

## Working Paper 17 - New or Renewed Town: Sustainable Urbanisation in Kolkata

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## Abstract

This report assesses the sustainability of urbanisation in Kolkata, by identifying possible investment projects of suitable nature that could be of interest to both public and private local, national and international stakeholders. The comparative analysis of Kolkata and India, South Asia and the World, highlights the eminent and existing lack of sustainable infrastructure and the resulting reduced productivity. It is argued that the strategy to create a sustainable city, is to invest in the modernisation of infrastructures and services paid with effective tax collection on plots and houses. Thus, both compliant land use plans and efficient transport networks are due, to avoid urban sprawling, protect agricultural and ecological lands, and connect the city with the outside world, reinforcing its global centrality. The argument of this paper, being that it is of more use to promote connectivity and have a Renewed Sustainable Town close to the urban centre rather than a New but Unsustainable Town.

## Keywords

Investment in Urban Sustainability, Kolkata, Global Sustainable Goals, Renewed Town, India, Sustainable infrastructure, Connectivity

## Introduction

With increasing migration from rural to urban areas all over the world, the promotion of sustainable urbanisation is of undeniable importance - especially in South Asia. On the one hand, the region will continue to have a large movement of people from the countryside into cities in the next decade. On the other, it is increasingly difficult to mobilise means to address the problems of growing slums impeding efficient urbanisation processes and hindering the achievement desired outcomes set by the Global Sustainable Goals (United Nations, 2019).

This Working Paper is intended as a reflection on the sustainable development of Kolkata using a conceptual operationalisation of UN Sustainable Goals. For this effect, the paper will be organised in four sections following this introduction. Section 2 of the Paper presents a conceptual operational model of UN Sustainable Goals, section 3 applies the model presented in section 2 to make the diagnoses of the city of Kolkata; section 4 proposes a strategy to address UN Sustainable Goals for the case of Kolkata. Finally, the last section - section 5 - proposes the conclusions and recommendations that have come as a result of the reflections and elements taken into consideration in this Working Paper.

## Conceptual Operationalisation of UN Sustainable Goals

The UN Sustainable Goals encompass seventeen items which support an efficient diagnosis of the sustainability of a region, country, city or neighbourhood and are organised into seven hierarchical dimensions of sustainability - consistent with the Prosperity Index proposed by UN Habitat (2017) (Figure 1). This structuring UN Sustainable Goals - based on the Economic Growth Circle (Krueger, 1993) with explicit governance actions - is designed to diagnose urban sustainability. All this, assuming that good governance is a precondition for sustainability. Among which, Secured peace, justice and strong institutions (Goal 16), partnership for the sustainable goals (Goal 17), adoption of sustainable and modern energy (Goal 7), combatting of climate change (Goal 13), promote the sustainable use of oceans (Goal 14), and encourage sustainable use of terrestrial ecosystems (Goal 15) (United Nations, 2019).

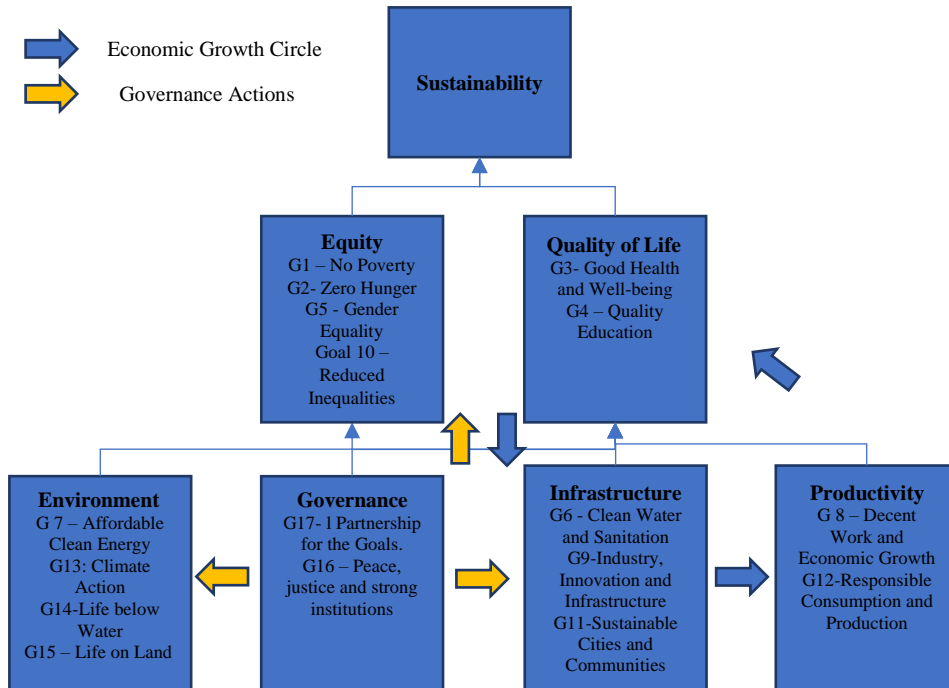


Figure 1: Conceptual Operationalisation of UN Sustainable Goals

With adequate strategies to pursue these goals - clearly defined in land use planning tools and in effective regulation of air and sea pollution - it is possible to build up economically viable and financially feasible infrastructural projects to provide clean water and sanitation (Goal 6), stimulate industry innovation and infrastructure (Goal 9) and create sustainable cities and communities (Goal 11). Projects that are economically viable, socially equitable and financially feasible can have spill over effects in economic growth and employment (Goal 8), that once inserted in a virtuous circle of development, lead to responsible consumption and production (Goal 12).

According to the structure proposed in Figure 1, Governance, Environment, Infrastructure and Productivity, constitute the base line to improve Quality of Life and government actions to promote Equity. Equity is associated with the end of poverty (Goal 1), the end of hunger (Goal 2), gender equality (Goal 5) and reduction on inequalities (Goal 10). Quality of life, is demonstrated through good health and wellbeing (Goal 3) and quality education (Goal 4).

The Prosperity Index proposed by UN Habitat proposes a list of indicators to assess the performance of places and peoples that live there (Figure 1). Due to the availability of most of the above indicators for many countries, regions and cities it is possible to measure the value of sustainability using this prosperity index.

First, to analyse the evolution of sustainability of each region, country and city and to make comparisons between them. Second, to identify the sustainability domains that are more in need and with the guidelines of the scheme in Figure 1, to design a logical framework that identifies strategies and projects for sustainability. Projects are designed and evaluated technically, economically, socially and environmentally prior to implementation.

ECONOMIC SUSTAINABILITY	PRODUCTIVITY INDEX (PI)	Product per capita
	INFRASTRUCTURE DEVELOPMENT INDEX (IDI)	Unemployment Rate (reversed)
		Access to Improved Water
		Physicians Density
		Internet Access
SOCIAL SUSTAINABILITY	QUALITY OF LIFE INDEX (QOL)	Traffic Fatalities (reversed)
		Life Expectancy at Birth
		Under-Five Mortality Rate (reversed)
		Literacy Rate
		Mean Years of Schooling
	EQUITY AND SOCIAL INCLUSION INDEX (ESII)	Homicide rate (reversed)
		Gini Coefficient (reversed)
		Poverty Rate (reversed)
		Slum Households (reversed)
		Youth Unemployment (reversed)
ENVIRONMENTAL SUSTAINABILITY	ENVIRONMENTAL SUSTAINABILITY INDEX (ESI)	Equitable Secondary School Enrolment
		PM 2.5 Concentration (reversed)
		CO2 Emissions (reversed)
GOVERNANCE SUSTAINABILITY	URBAN GOVERNANCE AND LEGISLATION INDEX (UGL)	Share of renewable energy consumption
		Voter Turnout

Figure 2: Indicators and Components of the Prosperity Index (UN Habitat, 2017)

To help bridge the gap between the demand for urban sustainability projects and the supply of means to implement them mobilised by local, national and international stakeholders several factors need to be taken into account. First, projects to improve urban governance require an agreement on rights and targets to educate and train international, national and local policy makers. Second, Policy makers have to be responsible for the planning of land use to promote environmental sustainability and for the deployment and management of public infrastructures and public services, which if provided can utilise procurement and market tools to provide accessible and well-constructed houses and production sites. Finally, proximity institutions – such as households, communities and local governments – need to be sensitised towards the importance of social

sustainability. Table 1 summarises the tools and stakeholders suitable to address the various dimensions of urban sustainability in line with the Addis Ababa Action Agenda (United Nations, 2015).

Policy Tools	Urban Governance	Environmental Sustainability	Economic Sustainability	Social Sustainability	Stakeholders			
					International Organizations	National Governments	Local Governments	Private Sector
Education	Yes				Yes	Yes	Yes	Yes
Rights	Yes				Yes	Yes	Yes	Yes
Targeting	Yes				Yes	Yes	Yes	
Planning		Yes				Yes	Yes	
Procurement			Yes			Yes	Yes	
Market tools			Yes			Yes	Yes	
Proximity				Yes			Yes	Yes

Table 1: Tools and Stakeholders for Urban Sustainability

### Addressing the Sustainable Goals of Kolkata - India

Kolkata was the capital of British India until 1912. The loss of its relative importance in the network of Indian cities comes from the delocalisation of the political power to Delhi and the separation of East Bengal to form Bangladesh and the creation of a boundary on its natural hinterland. Beyond that, the inward-looking attitude of India after independence favoured the continental cities of Delhi and Bangalore and disfavoured outward looking cities such as Mumbai and Kolkata (Dentino and Silveira, 2018).

The shift of the main port activities to Haldia in 1967 and the relative abandonment of the old centre, can help explain the relative decline of the city. The population decreased from 4.6 million in 2001 to 4.5 million in 2011, mostly due to the urban expansion of neighbouring areas occupying better fertile soils and important wetlands; and a shift to the northeast triggered by the construction of the renewed airport of Kolkata. There is a clear problem of lack of adequate governance to promote urban sustainability. Kolkata is actually a drained city (Sbaban et al, 2020) (Figure 3).



Figure 3: Kolkata, a drained World City (Das Aritra, 23-10-2013)

Kolkata's urban landscape has been the set of continuously experienced inequalities by its several economic classes in terms of its access to various opportunity, for example, access to quality education, jobs, quality housing and other amenities and services. In this context, it is noteworthy that given the urban resources available, there very limited social mobility - meaning, very slow and irregular transition of the status of the different economic groups as broadly categorised as upper, middle and lower class, to their immediate improved economic level. As a result, apart from the general makeover of the city with urban infrastructures and modernisation, the structure of the urban society and economy, has remained unaltered. Hence, curving away from the resilient, safe, inclusive and sustainable urbanisation process even after successive endeavours and investments from the government and other stakeholders.

The process of urban migration in Kolkata increases gentrification. On one hand, there is steady influx of people from the neighbouring districts and States, where poorer economic opportunities direct the population to migrate to this area in search of day labour, accounting for a steady rise in the informal sector. In contrast, there is an ever-increasing tendency for the upper and middle-income groups to emigrate or send their children and grandchildren away from the city to places with better education facilities, job opportunities and higher income earning

possibilities. This influx-outflow relation, apparently, keeps the contrasting socio-economic dimension of Kolkata intact, but with its upper and middle-income classes aged, resulting in a more vulnerable and less attended to elderly population. This last factor being, logically, a new trend of urban Kolkata. In addition to the changing population demographics, there is a continuous influx of the economically poor masses, since the cost of living in this city has remained quite low compared to other metropolitan areas in India (Haque et. al.2019).

The influx of low-skilled labour impedes the human productivity curve of the area - with educated and skilled migrating out and vice-versa. Approaching sustainable urbanisation by means of achieving the desired goals of the UN sustainable development mission would require the microanalysis and monitoring of each intrinsic facet within the broad aspects of equity, quality of life, environment, infrastructure and governance.

For instance, there are variations in the characteristics of slum inhabitants in Kolkata. There are people who are too poor to afford better housing and remain in slums due to their proximity to their earning means and other facilities. There are also people residing in slums, engaged in the informal sector of the economy, who have travelled from distant areas where they have their own houses. There are families who manage to move out of the slums, finding a small-sized concrete-built residence within the city or its periphery, leaving their slum lodging to be successfully re-occupied by another poor family. Thus, unlike the homogeneous physic-environmental condition of the slums, there is heterogeneity in the socio-cultural condition of the slum inhabitants.

In fact, Kolkata is not inclusively in line with other metropolitan cities. One of the main reasons for this is that there is a problematic housing tenure system, characterised by various types of exclusionary practices. For instance, the rental housing market of Kolkata is predominantly informal in nature, and prospective tenants often face unfair treatment based on religious grounds (Mukherjee, 2018), although a updated monitoring of the situation may reveal interesting signals of spatial integration. The steady but sure population rotation in Kolkata is another concern in the context of the city losing its heritage sites and structures to urban



growth, rapidly overshadowed by the rising structures and urban transport networks and the crowd oblivion of the rich heritage values. The city must also preserve the historic structures, which presents the cultural history of the area (Shafaque and Ambreen, 2015). The rapid pace of alteration of the city to serve the growing population has mostly ignored these historic and heritage sites. Thus, sustainable urbanisation should be inclusive of safeguarding not only the ecology and environment, but also the city's historical background and culture.

The quality of life and of the environment in Kolkata is deteriorating. In the context of fast-paced life, a feature of urban economies and competitive survival strategies in the grossly populated city, is increasing the stress in livelihoods and health hazards. Unplanned land use, the growth of unregulated construction, infrastructures and modern amenities have already placed a higher level of environmental stress on Kolkata. The migration of the upper and middle-income classes to outside of Kolkata has led to some negative views of the city. Thus, it is important to welcome judicious urban land use planning for sustaining the urbanisation process of Kolkata, increasing productivity and sustainability and quality of life.

This description reflects the Productivity component of the Prosperity Index (Figure 1) used by UN Habitat to assess sustainability, the GDP per capita of Kolkata is 42% higher than in India but unemployment is 56% higher (Wikipedia, 2020a) leading to similar rankings of the Productivity Index (47 for Kolkata and 48 for India). These values are analogous to the ones that are estimated for the countries of South Asia (49), but much lower than those computed for the more productive countries of the world (100). Looking at infrastructures the percentage of the population with access to improved water is much higher for India (97%) (World Bank (2015) than for Kolkata (79%). Medical Doctors per 1000 residents is lower in India (0,53) than in West Bengal (0,74) (Singh et al. 2015) which is the estimate we have closest to reality in Kolkata. Unfortunately, there is no data available for internet access in Kolkata, but India also only has access to 41% (Wikipedia, 2020b). Finally, Traffic Fatalities are higher in India (15,6 per 100000) than in Kolkata (6,6 per 100000)(Statista (2020a). Taking all these indicators into

account, the Infrastructural Index is 50 for Kolkata, 52 for India and 50 for South Asia. Still very low in comparison to the more developed nations around the world.

Moving into the Quality of Life Index, the indicators are relatively better for South Asia, India and Kolkata in the ranking between the worse and the best places in the world. Life Expectancy at Birth is 71 for India, 70 for Kolkata Wikipedia (2020c), and 83 for the best place in the world. Mortality Rate for 1000 children under 5 is 3 for Kolkata and 5 for India (Anand and Fan, 2016). Literacy Rate is 87% for Kolkata and 73% for India Wikipedia (2020d) with 5 years in school assessed for India. Finally, the Homicide Rate per 100000 residents is 2,5 for India and 0,5 for Kolkata (Datar, 2020). Therefore, the Index for Quality of Life is 76 for India, 80 for Kolkata and 100 for the best place in the world.

Comparing with other places of the World, Equity is not the best in India but the profile of Kolkata is relatively better. The Gini Coefficient is 32 for India and there is no estimate available for Kolkata (World Bank Group, 2017). The poverty rate in urban West Bengal is 15% and 20% in India (World Bank Group, 2017). The percentage of people living in slums is 55% in India and 35% in Kolkata (The third pole net, 2020). Youth unemployment is 11,5% in India and 10,5% in Kolkata (Statista, 2020). Due to the unavailability of detailed data on, secondary school and enrolment, it is assumed to be the same for India and Kolkata at 99% (Pratichi Institute, 2013). Summing up, the Equity Index is 84 for Kolkata and 79 for India comparable with 84 for South Asia and 100 for the best place in the world.

The Environmental Index is 74 for Kolkata and 78 for India as a whole, much better than South Asia, with 67. This is a result of the population being exposed to levels PM2.5 exceeding WHO guideline value (3% of total), to the Emissions per capita of carbon dioxide (Urban Emissions Info, 2020) and to the share of renewable energy consumption computed for India. The Governance Index adopted UN Habitat for cities, uses the Elections Turn Out as an indicator (Business Standard, 2020). The results for the governance index are, India with 82 and Kolkata with 71m where both perform much better than South Asia with only 34.

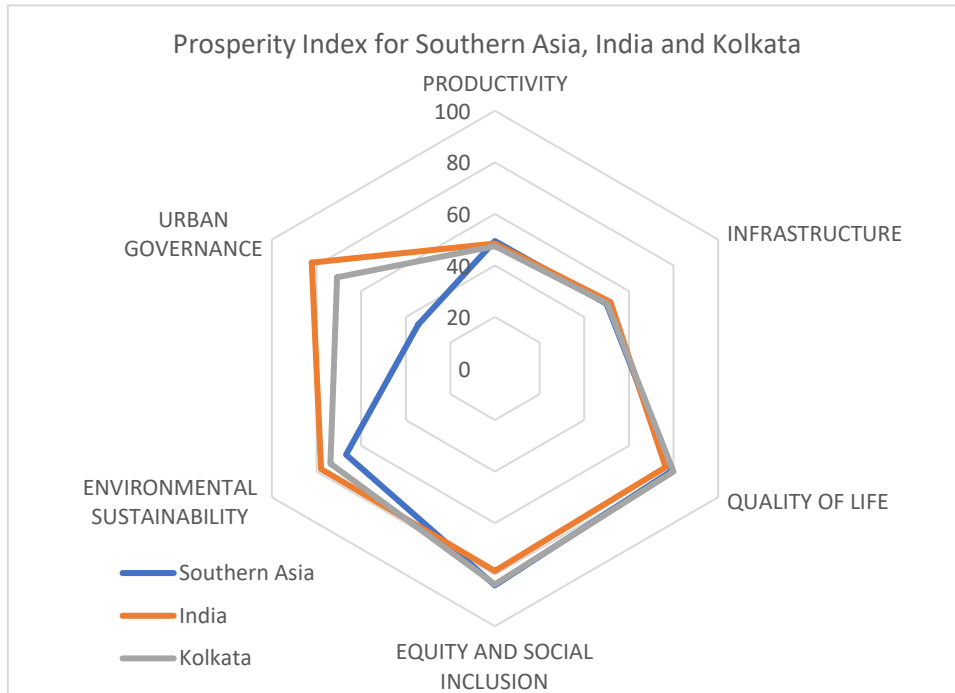


Figure 4: Prosperity Index for Southern Asia, India and Kolkata<sup>1</sup>

Summing up, looking at the Prosperity Indexes in the Graph of Figure 3 it is clear that for Kolkata and generally for India, the sustainable dimensions are important to address when compared with other regions of the world, which ranks infrastructures and productivity below 50 in a scale from 0 to 100. The good news is the higher level of good governance when compared to South Asia and many places of the world.

#### 1. What to do or avoid?

In relation to UN Sustainable Goal 11, for cities and human settlements, the aim is to promote Kolkata as an inclusive, safe, resilient and sustainable city appraised by a reduced poverty rate and by a lower Gini coefficient, with all these indicators easily computable by international and local entities.

<sup>1</sup> Author's figure designed taking into account the date referenced up to this stage

Objective	Indicator	Font	Assumption
Kolkata. A city inclusive, safe, resilient and sustainable	Gini Coefficient, Poverty Rate,	International and local statistics and reports.	
Improved Quality of Life	Literacy Rate reduce Infant Mortality Rate, % of Slum Households	National and local statistics and reports.	Measures to promote social and spatial integration of migrants and poor.
Improved competitiveness and internal value added of export chains with better productivity, logistics, and market power innovative investments.	Increase in the GDP per capita. Increase in the youth employment	National and local statistics and reports.	Provision of affordable housing accessibility to jobs, markets and public and private services. Measures to improve health, education and accessibility and affordable houses for all.
Improved infrastructures to increase accessibility to jobs, markets, services and amenities with an intensified Metro Network that reinforce the City Centre and the connection to the Airport.	Increased Access to jobs, houses. Reduced traffic fatalities	National and local statistics and reports.	Promoting the centrality of a world city with improved connections to a Port with Heavy Industry, to Bangladesh, East India, Myanmar and China. Moreover, stable conditions for Foreign Direct Investment.
Implementation of the Master Spatial Plan reinforcing the role of the City Centre, avoiding urban sprawl, promoting social integration and protecting land use reserves for agriculture, ecology, communication channels, housing and economic activity.	Reduced urban sprawl Improved ecosystem services of ecologic and agriculture land.	National and Local Reports	Implementation of effective tools for the provision of public goods and amenities at different scales namely by considering the value of agricultural, ecological reserves, the efficiency of the provision of public infrastructures and the promotion of renewable energy

Table 1: Framework for an inclusive, safe, resilient and sustainable Kolkata<sup>2</sup>

Following the Logical Framework proposed in Figure 4, city sustainability can be achieved firstly, by improving with personal and public domestic efforts, quality education, better health for all, plus accessible, affordable and affable houses appraisable respectively by the literacy rate, the infant mortality rate and the percentage of people living in slums. Sustainability cannot be achieved without Kolkata securing improvements in competitiveness and internal value added export chains with better productivity, logistics and market power. Value added export chains are obtained through the provision of stable conditions for local,

<sup>2</sup> Table of the author's, resulting from scheme proposed in Figure 1

national and international investments, complemented by purposeful investments in the centrality of Kolkata as an important city in South Asia – with improved connections to the Logistic and Industrial Port in Haldia and to Bangladesh, East India, Myanmar and Pearl River Conurbation in China.

According to the Logical Framework of Figure 4, there are two main actions of priority for local governments. Firstly, the construction of improved infrastructures to increase accessibility to jobs, markets, services and amenities with an intensified Metro Network that reinforces the City Centre and the connection to the Airport (Das, 2016). Secondly, the implementation of a Land Use Plan that reinforces the role of the City Centre, avoiding urban dispersion, promoting social integration and protecting land use reserves for agriculture, ecology, communication channels, housing and economic activity. This purposeful Land Use Plan must complement the creation of effective tools for the provision of public goods and amenities at different scales. Namely by considering the value of agricultural and ecological reserves and the efficiency of the provision of public infrastructures and the promotion of renewable energy.

The on-going urbanisation strategy of Kolkata promotes the development of “seven satellite towns and growth centres so that they can play an appropriate role in discharging urban functions and thus reducing the unhealthy dependence on the metropolis” (Dutta, 2012). The question is whether this avoids the urban dispersion of upper and middle-income classes and gentrification, while neglecting the potential of the city centre, abandoning informal jobs and poverty and allowing the occupation of fertile soils and fundamental wetlands for recycling, fishing and environmental services. The design of the Metro network goes in line with the vision of the on-going urbanisation strategy of Kolkata, arguably because land prices are cheaper, and it does not connect the airport directly with the old city centre. Furthermore, the Railway link between the east and the west of River Hooghly would stimulate more faraway cities to develop autonomously is not in line with the development of the metro.

However, in all the existing visions of Kolkata, the ability to reinforce the centrality of the city and its traditional centre, with improved connections to the Sea Port, to Bangladesh, East India, Myanmar and China is lacking. This also deprives poor

people from accessing jobs, markets and public and private services that will be attracted to the new towns. A new vision is expected which could add a few improvements to the existing urbanisation strategy and to the Metro Network, and would transform Kolkata into an inclusive, safe, resilient and sustainable city. The difficulty is not to find cheap land to construct or erect new towns and infrastructures as argued by the designers of the metro lines. Rather, the issue is to provide accessibility to locations the investments are viable, paid by multiple small contributors, individuals and companies alike. Instead of installing new lines in the empty periphery areas - these lines should be installed into the centre. As a result, promoting a socially and spatially integrated city that wisely combines heritage with modernity, culture with effectiveness and quality of life with productivity.

## 2. Conclusions

Global Sustainable Goals should be looked at as applicable and solvable at the local level, mainly in urban areas where public and private goods as well as services are concentrated. Therefore, Global Sustainable Goals must be addressed with consistent and effective frame of reference that places all goals into perspective, (Figure 1) supported by reliable indicators for countries, regions, cities and neighbourhoods (Figures 2 and 3). Such a conceptual model used for structured qualitative analysis builds up a systematised diagnosis that can lead to consistent strategies comparable with existing ones, what eventually can help to improve on actions, namely the strategy to sprawl the town and the consequent redesign of the Metro Network expansion.

Revised strategies that can mobilise the means of implementation, internal and external - as they do not respond only to local stakeholders - , but also to external investors in a synergic approach to urban development are needed. In the case of Kolkata the focus should be on adequate land use planning and the related design of infrastructural networks to avoid the dispersion of the upper and middle-income classes from the city and promote economies of agglomeration, the valorisation of the city centre, the recovery of environmental services and the external competitiveness of this world city. Moreover, the urban centres in and

around Kolkata or in the metropolitan region of Kolkata should be made self-sufficient with respect to all parameters of the Prosperity Index.

Additionally, the qualification of the grey areas of the city (Mitra and Mitra, 2015), satellite towns should be developed on non-agricultural land, outside the Metropolitan area and in places with autonomous and complementary vocations, so that it does not promote urban sprawl and develop viable economic activities and jobs reducing commuting to the city centre for formal and informal occupations.

In sum, without a clear and consistent sustainable development strategy for each city, and within, each city area, it is not possible to mobilise the means to finance public and private investments. Investments, which in turn, should be implemented through small and viable steps.

Only such carefully considered investments can increase the complementarities and productivity of both territorial and human capital – which in turn generate the value-added which promotes the wide availability of amenities and well-being. Some external support is needed, both private and public, for achieving this in poorer areas; however, what is essential is the viability and the spatial and social equitability of the investments. This viability will depend very much on factors such as urban density, but mainly on the external competitiveness of the city.

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