create enabling environment for communities. Many urban local bodies in the developing countries along the Belt and Road region are not financially capable of funding sustainable projects and programs and look towards national governments for grants to run their operations and pay salaries to staff. Local governments need to develop a clear financial strategy by engaging national governments, financial institutions for green finance or sustainable finance.

Green or sustainable finance is a new line of credit by international funding agencies and banks for green infrastructural and environment-friendly projects that provide environmental benefits and assist in achieving various sustainable development goals (SDGs) and other global goals. Such funding alternatives also look at the economic and infrastructural development projects that protect the environment, reduce pollution, prevent biodiversity loss, and preserve natural resources. In the traditional financial markets, most of the growing group of investors are strictly looking at the ESG standards and ratings of a company before considering providing funding to them.

Some of the sectors in which green financing can be accessed include energy efficiency, renewable energy, sustainable transport, public transport, rail transport, electric mobility, circular economy initiatives, waste and waste-water treatment, re-forestation and many others. LGs can also find other examples in the Chinese green bond catalogue²⁴ and the Climate Bonds Taxonomy of the Climate Bonds Initiative (CBI)²⁵.

The market of green bonds is growing gradually. The first such bond was issued in 2007 by the European Investment Bank named Climate Awareness Bond. Over the years, many financial institutions have entered. Green Bonds valuing USD 173,4 billion were issued globally. In Belt and Road Countries alone, countries issued green bonds of the cumulative value of USD 57.4 billion. China accounted for about 40% of the green bonds among the BRI countries. Chinese issuers have collected \$22.9 billion in green bond proceeds in 2019. They are ahead of the USA and France issuers as they raised \$19.6 billion and \$17.1 billion, respectively. China has also shown double-digit growth in 2019 among the top 10 issuers.²⁶



²⁴ China Green Bond Endorsed Project Catalogue (2015 Edition). Retrieved from <http://www.greenfinance.org.cn/displaynews.php?cid=79&id=468> on June 24, 2021.

²⁵ Climate Bonds. Retrieved from <https://www.climatebonds.net/standard/taxonomy> on June 24, 2021.

²⁶ China leads in green bonds, others catching up. Retrieved from <https://www.pionline.com/interactive/china-leads-green-bonds-others-catching> on June 24, 2021.

Figure 7: 2019 Green Bond Issuance²⁷

Along with improving access to green finance with the right local policies for protecting the environment and mainstreaming climate change and sustainability in development projects, local governments need to chalk out feasible financial sustainability plans. Local governments using the network of local government alliances can also start pitching their ideas for getting access to sustainable finance alternatives. There are many instruments through which green or sustainable financing can be accessed. Some of these are sustainability-linked loans, green bonds, green insurance, green loans, etc. Local Governments in the BRI region have the leading edge as they can also take advantage of funding available under the initiative for augmenting the growth of sustainable economic development in their respective regions.

KEY TAKEAWAYS

- **LGs will have to list creative-cultural knowledge and resources available to them. These could be leveraged for planning long-term sustainable financial vision.**
- Creative economic activities are instrumental in integrating culture and commerce. The potential of expansion and continuation of circular economic activities is enormous provided that LGs develop an enabling environment for skill development and operational ease.
- **Urban Local Bodies will have to enable robust legal and administration framework for copyright, trademark and licensing systems for creative goods and services. They must also voice the concerns of the industry to national and regional governments.**
- **Data safety and security is a growing concern. LGs need to learn from the experiences of different cities in developed world for governing their digital or online space securely, without compromising on the data collected from clients and citizens.**
- Along with improving access to green finance with right local policies for protecting environment and mainstreaming climate change and sustainability in development projects, it is important for local governments to chalk out feasible financial sustainability plan.

²⁷ China leads in green bonds, others catching up. Retrieved from <https://www.pionline.com/interactive/china-leads-green-bonds-others-catching> on June 24, 2021.



Chapter 4

Developing Long-Term Local Plans for Inclusive, Sustainable Growth: Global Best Practices

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- 2) Global Best Practices:
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 - SINGAPORE
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Creating a city of future with green and technology at heart

1. ROAD TO SUSTAINABLE ECONOMIC GROWTH

The objective of local sustainable economic growth cannot be achieved by just following the straightforward approach of reforming local economic and industrial systems. It will entail a complete overhaul of the urban management systems, service delivery mechanisms, promoting energy efficiency, adopting an inclusive governance model, enabling ecosystem for resource efficiency, effective waste management, integration of digital technologies, etc. In this chapter, a host of experiments and initiatives are highlighted to understand how local governments in different parts of the world prepare themselves for sustainable economic growth.

2. Global Best Practices

REYKJAVIK, ICELAND

Making transport industry entirely free of GHG emissions

Transport systems consume a massive amount of fossil fuels and emit pollution. The sector supports economic activities in a city by ensuring smooth movement of goods, services and people. Local Governments have to find suitable ways of reducing emission from the transport sector. The city of Reykjavik is working on its endeavour to have 40 per cent of transport energy needs sourced through renewables by 2030 and eliminating their production of greenhouse gases emissions from vehicles by 2040. The city, already marketed as a place of 'pure energy', is currently striving to become the first carbon-neutral city. Recognising that the city's biggest challenge to achieving the set goal will be energy consumption by the transport sector, the local government of Reykjavik has been investing in building new bike paths, installing more electric car charging points, and simultaneously working with six neighbouring municipal corporations to develop a new rapid bus and light rail system.

The city's already established bus system is used by only four per cent of the population. However, a new survey conducted by Maskina, a marketing company, says that 45 per cent of the people of Icelanders are in favour of the new light rail and rapid bus system that the city of Reykjavik is working on. The new Bus Rapid Transit system named 'Borgarlína' is being developed by the National Power Company of Iceland, one of the ten largest renewable energy producers in Europe.

With mixed traffic continuing to key destinations, the Borgarlína vehicles have been designed to look and feel light rail on the main busway route. Borgarlína will consist of fully dedicated lanes – designed in a way to minimise delay to passengers. It will have the facility of off-board fare collection and platform-level boarding so that passengers can board quickly and easily. The buses designed for Borgarlína will run on clean, domestic fuel (electricity, methane, or hydrogen), and bicycling will be integrated into Borgarlína's stations and corridors- thereby providing a clean, green option for last-mile connectivity.

In addition, the city of Reykjavik is facilitating the transition to alternative fuels for transportation. Three already established stations in the city are all set to supply hydrogen as fuel through equipment contracted from Norwegian company NEL Energy, providing a

central hydrogen production plant. These three power stations for the whole city have been built to provide easy access to a large population. The hydrogen production is to be done through water electrolysis, using renewable electricity from already functioning hydroelectric power plants in Iceland. The local government has also already started a project on the deployment of 10 hydrogen fuel cell cars. The government of Reykjavik is looking forward to turning the city into an ideal model in terms of energy management for the whole nation.

Understanding that around 75 per cent of all trips in Reykjavik are by car, the city administration is trying to get people to walk or bike or use more energy-efficient or use public transportation to commute. They have introduced benefits to encourage people to adopt cycling and electric cars, like free parking and lower taxes. The Borgarlínaproject is trying to reach each and every corner of the city to make public transportation accessible and sustainable. It will be implemented in three phases, across 2024, 2029 and 2034, with the long-term aim of reducing congestion, improving traffic connections, and enhancing air quality.

Currently, the world is witnessing a rise in the importance of public transport options. The government of Reykjavik is presenting an excellent example of how a city can embrace sustainable fuel options and therefore ensure sustainable and inclusive development. Reykjavik's ongoing work on mobility transition is a long-term project, which will improve the passenger experience and ensure that its public transport network is sustainable and future-ready.

SINGAPORE

Creating smart urban spaces with green buildings

Buildings, offices, and houses are major part of urban spaces for they provide spaces to work and reside in. However, the buildings sector is responsible for a significant share of energy-related carbon emissions across the world. Singapore had established the Green Mark scheme in 2005 to set environmental sustainability standards for buildings to work on this challenge. As of 2017, only 30 per cent of the city's buildings were categorised as green and sustainable. To give a push to its presence in the city, Minister for Social and Family Development, Government of Singapore, announced in 2017 that the city's Inter-Ministerial Committee on Sustainable Development (IMCSD) had decided to make 80 per cent of its buildings meet the minimum Green Mark Certified Standard by 2030. This will reduce Singapore's carbon emissions intensity by around 36 per cent from the levels of 2005.

Most builders or owners are used to traditional building methods and are unaware of the maintenance savings that can come from having good structural foundations. Most are used to build first and later contemplate on solutions to save energy. With a long-term perspective at the root of this project, Singapore is looking at solutions in this space with energy-efficient cooling devices, optimisation systems that streamline energy use, and building coatings that save energy.

For green buildings, the city's administration has approved features like improved glass insulation to reduce solar heating through windows; energy-efficient lighting devices and equipment to control lighting; energy-efficient cooling plants and ventilation systems for air conditioning; building management systems to monitor and control equipment and optimise energy use; and use of photovoltaic cells.

As of 2020, 43 per cent of Singapore's buildings were reported to have been greened. The Singapore Green Building Council has been trying to create certification and outreach programmes and promote capability development and innovative solutions to support the city's building industry transformation.

The Building and Construction Authority of the city has introduced a feature called 'wind scoop' for green buildings. It currently rests atop a 40-storey Capita Green. The structure's petals draw in a cooler, cleaner air that is funnelled through the building's air-conditioning system, helping to save energy on cooling. A Double-skin façade is another feature being promoted for green buildings in the city. According to 'The Straits Times', the wind scoop is helping the building of Capita Green generate monthly savings of about 580,000kwh, which is equivalent to the energy needed to power about 1,500 four-room Housing Board flats in a month.

	60% or more	50-59%
Electrical	South Africa, UAE, Vietnam	China, India, Saudi Arabia, South Africa
Thermal and Moisture Protection	UAE	China, Poland, South Africa
Waste Management	India, Vietnam	South Africa, UAE
Mechanical	UAE	Vietnam
Building Systems Automation	UAE	China, Poland, Singapore, Vietnam
Finishes	None	UAE
Flooring	None	None
Furnishings	None	China

BRI Countries with the Highest Percentage Reporting Use of Green Building Products/Services - As of 2018 (Jones, 2018)

The city administration organises an annual Singapore Green Building Council (SGBC) Leadership Conversations Networking Forum. With events like this and International Green Building Conference, suppliers and potential customers connect, which in turn accelerates green buildings' action, including regular revisions to the Green Mark criteria and incentive schemes to support energy efficiency upgrades in the city. Moreover, Singapore's authority has introduced Productivity Innovation Project (PIP) to provide subsidies to encourage contractors to use technology to improve the energy efficiency of their operations. A Zero Capital Partnership Scheme between SGBG-BCA provides

expertise and grants for companies interested in implementing energy efficiency retrofit projects.

The most popular technologies for green buildings in Singapore include energy-efficient lighting systems, chiller plant systems, and solar panels. Singapore's government has also supported the uptake of green technology through grant schemes promoted by the Green Building Innovation Cluster (GBIC). This scheme provides funding for experimentation, exhibition, and exchange of promising new energy efficiency solutions among industry stakeholders.

BCA has also introduced stricter rules making it mandatory for all buildings in the city to be subjected to any sort of change to meet the minimum level of the Green Mark standard. Project developers in the city are making efforts to educate tenants and end-users. In collaboration with BCA, they also provide guidebooks titled "Green Lease Toolkit on sustainability practices". Moreover, buildings with high green building performance receive public recognition by the BCA, and these buildings are open to the public for guided educational and awareness tours. Singapore's energy-saving companies even carry a competitive advantage because the city's authorities have been driving energy efficiency for decades. They have started going overseas to share their knowledge, grow, and export products and ideas on green buildings.

JAKARTA, INDONESIA

Turning city of high air pollution into low carbon society

The Government of Indonesia in November 2017 had committed to becoming a pioneer of sustainable development by launching the Low Carbon Development Indonesia (LCDI) Report. Indonesia and its capital city Jakarta witnessed significant economic growth in the recent decade, but at the cost of the environment. As of 2019, around 60 per cent of Jakarta residents were suffering from air pollution-related diseases. With this in view, the LCDI initiative and Jakarta are transitioning into less-carbon intensive and more energy-efficient tools and systems.

Jakarta has been working on its provincial long-term strategy to create a concrete Low Carbon Development Strategy to make a low carbon society a reality in the city. The work had started in 2020. But the Pandemic hindered the progress. Understanding the contribution of greenhouse gas (GHG) emissions to climate change, Jakarta has set the target of becoming a low carbon society by 2050. In addition to this long-term target, the city has also set an emission reduction target for 2030.

The city is looking for mitigation measures to reduce emissions from MuaraKarang and Tanjung Prick power plants, for example, by transitioning from fuel to gas as a source of energy. The city administration has started looking at fuel switching in transportation, promoting non-motorised transport, electric vehicles, solar PV systems, and wastewater management. The municipality is looking for development in infrastructure to sustain the climate-friendly ways for the already choking city of Jakarta.

Reports suggest that transportation in Jakarta has the highest energy-saving potential to meet the target of a low carbon society. Therefore, the city has started fuel gas emission testing and public transport rejuvenation. Action is underway to shift from the use of privately owned vehicles to pedestrians and bicycle tracks. The sidewalks and bicycle track along the city centre are set to be widened to secure a comfortable pedestrian space and promote a mode shift on the part of the general public.

City authorities have noted that solid waste treatment can significantly reduce GHG emissions from the report released in 2018. The city's local government had created a Waste Bank platform to encourage locals to reduce and reuse waste. In 2019, the waste banks in Jakarta collaborated with a pawnshop PT Pegadaian, under which locals were provided with gold in exchange for waste. In North Jakarta, around 70kg of aluminium cans is equivalent to 1g gold. The branch of the waste bank in north Jakarta witnessed a rise in its customers from about 35 to 105 in a very short period due to the 'trash for gold' scheme. The waste collected in these waste banks is collected and cleaned and then sent to government organisations for treating these wastes and making new products out of them.

The city has also started making use of energy produced from burning waste in incinerators. The burning of garbage produces hot fuel gases that are recovered to generate electricity. Electricity thus generated is then used to substitute electricity from the JAMALI grid. Moreover, the waste processed into refuse-derived fuel in the treatment plants now can be used to substitute coal in power plants. In addition, the city authorities have started renewable energy campaigns and special training on renewable energy technology. Continuous efforts are underway to support the implementation of solar PV and facilitate the public's access to renewable energy in Jakarta.

LJUBLJANA, REPUBLIC OF SLOVENIA

Leading way in circular economy

Resources being limited, the rapid urbanisation and development cannot afford to lose all the waste that it creates. The circular economy is what urban spaces have now started put their hopes on to simultaneously built more innovative and sustainable cities. The overall aim for the Republic of Slovenia is to increase the quality of life for all its citizens, which would mean making its cities more inclusive and resources more accessible. The Ministry of the Environment and Spatial Planning of Slovenia had introduced the National Roadmap for such development, but the municipality of Ljubljana took it upon itself to innovate and lead.

The local government of Ljubljana, to make the most of the waste, introduced and applied several innovations. The city has been using waste products like millings and chippings produced from re-surfacing its asphalt roads in the construction/renovation of its street and sidewalks. The engineers use this as added volume for banks in the unbound bearing layers and the sub-base layers. The city converts its old bus seats into equipment for the children's playground.

Recently, Ljubjana became the first city in the world to produce paper out of Japanese knotweed, which is originally a pest, illegal in most countries, and is known to cause significant damage to the foundations of buildings. In a unique attempt at waste utilisation, the municipality has designated an urban culture construction site to facilitate testing of designer circular objects by different community groups, such as sports groups making outdoor work-out equipment. The local government has also been making public-owned manufacturer refurbish traffic signs for reuse.

The City Tourism Office facilitates farmers selling their produce directly to restaurants and hotels to make the growth all-inclusive. A highly sustainable option introduced in the city is where the public management company cleans the lanes of Ljubjana with machines that recycle water, and they are using a biodegradable detergent. The machine has five floating brushes for wet cleaning, which vacuum up the cleaning water.

To further the reach of recycling and reuse of waste generated, city residents are encouraged by the municipality to use old containers (plastic, metal or ceramic) to fill with compost produced from organic waste, in which they can also grow plants. The authorities promote this idea by reiterating that this can help to prevent the spread of the tiger mosquito. Moreover, the city is working on the concept of Repair Cafes, which will operate within the framework of the already present Reuse Centre. It will employ experts from different professions such as electricians, seamstresses, carpenters, etc., and repair and refurbish products with the help of volunteers.

Ljubjana's public waste management organisation is already cleaning the city's pavements with recycled water. The machine being used by the institution has five floating brushes which vacuum up the cleaning water, recycles it and then reuse it again. Street rinsing uses rainwater collected from roofs and biodegradable rinsing, thereby minimising the harm to the environment. The city's focus since 2016 has been on working on a circular economy roadmap in all sectors producing waste. The local government has come a long way in recycling and reusing civic waste and reducing waste in the utility sector.

VIENNA, AUSTRIA

Making the most out of dismantling structures

In its campaign on 'clean city', the municipality of Vienna created 'BauKarussell' as a consortium to work on greater material reuse in the industry sector. As an umbrella organisation for social enterprises, the consortium is backed by Vienna's Municipal Department 22 Environment Protection, Road Cleaning and Fleet, and Municipal Department 48 Waste Management. The city aims to develop a range of services to dismantle large-scale buildings as a standard method for demolition. The increased standard will promote greater reusing of material.

Earlier, the city had no practical experience in reusing materials from the large scale construction sector, but the Recycled Construction Materials Regulation and the Standard ÖNORM B3151 now requires the dismantling of buildings in Vienna in accordance with the standard when more than 750 tonnes of waste is created. The

municipality of Vienna supports the BauKarussell, financially and organizationally. The City department, MA22, whose role is to oversee building sites in the city, works closely with the consortium. This collaboration ensures that the development happens in line with the legal framework of sustainability.

BauKarussell is responsible for the planning process of building demolitions with property developers. During the operational phase, the team responsible has to remove selected materials and products to make them available for new buildings. To make this programme more inclusive, the operation team consists of formerly unemployed and disadvantaged workers employed by social enterprises. These workers gain the work and pay and qualification, training, and support, which helps them find their way back into the labor market and survive in a dignified manner.

The pilot work that the city and BauKarussell undertook in this initiative was the dismantling of a former bottling plant of an international beverage producer- Coca-Cola, in 2017. The demolition focused on manual dismantling, which allowed the reuse of components and materials of the building, in turn resulting in high-value recycling. According to reports, this pilot project had created a turnover of €100,000 and had reused 450,000 kg of waste.

BauKarussell has supported the development of the construction industry in Vienna, which brings resource management principles to an intelligent implementation in the construction sector. BauKarussell made it into three award-winning projects out of 73 submissions at the Raw Materials and Circular Societies Prize 2020. It received recognition for creating a sustainable social urban mining concept and setting a pioneering example in the circular economy in the construction industry. Project developers at BauKarussell and the city municipality are now looking for new partners into the value chain of demolition to increase recycling value.

HYDERABAD, INDIA

Leading sustainable development programmes out of hazardous plastic

Hyderabad is known for its unique ways to reuse waste and maximise sustainability in its development projects. The city authorities in 2018 recognised the colossal presence of plastic in the Indian market, which meant that only limiting the use of plastic in the city would never have been enough. The municipality, which once used waste tires as furniture in government offices, decided to focus on collecting, treating, and reusing plastic waste choking the beautiful city.

The Greater Hyderabad Municipal Corporation (GHMC), in its attempt to sustainably deal with plastic and dump yard in the city, collaborated with an organisation named Bamboo House India to convert a former dump yard, which used to be a black spot in the city, into a dog park. One thousand five hundred tiles made out of recycled plastic created the 4000 sqft pavement outside the park. These paver tiles from plastic also solve the problem of road digging, for all workers will have to do in case of installing telephone wire or correcting water connection pipe, lift a patch of tile, complete the task and put it back.

Taking it a step further, the GHMC has decided to use plastic waste in BT roads construction in the city. The authorities hope that this will deal with plastic waste choking nullahs and drains in the city and thus ensure free flow of sewage and rainwater. Plastic usage in the construction of roads will also increase the life of the road for plastic roads contain 8 per cent of plastic waste in the bitumen mix, which helps the tar bind stronger with the metal or gravel, thereby holding the road steadily even under Vehicle or monsoon pressure.

The GHMC in 2020 also introduced Plastic Waste Management Strategy and Action Plan with policy directions, enabling framework, technical alternatives, and financial incentives to reduce the risk of single-use plastics. It also involves promoting the separate waste collection, plastic waste recycling, increasing value chain, and institutional capacities. As one of the first steps, GHMC had women self-help groups campaign across shops and temples to stop using single-use plastics. The organisation has also started providing recognition and awards to places no longer using single-use plastics. Moreover, return vending machines have been established to collect PET bottles and promote the recycling of resources.

The municipality of Hyderabad has also been supporting the production of green kiosks built from plates made from corn starch. These plastic plates are biodegradable in nature and dissolve in water. This initiative has started introducing the concept of recycling, reusing, and practices of renewable energy in the food industry. According to Swachh Survekshan Report 2020, the urban local body of Hyderabad installed a record-breaking number of 775 bins made of recycled plastic. These plastic bins are made in the city using waste plastic bottles, poly bags, shampoo bottles, etc. In this project alone, the city was able to recycle around 23,500 Kg of plastic waste.

GHMC introduced a new plastic waste management strategy in 2020, which will soon have the International Council for Local Environmental Initiatives (ICLEI) South Asia facilitate Reverse Vending Machines (RVMs) to collect PET bottles and aluminium cans. This pilot programme in the city is expected to enhance and streamline the collection and recycling of plastic waste. GHMC hopes to reduce littering and improve authorised collection and processing of PET items and aluminium cans in the city through these RVMs. As a promotional strategy, the corporation has also decided to introduce users receiving rewards from outlets that will have tie-ups with the provider of RVMs. This system also can reduce the dependency on the informal sector for recycling materials, thereby avoiding many occupational hazards and creating a good market out of the programme.

ZAGREB, CROATIA

Creating green jobs for unemployed population

In 2011, out of the total registered unemployed population in Zagreb, 19.1 per cent were people without formal high school education, and 9.4 per cent were war veterans. It is challenging for these groups to acquire new skills to join the labour market. Many of them survive on social benefits and similar schemes but remain exposed to social exclusion

and poverty. Like Germany, Croatia introduced the National Employment Promotion Plan to address labor market needs and decrease unemployment rate.

Croatia revised its guidelines in the policy to accelerate the project and meet the need in 2015-2017. Because even though the policy was introduced early, due to shortage of financial and resource limitation, the education and training programmes for employees and unemployed jobseekers were carried out on a very small scale. In recent years, these activities have gained a significant pace. A considerable part of them has been directed toward long-term unemployed and social welfare beneficiaries who have participated in public works programmes.

To deal with this challenge, the capital city of Croatia introduced a project on educating and training unemployed people. This programme involves work on the preservation and clean-up of green spaces in the city like Medvednica and Park Maksimir. In return for this work, these people are entitled to attend education and training courses. This not only improves their chances in the labour market but also helps the city ensure expenditure of minimum resource on maintenance of green spaces.

The city authority is responsible for covering the cost of the courses. The participants can choose a programme from around 58 options according to their needs and interests, where courses range from elementary, secondary, and high school education and vocational training.

The programme sees most participants choosing something out of 18 available occupational training courses, after which they enter the labour market to become shop sales assistants, hotel maids, cooks, and accountants. Out of the 11 educational programmes available in the healthcare and beauty sectors, participants select training to become nursery assistants, nannies, physiotherapists, hairdressers, and beauticians. Other programmes in this project include training in catering, office administration, and educational programmes in electricity and gas installations and construction.

Moreover, because craftsmanship and skilled manual labour is currently the main generator of employment in Croatia, the city of Zagreb is now adding a new training offer to the project to support self-employment in these sectors. This addition is to be implemented by the Development Agency Zagreb, which provides primary education for prospective entrepreneurs, including developing a business plan, project planning, marketing and sales, investment analysis, financial planning and legal aspects. There are also plans to include new educational programmes related to the green economy, such as training as an ecological technician.

The participants working full time on maintaining green spaces in the city are registered at the Croatian employment service and eligible to receive the city's unemployment benefits. Zagreb, this way, supports employability through maintaining public green spaces. This project has motivated unemployed people to enter the labour market by providing them with another chance at education and skill training. The city of Zagreb funds this project entirely and manages it with the help of regional employment service

and local educational institutions. The expenses here are offset by reducing the regular maintenance of green spaces and having more people actively participate in the city's economy after training.

SEJONG, SOUTH KOREA

Creating a city of future with green development, technology at heart

Sejong City is planning to spearhead a smart city initiative that focuses on smart mobility and healthcare. The project is located in 5-1 residential district and is estimated to cover 2.7 square kilometres with 19,000 residents in 8,900 households. The total cost for this project is estimated at 1.4 trillion South Korean Won. The city is estimated to be running by April 2023 and will be divided into three zones - one for startups, one for business zones, and one for smart living zones. These zones will provide innovative education, energy, mobility, governance, job, and shopping services to the inhabitants.

The local government of Sejong is currently giving more focus on mobility, and consequently, car sharing is among the critical goals in this project to reduce the total number of cars used by two-thirds by 2040. Residents will have access to self-driving or ride-sharing vehicles powered by hydrogen or electricity at the startup point. The 5G based real-time network will monitor traffic and transportation systems and drones and robots used for delivering services. The local government aims to use innovative technologies to improve the resident's quality of life. Companies might even record the lifestyle and behaviour patterns of the residents of the smart city as big data to develop new services and products.

Bus Rapid Transit (BRT) can seem inefficient in conserving energy as public Transport seems empty when it travels through the central business district to the suburbs. The smart city plan of Sejong avoids this problem by setting up the transit centres specifically in locations that are compact and mixed land use areas; it will run on several functional and mixed zones which will be connected in parallel by the ring-shape circular public transport axis. The fluctuation of ridership will be controlled in this urban structure as the travel demands are dispersed over different zones and not just between suburbs and central business districts. This will also improve the quality of the walking environment on streets as there will be a decrease in curb parking and lesser traffic which would attract more people to walk and give stores more opportunities. Consequently, this will strengthen the local businesses on the streets.

The master plan of Sejong smart city is a transport system based on innovative technologies such as driverless vehicles and cars powered by hydrogen and electricity. IT has made the concept of car-sharing a vital goal to reduce the number of cars used per capita by two-thirds by 2040 in the city. The local government also plans on using AI (artificial intelligence) embedded traffic management system to reduce traffic jams and make it easier for residents to commute through the city.

Another interesting public transit system introduced is 'ouling'. In Sejong City, public cycles are available outside the student's dormitory and the biking club in schools. These

public bicycles can be rented using smartphones or through T-money card systems. But the easiest method to access these bicycles is through a Korean postpaid cellphone number and alien registration number. Duarte et al. (2010) study on happiness in the transportation environment revealed that in terms of travel modes, the highest level of happiness is achieved by those who use bicycles for their trips followed by people who walk. The research paper states that: "Transport not only is a key factor in modern economies but also plays an important role for individual happiness. Optimisation of the transport system is crucial to meet increasing demands and sustainable development."

Travel is a necessary demand in urban societies. Well, organised and sustainable public transport service can provide universal contentment to all residents. The city of Sejong is trying to draw on precisely that concept, whereby simultaneously building the city into a brand-new urban space with smarter housing structures and mobility. Sejong has started leading innovative city solutions, thereby creating an industry ready to share its knowledge and export products for the cities across the world that follow.



Chapter 5

Conclusion: Roadmap to Economic Sustainability

1) Roadmap to Economic Sustainability

- LGs need to protect, preserve local environment and natural resources.
- Promoting sustainable consumption is the key.
- Engage local community and foster collaborations, partnerships with multiple stakeholders.
- Enable access to green finance, promote ESG standards, and incentivise sustainable practices by local industries.
- Closed-Loop local resource management for effective implementations of circular economy
- Enable supportive environment for technological innovations with skill-building of LG officials and elected representatives

2) Conclusion

1. Roadmap to Economic Sustainability

Sustainable economic development is a buzz word world over. The primary reason that everyone wants to become sustainable is that the world is increasingly witnessing the outcomes of unsustainable consumption and production practices on a planet with finite natural resources. The negative impacts of climatic changes are threatening the existence of many communities, species and even put many economic models on the verge of collapse. Such practices have also deepened inequality in societies and making progress on global goals sluggish.

Local governments engage with the community daily and solve the issues that may not be addressed with such intricacies by the national or state governments. Today, LGs are dealing with climate change, disaster resilience, social equity, economic innovation, operational efficiency along with their traditional works such as sanitation works and supply of basic amenities.

Local governments are best suited to build sustainable economic models by focusing on their human resources and available natural resources. Governments can focus on a specific place and build the community's capacities so that they can understand their problems and solve them with their collective knowledge. This model is also referred to as a place-based or local economic model. Local Governments can assist them in their journey by providing access to knowledge resources and technological tools. It will help local governments in formulating an effective policy framework for a sustainable economic model. The parachute dropping of solutions is not sustainable in the long term.

The importance of local governments is now being accepted at the global level that no global goals can be achieved if local governments fail to deliver. In general, local governments' energy and resources are consumed with the daily work of cleaning roads, ensuring water supply, maintaining urban streets, and cleaning of drains, among many other myriad daily activities. Traditionally, local governments have been about the smooth functioning of cities. Now is when local governments strategise their local economic, environmental, and governance plan, not just keeping in mind the local consequences but global of local actions. LGs could no longer be inward-looking. Coronavirus pandemic reminded us that we live in a connected world. It was seen in the spread of the virus and how countries fought back with the pandemic collectively. This report has discussed the local economic development scenarios world over and emerging alternative economic models in Europe, China, and elsewhere amidst the call for achieving a range of global goals concerning the future of our next generations. Sustainable economic growth at the local level is essential for achieving SDGs, fighting climate change, and building urban resiliency. Here are some key outcomes based on the findings of this report for laying a roadmap for sustainable economic growth at the local level and creating an inclusive, green, and prosperous world.

- **LGs need to protect, preserve local environment and natural resources.**

A majority of our economic and industrial activities at all levels still largely depend on natural resources. The continuous exploitation of finite resources is not a sustainable economic model. It cannot continue forever. Local Governments have to come forward and advocate the idea of decoupling economic growth from environmental degradation. It does not just mean judicious usage of available resources but also means that no economic activity shall degrade the environment beyond repair. Local communities in many countries are coming forward to oppose polluting industries to be set up in their localities. Local Governments are much more organised and empowered to take initiatives to protect and preserve local ecosystems. It shall be reflected

in their policies, programs and activities. No policy shall be formulated without keeping environmental effects in mind.

Local governments in developing countries have the advantage of learning from the mistakes of countries where industrialisation and urbanisation took place decades ago. Today, LGs have alternatives too and do not necessarily follow the same business model for generating livelihoods for citizens. Massive industrialisation in the Western world indeed meant more energy usage. And, a majority of which came from coal-powered power plants. And, citizens in many of these cities are facing health-related issues due to poor air quality. Local Governments today can think of building industries running on renewable energy. The massive consumption of energy by cities increases Greenhouse Gas (GHG) emission, resulting in the warming up of the planet and other climate change-related problems. It is causing frequent floods, droughts, wildfires and extreme snow, which has led to loss of lives and livelihoods. Building green and sustainable economy is essential for building resilience to natural disasters.

The agenda of a sustainable economy should be the top priority of the local governments. It will make local economic activities environment-friendly, energy-efficient and ensure the first-rate livability of citizens. **Municipalities must weigh their options for sustainable economic growth without negatively impacting the local environment through policymaking for transitioning to low carbon economic activities, regulations with innovative technological tools, and dexterous management by consulting all stakeholders.**

- **Promoting sustainable consumption is the key.**

The World Commission on Environment and Development defined, "sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."²⁸ It has made the world thinking about the current trend of consumption. In a report, Global Resources Outlook released in 2019, the International Resource Panel has reported that in the preceding fifty years, the global population doubled, the use of natural resources tripled, and global GDP quadrupled. (Figure 1)



Figure 8: Trends associated with resource use 1970–2017 (IRP, 2019)

The report²⁹ highlights the conventional linkage of natural resources and economic growth. The global population will increase, and so will the demand for more natural resources for running the

²⁸ Sustainable Development: Meeting the needs of the present Retrieved from <https://medium.com/age-of-awareness/sustainable-development-meet-the-needs-of-the-present-without-compromising-the-ability-of-future-a97a93339867> on June 23, 2021.

²⁹ Global Resources Outlook 2019. International Resource Panel (2019). Retrieved from <https://www.resourcepanel.org/reports/global-resources-outlook> on June 24, 2021.

economic engine. This old relation between economy and human wellbeing and prosperity must be decoupled to reduce the unsustainable pressure on finite resources.

Local governments can become ambassadors of sustainable consumption and resource efficiency. If the cities are leading from the front, they should adopt eco-procurement policies to instill ecological sensitiveness in local citizens. The City of Malmö in Sweden is a good case study. LGs may not have direct interventions in consumer choices, but promoting the idea through their communication channels can create awareness among the locals. Making people aware is a must as a majority of GDP in most of the developed world comes from household consumption. It is required to transform household consumption and make it sustainable.

Urban consumption patterns are worrying, especially in the developed world. Urban Sustainability Directors Network launched the Sustainable Consumption Toolkit³⁰ could be a good reference point for local governments to promote sustainable consumption among citizens.

Cities are also coming forward with their solutions. The case studies of Amsterdam promoting a collaborative and sharing economy can address the issue in the long term. **Local Governments can take a cue from the cities using technological tools for enabling the community to share unused resources. For this, local governments need to create a technology-driven enabling environment and robust community compliance mechanism where such creative ideas of sharing and collaborative economy can flourish and eventually reduce the increasing demand for new resources.**

- **Engage local community and foster collaborations, partnerships with multiple stakeholders.**

Local governments have a responsibility to global common agenda concerning many sectors. For this, their representation has to be enhanced at all levels in international policy discussions. For this, local governments should also be prepared to take the lead by imparting adequate knowledge and skills in local leadership and bureaucracy. About six years have gone by since the world has begun working on achieving the objectives of the SDGs, but still, many city leaders will not be able to tell their strategies for achieving these goals if they happen to know what SDGs are. National governments and international agencies also need to engage LGs in decision-making and empower them with handholding support in this journey. It should not be a ceremonial approach.

LGs, too, are responsible for taking proactive initiatives and joining hands with other cities through sister city engagement or becoming active members of local government associations to keep them updated. LGs should showcase their initiatives by taking part in regional, national and global events. It will help others to learn from their experiences. And, LGs can improvise their strategies by identifying potential barriers and gaps in planning. LGs will have to work on regional, global, peer-peer, and local community partnerships for synergising efforts, resource and knowledge sharing, and advocacy for building sustainable urban spaces. Seoul City has created Share Hub that is an offline and online community. It enables dialogues between local government, private companies, and local citizens interested in sharing economic opportunities in the city. It is a

³⁰ Urban Sustainability Directors Network launched the Sustainable Consumption Toolkit.
<https://sustainableconsumption.usdn.org/#start>

platform where knowledge can be exchanged, initiatives showcased, and connections made to services and organisations that share public and private resources.³¹

Local governments should foster and forge sectoral, city to city, regional and global partnerships for sustainable economic transition and disseminate best practices for the benefit of local industries. It could help in their economic transition journey. To improve how LGs plan their future actions, they must actively engage in global and regional conversations through policy dialogues and discussions with local government associations. For example, UCLG ASPAC has been conducting training workshops and webinars to bring all stakeholders on a single platform for empowering LGs with knowledge resources, research findings on local experiments in the region, and learning materials from multiple sources.

- **Enable access to green finance, promote ESG standards, and incentivise sustainable practices by local industries.**

Every city and country around the world is talking about a green recovery from the Covid-19 pandemic. Many local or sub-national governments have laid down their action plans too. It is to be noted that policymakers and financial institutions have recognised the urgent need to create a sustainable development model for cities, industries, and individuals.

Financial institutions are integrating environmental and climate change concerns into their decision-making before financing any project. Many international banks have decided to disinvest themselves from coal-powered industries. Theoretically, Green finance or sustainable finance means investment in industries working on environmental infrastructure, technology, and services. Though local governments have a limited role in accelerating access to green finance, they can stimulate the demand for green lending at the local level. Local Governments can also make citizens aware of the benefits of environmental, social, and governance (ESG) investing that has not just linked to financial returns but ecological gains. It is well-known that the global investing community does not favour industries that could harm the environment and could become obsolete in the long term; hence do not offer significant returns.

LGs can also encourage industries to show interest in transitioning from conventional economic practices to sustainable one. It is evident that in the absence of the right technology and enabling environment, transitioning towards a sustainable economic model could be financially taxing for the local industries. Local governments have to encourage them and incentivise such stakeholders with some tax cuts or providing subsidised facilities.

- **Closed-Loop local resource management for effective implementations of circular economy**

Global waste generation per year could reach 3.4 billion tons by 2050 if the linear economic approach of take-make-dispose is not addressed. A circular economy provides a glimmer of hope. Right now, almost every local government invests its energy and resources in waste management. Local Governments need to think out of the box and find feasible ways of transition from waste management to resource management. **A circular economy approach coupled with**

³¹ City Governments and Their Role in Enabling a Circular Economy Transition. Ellen McArthur Foundation (2019). Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/CE-in-Cities_Policy-Levers_Mar19.pdf on June 24, 2021.

efficient industrial symbiosis at the local level can keep the materials in use for the longest period possible with their value intact and reduce waste and pollution in urban systems.

Every city has to develop its systems of circularity based on the composition of the waste generated. It differs from one city to another based on income levels of the majority population as the consumption patterns changes. For example, research findings suggest that a city with a high-income population generates relatively less food and green waste but more 'recyclable' dry waste. In contrast, cities with low per capita income generate about 20 per cent of recyclable waste. Local Governments have to develop tailor-made systems at the local level for industrial symbiosis. The local government should also collaborate with municipalities nearby, if need be, to ensure closed-loop resource management so that minimum resources or materials go to waste and the supply chain is as short as possible.

Cities must envision their future by pulling their strongest policy levers. There are case studies of Circular Economy Plans of many cities which can be studied to know what works and what does not. Local Governments can learn from the circular economy roadmap of the following cities: London (Circular Economy Route Map), Brussels (Regional Programme for a Circular Economy), Paris (Circular Economy Plan), Charlotte (Circular Charlotte Vision Development), and Shenzhen (Circular Economy-13th Five Year Plan). Some cities like Glassgow, Sorsogon, and Sao Paulo have used urban metabolism to craft their circular economy strategy, while Vancouver and Rotterdam took a sector-based approach. Every local government has to study their requirements for making the circular economy transition successful and accordingly design their strategies.

- **Enable supportive environment for technological innovations with skill-building of LG officials and elected representatives.**

Local governments should encourage academic and research institutions to work on environmentally promising technologies. LGs can develop local incubation centres to support the startups, offering ecologically sound solutions for accelerating sustainable economic growth and employment generations for local citizens. They can solve several local urban problems and help to diversify the local economy, provide cost-effective technological solutions to urban issues, and increase tax revenue in the long term. In addition to this, LGs can use open data and organise a hackathon for startups in which startups and people with technical skills can offer solutions in specific sectors. Training of municipal officials who will eventually run the cities using such technologies is also essential. LGs must enable a learning environment within their systems by engaging with experts, technology providers and other stakeholders.

LGs are playing a crucial role in the transformation of urban areas into smart cities. They must be selective in their priorities and choose sustainability-oriented smart city solutions that can serve a dual purpose—improve infrastructure and services for all, and protect the environment. **Smart city ecosystems can use digital technologies to make inclusive development possible and make it easier for local citizens to access various services online. Local governments can adopt strategies to leverage ICTs for Development and make information dissemination faster and services accessible for all.**

Digital technologies have given birth to many creative solutions which can provide solutions to complex urban issues using data analytics, cloud computing Internet of Things, sensor-based technologies, artificial intelligence (AI), and robotics. Even the research studies suggest, a report from the Global e-Sustainability Initiative, technology can contribute positively towards all 17

SDGs and over 50 per cent of the 169 sub-targets. There is a need for local governments to use digital technologies to create enabling local environment for sustainable economic growth.

2. Conclusion

The world is increasingly becoming aware of the consequences of unsustainable economic practices and consumption. Since most people now live in cities, the agenda of sustainable local economic growth is finding mention in policies and budgetary allocations of municipalities. LGs can prepare themselves and create a sustainable road map for their economic growth having short-term and long-term objectives mentioned to make it easier for them to monitor and track their progress towards sustainability. LGs will have to move towards resource and energy-efficient systems, propagate sustainable practices in the local community, use innovation and technology for the achievement of the objective, adopt closed-loop resource management systems, try new economic models of the creative and sharing economy, shorten supply chain of materials, forge partnerships for knowledge sharing, and empower local governance systems. Adoption of these strategies will surely help achieve sustainable, equitable, and inclusive growth for future generations.

Abbreviations

AI	: Artificial Intelligence
COVID-19	: Coronavirus Disease
CE	: Circular Economy
ESG	: Environmental, Social and Governance
EU	: European Union
GDP	: Gross Domestic Product
GACERE	: Global Alliance on Circular Economy and Resource Efficiency
HDI	: Human Development Index
ILO	: International Labour Organization
IoT	: Internet of Things
IRP	: International Resource Panel
LG	: Local Government
LGA	: Local Government Associations
NUA	: New Urban Agenda
OECD	: Organisation for Economic Co-operation and Development
OPN	: One Planet Network
PACE	: Platform for Accelerating the Circular Economy
PAGE	: Partnership for Action on Green Economy
SDG	: Sustainable Development Goals
SMEs	: Small and Medium Sized Enterprises
UCLG ASPAC	: United Cities and Local Governments Asia Pacific
UK	: United Kingdom
UNDP	: United Nations Development Programme
UN	: United Nations
UNCTAD	: United Nations Conference on Trade and Development
WCEF	: World Circular Economy Forum
WEF	: World Economic Forum

References

Chapter 1

1. Center for Local Economic Strategies. (n.d.). Developing a green local economy. Retrieved from <https://cles.org.uk/wp-content/uploads/2016/10/CLES-10-Developing-a-green-local-economy.pdf> in June 2021.
2. Chatzky, A., & McBride, J. (2020, January 28). China's Massive Belt and Road Initiative. Council on Foreign Relations. Retrieved from <https://www.cfr.org/backgrounder/chinas-massive-belt-and-road-initiative> in June 2021.
3. European Union. (n.d.). BEST PRACTICES IN LOCAL DEVELOPMENT. Retrieved from https://ec.europa.eu/regional_policy/archive/innovation/innovating/pacts/pdf/leed_en.pdf
4. Gong, Z., Chan, F., & Wu, Y. (2021, March 22). Borrowing Hong Kong's International Standards: A Steppingstone for the Chinese "Belt and Road" Going Out? Retrieved from <https://www.mdpi.com/2071-1050/13/6/3485> in June 2021.
5. Hillman, J., & Tippett, A. (2021, March 31). The Climate Challenge and China's Belt and Road Initiative. Council on Foreign Relations. Retrieved from <https://www.cfr.org/blog/climate-challenge-and-chinas-belt-and-road-initiative> in June 2021.
6. ICLEI South Asia. (n.d.). Urban LEDS II - Accelerating climate action through the promotion of Urban Low Emission Development Strategies. <http://southasia.iclei.org/en/our-activities/our-pathways/low-emission-development/urban-leds-ii-accelerating-climate-action-through-the-promotion-of-urban-low-emission-development-strategies.html> in June 2021.
7. ILO. (n.d.). Local Economic Development (LED). International Labour Organization. Retrieved from https://www.ilo.org/empent/areas/WCMS_093862/lang-en/index.htm in June 2021.
8. Press Trust of India. (2018, June 20). Surat bags award for 'great momentum' in implementation of Smart City projects. Business Standard. Retrieved from https://www.business-standard.com/article/pti-stories/surat-bags-award-for-great-momentum-in-implementation-of-smart-city-projects-118062001220_1.html in June 2021.
9. Ritchie, H. (2020, October 6). Cars, planes, trains: where do CO2 emissions from transport come from? Our World in Data. Retrieved from <https://ourworldindata.org/co2-emissions-from-transport> in June 2021.
10. Ritchie, H., & Roser, M. (2018, September). Urbanisation. Our World in Data. Retrieved from <https://ourworldindata.org/urbanization> in June 2021.
11. Shepherd, C. (2021, January 26). China pours money into green Belt and Road projects. Financial Times. Retrieved from <https://www.ft.com/content/8ec30baf-69e9-4d73-aa25-13668dcb659f> in June 2021.
12. Sustainable Development Goals Knowledge Platform. (n.d.). Local Authorities Major Group - Position paper on the High-level Political Forum. UN. Retrieved from <https://sustainabledevelopment.un.org/index.php?page=view&type=30022&nr=270&menu=3170> in June 2021.
13. Towers, J., & Staats, J. (2020, April 29). China's Belt and Road: Progress on 'Open, Green and Clean?' United States Institute of Peace. Retrieved from <https://www.usip.org/publications/2020/04/chinas-belt-and-road-progress-open-green-and-clean> in June 2021.
14. UNEP. (n.d.). Cities and climate change. UNEP. Retrieved from <https://www.unep.org/explore-topics/resource-efficiency/what-we-do/cities/cities-and-climate-change#:~:text=At%20the%20same%20time%2C%20cities,being%20among%20the%20largest%20contributors> in June 2021.
15. UN Habitat. (n.d.). Climate Change Overview. Retrieved from <https://unhabitat.org/topic/climate-change> in June 2021
16. UN-Habitat. (2013). LOCAL ECONOMIC DEVELOPMENT IN PRACTICE. Retrieved from <https://unhabitat.org/sites/default/files/download-manager-files/Local%20Economic%20Development%20in%20Practice.pdf> in June 2021.
17. Urban LEDS. (2016). Achievements of Phase I. Retrieved from <https://urban-leds.org/about-the-project/achievements-of-phase-> in June 2021.

18. Urban LEDS. (2019). Achievements of Phase II. Retrieved from <https://urban-leds.org/about-the-project/achievements-of-phase-ii/> in June 2021.
19. Wang, C. N. (2021, June 16). Brief: Coal phase-out in the Belt and Road Initiative (BRI): an analysis of Chinese-backed coal power from 2014-2020. GREEN BELT AND ROAD INITIATIVE CENTER. Retrieved from <https://green-bri.org/coal-phase-out-in-the-belt-and-road-initiative-bri-an-analysis-of-chinese-backed-coal-power-from-2014-2020/> in June 2021.
20. Wijaya, A. S. (2014). Climate Change, Global Warming and Global Inequity in Developed and Developing Countries (Analytical Perspective, Issue, Problem and Solution). Retrieved from <https://iopscience.iop.org/article/10.1088/1755-1315/19/1/012008/pdf#:~:text=The%20developed%20countries%20consume%20more,reducing%20the%20global%20carbon%20emission> in June 2021.
21. WWF. (2012, March 1). Freiburg green city. World Wide Fund for Nature. Retrieved from <https://wwf.panda.org/?204419/Freiburg-green%20city> in June 2021.
22. Yhome, K. (2017, February 10). The BCIM economic corridor: Prospects and challenges. Observer Research Foundation. Retrieved from <https://www.orfonline.org/research/the-bcim-economic-corridor-prospects-and-challenges/> in June 2021.

Chapter 2

23. World Economic Forum. From a report published as part of Shaping the Future of Global Public Goods. Retrieved from <https://www.weforum.org/projects/circular-economy> on June 6, 2021
24. Ibid.
25. Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development;. Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/30317> License: CC BY 3.0 IGO.
26. IRP (2019). Global Resources Outlook 2019: Natural Resources for the Future We Want.
27. UN Environment, 2017. Sustainable Urban Infrastructure Transitions in the ASEAN region: A resource perspective. Retrieved from https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/sustainable-urban-infrastructure-transitions-in-the-asean-region-summary_0.pdf on June 8, 2021.
28. Urban Transition Alliance Report. Retrieved from https://drive.google.com/file/d/1_667_iNMVBsnbSvxHkRXXBCHylcHK3n/view on June 8, 2021.
29. Yuanhao Xu. China Water Risk (2019). Welcome To China's Zero Waste Cities. Retrieved from <https://www.chinawaterrisk.org/resources/analysis-reviews/welcome-to-chinas-zero-waste-cities/> on June 9, 2021.
30. Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development;. Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/30317> License: CC BY 3.0 IGO.
31. Ellen MacArthur Foundation. The Circular Economy: A Transformative Covid19 Recovery Strategy. Retrieved from <https://www.ellenmacarthurfoundation.org/assets/downloads/The-circular-economy-a-transformative-Covid19-recovery-strategy.pdf> on June 8, 2021.
32. Glasgow Government. Circular Economy Route Map for Glasgow 2020-2030. Retrieved from <https://www.glasgow.gov.uk/councillorsandcommittees/viewSelectedDocument.asp?c=P62AFQDNDX2UT1NTNT> on June 12, 2021.
33. Welcome to the collaborative economy ecosystem — shareNL. Retrieved from <https://www.sharenl.nl/welcome-to-the-collaborative-economy-ecosystem> on June 12, 2021
34. Amsterdam Sharing City. Retrieved from <https://www.sharenl.nl/amsterdam-sharing-city> on June 12, 2021.
35. Ibid.
36. Ibid.

37. Urban Sharing In Amsterdam. Urban Sharing Team (2019) Retrieved from <https://static1.squarespace.com/static/581097b4e3df28ce37b24947/t/5da46c7b6b739e6f84c8528a/1571056875497/Cityreport1Amsterdam.pdf> on June 12, 2021.

Chapter 3

38. Creative Economy Outlook: Trends In International Trade In Creative Industries. UNCTAD, 2015. Retrieved from <https://unctad.org/press-material/creative-economy-bucks-trend-grows-despite-slowdown-global-trade> on June 22, 2021.
39. Ibid.
40. UNCTAD, based on official data reported to UN COMTRADE Database.
41. UNCTAD (2019). International Year of Creative Economy for Sustainable Development, 2021: revised draft resolution. Retrieved from <https://digitallibrary.un.org/record/3835223?ln=en> on June 23, 2021.
42. Cultural times: The first global map of cultural and creative industries. UNESCO (2015). Retrieved from https://en.unesco.org/creativity/sites/creativity/files/cultural_times_the_first_global_map_of_cultural_and_creative_industries.pdf on June 23, 2021.
43. UNCTAD, based on official data reported to UN COMTRADE Database.
44. John Newbiggin. What is the creative economy? British Council. Retrieved from <https://creativeeconomy.britishcouncil.org/guide/what-creative-economy/> on June 23, 2021.
45. Creative Economy: A feasible development option. UNCTAD (2010). Retrieved from https://unctad.org/system/files/official-document/ditctab20103_en.pdf on June 23, 2021
46. China Green Bond Endorsed Project Catalogue (2015 Edition). Retrieved from <http://www.greenfinance.org.cn/displaynews.php?cid=79&id=468> on June 24, 2021.
47. Climate Bonds. Retrieved from <https://www.climatebonds.net/standard/taxonomy> on June 24, 2021.
48. China leads in green bonds, others catching up. Retrieved from <https://www.pionline.com/interactive/china-leads-green-bonds-others-catching> on June 24, 2021.
49. Ibid.

Chapter 4

50. Government of India. 2020. Innovations and Best Practices in SwachhSurvekshan 2020. Retrieved from- http://www.swachhsurvekshan2020.org/ImpDocs/Innovationfullreportrs_PJ.pdf in June 2021.
51. CCET. Retrieved from- <https://ccet.jp/projects/development-plastic-waste-management-strategy-and-action-plan-greater-hyderabad-municipal> in June 2021.
52. SubuhiParvez. 27 October 2020. GHMC Approves New Plastic Waste Management Strategy Document. Retrieved from- <https://talkofthecities.iclei.org/ghmc-approves-new-plastic-waste-management-strategy-document/> in June 2021.
53. Anders Wijkman. November 2018. Municipality-led circular economy case studies. Retrieved from- <https://www.c40.org/researches/municipality-led-circular-economy> in June 2021.
54. Günter Kresser. 19 October 2020. BauKarussel Awarded the Circular Societies Prize. Retrieved from- <https://vienna.impacthub.net/2020/10/19/baukarussel-awarded-the-circular-societies-prize/> in June 2021.
55. Institute for Global Environment Strategies. Long Term Strategy to achieve DKI Jakarta's Low Carbon Society. Retrieved from-

- https://www.iges.or.jp/en/publication_documents/pub/discussionpaper/en/10653/2020_LCS_DKI_RDG_r1.pdf in June 2021.
56. The Jakarta Post. 11 May 2021. Reducing net-zero emissions key to climate action. Retrieved from-<https://www.thejakartapost.com/adv/2021/05/11/reducing-net-zero-emissions-key-to-climate-action.html> in June 2021.
 57. Kiki Siregar. 17 October 2019. Trash for gold: Jakarta's waste bank rewards residents for trading in recyclables. Retrieved from-<https://www.channelnewsasia.com/news/asia/indonesia-jakarta-recycling-gold-for-trash-recyclables-waste-11988572> in June 2021.
 58. Vidushini Siva et al. 31 May 2017. Green Buildings in Singapore; Analysing a Frontrunner's Sectoral Innovation System. Retrieved from- <https://www.mdpi.com/2071-1050/9/6/919/htm> in June 2021.
 59. Mengjie. 12 September 2019. Singapore vows to make 80 percent buildings environmentally friendly by 2030. Retrieved from- http://www.xinhuanet.com//english/2017-09/12/c_136603956.htm in June 2021.
 60. Cheong Yi Wei. 21 August 2018. The missing piece in Singapore's green building puzzle. Retrieved from-<https://www.eco-business.com/news/the-missing-piece-in-singapores-green-building-puzzle/> in June 2021.
 61. Building and Construction Authority of Singapore. Singapore Green Building Masterplan. Retrieved from-<https://www1.bca.gov.sg/buildsg/sustainability/green-building-masterplans> in June 2021.
 62. Derek Wong. 11 February 2019. Building a green Singapore. Retrieved from-<https://www.straitstimes.com/singapore/environment/building-a-green-singapore> in June 2021.
 63. SenayBoztas. 3 May 2016. Reykjavík: the geothermal city that aims to go carbon neutral. Retrieved from-<https://www.theguardian.com/sustainable-business/2016/oct/03/reykjavik-geothermal-city-carbon-neutral-climate> in June 2021.
 64. Wilco Bos. Seeking sustainable fuel options for Reykjavík's new Bus Rapid Transit system. Retrieved from-<https://www.royalhaskoningdhv.com/en-gb/projects/seeking-sustainable-fuel-options-for-reykjaviks-new-bus-rapid-transit-system/10707> in June 2021.
 65. Iceland Monitor. 12 July 2018. 45% of Icelanders in favour of a new public transport system in Reykjavik. Retrieved from-https://icelandmonitor.mbl.is/news/politics_and_society/2018/07/09/45_prosent_of_icelander_s_in_favour_of_a_new_public_/ in June 2021.
 66. Icenews. 20 July 2020. Iceland's road to sustainability. Retrieved from-<https://www.icenews.is/2020/07/20/icelands-road-to-sustainability/> in June 2021.
 67. PredragBejaković. September 2016. Peer Review on 'Approaches to integrate long-term unemployed persons'. Retrieved from-
<file:///C:/Users/Ashley/AppData/Local/Temp/2016%20Peer%20Country%20Paper%20Croatia.pdf> in June 2021.
 68. European Commission. Green jobs for social inclusion. Retrieved from-https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/green_jobs_social_inclusion_eurocities.pdf in June 2021.
 69. Aline Matta et al. 2020. Smart Cities and Inclusive Growth. Retrieved from-https://www.oecd.org/cfe/cities/OECD_Policy_Paper_Smart_Cities_and_Inclusive_Growth.pdf in June 2021.
 70. News Centre. 1 May 2016. Public Transport in Korea: Introducing 'Ouling', Sejong City's public bicycle system. Retrieved from- <https://news.kdischool.ac.kr/public-transport-in-korea-introducing-ouling-sejong-citys-public-bicycle-system/> in June 2021.
 71. Choi Mira et al. 7 January 2020. Korean govt breaks ground for smart city project in Sejong. Retrieved from- <https://pulsenews.co.kr/view.php?year=2020&no=674045> in June 2021.

Chapter 5

72. Sustainable Development: Meeting the needs of the present Retrieved from <https://medium.com/age-of-awareness/sustainable-development-meet-the-needs-of-the-present-without-compromising-the-ability-of-future-a97a93339867> on June 23, 2021.
73. Global Resources Outlook 2019. International Resource Panel (2019). Retrieved from <https://www.resourcepanel.org/reports/global-resources-outlook> on June 24, 2021.
74. Urban Sustainability Directors Network launched the Sustainable Consumption Toolkit. <https://sustainableconsumption.usdn.org/#start>
75. City Governments and Their Role in Enabling a Circular Economy Transition. Ellen McArthur Foundation (2019). Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/CE-in-Cities_Policy-Levers_Mar19.pdf on June 24, 2021.



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