



“Making Cities Resilient”- Jalandhar is Getting Ready

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ABSTRACT: In its centenary year in 2013; the Rockefeller Foundation announced the 100 Resilient Cities project with a \$100 million commitment to build urban resilience worldwide. It has already selected 67 cities and from India, Chennai, Bangalore and Surat figure in that list. The concept of urban resilient cities is built on two ideas one is that cities are complex ecosystems and have a hard time organizing themselves around what their key challenges are and the second is that too often the cities don't access the resources or best practices efficiently enough. Cities are home to over half of the world's population – 3.96 billion people – a number expected to grow to 5.1 billion by 2030 (UNDESA, 2015). This oft-quoted fact has profound implications for a new urban future, one in which the face and nature of our cities will change as they become increasingly concentrated centers of human culture and economic activity. Shocks and stresses are growing in frequency, impact and scale, with the ability to ripple across systems and geographies. “Jalandhar: The Leading Sports and Manufacturing hub in Asia” The world of sports is a growing industry in India. A thriving sports sector has significant socio-economic impact, and is instrumental in improving the physical health and mental agility of human resources, and in promoting unity and national pride. Jalandhar has the opportunity to build upon its existing sports and manufacturing base to create sustainable jobs, increase productivity and drive innovation.

I. INTRODUCTION

The very idea of resilient cities – cities that are able to remodel and adapt to ever changing circumstances, has been in the news over recent years in recognition of the challenges confronted by climate change, disaster events, rapid urbanization and the economic downturn.

A. Defining Resilience

Cities are complex socio-technical systems which makes it difficult to predict or assess their performance. The Asian Cities Climate Change Resilience Network proposed a simplified model of the urban system, identifying four key components of a city that collectively determine wellbeing where different attributes can be used to observe or assess these four components. These attributes distinguish between characteristics that are applicable to infrastructure and institutions such as redundancy, flexibility and safe failure; and the capacities of social agents (soft systems), including resourcefulness, responsiveness and ability to learn.

B. Key features to grant the city the title of a Resilient City

Water management: Water is precious gem it must be utilized in better and sustainable way so that there is no wastage and no shortage in near future. The Supply of water must be from diverse source (rainfall capturing, storage dumps, aquifers, river).

Transport: Network of diverse types of transport linked as a unified system: metro or rapid bus lines in main roads and high density areas connected to local buses to reach every point of the peri-urban areas and the different neighborhoods. Urban transport must be preferred and must be implemented in major metro cities.

City master planning- land use planning: Combination of organic growth and master planning processes to promote mix land use: business, schools, local food markets, shops, services, jobs, amenities, and social community points, green spaces and food production. This allows creating vibrant spaces for the people to live and interact. Infrastructure such as water and energy supply needs to be shared and distributed in the whole city.

Waste management: New method to dispose of waste must be used and waste must be used as resource not as a trash. Solid waste rules notified by government of India must be implemented in full strength and defaulter should be punished strictly.

Energy supply: Alternative (back-up) and diverse supply sources which must be combination of centralized power plants and decentralized local systems (such as own family generators) must be given appreciations. Wind and solar energy must be tapped so that our dependence on thermal plants reduces significantly.

Disaster responses: Disaster response of the local administration must quick so that precious time is not wasted in making hasty decisions. The city relief unit must diversify so that the every corner of the city can served equally in case of a disaster. Infrastructure to reduce risks and deal with shocks are provided by central government under the national disaster mitigation plans

C. Resilient Cities Report 2015

On 8–10 June, Resilient Cities 2015 put together almost 430 contestants– 25% of whom represented different local governments – in **Bonn, Germany** to ponder upon innovative methods and best practices for modern-day resilience and climate transition adaptation. For the very first time, the congress was held in unison with the United Nations Climate Change Association in Bonn. This helped in good exchanges between participants from local governments, the private sector, multiple academic and research institutes, international and NGOs, and many UNFCCC delegations.

II. KEY DEVELOPMENTS IN URBAN RESILIENCE

- Financing resilience
- Mobilizing resilience building through collaborative efforts
- Resilient infrastructure
- Disaster risk reduction
- Communicating resilience
- Resilient urban food systems

A. City Resilience Framework

Learning from literature: Various approaches have been taken to framing or assessment of resilience. They put their epicenter either on modern assets or systems, and, to different degrees, consider man-made infrastructure, the natural environment, urban management and human behavior. Asset-based methods are obvious to concentrate on physical assets, rather than putting forward incorrigible assets that influence human behavior, such as our culture, day to day increasing social networks and knowledge. They ignore

the role that assets play in city systems, and, therefore, overlook the significance of assets outside of the city boundary; for instance, a water body that may be an important part of the main water supply or flood management system.

Learning from case studies: A wholly performance-based methodology, which defines resilience in terms of a city's ability to complete and sustain its major functions, offers a much more comprehensive and holistic approach. As a city's methods rely on a mixed variety of assets, systems, various practices and steps undertaken by multiple actors, a drastic performance-based approach has a much greater potential to answer questions of interdependency, power dynamics and scale.

Learning from cities: To make sure the framework is fully applicable and set down in the experiences of major cities, the second crucial stage of research included intense fieldwork in six cities: Cali, Colombia; Concepción, Chile; USA; New Orleans, Cape Town, South Africa; Surat, India; and Semarang, Indonesia. These cities were chosen as they had either recently been through a huge shock or are suffering chronic issues, and as a group are biologically and geographically diverse.

B. 100 Resilient cities pioneered by the Rockefeller Foundation

To help cities better be ready for and respond to 21st century challenges, The Rockefeller Foundation has made a \$100 million committal to creating urban resilience in cities throughout the world. Through the 100 Resilient Cities Centennial Challenge, in the future years, 100 cities will be chosen across the globe to get technical support and resources for developing and implementing plans for urban resilience, and achieve assistance in leveraging billions of additional dollars for financing and other services.

C. About 100RC – Rockefeller Foundation's Resilience point of view

Spare capacity: Spare capacity is the term which ensures that there is a back-up or alternative available when a vital component of a system fails.

Flexibility: The property of a city in which it changes and adapt to alternative strategies in the face of sudden disaster.

A rapid rebound: The capacities to re-establish function, re-organize, and avoid long-term disruptions. This in turn helps in turning the city into a resilient structure.

Constant learning: The ability to internalize past experiences linked with robust feedback loops that sense, provide foresight, and allow new solutions as conditions change.

III. URBAN RESILIENCE PLANNING IN INDIAN CITIES

A. Spheres of urban planning in India

In 2009, TERI conducted an in-house study on designing a city adaptation framework for Indian cities and synthesized the various spheres of urban planning in India, including public and private agencies as well as individuals that are involved in framing, planning for, and responding to climate change.

B. Multi-tiered governance structure

The Indian polity has a federal structure under which national-level policies are decided by the Indian Government which also pre-allocates various resources to the multiple state governments through various centrally sponsored schemes, provides "finances through national "financial institutions, and supports various external assistance programmes for urban development and housing in the country. City governments undeniably play central role in planning for urban climate adaptation, with direct jurisdiction over many urban policies that drive public and private development activities and provide basic services at the city scale.

In India and across the world in many other countries, **Disaster Risk Reduction (DRR)** has often taken a "immediate-reactive" methodology of substantial relief and rehabilitation soon after the occurrence of a calamity or disaster. Integration of disaster risk management along with developmental efforts offers an opportunity for better preparedness by taking a "proactive" approach towards DRR.

India's National Action Plan on Climate Change (NAPCC) was released on 30 June 2008 and it outlines the national priorities for adaptation and mitigation research and policy strategies, through eight National Missions. While urban centers in India are the new engines of economic growth, Across India, cities face climate-induced calamities regularly, often accompanied with heavy loss of life and property. India suffered a huge loss of over INR 10 billion in excess due to the harsh winter weather in January 2013 alone

C. Building climate resilience important for Indian cities as

- India is on the verge of multidimensional risks to weather change with huge geographic multi diversity and various climate zones.
- Potential to impact the lives of the poor people. They are most non-immune to weather-related disasters.

- Around 70% of infrastructure in our country is yet to be developed which is majestic opportunity for integrating climatic resilience in the near future infrastructure development of our country.

Non rural areas in India contribute to about 60% of GDP of the country, expected to be 75-80% by 2030.

D. Preparing for a urban climate resilience policy

1. Making a case for climate-related actions and investment
2. Capacity building
3. Multi-level engagement
4. Integrating climate resilience into urban development laws and regulations
5. Financing urban resilience

IV. JALANDHAR

A. A Prominent Sports & Hand tool Industrial Hub Jalandhar is internationally specialized in manufacturing of Sports Goods, Leather Goods, Hand Tools, Pipe Fittings and Surgical Implements etc. For 2014 FIFA World Cup in Rio de Janerio, Brazil, Jalandhar supplied about 80,000 footballs (*Source:IBEF*).The share of Small Scale Industries has been found to be of the order of 99.77%. (Source Master Plan 2031).Small scale industrial units are generator of major proportion of employment in the city. As per the master plan, out of the total employment in Industrial sector, 97.06% of people are employed in Small-scale Industries. The oldest city in Punjab and one of the oldest in the country, Jalandhar has seen rapid urbanization and developed into a highly industrialized centre of business activity in the past recent years. Jalandhar was the capital of Punjab since India's independence in 1947 until Chandigarh was designed in 1953.On the GT Road; it is a major railways and roadways junction and is about 144 km northwest of the state capital, Chandigarh. The city was known as Jullundur in British India.

Jalandhar finally makes it to Smart City list. After facing failure in the two rounds of competition, the city has finally made it to the list of the cities across the country that will be developed under the new Smart City project of Hon'ble PM Shri Narendra Modi Ji. The Union Urban Development Ministry recently put forward the names of 27 new cities that will be included in the new Smart City project. Along with our Jalandhar, Amritsar, the Golden City has been chosen in the third round. Now, the state has a total of three cities, Jalandhar, Amritsar and Ludhiana that have made it to the latest Smart City list. Ludhiana was selected in the second round of the programme.


E. How Will It Work?

The project will have two major components, one as 'area-directed development' and secondly as "**Pan City**". In the area-directed development, about 1,055 acres of land in the city has been made a part of the

document to be created as a smart area. This specific area will have all kinds of luxuries like water supply sewerage management, power, advanced health facilities, ICT-based e-learning modules in schools, and rejuvenation of the canal system.

DECODING SMART PLAN

- 1** ₹1,000 crore to be spent under the mission in five years.
- 2** Around 1,055-acre area of the city to be developed with all the facilities under the area-based development plan.
- 3** Construction of a multipurpose stadium at Burlington park at an estimated cost of ₹550 crore to be a prime component.
- 4** As per the proposal, the Smart City plan will generate around 6,000 direct and indirect jobs.
- 5** The population of the city, according to 2011 census, was less than 9 lakh, which at present stand at around over 11 lakh.



■ An aerial view of Jalandhar city.

Fig. 1. Aerial view of Jalandhar.

Main area covered under the resilient project

- **City Transportation**

City bus service off roads in Jalandhar due to 'illegal' autos

Jalandhar Started with much fanfare in 2008, the City Bus Service came to a grinding halt on Wednesday in Jalandhar after authorities failed to stop illegal operation of various auto-rickshaws and the operator decided to go off the road. Local people are a lot dependent on auto-rickshaws, most of which run out of legal notice

Earlier, about 8,000 people used to commute in the city via city bus service buses every single day. With no bus service to move throughout the city, most of the burden has now resided on the private vehicles and the auto rickshaws hence leading to the swell in traffic anomalies and pollution in the city.

- **Solid Waste Management**

Solid waste (SW) can be put forward as the stuff that no longer has any link to the person who is responsible for it and is not intended to be let through a pipe. It does not usually include human excreta. It is generated by various domestic, commercial, specifically industrial,

healthcare, agricultural and mineral extractions, methods and finally accumulates in streets and public places, creating distaste.

- **Status and analysis of functional elements**

The functional elements of SW management in this city are Waste Generation, Waste Collection, Waste Transportation, Waste Processing and Final Disposal. The average waste generated in our Jalandhar city is almost 500 TPD. In total, there are roughly 320 garbage baskets placed in city. Garbage is finally get rid off in an open dump at Suchipind village located on Hoshiarpur road and Wariana situated on the Kapurthala road. Garbage-lifting vehicles are involved in this operation.

- **Sewage**

Our Old sewerage network has got silted and gets choked and blocked specifically during the rainy season, which causes the overflow of sewers. The sewerage thus mixes up with storm water thus polluting it. CPCB has requested to stop mixing of storm water and sewerage for the new rain water harvesting structures.

Cleaning of sewerage system will remove siltation in sewers thereby preventing overflow of sewers. Cleaning of the system thus is proposed using modern super suction machinery to increase efficiency of system.

b. Resilient Improvements

- a) The currently haphazard electrical connections would be organized into neat insulated single cables.
- b) Adequate street lighting will be ensured through smart bracket mounted LED lights.
- c) Safe universal access will be ensured for the elderly and especially able citizens through provisions of pedestrian ramps and railings along footpaths.
- d) Street furniture would be provided for the residents.
- e) Signage control through fixed signage size and locations will be done.
- f) Parking lots will be organized to carve out space for greens, public plazas.
- g) Overhead electric lines will be relayed underground.
- h) Paving and surface change for smooth pedestrian experience will be done.
- i) Adequate Smart LED street lights would be provided.
- j) Safe universal access will be ensured for the elderly and especially able citizens through provisions of pedestrian ramps and railings along footpaths.
- k) Street furniture and water fountains will be provided for the citizens.
- l) CCTV security camera surveillance would be done for the safety of the citizens

V. CONCLUSION

On the basis of the data collected and analyzed conclusions are drawn and summarized. Even the valuable suggestions given by the respondents and realized by the researcher on the basis of primary data and secondary data are stated.

Resilient cities & its development are critical for world's development. There can be no doubting the importance of marshalling the world's collective resources in pursuit of that goal and having the world's refined leaders in one place presents a massive opportunity to achieve it. But unless we think broader, unless we think about the world's problems in an interrelated fashion, until and unless we are thinking about addressing many other pressing challenges, we are missing a massive opportunity. And we are putting ourselves at risk

However many cities have been put under the 100 cities of Rockefeller Foundation, still many cities still has to be considered for resilience. All this can only be possible by strong political will and sustained public pressure for change.

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