

Sustainability of Contemporary Urban Regeneration Projects

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Abstract

This paper discusses the sustainability outcome levels of the contemporary urban regeneration projects across different cities. For this, the systematic review approach is employed and have analyzed twenty-two urban regeneration projects implemented after year 2000 in cities of both developed and developing countries. The analysis encapsulates the focuses of contemporary urban regeneration projects, sustainability attributes on economic, environmental and social dimensions, tensions between those dimensions and success factors proven for sustainable urban regeneration in the 21st century. The paper informs that the contemporary urban regeneration projects yet generate economic and environmental focused outcomes being indifferent to project outcomes observed during 70s -80s – social equitable outcomes are accrued in a limited manner. It concludes by suggesting contemporary urban regeneration project implementation to incorporate policy elements such as meaningful community engagement, public-private partnership investments and imposing mandatory requirements on social equity in order to attain sustainable outcomes expected in the 21st century.

Keywords: *Urban Regeneration, sustainability, systematic review, success factors*

1. Introduction

The paper aims to understand the contemporary urban regeneration projects in terms of those being achieving sustainable outcomes. Urban regeneration refers to “comprehensive and integrated vision and action which leads to the resolution of urban problems and which seeks to bring about a lasting improvement to the economic, physical, social and environmental conditions of an area that has been subject to change” (Robert & Skyes, 2000; Ercan, 2011) . It is an inevitable part of country’s urban policy due to two primary forces that lead urban change viz, urbanization (Couch, 1990; Yavuz, 2016; Lorens, 2008; Zheng, Shen, & Wang, 2014) and globalization (Furlan & Faggion, 2017; Lorens, 2008). 55% of the world’s population lives in urban areas today and it is predictable that it would increase up to 68% by 2050 (United Nations, 2018). The level of urbanization in Asia is now approximating 50% and predictable to increase up to 64% by 2050. (United Nations, 2018). Together with globalization which intensified at the verge of the millennium, brought new forms of human dynamics, greater capital and labor flexibility, institutional change, re-structured markets, technological improvement, economic-political relations etc. in an interwoven manner (Rolnik, 2013; Dreher, Gaston, Martens, & Boxem, 2009; Jafari & Heidari, 2017). Urban regeneration aims to revive cities in the light of these changes. Sustainable development on the other hand is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). It refers to the shared space of social, economic and environmental interfaces of a particular development context at a given time (Perera & Mensah, 2019; Purvis, Mao, & Robinson, 2019). On this basis, it’s the tensions between these interfaces per se demands the developments to achieving sustainability including that of urban generation.

Whilst sustainability has become just a buzzword with respect to most development work (Son, 2018; Houk, Koutsomarkou, Moulin,

Scantamburlo, & Tosics, 2015), most contemporary urban regeneration projects invariably verbalized as sustainable developments. On this basis, this paper places an inquiry into the contemporary urban regeneration projects as to what extent those being able to achieve all interfaces of sustainable development: economic, environmental and social in a balance manner. For this, the study applies systematic review of existing empirical studies that have evaluated (validated) different outcomes that the contemporary urban regeneration projects have accrued across different cities. The paper first identifies the key ideas such as urban regeneration, its evolution and, sustainability. Thereafter, a systematic review of contemporary urban regeneration projects (projects completed after year 2000) via content analysis method is performed and, have identified the focus of the contemporary regeneration projects, the levels those project outcomes with respect to economic, environmental and social sustainability interfaces, the tensions that these different interfaces bring for the overall sustainability of the projects and the planning strategies that has been successful in bring sustainable outcomes to the urban regeneration projects. Despite studies available that evaluate sustainability of urban regeneration projects at specific cities (context), limited studies available that encapsulate this dimension across different cities (contexts). This understanding is useful to inform the urban planning theory and practice in order to ascertain the potentials, complexities and challenges associated with the present-day urban regeneration projects in achieving sustainable outcomes.

2. Urban Regeneration: The Concept and Evolution

Urban regeneration is a key component of urban policy. When change in the form of physical, environmental, social, economic, political, etc. is the most lasting thing in cities, primarily owing to urbanization (Hadjria, et al., 2015; Hutton, 2003; Bakir, 2019) and globalization (Czischke, Moloney, & Turcu, 2015; Galdini, 2005;

Ürkmez, 2016) urban regeneration has become an inevitable “solution” and “strategy” for cities to encounter and fit with these changes (Robert & Skyes, 2000; Muminović, Radosavljević , & Beganović, 2020; Schuurmans, Dyrbøl , & Guay , 2018). For instance, physical change to cities comes in the forms of abandonment and destructive of resources (lands and buildings) with decayed, degradation, deterioration, obsolescence and deprivation of urban spaces (Power & Mumford, 1999). Invariably, social changes come in the forms of lifestyles changes (cultural events, etc.), facing social problems such as poverty, natural disasters, ghetto or informal districts, etc. (Barkan, 2012; Chaline & Coccossis, 2004) and, environmental changes come in the form of reducing the vegetation cover, climate changes, pollution (air, water, noise), resource depletion (Bakır, 2019) likewise. Urban regeneration is a comprehensive reestablishment or restructuring of urban spaces; requires to have a combination of visions, strategies, and action plans intended for re-growth of urban spaces (Chaline & Coccossis, 2004; Grosskurth & Rotmans, 2005).

The visions, strategies and actions for urban generation tend to be evolved since 19th century, depending on time-to-time urban social changes and problems encountered, planning and political focuses for urban areas and, strategies and actions taken by implementers.

From 19th century industrialization to post world war II where urban – rural migration and urbanization was very prominent phenomenon, cities encountered several associated changes and issues, viz, higher environmental degradation in inner city areas, urban resource depletion, poor living standards for working class housing, rise of unemployment and poverty, homelessness, spread of epidemics in urban space (Hamer, 2000; Harvey, 1990; Ćorović, 2009) etc. Underpinned by then popular Utopian values, a ‘good’ urban regeneration (*urban reconstruction* as it was worded during

the time) was sought through strategies such as cooperative commonwealth (the economy should be under the collective ownership of the people (Phillips, 1977), cooperative industrial towns (the industrial based economic system obliging to share the profit and benefits with workers: chances for employment, high money wages etc. (Howard, 1898), energetic and active town life (The town was to be properly planned, limited in size, and all the amenities of life were to be developed but the power of town country magnet must be the community (Howard, 1898) etc. Accordingly, planning implemented urban regeneration actions such as slum clearance initiatives, distributing rising property values among community, open lands require to be at communal hold, providing service facilities closer to the residents, achieving prosperity, efficiency and high corporate profits through paying high wages to workers and providing welfare services to workers such as education housing, health care and social protection (Roberts & Skyes, 2000).

During 1960s-70s and thereabouts Keynesian economic policies was much popular as a post war economic reconstruction strategy – boosting consumer demand and production rates to boost the economy (Harvey, 1990). Seemingly this has largely influenced to turn urban areas to follow real estate capitalism focus (Mutlu, 2009). Many urban regeneration action projects during the time therefore heavily influenced by this vision having those to be flagship projects expected to attract affluent households, replacing urban brownfields with mega infrastructure such as highway, railway, tourists' attraction sites with museums and cultural amenities, revitalize city image etc. (London's Canary Wharf, Dublin's Docklands and Rotterdam's Kop van Zuid (Loftman & Nevin , 1995; Doucet, 2009; Boelsums, 2012)).Consequently, the urban regeneration projects implemented in this nature accrued critics in the line of class inequalities and social justice (Marion Young addressed the issue of justice within the city through her

book of “Justice and the politics of difference” in 1990 and Fainstein (2010) pondered the justice concept from the book of “ The Just City or Spatial Justice” in the urban planning arena).

Towards the millennium where concerns were much on climatic issues, sustainability, just cities with democracy, diversity and equity, protecting national interests against globalization likewise, urban regeneration demanded to be a more comprehensive and integrated form of policy and practice in the name of ‘sustainable urban regeneration’ (Robert & Skyes, 2000). Many urban regeneration projects aimed to position them on regrowth of economies with technological and scientific progress, consensus build- up through democratic and collaborative decision making process in order to create more just cities or spatial justice, attention to environmental sensitivity with economic enhancement in order to preserve the regenerative resources, protection of natural environment to attest the advantageous of both business and the local community, reduction of greenfield development and urban sprawl etc. (Fainstein, 2010; Uitermark, 2011; Fracassi & de Lollo, 2013)

3. The Concept of Sustainable Development

The concept of sustainable development was extensively acknowledged and came into consideration with the World Commission on Environment and Development (WCED) report which is also known as the Brundtland Commission Report in 1987. An oft-quoted definition of sustainable development is: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment Development, 1987). Accordingly, Brundtland report has been taken numerous efforts to operationalize sustainable development, and the early effort introduced the conjoint term was the triangular concept; three pillars

of social, economic, and environmental (WCED, 1987; Rydin, Holman, Hands, & Sommer, 2003; Moffatt, 1995; Reid, 1995). The economic dimension mainly pursued the ‘needs’, the environmental dimension targeted ‘limits’ to the production and consumption, and the social dimension expected to ensure ‘equity’ among societies (WCED, 1987). Under market conditions, these dimension per se seemingly conflicting each other (Lovering, 2007; Evans & Jones, 2008; Beal, 2014; Beal, 2017; Ali, Haase, & Heiland, 2020). Thus, the challenge impose for sustainable development is, how and at what level the benefits that a development project generate for each of these dimensions are compromised and generate an economically viable, socially acceptable and environmentally friendly project outcomes. In this respect the contemporary literature on sustainability advocates towards collaborative governance – stakeholder participation and decision making based on consensus building among interests of all actors (See for example; Perera and Mensah 2019; Lima 2021).

4. Study Methods and Materials

The study requires data on economic, environmental and social outcomes generated by contemporary urban regeneration projects across different cities. Accordingly, the study follows systematic review of empirical scholarly articles which have evaluated (*already validated*; (Victor, 2008; Akobeng, 2005) economic, environmental and social outcomes and benefits of urban regeneration projects implemented after the year 2000. By the application of systematic review method, the study can provide a deep and comprehensive synopsis of available evidence on a given topic, avoiding bias in results, allowed for inclusive data to be adjusted and accommodated more exact and reliable conclusion while the user data was already tested (Victor, 2008; Mallett, Hagen-Zanker, Slater, & Duvendack, 2012). Accordingly, the following process was applied to retrieve and analyze necessary data for the study.

- (i) Formulating questions that can guide the literature search. The questions were as follows:
- What have been the types of contemporary urban regeneration projects?
 - What are the economic, environment and social benefits/attributes that the contemporary urban regeneration projects have accrued?
 - What are challenges associated with contemporary urban regeneration practices?
 - What are the success strategies of contemporary urban regeneration projects?

(ii) Browsing relevant publications

The study browsed key databases which include Science Direct, Social Science Research Network, Google Scholar, Thomson Reuters, Directory of Open Access Journals (DOAJ), JSTOR, Ingenta Connect, Web of Science, and Scopus. In order to ensure the validity and reliability of textual data, the selection criteria of scientific journal articles were: peer reviewed journals with an impact factor of 3 or more and the H index more than 60 and, ranking of the journal being B or higher. Accordingly, the number of articles shortlisted were 174. To reflect the contemporary context, these articles were further streamlined by choosing those published years after 2000 which the total then reduced to 80 articles. Among these.

the articles that provided appropriate case studies with relevant empirical data were 18 numbers. Those 18 articles altogether accumulate relevant data of 22 urban regeneration project cases across different cities, viz Greater Manchester, Ruhr, Guangzhou, Istanbul,

Leipzig, Gaziosmanpasa, Berlin, Wan Chai, Beijing, Nairobi, Edinburg, Xi'an, North Ankara, Shanghai, Tianjin, Kigali, Amadora and many Indian cities. (Table 1).

- (iii) Analysis of data – a content analysis of data was performed, primarily guided by the research questions and secondarily based on the key themes emerged within data itself (Bryman, 2015). Table 1 summarizes those key findings highlighting how different contemporary urban regeneration projects across cities have been able to achieve different sustainability dimensions, tensions among these sustainability dimensions and strategies that had worked for contemporary urban regeneration projects to balance these dimensions for sustainability.

5. Contemporary urban regeneration projects

5.1 Project types

In both developed and developing countries, the contemporary urban regeneration projects being indifferent to the past, have been broadly aimed either at reviving of 'deprived neighborhoods' in cities or as a land supply strategy to build 'modern infrastructure'. As per the Table 1, urban generation projects; New Broughton Village: Manchester, Ruhr Metropolitan Region: Germany, Enning Road: Guangzhou, Sulukule: Istanbul, Gaziosmanpaşa District: Istanbul, Kotbusser Tor :Berlin, Wan Chai District: Hong Kong, Qianmen: Beijing, Kibera: Nairobi, Craigmillar: Edinburgh, Drum Tower Muslim District: Xi'an, North Ankara: Turkey, Tianjin: China, Kigali: Rwanda, Amadora: Portugal and Indian cities of Kuniyamuthur: Delhi: Prayagraj: Mumbai: Bhubaneswar: Chandigarh: Ahmedabad: Jammu and Kashmir Colony were employing urban regeneration as the primary solution to formalize

and integrate the urban informal settlers in respective cities by proving them i) improved living environment, ii) life opportunities iii) social cohesion with rest of the city.

On the other hand, the contemporary urban regeneration also applies as a land supply strategy to build ‘modern infrastructure’. As the city population grows, the industrial land uses no longer see appropriate to be established within the city core. Whilst these old industrial uses are shifted away, the older building and industrial sites which are non-productive and not aesthetically appealing are revived and supplied to develop ‘modern infrastructure’ needs. As shown in Table 1, regenerated lands are used to develop green/ecological infrastructure (e.g. Leipzig: Eastern Germany and Lizhiwan: Guangzhou regenerating the old industrial area with green neighborhoods through green roofs and porous pavements, streets and alleys with green features, green parking etc.), cultural infrastructure (e.g. Xian: Guangzhou, Lizhiwan: Guangzhou, Guanggang new town: Guangzhou and Shanghai: China using old areas to develop theatres, galleries, museums, libraries, archives, community halls, public art and outdoor events spaces) and utility infrastructure (e.g. Shanghai: China and Indian cities of Azad Nagar, Bokaro, Amraiwadi, Patna, Jamshedpur, Mumbai, Hyderabad, Chennai, Ahmedabad using old urban areas to develop rail, tram, sea port, electricity, gas, water/sewage etc.) in cities.

5.2 Economic, Environmental and Social Sustainability Attributes

The 22 contemporary urban regeneration projects subjected to analysis (Table 1) show that such projects in cities of both developed and developing countries have accrued economic environmental and social outcome attributes at different levels. These attributes are reflective of urban regeneration projects achieving different levels

of economic, environmental and social sustainability in its own right.

Economics attributes

From economic point of view, firstly urban regeneration projects have been able to create employment or increase urban labor. For instance, New Broughton Village regeneration project, Manchester could reduce 9.1% of low-income household unemployment (Julita, 2015). The Bulmke Hüllen regeneration Germany in 2002 reduced the middle-class unemployment rate up to 14.2% by 2010 (ibid). The Leipzig regeneration, German 2001 has created over 70,000 new jobs for middle and upper-class communities in the industrial and service sector since the mid-2000s, reducing unemployment rate from 14.3% in 2003 to 4.8% in 2018 (Ali, Haase, & Heiland, 2020).

Secondly, urban regeneration projects have attracted investments to the city. Xiancun - urban village regeneration, China attracted \$16 billion for environmental improvement and urban beautification and total investment was \$34 billion for airport, railway station, new seaports, and stadium so on (Bao, Liu, & Li, 2017). Sulukule and Gaziosmanpaşa regeneration, Istanbul had attracted US\$ 8.5 million investments for tourism and cultural development in that area since 2010 (Cin & Egercioglu, 2016) and US\$ 3 billion investments for highway and bridges (Yazar, et al., 2019) respectively. In the case of New Broughton Village regeneration Manchester, the project announcement itself attracted US\$ 1500 million to the city development.

Thirdly, it enables increasing of affluent class spending in the city. The Gaziosmanpaşa regeneration project, Istanbul has brought more than 80% of affluent people's spending to the city (Yazar, et al., 2019). Sulukule regeneration, Istanbul accrued more than 90% affluent residents spending on the area within 15 years of its implementation (Cin & Egercioglu, 2016). The Leipzig regeneration

German led to increase 95% affluent and middle-class families outlays in Eastern German cities by end of the project (Ali, Haase, & Heiland, 2020). Xiancun regeneration and Guanggang new town regeneration in China and, Wan Chai regeneration in Hong Kong have been uplifted 100% gated and elite community spending on cities after five to ten years of its implementation (Zhai & Ng, 2013; Chen, Zhu, & Yuan, 2020; Han, 2018).

Fourthly, urban regeneration leads to increase of property values in neighboring areas. New Broughton regeneration, Manchester in 2006 has set highest house price increase of all the Salford wards over the 2006-2015. Detached houses were increased by 100% whilst the apartments were increased over 500%. In 2010 the area recorded the highest house price to income ratio of 7.3 as against a Salford average of 4.4 (Julita, 2015). The Craigmillar regeneration in Edinburgh was increasing 44% housing prices of the City by 2012 (Deakin, 2012). In the Drum Tower regenerative area, China, the market price of local commodity housing has been increasing by 20% per year (Zhai & Ng, 2013). The Xiancun regeneration project, China completed 2010 has elevated new construction housing ratio from 2.3 to 5.2 and that transformation was reflected in the land values of Xiancun village recording doubling of house prices overnight (Bao, Liu, & Li, 2017). In Guanggang new town regeneration, China the average rent after the regeneration rose by 17 folds: previous villages rent which was held at about 40 to 70 USD per month rose to 680 to 720 USD per month in the modern brand-new apartments in the project.

Fifthly, urban regeneration also increases urban productivity (residence and visitor growth for the consumption of urban services supplied). Xiancun regeneration project, Guangzhou, China boosted its own urban production and accumulation capacities in city by 100% to achieve a global appearance and visitor growth and there

by doubled the consumption the urban services (Gu & Zhang, 2020). Kibera regeneration, Kenya is gradually reducing its housing deficit in the urban areas by facilitating an annual housing production of 150,000 and 300,000 units and has increased urban productivity within 7.5% -15% per annum (Agayi & Sag, 2020). The Drum Tower regeneration, China has been upraised the tourism attraction to the Xi'an city- the statistics indicate that tourist arrivals has doubled from 401,559 to 867,273 since 2007. Consequently, urban productivity has been raised in terms of commercial income and tourism development over 15 times from US\$15.32 million to US\$ 82 million. (Zhai & Ng, 2013).

Environmental attributes

From environment point of view, firstly the projects have been accruing attributes in the areas of increasing land productivity. In the case of Xiancun regeneration project in Guangzhou, China implemented in 2010, 38% of old industrial plants and 9% old dilapidated and obsolete urban spaces were transformed to high productive land uses (Gu & Zhang, 2020). The green strategies of Leipzig regeneration, Germany commenced in 2001 has been increasing the land productivity through refurbishing entire building stock, improvement of streetscapes and rehabilitation 79% urban green spaces which ultimately falling down land vacancy rate up to 2% by end of the 2016 (Ali, Haase, & Heiland, 2020). The Gaziosmanpaşa regeneration, Turkey in 2012 has changed the deprived urban environments into dynamic functional land uses, viz educational areas increased up to 58 %, cultural areas increased up to 4 %, green spaces increased up to 114 %, administrative areas increased up to 16 % and parking slots increased up to 382 % etc. by 2018 (Yazar, et al., 2019).

Secondly, urban regeneration projects also recorded to be contributed towards decreasing pollution levels of air, noise and

water in the cities. For instance, the increase of 114% green spaces in the Gaziosmanpaşa regeneration has contributed to reduce 25% of traffic congestion in the area having more people to using pedestrian and bicycle paths and promoting of renewable energy has decrease pollution level of air, noise and water in Istanbul cities since 2012 (Yazar, et al., 2019). The green and blue infrastructure drive by the Leipzig regeneration, Germany has amount to 254m² green space per inhabitant decreasing the air and water pollution levels in Eastern German cities since 2001 (Ali, Haase, & Heiland, 2020).

Thirdly, aesthetic appearance of neighborhoods and urban places is another environment related benefit that the urban regeneration projects could expected to have. The Lizhiwan regeneration China had been able to uplift the 70% aesthetic appearance of neighborhoods by preserving 106,000 m² of neighborhoods and demolishing 26,000 m² of deprived neighborhoods (Chen, Zhu, & Yuan, 2020). There the urban places were attracted across restoration of the river and transfer water to the cities by 5 canal system, reducing building density up to 55 % and adding 40% green spaces and building streets with local cultural context which attracted more than 100,000 tourists during the 7-day national holiday in 2019 (Chen, Zhu, & Yuan, 2020). Similarly, the stated green space increase in Leipzig regeneration project has enabled quality urban life and aesthetic appearance of neighborhoods and urban places through parks and urban gardens, interim greening, new street greenery, and the refurbishment of urban waterways which caused to increase urban population growth rate (particularly the students and young families) more than 2% per year (Ali, Haase, & Heiland, 2020).

Social attributes

Some of the contemporary urban regeneration projects such as New Broughton Village: Manchester, Ruhr Metropolitan Region: Germany, Kibera: Nairobi, Craigmillar: Edinburgh, Kotbusser Tor: Berlin and North Ankara: Turkey have been successful in attaining attributes related to social benefits. Firstly, projects successful in social dimension have enabled the low income groups in the regenerated area to have access to housing or land in urban places without creating ghettos. For instance New Broughton village regeneration in Manchester has been providing the market and non-market housing (social housing) which were designed in same appearance - located together with market houses being indifferent from the outside (Julita, 2015). Similarly, the Craigmillar regeneration in Edinburgh adopted a community-based equitable approach which provided the framework to build 3200 new residential units including 536 social rental housing, 33% “family housing” with a minimum of 20% affordable for sale (Deakin, 2012). Also in Kibera regeneration project, Kenya engaging of Kibera residents enabled the project outcomes fulfilling 75% of local residents’ demand by providing them serviced land for housing (Agayi & Sag, 2020).

Secondly, those projects successful in social dimension also attracted public investment for social amenities. Kibera urban regeneration, Kenya has been funded by national and international public and private investment cooperation (Cities Alliance, Government of Kenya through Ministry of Roads, Public Works and Housing, and UN-Habitat) where the project included social amenities (welfare aspects) such as schools, hospitals, library, public transportation etc. (Agayi & Sag, 2020). The Craigmillar regeneration, Edinburgh was funded under a joint venture mechanism by Government of Scotland and EDI Group Ltd. each owning 50% in order to invest both market and social housing in city (Deakin, 2012).

Table 1 – Analysis of sustainability attributes and tensions in contemporary urban regeneration projects across different cities.

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Study (1)	Project Type (2)	Project Details (3)	Attributes for Economic Sustainability (4)					Attributes for Environmental Sustainability (5)			Attributes for Social Sustainability (6)		Tensions towards Social Sustainability (7)			If No to (7), the urban regeneration vision and/or success factors applied (8)
			Create employment/increase urban labor	Attract investments	Increase affluent class spending in city	Increase property values	Increase of urban productivity	Pollution reduction (Air/ Noise/Water)	Increasing land productivity	Increasing of vibrancy & aesthetic appear: of neigh. and urban places.	Low income groups to have access to housing or land in urban places without creating ghettos	Investment on Social Amenities	Yes	No	No information	
(Julita, 2015)	Deprived neighborhood regeneration	New Broughton Village, Salford, Greater Manchester, UK 2006.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			<ul style="list-style-type: none"> - Delivering market and non-market housing that were designed in the same blocks therefore, not differentiable from the outside. - Meaningful involvement of local community.
	Deprived neighborhood regeneration	Bulmke-Hüllen, Gelsenkirchen, Ruhr Metropolitan Region, Germany, 2002.	✓		✓	✓		✓	✓	✓	✓	✓		✓		<ul style="list-style-type: none"> -Cooperation of different actors and meaningful citizens' involvement. -Integrity tenure, size, well planned structures and price in neighborhoods contribute to creating a socially balanced population.
(Gu & Zhang, 2020)	Deprived neighborhood regeneration	Enning Road, Guangzhou MC, China, 2006.		✓		✓	✓			✓			✓			
	Deprived neighborhood &	Xiancun, Guangzhou, China, 2010.	✓	✓	✓	✓	✓		✓	✓			✓			

	Cultural infrastructure regeneration.															
(Cin & Egercioglu, 2016)	Deprived neighborhood regeneration	Sulukule, Istanbul, Turkey, 2005 – 2010.		✓	✓	✓	✓			✓			✓			
(Ali, Haase, & Heiland, 2020) (Haase, et al., 2017)	Green / ecological infrastructure regeneration.	Leipzig, Eastern Germany, 2001.	✓	✓	✓	✓	✓	✓	✓	✓			✓			
(Yazar, et al., 2019)	Deprived neighborhood regeneration	Gaziosmanpaşa District, Istanbul, Turkey, 2012.		✓	✓	✓	✓	✓	✓	✓			✓			
(Celine & Daniel, 2014)	Deprived neighborhood regeneration	Kotbusser Tor, Marzahn-Nord, Berlin – German,2000	✓	✓		✓	✓		✓	✓	✓	✓		✓		-Increasing the purchasing power of disadvantage communities. -Self-empowerment and social assistance. -Increase secure and effective jobs for disadvantage groups. -Low vandalism.
(Han, 2018)	Deprived neighborhood regeneration	Wan Chai District, Hong Kong, 2004.		✓	✓	✓	✓			✓			✓			
(Kou, 2013)	Deprived neighborhood regeneration	Qianmen, Beijing, China, 2005.	✓	✓	✓	✓	✓	✓		✓			✓			
(Agayi & Sag, 2020)	Deprived neighborhood regeneration	Kibera, Nairobi, Kenya, 2004.		✓		✓	✓			✓	✓	✓		✓		-Active Community Participation with top-down approach. -The readiness of public & private donors & international development partners to assist the project. E.g., UN Habitat and World Bank. -local policy backing for social housing with better infrastructure.
(Chaudhry, Kumar, Jaipal, & Ayushmaan, 2019)	Deprived neighborhood regeneration.	Kuniamuthur, Delhi, Prayagraj, Mumbai, Bhubaneswar, Chandigarh, Ahmedabad, Jammu and		✓		✓	✓		✓	✓			✓			

		Kashmir Colony- India, 2015.														
	Utility infrastructure regeneration.	Azad Nagar, Bokaro, Amraiwadi, Patna, Jamshedpur, Mumbai, Hyderabad, Chennai, Ahmedabad, India, 2015.		✓		✓	✓			✓			✓			
(Chen, Zhu, & Yuan, 2020)	Cultural & Green / ecological infrastructure regeneration.	Lizhiwan, Guangzhou, South China, 2010.		✓	✓	✓	✓	✓	✓	✓			✓			
	Cultural infrastructure regeneration.	Guanggang new town, Guangzhou, South China, 2013.		✓	✓	✓	✓			✓			✓			
(Deakin, 2012)	Deprived neighborhood regeneration.	Craigmillar, Edinburgh, Scotland, UK, 2001.	✓	✓		✓		✓	✓	✓		✓		✓		-Socially inclusive visioning with community-based equitable approach - Developing planning partnerships via public and private sector.
(Zhai & Ng, 2013)	Deprived neighborhood regeneration.	Drum Tower Muslim District, Xi'an, China, 2007.			✓	✓	✓			✓			✓			
(Uzun & Simsek, 2015)	Deprived neighborhood regeneration.	North Ankara, Turkey, 2004.	✓	✓		✓	✓		✓	✓	✓	✓		✓		-Integrated planning and management approaches, such as: squatter settlements have been legalized and secure landownership. - Participation model – local residents considered as project participants. - Existing residents relocate in same location with life restoration.
(Lin & Xu, 2019)	Cultural & utility infrastructure regeneration.	Shanghai, China, 2002.	✓	✓	✓	✓	✓		✓	✓			✓			
(Wang & Aoki, 2018)	Deprived neighborhood regeneration.	Tianjin, China, 2000.		✓	✓	✓	✓			✓			✓			
(Baffoe, Ahmad, & Bhandari, 2020)	Deprived neighborhood regeneration.	Kigali, Rwanda, 2000.	✓	✓	✓	✓			✓	✓			✓			

(Tarsi, 2020)	Deprived neighborhood regeneration	Amadora, Portugal, 2012.	✓	✓	✓	✓	✓			✓			✓				
Subtotal of projects achieving different sustainability dimensions			11	20	15	22	19	07	12	22	05	06					
Percentage of projects			50	90	68	100	86	31	54	100	22	27					

Source: Compiled by Authors, 2020

5.3 Overall sustainability and dimensional tensions

Among 22 urban regeneration project cases (Table 01) under consideration six projects were earmarked achieving attributes related to all three areas of sustainability: economic, environment and social. Those include four cities of developed countries (i.e. New Broughton Village regeneration: Manchester, Ruhr Metropolitan Region regeneration: Germany, Craigmillar regeneration: Edinburgh, Berlin regeneration: German), a city of developing/emerging lower-middle income economies (Kibera regeneration: Nairobi) and a city of upper middle-income economy (North Ankara regeneration, Turkey). As per the cumulative figures denoted in Table 01, all 22 contemporary urban regeneration projects achieved more than 50% of economic sustainability attributes and, environmental attributes with respect to increasing of vibrancy and aesthetic appearance of neighborhood and urban places and increase of urban productivity. Contemporary urban regeneration projects attaining other environmental and social attributes such as (air/noise/water) pollution reduction, providing social housing for lower income groups of the city, social welfare through public investments were recorded to be between 22%-31%. Particularly, the economic and environmental sustainability attributes gained the under market conditions seeming to have causing tensions on social sustainability of the urban regeneration projects – gentrifying housing markets and displacing cultural identities of cities by displacing its local people. Disadvantaged population in the former regenerated areas are often caused to displacement, eviction and exclusion while regeneration primarily promoting the growth of different economic activities. For instance, the said house price increase in Leipzig urban regeneration, German and Gaziosmanpaşa regeneration project, Istanbul recorded to displace 95% and 80% of local residents respectively consequent to they've being priced out of new green buildings that the regeneration projects introduced (Ali, et al., 2020; Yazar, et al.,

2019; Haase, et al., 2017). Shanghai regeneration's competitive strategies to attract global investments and 147000 visitors caused displacing and relocating the 5518 China customary households, 17,000 residents and 103 work units in 2002- 2005 (Chen, Zhu, & Yuan, 2020). Similar experiences could be seen in Xian regeneration in Guangzhou evicting 16,000 original village households and 7000 migrant tenants from the area. The Sulukule regeneration Istanbul attracting investment and affluent residents on the other hand had displaced 90% of low-income communities and has rose their unemployment by 50% (Cin & Egercioglu, 2016). The utility infrastructure regeneration and deprived neighborhood regeneration projects of India have been evicted 26% and 47% low-income communities respectively in different regions such as Amraiwadi, Patna, Jamshedpur, Mumbai, Hyderabad, Chennai, Ahmedabad etc. These denote that seemingly the contemporary urban regeneration project outcomes haven't still moved beyond what it used to achieve during 1960-70s (Figure 1) - flagship urban regeneration projects keeping its primary focus on economic and environmental sustainability; attracting affluent class spending, investment for mega infrastructure etc., submerging social sustainability; class equalities and social justice.

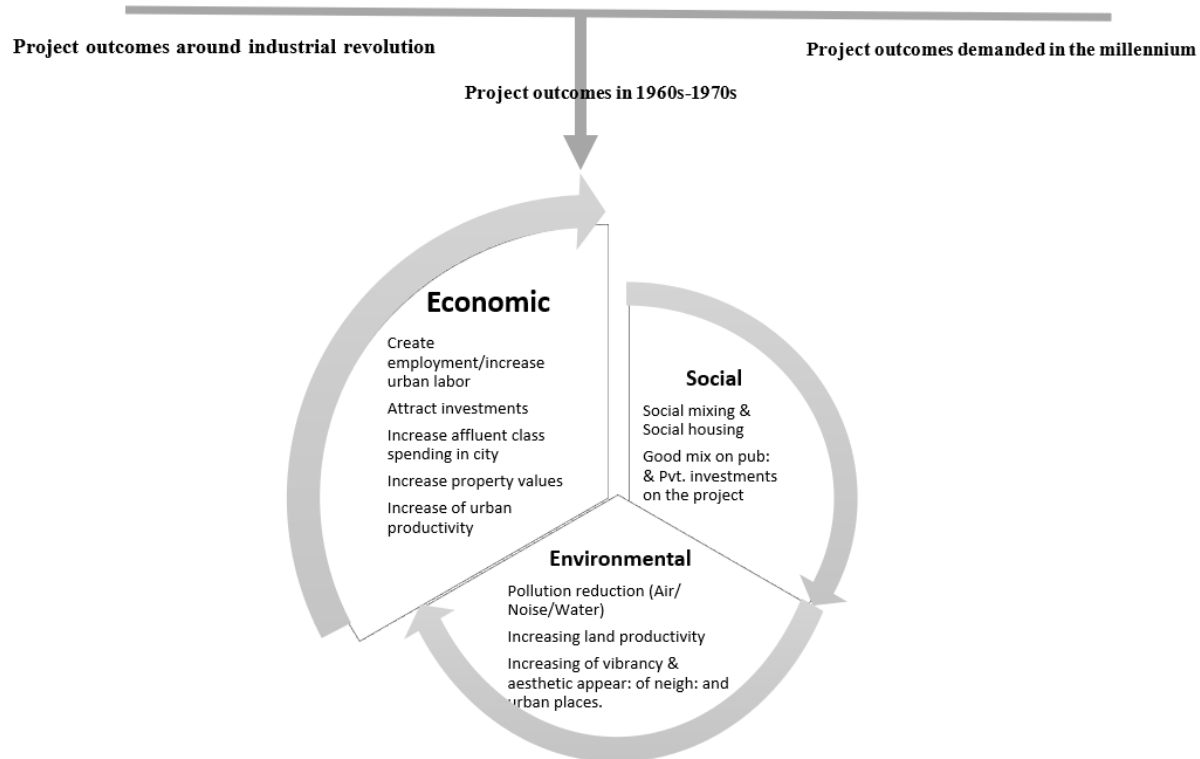


Figure 01 - Sustainability of Contemporary Urban Regeneration Project Outcomes
Source: Authors Construct

5.4 Success strategies for sustainability

The six urban regeneration projects in Table 01 (New Broughton Village: Manchester, Ruhr Metropolitan Region: Germany, Kibera: Nairobi, Craigmillar: Edinburgh, Kotbusser Tor: Berlin and North Ankara: Turkey) which had been recorded to have elements for social sustainability together with economic and environmental sustainability was investigated further to draw success factors for contemporary sustainable urban regeneration. These success factors can be broadly classified into three points. Firstly, contemporary urban regeneration projects having public and private investment partnerships. Such partnership demonstrated to be ensuring social amenities such as schools and libraries, parks and public open spaces, upgrading of active transportation (walking, cycling and public transport), creation jobs for local residents and so on, transferring project benefits to all classes in the city. Kibera urban regeneration, Kenya has been funded by national and international public and private investment cooperation (Cities Alliance, Government of Kenya through Ministry of Roads, Public Works and Housing, and UN-Habitat) where the project built-in social aspects such as schools, hospitals, library, public transportation etc. (Agayi & Sag, 2020). Extensive partnership project in Craigmillar regeneration, was funded under a joint venture mechanism by Government of Scotland and EDI Group Ltd. each owning 50% in order to invest both market and social housing in city (Deakin, 2012). Secondly, the project implementation following meaningful engagement or active participation of local community. Such projects have redirected its outcomes towards the needs of the locals empowering them economically and socially whilst also achieving the goals for overall urban development. Kibera regeneration project, Kenya enabled participation of the Kibera residents ensured 75% of final project outcome reflecting the needs of local people - More than half of the families resettled due to the regeneration project could access to novel and good quality housing serviced with

water, electricity and other essential facilities (Agayi & Sag, 2020). Extensive community participation in the North Ankara regeneration project, Turkey have enabled local residents to resettled with life restoration, legalized and secure landownership (Uzun & Simsek, 2015). Thirdly, the local policy backing for planning gain and social welfare. In the case of New Broughton Village: Manchester, the respective planning policies mandates the developers to provide a certain proportion of social housing within the total housing mix designed indifferent to market houses (Julita, 2015; Black, 2015).

6.0 Conclusion

This paper makes an inquiry into the sustainability of contemporary urban regeneration projects. The contemporary urban policy has mobilized regeneration projects as a strategy to revive degraded urban neighborhoods and supply brownfield land for ‘modern’ infrastructure such as green or ecological infrastructure, cultural infrastructure and utility infrastructure in cities. The 22 contemporary urban regeneration project cases investigated found to have been possessing economic sustainability attributes such as creating employment or increasing of urban labor, attracting investments, increasing of affluent class spending in the city, increasing of property values and increasing of urban productivity, environmental sustainability attributes such as increasing of land productivity, decreasing of pollution (air, noise and water) and increasing of vibrancy and aesthetic appearance of neighborhoods and urban places and social sustainability attributes such as low income groups to have access to housing or land in urban places without creating ghettos and investment on social amenities. Hitherto, the overall project outcomes demonstrated to be skewed towards possessing attributes related to economic sustainability and environmental sustainability up to the level of increasing land productivity and vibrancy & aesthetic appearance of neighborhoods

and urban places. The regeneration project outcomes are least accrued towards environmental sustainability on pollution (air/noise/water) reduction and social sustainability on the whole (Figure 1). Clear tensions have shown where economic and environmental attributes putting strain on projects achieving social sustainability attributes – gentrifying effects. i.e. investment attraction, increase affluent class spending in the city, increase property values, increase vibrancy and aesthetic appearance of neighborhood and urban pricing out local low-income groups to access land, housing and other services in the respective urban areas. Hence, the urban regeneration project implementation (i.e. the practice) hitherto the first quarter of 21st century haven't been capable to overcome the critiques imposed for them since 1960-1970s - the Keynesian economic policy led real estate capitalism visions for urban regeneration causing class inequalities and issues on social justice. In this respect, the six urban regeneration cases that could relatively demonstrate to have a reasonable balance among fundamental aspects of sustainability (environment social and economic attributes) showcase that the projects following planning practices advocated in the 21st century can reasonably overcome such tensions – comprehensive and integrated policy practices on collaborative governance, public funding together with private investments and strong local planning policies towards social equity are validated to be success strategies for urban regeneration projects to achieve meaningful sustainable outcomes as expected in the 21st century (Figure 1). In other words, embedding these success factors within urban regeneration project implementation would enable the benefits of higher order economic and environmental attributes to be also directed towards the needs of local and low-income communities and be diffused over wider urban population. These open up further research on the way in which 21st century planning practice for urban regenerations can be set to integrate collaborative

decision making, public and private investment partnerships and local policy on equity to the respective local settings.

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