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Advancing smartness of traditional settlements-case analysis of Indian and Arab old cities

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Abstract

The study aims to investigate the concept of Smart Sustainable Cities in traditionally planned and organically grown settlements. Smart Cities Mission is an ambitious project of Government of India targeting 100 cities for improving their urban quality of life. However, there is no universally accepted definition of smart cities because of its vast and vague scope. In such a situation, it becomes important to understand where our old cities stand in terms of smart sustainability and inclusiveness. The methodological approach adopts case analysis of old Indian cities and Arab cities in terms of their environmental, economic and social planning paradigms. These include land use mix, compact development, dwelling density, internal and external connectivity, open spaces, walkable neighbourhoods, access to social services, collective cohesiveness, local area governance, crime & safety, economic diversification and socio-cultural diversity.

The study enlists smart urban elements in our existing old cities, which are derived from extensive literature study of Middle East cities and primary surveys of around 160 samples in a medium sized old Indian city in Rajasthan. The study assesses the baseline situation of culturally rich and varied old cities and need to advance from their inherent smartness using innovative and interactive ICT and urban engineering solutions.

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Keywords: Smart sustainable cities; Inclusiveness; Middle east; Old Indian cities; Smart urban elements

1. Introduction

Cities are the face of the future acting as the engines of economic growth and centres of excellence (ICLEI and the

Cities Alliance, 2007). The United Nations' World Urbanisation Prospects report identifies the highest rate of urbanisation in Asia, which is currently increasing at 1.5 per cent per annum. Between 2014 and 2050, the urban areas in India are expected to grow by 404 million people (United Nations, 2014). It is a strong realisation by international and national community that a successful city should balance social, economic and environmental needs, should respond to all the domains of urban life, should offer security, quality level basic urban infrastructure and a healthy social environment to prosper its culture and community by recognising its natural assets, citizens' needs and

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environment on which it builds (Elmer & Leigland, 2013). Thus, with a focus on ecological and humanistic dimensions of urban environment, sustainability is an important concept, which is appropriate only when implemented in their current cultural contexts (Narayanan, 2015).

The sustainable urban development has emerged as an important urban planning priority in India. However, Narayanan (2015) has well pointed out in her book that uncritically imposed planning policies in developing countries like India, without considering its socio-cultural and historic variations of place and community, has a high risk of failing or even intensifying existing social and environmental injustices. In order to develop planning policies which integrate social, cultural, political and environmental needs of existing cities, a localised sense of place is identified as a vital element of sustainable cities (as cited in Narayanan, 2014).

In the middle east, the impact of modern planning practices is very profound on its historic centres. The introduction of modern technology and western school of planning has interrupted the evolutionary processes of middle eastern societies (Blake & Lawless, 2016). Even if some of its historic urban fabric is alive, the economic and social shifts are predominant in its historic centres. Simultaneously, the concept of Smart Cities is very promising in India and new urban initiatives are paving new ways towards urban development. However, the problem arises when the buildings are given more importance than its inhabitants (Narayanan, 2015). That's why the cities that were re-planned pre-independence in India generally left the old historic cities untouched and the focus was on new western style city extensions around them such as Lutyen's New Delhi. The clear message of Narayanan (2015) in her book is to consider the importance of religion and social beliefs of community than adopting western inspired urban planning principles.

The Middle Eastern cities have already seen a transformation phase from traditional urban fabric to modern skyscrapers and smart cities (Kiet, 2011) while India is just entering into this new phase of modern development. Also, a high similarity is observed between planning principles of traditional settlements in the Middle East and India; imparting high importance to social and religious belief system of its community. Many scholars have also opposed the insensitive and incongruent approach of modern planners for such old settlements with a complex society system and values. Hence, the interventions of Government of India for Smart Urban Development require an investigation of old cities in India to understand their traditional planning principles so that the inherent features of these old settlements can be advanced to perceived level of smartness.

The main research question which arises is how inclusive is the concept of smartness and how sustainable is the built-up environment of these old cities. The study aims to present case analysis of the traditional settlements in the Indian subcontinent and Arab World, evaluating their

sustainability based on set criteria. The key objectives of the study are to explore the concept of Smart Sustainable Cities and assess the sustainability of the selected case studies and give an overview of their traditional planning system.

The study concludes that the physicality, society, and economic aspects can't be seen in isolation. It is almost impossible to delink the past from the future. If smart and sustainable are the buzz words for future cities, then the old and historic principles can't be ruled out and needs to integrate heritage and technology altogether. The future scope of research can be to advance inherent layers of sustainability of these settlements to smart urbanisation.

2. Literature review

2.1. Concept of smart sustainable cities

Smart, in general, is associated with quick mental alertness, resourcefulness, capability of independent and intelligent actions and ability to reason. It is nothing but a proactive operation especially when it is required the most. However, a smart city is a concept rather than a universally accepted definition (Kondepudi, accessed 2015). With the change in the approach of the modern world towards urbanisation, the concept of digital cities, smart cities, and wired cities have flourished over time. During the 1980s and 1990s, technological advancement and economic growth led to migration as a common phenomenon in major cities. This urbanisation had profound negative impacts on the resources of the city and led to the development of the idea of smart urban growth during the 1990s. Initial idea was to invoke effective community participation in solving urban issues, but later with Kyoto protocol, the emphasis shifts to environmental protection (Kondepudi, accessed 2015). International institutions such as the European Union and Organisation for Economic Co-operation and Development (OECD) realised a strong correlation between the concept of smart and sustainable along with green growth, quality of life, ICT infrastructure and citizens' involvement. There is no concrete definition of the smart city but rather it is treated as a concept and adjective which is ambiguous and takes shape with the needs and priorities of its users.

A smart city is explained as a broad concept with many sub-themes such as urban and regional planning, economic development, environment and sustainability, ICT and technology in a literature study conducted using the mathematical model by Von Brocke et al. (Cocchia, 2014). Several authors had highlighted the difficulty in defining smart cities because of its multifunctional and fuzzy label. However, all definitions almost share some common characteristics, features, and boundaries. These concepts are not contradictory and isolated but partially or fully overlap (Cocchia, 2014). The trend analysis show five phases of development of this concept:

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