

Sustainable Development Strategies for Cities: A Special Study of Alwar City

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Abstract: *This paper deals with the sustainable development of Alwar city. Sustainable development goals can be defined as better Life style of city residents and using natural resources and available facilities without compromising future needs according to forecasting of population. there are various parameters need to be focused such as water supply, sewerage system, solid waste management, ground water quality, transportation facilities available within city and its connectivity to other cities of state. It is important to select proper strategy for development of various basic facilities. Alwar is the most highlighted city because of their industrial growth which will influence on employment accompanied by increasing population in this city. Alwar has immense potential of economic development due to inclusion in National Capital Region of Delhi and located on NH-8. It is located at best suitable location for the industrial development, especially for small scale industry. The study reveals that people's awareness and their active participation is necessary for sustainable development of the Alwar. It is also needed for government authorities to develop various urban amenities for social wellbeing.*

Keywords: Sustainable Development, Population, Urban Amenities, Industrial Development.

INTRODUCTION

According to estimates by the United Nations, 60% of the India's population will be living in urban areas by 2050, upward from 31% today (census 2011). Large number of new residents to the cities is adding from the rural to urban migration that is putting pressure on the resources and infrastructure of the cities. The factors that are responsible for these problems include population growth and explosion caused by urbanization process, overexploitation of natural resources, growing materialism among the people, change in the land use patterns, poverty, urban sprawl, increase in the slum area, problems of flood control, drainage and water management, unbalanced and haphazard growth. Some of the facts that speak of the problems of Alwar district include the unbearable pressure of population on the existing land use and services, conflicting demand for water for the sectors like agriculture, agriculture, industry and drinking and domestic water,

expansion of the industrial area, development of new residential areas in peri-urban areas etc.

Some issues that hinder the sustainable growth and progress of metropolitan areas include:

- Shortage and inadequate state of housing;
- Environmental pollution;
- Deterioration of building stock;
- Inadequacy of infrastructures;
- High unemployment rate; and
- Traffic congestion.

Sustainable development

Sustainable development is a term that was popularized in the 1980s with heightened environmental awareness. While there is no single definition of the term, the most widely cited albeit broad definition of sustainable development is provided by the Brundtland Commission (1987). It defines sustainable development as development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs.' Jenks (2000) describes sustainable development as 'development that does not require resources beyond its environmental capacity, is equitable, promotes social justice, and is created through inclusive decision-making procedures.' Based on the two definitions given above, sustainability can be defined in economic, social and environmental terms.

Study Area

Alwar City is located on 27° 32' 30'' N latitude and 76° 37' 30'' E longitude in North-eastern Rajasthan. The city covers an area of 48.14 sq. km and possesses population of 3,15310 persons (Census, 2011). The Aravalli Hills traverse the town in the west and south-west. Alwar is well connected to New Delhi and Jaipur by railway and roads and is also easily accessible from Haryana and Uttar Pradesh. The city has a historic-cultural background and has been a significant center for tourism, trade and commerce, education and health facilities.

Aims and Objective

This study aims at creating economically productive, efficient, equitable and responsive cities in

an integrated framework with focus on economic and social infrastructure, basic services to urban poor, urban sector reforms and strengthening Municipal Government and their functioning. There are four objectives of sustainable development that include social progress and equality, environmental protection, conservation of natural resources and stable economic growth.

The objectives of this study as follows:

- Providing drinking water to consumers by efficient water supply system.
- Reducing harmful impacts of unscientific disposal of municipal solid waste on public health, environment and quality of life.
- Reducing resource consumption and effectively managing wastes.
- Providing efficient sewerage system to exclude waste water from domestic and industrial connections.
- Providing strategy for improvement in ground water quality.
- Reducing traffic congestion by providing efficient mode of transport system.
- Connecting satellite town and mother city and other cities of state and improving road condition for comfortable transportation

Methodology

The present study is based on primary data as well as secondary data. The primary data has been collected through comprehensive field survey using Base Map and Google Earth Imageries and conducting formal interviews for better apprehension of the present land use categories, structure, and related problems and issues. Comprehensive field survey has been carried out along the major roads and streets to examine and identify components of the city such as the location and structure of landmarks and activity nodes. The field survey also helps in functional analysis to examine the relationship of activities among the various land uses and to identify major land use problems and issues. : The basic information on history, population, land use, industrial and infrastructural facilities, i.e., transportation, public utilities, health, education and

other socio-economic facilities have been obtained from different government departments at the state and municipal level including Rajasthan Oriental Research Library, Alwar; Government Museum, Alwar; Rajasthan State Archives, Bikaner and Alwar; PWD, TCPO and Nehru District Library, Alwar. for the analysis and interpretation. The field survey was also include conducted through personal interviews and questionnaires from commercial developers, citizens, politicians, bureaucrats, academics, engineers, landowners, employees, industrialists and planning authorities to understand the problems and issues related to land use and planning as well as suggestions were also invited regarding future requirement of the Alwar city. Master Plan of the city has been used as secondary data.

Vision

Alwar to have diversified, inclusive socio-economic development considering its unique natural and manmade environment, achieving NCR vision of promoting growth and balanced

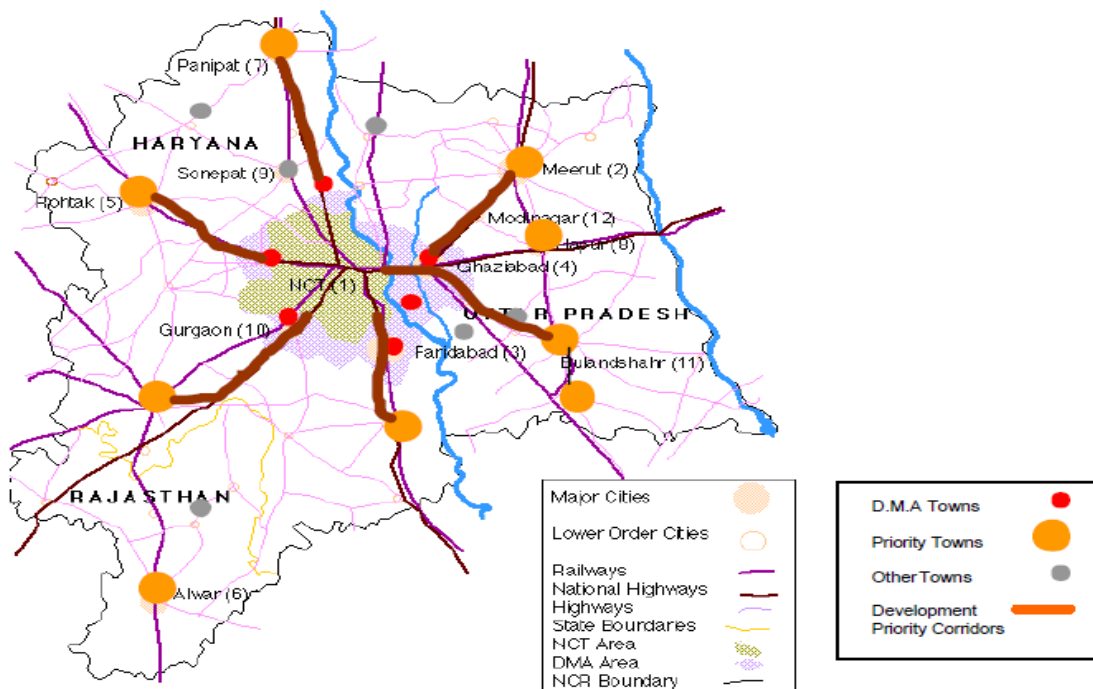


Figure: National Capital Region and Satellite Town

development of the national capital region". To achieve the Vision, certain areas need to be targeted on a priority basis. They are:

1. Promote economic growth by focusing on certain key sectors such as:
 - Industries
 - Education and Health
 - Housing
 - Heritage and tourism
2. Adopt a settlement structure in Alwar for balanced development and to spread the economic activities and civic amenities across the sub region according to their hierarchy.
3. Provide safe, reliable, and efficient multi-modal transportation network and ensure good connectivity within and outside Alwar to other major urban centers in NCR.
4. Provide adequate basic services for all uses in Alwar such as reliable and safe drinking water, safe sanitation practices and disposal, adequate power and telecom facilities based on future demand and provide access to such facilities to all sections of society.
5. Focus on holistic view of environment to promote sustainable development. Suggest improvements in urban environment through a combination of demand management, resource conservation and just utilisation of valuable natural resources.

Demographic Profile

Population growth of Alwar has been 22.8% in decade 2001-11, which was 30.3% in decade 1991-2001. The primary demographic parameters in the Alwar includes:

- More than 85% of the total population of Alwar comprises rural population. There is a large rural population which is dependent on the agriculture. The growth rate in Alwar is higher than Haryana (19.9% in year 2001-2011).

Table: Growth of Population in Alwar (1961-2011)

Sr. No.	Years	Total		Rural		Urban	
		Population	Decadal Growth Rate (%)	Population	Decadal Growth Rate (%)	Population	Decadal Growth Rate (%)
1	1961	11,00,372	-	10,12,480 (92.0%)	-	87,892 (8.0%)	-
2	1971	14,03,787	27.57	12,76,905 (91.0%)	26.12	1,26,882 (9.0%)	44.36
3	1981	17,55,575*	25.06	15,59,374 (88.8%)	22.12	1,96,201 (11.2%)	54.63
4	1991	22,98,580	30.82	19,76,293 (86.1%)	26.74	3,20,287 (13.9%)	63.74
5	2001	29,92,592	30.31	25,57,653 (85.5%)	29.42	4,34,939 (14.5%)	35.80
6	2011	36,74,179	22.78	30,19,728 (82.2%)	18.07	6,54,451 (17.8%)	50.47

Source: Revised RP-2002 and Census of India, 2011
 * As per District Statistical Handbook, 2009
 Note: Figures in Bracket indicate the percentage of the population to total population.



Figure: Population increase in Alwar

- There is rapid urbanization along the national highway (especially NH-8) and the remaining areas in the Alwar lack of urbanization. The growth rate of urban population in Alwar is also very low and its share to total population. Urban component needs to improve in order to improve the economy .
- Low literacy rate in the Alwar than of NCR at rate of 74% as well as of the All-India literacy rate of 64.8% which affects the development in the region.
- Sex ratio in the sub-region is very low at 886 female per thousand males compared to sex ratio at the national level i.e. 933 female per thousand males and the state level (921 per 1000 males). It has increased to 894 per 1000 males in year 2011.

Resource Base

Alwar possesses huge potentials in all the sectors of the economy. In the context of strengthening of Rajasthan's economy, the Alwar will be a major employment and wealth generating region in the Alwar. It is important that the potential employment generating activities are rationally distributed over the region to achieve balance and harmonious development. This Plan for the Alwar is an effective tool in this direction. Alwar has potentiality of becoming a "Global Manufacturing and Trading Hubs". The strategic location of Alwar gives opportunities for the following:

- Export-oriented Industrial Units/ SEZ w.r.t. auto component and others.
- IT/ ITES/ Biotech Hub along with Biotechnology industry.
- Knowledge Hub/ Skill Development Centre
- Integrated Logistics Hub for integrated development of efficient logistics system with container handling/storage facilities, truck parking and warehousing,
- Integrated Township with residential, institutional, commercial and leisure / recreation infrastructure dove-tailed to requirements of specific investor groups.
- International Airport Complex having an air strip and other integrated facilities.
- Feeder Road Links connecting the identified investment region with NHDP, DFC corridors and Hinterland for uninterrupted freight and passenger movement to the region.
- Connectivity to the Western Dedicated Freight Corridor through exclusive siding.
- Development of Feeder Rail links and Regional MRTS Linkage between Delhi, Manesar and Neemrana.

Power Availability

The present power supply and availability in the Alwar is 728 MW. Energy requirement and peak load forecast for Alwar for year 2021-22 are 10868 MU and 2045 MW respectively. There need to augment the power generation, transmission, sub-transmission and distribution to meet the demand. There is huge potential for tapping solar energy and other nonconventional energy such as wind and biomass.

Water

The RP-2021 states that “the NCR is a water scarce region, but, can have sufficient water if this resource is conserved and managed properly”. It also identifies that large area of the NCR including the Alwar has insufficient ground water. Alwar is served by three sub-basins, namely Sabi, Rooprail and Banganga of Yamuna basin. Major surface water is from flood water of rivers basins, diversion structures, lakes and ponds. Groundwater is main source to meet the diverse nature of demand in the region.

The major concerns in portable water supply includes:

- Non-availability of surface water resources being an arid area.
- Inadequate Water supply to towns and villages both in terms of rate of supply & coverage of population.
- Limited ground water resources; all the 14 blocks in the ALWAR are over-exploited.
- Declining water levels; in some areas the water resource even approaching to complete depletion.
- Declining trend in water level indicates over exploitation of ground water, primarily due to increase in irrigated area and increase in number of dug wells/ tubewells/DCB in the last 20 years.
- Ground water pollution is an area of concern, shows contamination above the permissible limits. The problem of salinity is also experienced in some parts of the district.

Sewerage

In Alwar, there is no sewage treatment facility and the partial coverage of sewerage system varies partially from 3% - 5% in the (priority) towns. The lack of sewerage system in urban areas resulting into disposal of sewage to open drains, low lying lands and water bodies. The existing sewage disposal in towns of Alwar is septic tank system, both on individual plot and community septic tanks basis. Inadequate funding; in terms of coverage, functionality and implementation, is the main reason for slow progress. The condition of rural sanitation is insufficient, despite of existing government sponsored schemes for low cost sanitation. In rural areas, absence of database imposes hindrance to determine the condition of sanitation correctly. The estimated the wastewater generation till year 2021 would be 216.43 MLD in the urban areas of Alwar. All municipal towns shall prepare an integrated sewerage network and treatment plants with recycling and reuse facilities as an essential component, integrating with water supply and drainage system for next 20 to 30 years.

Solid Waste Management

There is no organised solid waste management system in the urban areas of the Alwar. The existing system characterised by low coverage & collection of waste, lack of adoption of scientific technology for waste minimisation, waste processing or disposal. No segregation of waste at source (at individual household level). The organizational capacity for waste management of ULBs is deficient due to unskilled manpower and inadequate funding. There is absence of community participation and low awareness of people towards garbage disposal. The estimated solid waste

generation till 2021 is estimated to be 467.86 MT/day in the urban centres of Alwar. A comprehensive solid waste management plan including door to door collection system, transfer stations, identification and development of disposal sites should be prepared for all the urban areas of Alwar.

Environment

Alwar falls under Aravali Hill Ecosystem. Forest land of the Alwar is 1205 sq.km which is 14.38% of its total geographical area. The major environmental concerns identified are:

- Reduction in forest cover & loss of wildlife habitat: Land degradation due to deforestation, mining and soil erosion. Protection of wildlife within Sariska Tiger Reserve.
- Air Pollution: Continual deterioration of ambient air quality due to rise in industrial emission, vehicular emissions and mining. Air pollution in terms of particulate matter pollution, i.e., PM10 levels have reached beyond the permissible limit.
- Water Quality: Nitrate, Fluoride and Iron concentration are higher than the permissible limits. Major causes of water pollution in the sub-region are sewage, effluent discharge and contamination due to surface run-off.
- Solid and Hazardous Waste: Lack of adequate waste disposal mechanism for sewage and solid waste is resulting in land pollution. 157 hazardous waste generating units are present in the sub-region most of which are dumping the hazardous waste without proper treatment.
- Inadequate surface water resources and depletion of ground water resources: The ground water has been over exploited in all the 14 blocks of the Alwar. The absence of potential surface water resource has increased the dependency on the groundwater to meet the requirements. Therefore, the availability of surface water and ground water vis-à-vis water demand for future development necessitates careful consideration and measure.
- Activities and processes prohibited under Aravali Notification, 1992, should not be allowed in the notified areas.

Conclusion

This study shows the existing situation of the satellite town, Alwar which shows the need of considerable development in every basic facility of the town. The sustainable development strategy should be imparted in such a way so that it will not be harmful to environment as well as human health of the residents of the Alwar town. Besides, proposals for other related issues including urban slums, planning for historical sites and places, urban environmental problems and planning should also be incorporated in comprehensive Master Plan. proper training of planning authorities in this direction is of utmost importance for planning process. A monitoring committee consisting of local community should also be set up for regular monitoring and implementation of different development plans.

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