IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 23, Issue 1, Ver. 5 (January. 2018) PP 51-56
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Smart City: A Case Study of Kohima Town

Dr.M.Sakthivel[1], Akumnaro Alley[2], R.Thirunavakkarasu[3]
[1](*Department of Geography, Assistant Professor / University of Madras, India)*
[2](*Department of Geography, Research Scholar/ University of Madras, India)*
[3](*Department of Geography, Research Scholar/ University of Madras, India)*
Corresponding Author: Dr.M.Sakthivel

Abstract: A Smart City can be, in simple words defined as the city that provides its citizens a high quality of life or a better life style. Smart city elements include physical, economic, governance and social infrastructure. The government of India has announced the list of Smart Cities in each State. They intend to transform the lives and living conditions of the citizens of the country. The concept of sustainability being one of the key components of smart city. With Kohima being selected as one of the 98 cities across the country designated to become a Smart City under the Smart City Mission authorities are working towards implementing the Smart City Plan for the capital town.This paper aims to study the vision / plans that the government of Nagaland has for the smartness of its town. The methodology in this paper has been done by collecting secondary data from various sources. Overall this paper will help us to understand the challenges that Kohima Town faces towards being a smart city and also towards its sustainable environment.

Key words: City Elements, infrastructure, governance, Sustainability, Smart City,

---

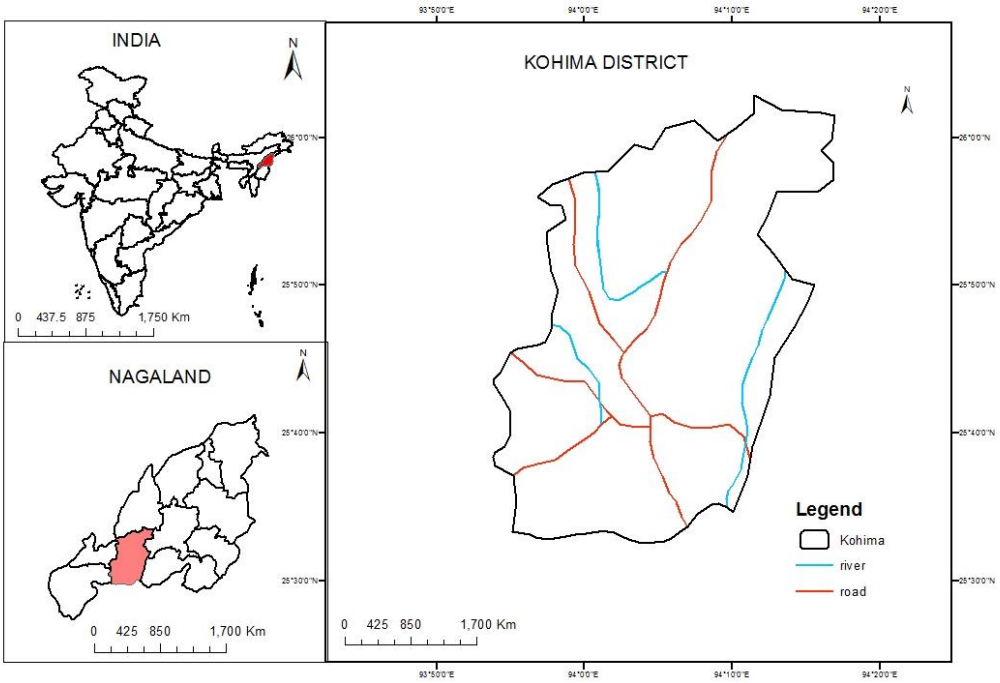
Date of Submission: 05-01-2018 Date of acceptance: 22-01-2018

What is a "Smart City?"

The origin of the concept of Smart Cities can be traced back to at least the Smart Growth Movement of the late 1990s. (MattiasHojer et al, 2014). In the 21st century, the requirement of Smart Cities has become even more challenging, due to the addition of climate change, while meeting the ever increasing demand of quality of life of its citizens. (Asha et al, 2015). The concept of Smart City involves a sound economic growth, sustainable development and better quality of life for its citizens. (Oindrilla, 2014). Smart City can be defined as a city which has access to all the basic infrastructure such as smart governance, smart physical infrastructure, smart social infrastructure and smart economic infrastructure which aims at giving a decent quality of life and a sustainable environment to its citizens.

I. STUDY AREA

Kohima is the capital of Nagaland which is a hilly district in India's one of the North Eastern State. It shares its borders with Assam State and Dimapur district in the West, Phek district in the East, Manipur state and Peren district in the south and Wokha district in the North. Being the seat of administrative power, it is the center of administrative, economic and political activities. Kohima has a pleasant and moderate climate- not so cold in winters and pleasant summers. The town is one of the three Nagaland towns with Municipal Council status along with Dimapur and Mokokchung. The town's population composed of all the sixteen tribes of Nagaland as well as mainland India residing there. Kohima city is divided into 19 wards. The total population of Kohima town as of 2011 is 267,988 spread over an area of 1,463 sq. km.



Aim and Objectives

Aim:This study highlights the Smart city planning in India and Kohima city of Nagaland in detail.

Objectives:

1. To study nature and trend of Smart cities in Kohima city of Nagaland.
2. To examine the fulfillment of smart city concept in Kohima city in Nagaland.

II. METHODOLOGY

The research mainly focused on the plans /visions of Kohima Smart City plan based on the Government of India's ambitious initiative to develop 100 smart cities and rejuvenate to develop 500 small cities and towns. (Asha et al, 2015). Methodology in this study was carried out by collecting secondary data with respect to the criteria required for planning a smart city by the Government of India. It highlights the plans/visions that Kohima Municipal Council requires toward the smartness of its town. Citizens of Kohima town were also involved to give their views and opinion on Kohima being a smart city through interview method.

TABLE: 1 SWOT OF KOHIMA TOWN(Kohima_SCP)[1]

STRENGTH	WEAKNESS	OPPORTUNITY	THREAT
• Locational Dynamics • Cultural Heritage and Historic Heritage • Human Capital • Urban Morphology • Community Participation • Institutional Dynamism • Perception of Safety	• Inadequate Infrastructure • Inefficient Public Transport • Regulatory & Governance Issues • Land Availability	• Urban Renewal • Tourism	• Disaster Vulnerability

III. OVER VIEW OF THE SMART CITY PROGRAMME IN KOHIMA TOWN

With Kohima being selected as one of the 98 cities across the country designated to become a smart city under the Smart City Mission which was launched by the Prime Minister of India, the Municipal Council (KMC) authorities are gearing up to implement the Smart City Plan for the capita town. The vision for Kohima Smart City is "To leverage Kohima's geo-strategic location to foster sustainable and resilient community-led

[1]Kohima_(Smart City Proposal), Ministry of Urban Development, Government of India.

development as a regional hub for tourism and transit complemented by its significant natural and cultural assets" (Kohima_SCP). There are three major components for area based development in the Smart City Mission as given by the government of India:[2]

Retrofitting or city improvement: In this area based development the KMC (Kohima Municipal Council) will identify 250 acres of land in consultation with citizens for improving of existing structures in the town.

Redevelopment or city renewal: It includes an area of more than 25 acres of land to be completely reconstructed and redeveloped.

Greenfield development or city extension:It includes 125 acres of previously vacant area and develops it into a new expansion of the city with most of the smart solution applied to it.

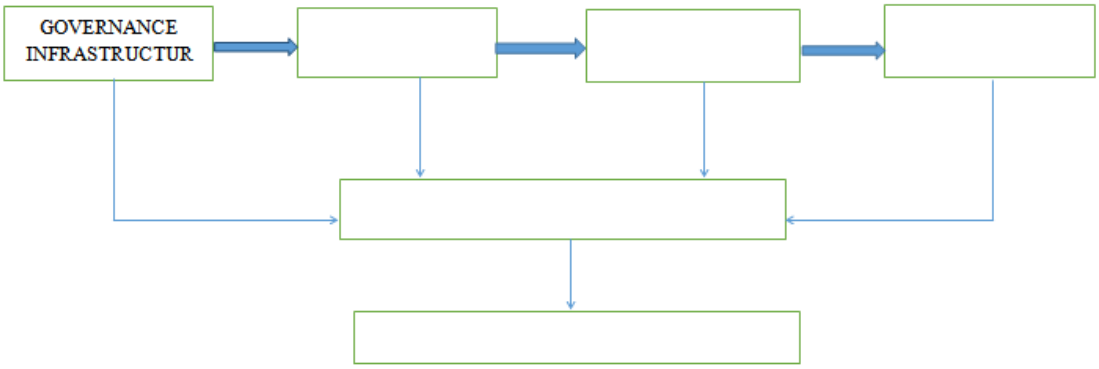


figure1: Kohima vision for Smart City

TABLE 2: VISION AND GOALS FOR KOHIMA SMART CITY[3]

Governance Infrastructure	IT connectivity and digitization, Computerized technology for monitoring encroachment, setting up CCTVs at least about 100 points, video crime monitoring CCTVS with sensors, 3341 affordable housing for low income groups of people, maximum importance on children and women, disaster management cell, toll free number to be activated to receive various kinds of grievances for redressal, automatic meter reading, smart billing, online water quality monitoring system.
Physical Infrastructure	Bus service connectivity in all the colonies, pedestrian infrastructure, intelligent traffic management, rain water harvesting/ solar energy to be emphasized to a great extent, recycling of sewage water, recycling of waste into energy and fuel, energy efficiency street lighting system and air quality monitoring.
Social Infrastructure	More health and education infrastructure to be equipped with broadband and WI-FI connectivity, community center for each ward, an exhibition center, open air theatre and urban haats, green space provision to be marked, plantation of trees.
Economic Infrastructure	e-office with full fledge e-public delivery system, computerized marketing systems, online payment system for trade licenses and other fees,

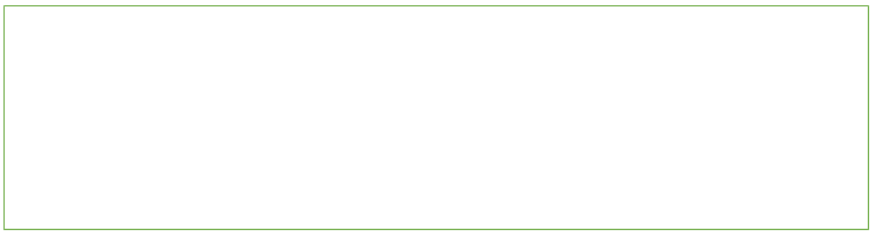
In order to have a defined target for the achievement of the vision and goals, a time frame has been fixed. Based on the SWOT analysis and in discussion with the stakeholders two major strategic focus (SF) areas have been identified which will guide the development of Kohima Smart city in the next 5 to 10 years.

[2] www.easternmirrornagaland.com/kohima-gears-up-to-become-a-smart-city/, Eastern Mirror, September 10, 2015 (accessed on 28 October 2016)

[3] www.easternmirrornagaland.com/kohima-gears-up-to-become-a-smart-city/, Eastern Mirror, September 10,2015(accessed on 28 October)

CURRENT IMPROVEMENT IN LIVABILITY, SUSTAINABILITY AND ECONOMIC DEVELOPMENT (Source-Kohima_SCP)

a) Transportation condition in the city (2012-2015 growth patterns)



b) Water availability in the city and reduction in water wastage/ NRW(2012-2015 Incremental growth patterns)

PHED Network Supply coverage to households from 25% coverage in 2012 to 29% in 2013, 32% in 2014 to 34% in 2015, increase in coverage to 60% under ADB project. Total supply of 2.3 MLD @ 305 L/HH (2015) while 70% HHs practice rain water harvesting
Non-Revenue Water (NRW) Reduction pattern- 60% in 2012, 40% in 2013, 20% in 2014 and 10% in 2015
Improvement in water metering available to the 34% pipeline covered Households- 30% in 2012, 50% in 2013, 60% in 2014 and 70% in 2015
Refurbishment of Jotsoma WTP & distribution network under ADB with modern facilities.
ACHIEVEMENT PLAN
Adequate water supply including waste water reuse and storm water reuse to achieve 100% coverage and reliability

c) Solid waste management programs in the city(2012-2015 improvements)

Waste Generation (TPD) from 35 TPD in 2012, 40 TPD in 2013, 45 TPD in 2014 & 57.9 TPD in 2015
Collection efficiency of MSW by ULB from 70% in 2012, 75% in 2013, 84% in 2014 & 91% in 2015. More than 60 Sanitation Awareness programs
Scientific Landfill Site & Recycling unit at Lerie under commissioned by SIPMIU,
Funded by ADB, for 39.11 Cr; includes 50 TPD window compost plant
Implementation of Bio-medical Waste treatment & disposal facility is in process
Construction of 4 Community Block Toilets under SBM
ACHIEVEMENT PLAN
100% coverage of sanitation, regularized frequency of septic tank clearance, disposal of garbage in an environmentally sound manner
Collaborative participation with rag pickers and informal waste recyclers to create WTE

d) Safety security conditions in the city

8 High masts light provided at major junctions for greater security
Increase in numbers of street lights from 400 in 2012vto 860 in 2015
13 Fire emergency Operation Centre with toll free number & e-mail to connect with Nagaland State Disaster Management authority (NSDMA) & SDRF
Awareness programmes on disaster management via mock drills &Familiarisation
Exercis in collaboration with National Disaster Response Force (NDRF)
Apart from police, Magistrates of each ward are assigned to oversee law and order and other developmental activities for safety and security conditions in the city.
ACHIEVEMENT PLAN
Safety through Urban Design bringing inclusive public spaces for all age group
Community policing through volunteers and neighborhood watch initiatives
Web based incident reporting system and CCTV surveillance cameras at junctions
Wayfinder project for tourist, children for safe access and movement
Urban Resilience and Climate Change Project for:
Prepare holding and evacuation plans for communities, exchanging data from emergency services such as Police, Fire-services, Ambulance services and Hospitals for improved response time during emergencies.

e) Energy availability and reduction of outages in the city

Increase in number of 33 kV electric substations from 3 Nos. in 2012 to 5 in 2015
Increase in number of 11 kV electric substations from 4 Nos. in 2012 to 7 in 2015
Reduction of 12.24% has been observed in outages during last 3 years
Households connected to grid: 75% to 100%
Increase in numbers of Solar Street Lights from 10 Nos. in 2012 to 40 in 2015
100% improvement of 49 Government buildings/offices (690kW) under solar power in last 3 years
Government buildings/offices (135kW) are currently in implementation stage.
ACHIEVEMENT PLAN
Assured electricity supply and at least 10% from renewables
Solar City project for renewable energy

SUCCESS OF SMART CITY INITIATIVE IN KOHIMA TOWN (Kohima_SCP)

Availability of government land
Community participation and social inclusion
Convergence implementation

IV. IMPACTS AND CHALLENGES

The town has seen many developments in the recent years than in past. Being selected as one of the Smart City project, the town has implemented various proposals. However it might not be able to achieve all the targets or objectives to the desired level, basically because Kohima is very old and unplanned city. Some of the measurable impacts following this project are likely to be(Kohima_SCP)

- Power to people to use traditional knowledge and know-how of how places function and give them greater say in how they must be use.
- Collaborative platforms for engagement among stakeholders
- Increase in transparency and accountability due to shift towards Open Data and enhanced public disclosures
- Improve on service delivery and enhanced cost recovery of urban infrastructure services due to focus on user pay principle
- Improve on decision making by policy makers as a result of 'Data Analytics' and measurement of Key performance Indicators across sectors
- There will be likely some creation of new 'Hospitality and Entertainment Districts'
- New tourist- friendly market areas and shopping zones due to upgrading of New Market Area through targeted interventions like Wi-Fi hubs and Dynamic Urban Spaces

CHALLENGES

- Lands owned privately by the locals.
- Lack of funds.
- Landslide prone area and steep slopes.
- Bringing together all the tribes to co-operate with the plans and visions of the government.

V. CITIZENS ENVOLVEMENT

A group of people comprising of both elder and younger citizens were interviewed for this pilot study. Few questions were asked based on the requirement of the study, such as, "what are your views on Kohima Smart City?", "which area should likely be developed?", "Do you think that the Kohima city plan will be a success?", and some of their suggestions were also asked. To this the researcher got different answers from the youths and elders. All the participants liked the fact that their town got selected as a Smart City plan. The elders thinks that it might not be possible for Kohima to become a smart city because it doesn't have the qualities to become one whereas the youths thinks that in the long run it might be possible but not in near future. Since it is a landslide prone area building of new infrastructure might be difficult. The lack of fund as well as the non-availability of government lands also worries them. On asking about their suggestions both the group of citizens gave their views on construction of roads as the existing roads are in a very horrible conditions which makes it very difficult to travel for the citizens of Kohima town.

VI. RESULTS AND DISCUSSION

With the increase in population and urbanization, Kohima town is likely under pressure to ensure the success of its smart city plans and programs. The data collected suggests that so far they have been able to bring improvements in the basic infrastructure of town such as transportation, water supply, solid waste management, security conditions and the availability of energy resources. Kohima is an old and unplanned town where most of the lands are privately owned by the locals, which is one of the major challenges faced till date followed by the lack of funds. The data collected also shows that several achievement plans have been put up for the smart city programs which are to be within a specific period of 5-10 years. The younger citizens of Kohima town especially think that with proper guidance and proper compensation for the land owners for their land, the city might make some developments in the long run. However the same cannot be said for the elder citizens of Kohima town, all of them a government employee, thinks that the attitude of the citizens of Kohima is not friendly where their land is concerned. And since, the government doesn't own much land in the region it will be difficult to achieve the targeted smart city plans and programs.

ACKNOWLEDGEMENTS

A sincere thank you for the support we received from the Vice-Chancellor, (UNOM), faculty members and research scholars of Department of Geography, UNOM for their support. We would also like to acknowledge Dr. M. Sakthivel, guide and supervisor, for his generous support to help this paper be a success.

REFERENCES

[1]. Hojer,Mattias, Joseph Wangel. "Smart Sustainable Cities: Definition and Challenges".*Spriger International Publishing*:4 (2014)
[2]. https://www.researchgate.net/publication/298703643_Indian_Cities_towards_Smartness_A_Case_Study_of_Guwahati_City (accessed on October 28, 2016)
[3]. DattaGupta, Oindrila. "Global Integration and Developing Indian "smart cities": New Hopes and Challenges. *International Journal of Innovative social Science & Humanities Research1, no.2* (2 December, 2014):31
[4]. www.easternmirrornagaland.com/kohima-gears-up-to-become-a-smart-city/, Eastern Mirror, September 10, 2015 (accessed on 28 October 2016)
[5]. www.easternmirrornagaland.com/kohima-gears-up-to-become-a-smart-city/, Eastern Mirror, September 10,2015(accessed on 28 October)
[6]. Kohima_(Smart City Proposal), Ministry of Urban Development, Government of India
[7]. jnnurmmis.nic.in/toolkit/kohima_CDP_Revised.pdf, "City Development Plan-Kohima" (New Delhi, LEA Association South Asia Pvt.Ltd, in association with CEPT, Ahmedabad, July 2006):2, 3

IOSR Journal Of Humanities And Social Science (IOSR-JHSS) is UGC approved Journal with Sl. No. 5070, Journal no. 49323.

Dr.M.Sakthivel "Smart City: A Case Study of Kohima Town." IOSR Journal of Humanities and Social Science (IOSR-JHSS),vol. 23, no. 1, 2018, pp. 51-56.