

## United Nations Industrial Development Organization



### Marco Kamiya, PhD

Marco Kamiya is Chief of the Division of Digital Transformation and Artificial Intelligence Strategies at UNIDO, the United Nations Industrial Development Organization. The Division works on frontier technologies, innovation ecosystems, and digital transformation applied to smart manufacturing, agribusinesses, energy and environment.

Marco Kamiya was the Chief of the Urban Economy and Finance Branch at UN-HABITAT in Nairobi, Kenya. Previously a senior officer at CAF Development Bank for Latin America in Caracas, and the Inter-American Development Bank in Washington DC, and senior economist of PADECO Co., Ltd., in Tokyo.

He studied International Development at Harvard University (MPA-ID) and possesses a PhD in Economics.

### **Action Needed for Cities in the 21<sup>st</sup> Century: Cooler, Compact, Productive, Marco Kamiya**

*Making cities cooler, compact, and productive is imperative in the 21<sup>st</sup> century. Integrating the environment and urban planning with smart industrial policies is a priority.*

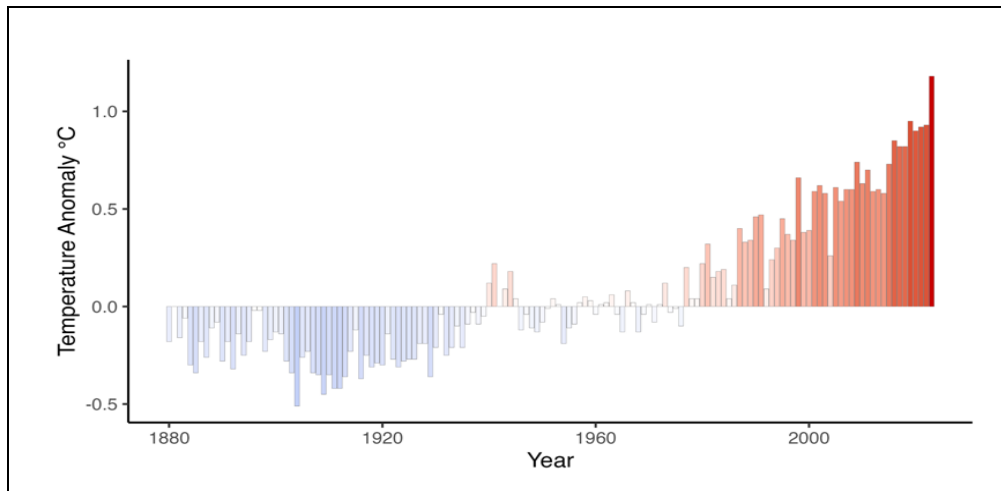
As you may notice, another heatwave record was achieved in July 2023, continuing a pattern that has been customary in the last few years. Some of those who were in Europe in the summer of 2023 and decided to go seashore to swim in the Mediterranean Sea, south of Spain, Athens, or Turkey for holidays may have tried to read a climate fiction paperback —if heat allowed— such as Kim Stanley Robinson’s *The Ministry for the Future*<sup>1</sup>, where a heatwave in Uttar Pradesh in India kills twenty million people, and though the story finishes nicely as world leaders work together to save the earth, real-world heatwave scenarios causing massive deaths are becoming more probable.

According to NASA’s Goddard Institute for Space Studies<sup>2</sup>, the five hottest Julys since 1880 have all happened in the past five years, with last July hotter than any other month in the global temperature record. At this point, nobody can deny that heat is an existential threat.

<sup>1</sup> Stanley Robinson (2020) “The Ministry for the Future”, Orbit Books, US.

<sup>2</sup> NASA’s Goddard Institute for Space Studies [\[link\]](#)

## Global Temperature Anomalies for Every July since the 1880s



Source: NASA's Goddard Institute for Space Studies, [\[link\]](#)

Greece, Spain, and southern Italy have seen temperatures above 45°C, producing wildfires. In North America, the United States and Canada have suffered from fires and melting snow in their mountain ranges, causing flooding and mudslides. Hurricane Hilary blew from Mexico to American cities in August. In Australia, alarm is growing for an expected increase in ocean surface temperatures in the Pacific Ocean. In Latin America, depending on the location, rains and droughts destroy harvest and push people to migrate.

On top of global warming, the World Meteorological Organization declared in August the onset of El Niño (Spanish for 'little boy Jesus' as it usually peaks up in December)<sup>3</sup>, referring to a warming of the sea surface in the central and eastern Pacific Ocean that occurs every two to seven years and raises the earth temperature. Thunderstorms and floods will increase by one- or two degrees Celsius, impacting globally from Asia, with fires in Indonesia to Australia and Africa, with expected damage to agriculture and fishing on the coasts of Colombia, Ecuador, Peru, and Chile.

So, while extreme weather and heat are constantly in the news, we focus on the interlinkages between heat and compact cities and how they are related to productive activities, finally reflecting on how smart industrial policies can help cities overcome current challenges.

### Cooling Cities

Heat affects productive activities in many ways; perhaps the most visible are tourism patterns. In 'The Death of Summer,' Neil Ferguson<sup>4</sup>, a British historian writing for Bloomberg, describes how vacationers will change their habits in summer if the

<sup>3</sup> World Meteorological Organization [\[link\]](#)

<sup>4</sup> Ferguson (2023), Bloomberg [\[link\]](#)

temperature keeps increasing, with entire tourism value chains composed of restaurants, hotels, and airlines suffering in traditional destinations. Since people expect coastal cities to be underwater or prone to wildfire in the following decades, property prices are starting to discount, as it is already occurring from Miami to California in the US, passing to Caribbean urban settings, to South Asia and Pacific Island cities.

An American author, Jeff Goodell, has published a future cautionary tale in “The Heat Will Kill You First.”<sup>5</sup> Goodell starts with some scary indicators of a Heat Index:

*30 million*

*Number of people who live in extreme heat today.*

*(Above 85 °F degrees mean annual temperature) [29 degrees Celsius]*

*2 billion*

*Number of people who are likely to live in extreme heat in 2070.*

*2.5 miles per year*

*The average speed at which malaria-carrying mosquitoes are moving to higher, cooler latitudes.*

*210 million*

*Increase in number of people facing acute food insecurity since 2019.*

The vivid description of the effects of heat provides a straightforward message: heat can kill you directly from the temperature or mosquito-borne pathogens malaria, dengue, zika, chikungunya, food emergencies, floods, or other resulting crises.

Another critical effect of heat is on productivity. The senior founding father of Singapore, Lee Kuan Yew, said that perhaps air conditioning was the most important invention that made it possible to focus on serious policymaking. We know that conditioners contribute to carbon generation. However, for Singapore leaders in the tropics, focusing on state matters is extremely hard when temperatures rise over 30°C in a humid location, worsening the corporal sensation. Imagine intellectual work under heat conditions, how school children learn, or how professors teach.

---

<sup>5</sup> Goodell (2023) “The Heat Will Kill You First: Life and Death on a Scorched Planet” Little, Brown and Company, US.

Heat is a global phenomenon, but cities can contribute to cooling them down. Eleni Myrivili<sup>6</sup>, the United Nations Human Settlement Programme (UN-Habitat<sup>7</sup>) chief UN heat officer, describes what urban areas can do to adapt to extreme temperatures: Awareness, so people and institutions make hot weather a priority; Being prepared, so vulnerable groups are safe and, Rebuilding cities, adding green spaces and water, and taking away space from cars.

An 'Urban Heat Island' (UHI) effect occurs when cities replace natural land with pavement, concrete, and buildings, so the concentration of human-made sites retains heat and increases energy consumption. Steve Chu, a former US Secretary of Energy and Nobel Prize, said that making white-colored pedestrian roads and pavement was like taking our cars off the road for 11 years to combat the heat so buildings can use 10 or 15 percent less electricity for air-conditioning if white-colored; this is a low-cost action that cities can easily implement.

But heat in cities is only one of the critical issues. As cities grow, improper urban planning conspires against human settlements, becoming another existential threat. The 15-minute city is an important concept to look at.

## Compacting Cities

Urban Planning is the essence of cities. The infrastructure that contains transport networks, housing, jobs, and cultural life is where most people live their daily lives. Urban settlements also have nonphysical assets that explain their performance, such as efficient laws and regulations for construction or to recover benefits by land-value capture, which may efficiently finance rebuilding and retrofitting.

Let's start with a micro view of cities. Carlos Moreno<sup>8</sup>, a Colombian-French urbanist and professor at Sorbonne University in Paris, is known for contributing to the "Ville du quart d'heure", or the '15-minute city' concept. The idea is simple: all services must be reachable in the neighborhood based on proximity and accessibility in 15 minutes to improve the quality of life for residents. See an academic paper<sup>9</sup> coauthored by Moreno where decarbonization policies can also be achieved by the concept that production and consumption are decentralized at a local level. Moreno became a scientific advisor to Paris's Mayor, Anne Hidalgo. Paris, already a well-planned city, is expanding bicycle roads, widening pedestrian zones, enhancing green spaces, and improving transport networks. Dozens of cities across the world are already adopting the concept. The ideal neighborhood and convenient place to live can be traced to even medieval castles, where all services were contained in a fortress area protected by walls; the primary concern,

---

<sup>6</sup> The Guardian 29 July 2023 [\[link\]](#)

<sup>7</sup> UN-Habitat website [\[link\]](#)

<sup>8</sup> Carlos Moreno Wikipedia [\[link\]](#)

<sup>9</sup> Moreno et. al. "The '15-Minute City' concept can shape a net-zero urban future" Humanities and Social Sciences Communications volume 9, Article number: 126 (2022), Nature. [\[link\]](#)

however, was to protect the city against external attacks rather than the convenience for people.

One of the most influential urban planners in the contemporary era was Jane Jacobs<sup>10</sup>, the American-Canadian author who advocated for the right to the city, proposing diversity as central to urban life and becoming an almost ideologue for urban renewal and city dwellers. In his famous “The Life and Death of Great American Cities,”<sup>11</sup> Jacobs defended the existence of mixed-used neighborhoods and walkable streets.



Source: City of Paris website [link]<sup>12</sup>

Walking across New York and looking up the houses, streets, green zones, and blocks brings Jacobs to life and reminds of her fierce opposition to the almost ‘mathematical’ concepts of Le Corbusier, the Swiss urban planner who proposed ample standard avenues and tall buildings. New York is Jane Jacobs, while Le Corbusier is Chandigarh and Brasilia, in the latter, as Le Corbusier’s modernism influenced Brazilian architects Lucio Costa and Oscar Niemeyer.

<sup>10</sup> Jane Jacobs Wikipedia [link]

<sup>11</sup> Jacobs (1961) “The Death and Life of Great American Cities”, Random House, US.

<sup>12</sup> City of Paris website [link]

The 15-minute city has a simile in the ‘compact city,’ a concept proposed by OECD<sup>13</sup> in which proximity is not defined by walkable distance but by transport systems that get closer services and jobs. Managing density and proximity allows the population to live more comfortably, as distance in cities is physical and is affected by transport mediums. Promoting mixed land use in towns is combined with urban sustainability policies and green growth.

The French economist Alain Bertaud, former World Bank specialist and author of the influential “Order Without Design: How Markets Shape Cities,”<sup>14</sup> says that the 15-minute city functions in Paris for education and consumption but not for jobs. The daily commute of more than 55% of Parisians exceeds 30 minutes. This number from 2011 seems to have improved in European Cities,<sup>15</sup> where the average in 2019 was 25 minutes, but in major cities worldwide, commuting time may even exceed one hour one way.

Cities are also very different in high-income countries rather than in developing countries. In urban settlements in Africa and Latin America, informal areas may account for up to 60 percent of the city’s population. A lack of formal jobs and productive activities causes informality. Over there, the concepts of heat or proximity acquire a new dimension, the productive capacity of the city to be a productive engine.

## Productive Cities

Cities like historical empires or large corporations go through cycles. But Jared Diamond poses an extreme example about the collapse of the Eastern Island<sup>16</sup> (Chile, more than 2000 km from continental Latin America) that deforestation affected the microclimate, leading to resource depletion, making recovery irreversible; imagine, says Diamond, if Eastern Island is the Earth, a tiny planet orbiting the space, and we damage it until it is irreparable.

City leaders in developing countries want to prioritize jobs, bring prosperity and resources to provide services, and dynamize the economy. Jobs are not only a utilitarian goal but a necessary *raison d’être* as a city only exists when it fulfills its role vis-à-vis the regional or global economy. Productive activities include manufacturing, services, or modern digital platforms, providing wealth and security against economic, political, or environmental changes. A city with more productive capabilities and skills possesses more resources and can overcome crises, renew, and flourish.

In the interlinked world of today, no city is condemned to disappear. It depends on the flexibility that it has and the leadership it exhibits. Country leadership and city dynamism are vital, with diversity and capabilities being significant assets. How do we quantify them?

---

<sup>13</sup> OECD 2012 Compact Cities Comparative Assessment [\[link\]](#)

<sup>14</sup> Bertaud (2020) Order without Design: How Markets Shape Cities“ MIT Press, US

<sup>15</sup> Eurostat “Majority commuted less than 30 minutes in 2019” [\[link\]](#)

<sup>16</sup> Diamond (2005) “Collapse: How Societies Choose to Fail or Succeed”, Viking Press, US.

Harvard University's Growth Lab provides an Atlas of Economic Complexity<sup>17</sup>; The United Nations Conference on Trade and Development, UNCTAD, provides the Productive Capacity Index<sup>18</sup>, and UNIDO produces and Manufacturing Value Added<sup>19</sup> statistics.

On cities vs. countries, McKinsey Global Institute has recently launched the report "Pixels of Progress: How a microregional perspective can inform your strategy,"<sup>20</sup> where a granular look is taken into cities to identify sources of growth and innovation. More than 40,000 microregions are covered, finding that cities may overcome their host country in growth rates.

Cities require intertwined capacities: productive capacities to fight heat; heat is mitigated by compactness by saving on energy; productivity and complexity create businesses and dynamize the economy, and ultimately, a good local economy allows for production circularity, and all those with good urban planning creates the resources to finance urban innovation. But an alert is needed as paying for cooling, compacting, and producing is expensive and is not just the responsibility of local governments, which have limited capacities. Global and national efforts are needed to close a virtuous circle, with industrial policies at the center.

### **New Industrial (Green and Inclusive) Policies**

Industrial policies are here again, with space for central governments and cities to be in the driving seat. These are called productive transformation, green growth, or simply industrial policies. Two primary considerations are that today, new industrial policies must be (i) national and local and (ii) embedded into energy and climate policies. Modern industrial policies are not just 'import substitution' but need to be inclusive and articulated in the context of green transition and climate change.

Since the world has moved from the 'Washington Consensus' to one of 'Geopolitical Frictions,' some high-income countries that, until recent years, were reluctant to discuss industrial policy are now openly implementing massive economic packages to advance national industrial development. The US government has the Inflation Reduction Act (IRA), the Creating Helpful Incentives to Produce Semiconductors and Science (CHIPS) Act, and the Infrastructure Investment and Jobs (IIJ) Act. The European Union has a post-COVID programme to support semiconductors, batteries, and climate adaptation production. Brazil has announced a new industrial policy for South-South cooperation. Japan is preparing vast subsidies to help their country's champions in industrial sectors. Similar trends are emerging in different parts of the world.

---

<sup>17</sup> Growth Lab, Atlas of Economic Complexity, Harvard University [\[link\]](#)

<sup>18</sup> UNCTAD (2023) Productive Capacity Index [\[link\]](#)

<sup>19</sup> UNIDO (2023) Statistics [\[link\]](#)

<sup>20</sup> McKinsey Global Institute (2023) "Pixels of Progress" [\[link\]](#)

Even an International Monetary Fund (IMF) economist, Ruchir Agarwal<sup>21</sup>, proposes creating industrial champions as part of growth strategies in high-income countries. Until very recently, ‘picking winners’ or subsidizing ‘national champions’ was considered a neoliberal industrial policy taboo. Remember that China promotes this path as a policy with public and private champions hybrids. Industrial policies have been implemented in Japan and the East Asian economies since the last century’s second half.

But this is a different time. In this new era, industrial policies must respond to global societal challenges, and new development opportunities may benefit the developing world. Ricardo Hausmann, a professor at Harvard University, says<sup>22</sup> that countries such as Bolivia, Chile, the Democratic Republic of the Congo, Egypt, Morocco, and Namibia may benefit from developing wind and solar energy as energy-intensive industries will move to low-cost places with sufficient sunshine. Since hydrogen energy is difficult to transport, production facilities are also expected to move to developing countries, redesigning global value chains and production networks.

Development banks and governments are slowly but firmly moving ahead. The Interamerican Development Bank has approved a \$400 US million loan to Chile to develop green hydrogen, and most of the facilities will be in the northern desert of Atacama. And since, compared to oil, hydrogen is hard to transport, production facilities are expected to start moving overseas where land and sunshine are available. The African Development Bank is refining a business model to support green growth. The World Bank is implementing its “Scaling Up to Phase Down”<sup>23</sup> to offer developing countries a feasible path for sustainable energy. Nevertheless, these initiatives must be accelerated further, as the UN Secretary-General has called<sup>24</sup> for a radical transformation of the global financial system to face global challenges.

In Asia<sup>25</sup>, companies are entering the hydrogen market, with trading companies and governments supporting large initiatives. New sustainability trends may benefit Latin America<sup>26</sup> and Africa<sup>27</sup>, reassigning global energy supply and bringing opportunities to commodities producers. What is the place of cities and industrial policies in this new scenario?

---

<sup>21</sup> Agarwal (2023), “Industrial Policy and the Growth Strategy Dilemma” International Monetary Fund [\[link\]](#)

<sup>22</sup> Hausmann (2023) “The Supply Side of Decarbonization” Project Syndicate [\[link\]](#)

<sup>23</sup> World Bank (2023) [\[link\]](#)

<sup>24</sup> UN (2023) UN Secretary-General calls for radical transformation of global financial system to tackle pressing global challenges [\[link\]](#)

<sup>25</sup> Nikkei Asia, 22 December 2022 “Green hydrogen booms in Asia as companies rush into projects”.

<sup>26</sup> The Economist 8 August 2023 “Latin America could become this century’s commodity superpower”

<sup>27</sup> UNCTAD (2023) “Economic Development in Africa Report” [\[link\]](#)



## Back to Cities

In the early nineties, when the influential Swedish sociologist Saskia Sassen published “The Global City<sup>28</sup>,” cities received partial attention as the world was catching up with territories and local development. Climate change was not a mainstream topic, and transnational production and finance were the day’s features. Today, a list of emerging cities<sup>29</sup> brings Miami, Dubai, and Singapore to the fore, or, based on population<sup>30</sup>, Delhi, Shanghai, Dhaka, Kinshasa, Chongqing, Lahore, Bangalore, Lagos, Cairo, and Beijing. Cities are at the center stage in studies, policies, and rankings.

Indeed, defining an ideal city is hard. Policies for cities are always multivariable, with numerous factors interlinked and all affecting each other. That is why policymaking for cities is incrementalist rather than perfectionism, pragmatic rather than ideal, and where the possible is better than the desirable. On productive policies, nevertheless, UNIDO<sup>31</sup> provides examples of industrial policies that can be reviewed for reference. Advancing in industrial policies, as defined by manufacturing, services, and digital platforms, are self-reinforcing with finance and innovation, creating resources for host cities and countries and spurring startups and entrepreneurship. Thriving cities today have in common that industry is strong, has a vibrant entrepreneurial scene, and innovative clusters of organizations and people.

We see this in cities in high-income countries such as New York, London, Tokyo, Paris, Munich, Barcelona, Toronto, and many others. Dubai is becoming a central hub for finance, Singapore is a significant global corporate hub in Asia, Miami is a major spot for the US and Latin America, and Vienna is one of the most livable cities. In the global South, cities that integrate environment, urban planning, and productive policies are multiplying. We see Nairobi, San Jose, Montevideo, Medellin, Cape Town, several Chinese cities like Shenzhen, Chengdu and Shanghai, and dozens of others worldwide.

So, welcome back productive policies, with cities and central governments collectively working on actions for the 21<sup>st</sup> century. In a world where heat and urbanization are factors of our existence, those threats must be integrated with productive capacities to balance sustainable growth with development and contribute to global prosperity.<sup>i</sup>

---

<sup>i</sup>Disclaimer: The content of this publication does not necessarily reflect the views or policies of UNIDO, Member States or contributory organizations, nor does it imply any endorsement. This document has not been formally edited. The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

---

<sup>28</sup> Sassen (1991) “The Global City: New York, London, Tokyo” Princeton University Press, US.

<sup>29</sup> Portes & Armony (2022) “Emerging Global Cities: Origin, Structure, and Significance”, Columbia University Press, US.

<sup>30</sup> UNDESA (2023) Department of Economic and Social Affairs, Population Division [[link](#)]

<sup>31</sup> UNIDO, Open Data Platform [[link](#)]