

DEVELOPMENT OF INFRASTRUCTURE IN RAJASTHAN

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ABSTRACT

Infrastructure is back bone of any economy. With support of a rock solid infrastructure any state can achieve a booming economy. In this article I am attempting to find out that what type of efforts has been made by the state government of Rajasthan in respect of development of infrastructure in state. The article is also showing that at what extent, the state government has achieved their goals during last few years regarding to development of infrastructure of state. There are two types of infrastructure i.e. Economic Infrastructure & Social Infrastructure. The economic infrastructure includes the airports, Railways, Roads, Power and Telecom. The Social Infrastructure includes Health, Services, Education and Tourism. The article will show study in depth of both type of infrastructure.

KEYWORDS: EPIP, Gems, Metro, RIDCOR, SEZ, TRAI, Theme Park,.

Objectives of the study: The main object of the study is to find out the status of Rajasthan in respect of infrastructural development and to find out the position as well as where it stands in comparison of other states. The study is purely based on secondary data published in journal/brouchers/books/website of state government and any other literature.

Infrastructure of Rajasthan

(A) Economic Infrastructure

The economic infrastructure of any state includes the Airports, Railways, Roads, Power and Telecom. This study is showing detailed information regarding to economic infrastructure of Rajasthan.

- (a) **Roads:** Rajasthan being located between landlocked Northern States and Western port States imposes additional burden on roads due to interstate movement of goods and passenger traffic. Long international boundary necessitates good quality road infrastructure in border areas.
- Rajasthan has a total road length of 189034 km. in May, 2011. Out of these 5724 km. are national highway, 11615 km are state highway and 7340 km are major district roads. During the year 2000 the total length was 107436 km and in the year 2007-08 it was 141000 km.

- New roads are constructed to connect all villages in the state. Such construction is going on through different schemes like Missing Link Project (MLP) and Central Road Fund (CRF).
- For providing better & quick connectivity, over 1000 km of road stretches joining national highways are being upgraded into expressways under Mega Highway Project (MHP).
- For better development of road infrastructure in Rajasthan, Road Infrastructure Development Company Of Rajasthan Ltd. (RIDCOR) is an ambitious initiatives of Government of Rajasthan. RIDCOR is a public limited company constituted as 50:50 joint initiatives of Government of Rajasthan and Infrastructure Leasing & Finance Services Ltd.

(b) Energy:

Rajasthan has an advantage in the field of electricity and can develop it by tapping on to its resources in specific the non-renewable energy resources. Rajasthan aims to be self-sufficient in power by 2013-14. The power sector accounts for the major proportion of the Rajasthan budget 2011-12, with 42% of total budgeted outlay. Rajasthan is the only state which has got a nod from Coal India for coal supply ever since the central government had restricted it to supply fuel to new power plants of the states. Recently the centre government has given its nod to set up an atomic power project on the banks of R. Mahi in Banswara district. The central government has allocated project of 505 MW capacities to Rajasthan out of total short listed projects of 630 MW capacity.

Power generation in Rajasthan:

Total installed power generation capacity	8958 MW
State generated	56.68%
of which,	
Coal based power	71%
Gas based power	9%
Hydro based power	20%
Centre generated	24.26%
Private sector generated	19.06%

(Source: PHD RESEARCH BUREAU, Compiled from Monthly Review of Power Sector February 2011.)

Some innovative programs have been taken by Rajasthan Renewable Energy Corporation Ltd. (RREC) are Solar City Program, Remote Village Electrification Programme (RVE), Solar Photovoltaic Power Plant (Grid Interactive) Program, MW scale Grid Interactive Electricity generation from Solar Energy. Rural electrification covers over ninety two percent of villages in the state. Besides thermal power generation and conventional wind energy source, Rajasthan has a nuclear power plant at Kota. Currently the total power generation capacity is 8958 MW and by 2014 the government plans to create additional capacity of 9885MW using several conventional and non conventional sources.

(c) Railways:

- Rajasthan has a good railway network with a total length about 5911 km, out of which 3842.15 km (65 %) is under broad gauge. During the year 2008 the total length of railways was 5683.01 km, out of which almost 3885.47 km (68.37%) was covered under broad gauge, 1,710.78 km (30.10%) under meter gauge and 86.76 km (1.53%) under narrow gauge.
- The national average of railway route length per 1000 sq. km. of geographical is 19.23 km. The same in Rajasthan is 17.05 km.
- One of the most important means that contributes significantly to the state's revenue collection and economy is the super- luxurious train- Palace on Wheels.
- **Jaipur Metro Rail Project:**

The State Government has established Jaipur Metro Rail Corporation in 2010 with the objective of providing easy and comfortable access to city transport in Jaipur city. Jaipur Metro project has been sanctioned with an investment of Rs. 9732 Crores. The length of corridor-I is 23.09 Kms. And corridor-II is 12.06 Kms. Construction works of stage-I is being taken up with the help of Delhi Metro Rail Cooperation. Work of Stage-II will be taken up in the Public Private Partnership Model. An expenditure of Rs.179 crore is likely to be incurred on the activities of the Corporation in 2010-11. An outlay of Rs. 200 crore is proposed for the Annual Plan 2011-12.

(d) Aviation:

- Rajasthan has full-fledged airports at Jaipur, Bikaner, Kota, Jodhpur, Udaipur, and Jaisalmer. Jaipur has recently been designated as an international airport at Sanganer.
- Jaipur is a completely operational international airport with flights to Dubai, Sharjah, Bangkok and Singapore.
- Air cargo complex at Jaipur, Inland container depots at Jaipur, Bhilwara, Jodhpur and Bhiwadi which provide conducive environment for trade within and outside India.
- In addition, air strips / helipads exist at a number of locations. The number of passengers handled at Jaipur airport in Rajasthan has been on the rise. Regular air services connect Jaipur, Jodhpur, and Udaipur with Delhi & Mumbai.

- In 2003, Jaipur Airport was granted the ISO 9001:2000 certification for its Quality Management systems.
- Following table is showing growth in Air traffic during last few years:

Jaipur Airport	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
International	47033	51689	140019	204283	221732	255704
National	338763	397204	598341	1137762	987608	1267876
Total	385796	448893	738360	1302045	1209340	1523580

(Source: PHD RESEARCH BUREAU compiled from all India airports- Airport Authority of India)

(e) Telecommunication:

Rajasthan has sound infrastructure and well developed information as well as communication facilities. Rajasthan today boasts a competitive business environment in both fixed and value added network. Main service providers in Rajasthan are BSNL, Airtel, IDEA, AIRCEL, Tata, Reliance, MTS which cater to the growing needs of the state. Recently AIRCEL is India's 5th largest GSM mobile service provider with 4G network in Rajasthan too.

- According to a survey report Rajasthan have **2,77,42,395** mobile phone subscriber till September 2009.
- As on January 2011 Rajasthan had 29.08 million GSM subscribers. According to TRAI, there are 33.7 million wireless subscribers.
- Internet connectivity is available throughout the state. The Rajasthan had 1,95,118 Internet/Broadband subscribers.
- The state also has about 10500 post offices, 559 telegraph offices and 2350 telephone exchanges.
- The state had about 1.5 million wire line subscribers.

(f) Industrial Infrastructure:

In Rajasthan, almost 300 industrial states developed by RIICO. These industries are spread across the state. Industries developed by RIICO, mostly focused on high growth industries e.g. Gems & Jewellery, agro-processing, bio-technology and apparels. Following table is showing a view of industries developed by RIICO in Rajasthan.

Industry	Description
Theme Parks	RIICO is developing Theme Parks (SPIP) with special set of infrastructure and facilities for establishing industries of the same theme.
Export Promotion Industrial Park (EPIP)	EPIP have been set up at Sitapura in Jaipur, Neemrana in Alwar and Boranada in Jodhpur. Jaipur EPIP is largest export park in northern India.
Special Economic Zone (SEZ)	For promotion of industry of Gems & Jewellery and Handicrafts, RIICO has developed two SEZ in Jaipur and Jodhpur.
SEZ for IT industry	SEZ is being developed by Mahindra & Mahindra with an investment of US\$244 million, which will have Infosys and Wipro as anchor investors.
Inland container Depots	In Rajasthan, there are total 6 Inland Container Depots for easy movement of cargo. These depots are situated at Jaipur, Jodhpur, Bhilwada, Udaipur, Bhiwadi and Kota.

(Source: www.ibef.org)

In spite of above mentioned industries Rajasthan is also known for the entire production of lead and zinc in India. It is also prime producer of minerals like calcite, gypsum and has substantial and slate. Major crude oil reserves have been discovered in recent years. The state is India largest producer of rapeseed and mustard, seed spices, coarse cereals and bajra. It has India 3-largest cattle population. Rajasthan is one of the major auto production hub and home to cement and ceramic units.

(B) Social Infrastructure:

Social Infrastructure is a subset of the infrastructure sector and typically includes assets that accommodate social services. Social infrastructure includes facilities and measures for providing health care, community development, education, equitable income distribution, social welfare and employment. The concept of social infrastructure is very broad and covers various aspects of Government service delivery. The cost of delivering social benefits is very high and constitutes a major proportion of the State budget. Major social policy concerns of the Government include the provision of infrastructure services, fostering Government and community partnerships, community capacity building, integrated service delivery and social justice. The Human Development Index (HDI) has become an important index for measuring the progress of States in terms of the level and depth of human development of its citizens.

Rajasthan has made a great achievement in respect of social infrastructure over the years with 9th rank as per the Human Development Index.

- (a) **Education** –In Rajasthan there are total 37 Universities out of which 16 private, 9 deemed and 12 Government universities. There are more than 1032 colleges, 6010 senior secondary schools, 11610 secondary schools, 51525 primary schools are established in Rajasthan. Rajasthan's literacy rate according to 2011 census was 67.06%, male and female literacy rates being 80.51% and 52.66% respectively. Although the female literacy rate has improved over the last decade, it lags behind the national average of 65.46%, whereas the male literacy is close to the national average of 82.14%.

Following point would also be taken into consideration while we are discussing about education development in Rajasthan:

- Recently state government declared about establishment of 4 new government universities in different parts of Rajasthan.
- Rajasthan has one college for a population of 63,000 as compared to the national average of one college for a population of 77,000.
- Over 729 institutes including 64 Engineering colleges, 38 Polytechnic Institutes, and 431 Industrial Training Institutes (ITIs).
- Far-famed institutions, including Raffles University, Singapore, Manipal University and NIIT are set to commence operations soon.
- Among the high higher level educational institutions to be opened with the assistance of the government of India. **IIT in Jodhpur, IIM in Udaipur, Central University in Kishngarh- Ajmer and NIFT in Jodhpur** have started functioning. This is a matter of pride for Rajasthan; **IIIT would set up in Kota in the PPP.**
- **Physical education and Sports University is being set up on PPP Mode at Jhunjhunu.**
- **Hydrology and Water Management Institute is being set up in Bikaner. This type of institute** has been set in only two countries of the world.
- **A State level Agro and Food processing center would be set up in Bharatpur.**

Enrollment ratio is continuously increase but the female enrollment ratio is not showing a good trend during last few years. The ratio is showing that only 60% females enrolled in class I are able to reach class VIII. The state government set a goal of universalisation in education. For obtaining this goal the government has spent over 4.6% SDP on education. State Literacy Mission Authority encourages PPP (Public Private Partnership) to strengthen the infrastructure of CECs (Continuing Education Centers). In the state budget of 2011-12 a sizeable amount of Rs 1707.72 Crores has been allocated to education sector.

(b) **Health:**

In Budget session of 2011-12, Chief Minister of Rajasthan declared that most useful medicines will be distributed without any consideration. But this facility is available only in government hospitals and it will be implemented from October 2nd, 2011. The service and amenities in some

hi-tech hospitals and nursing homes of the state are continuously been up graded to attract visitors from abroad for specialized **medicare** and health check up.

In Rajasthan, there are total 13874 health centers out of which 127 hospitals, 199 dispensaries, 1504 Rural PHCs, 37 Urban PHCs, 368 CHCs, 118 Maternity and Child Health Centers, 13 Urban Aid Posts, 11487 Sub Health Centers and 43864 inpatient beds as on December 31st 2009. There is a provision of Rs 663.53 Crores for medical and health sector including ayurveda in the Rajasthan budget FY12.

Summary of Health Indicators:

Life Expectancy at Birth (2002-06)	62 years
Infant Mortality Rate (2008)	63 per 1000 live births
Maternal Mortality Rate (2008)	388 per 1,00,000 live births
Total Fertility Rate (2008)	3.3 children born per woman
Per Capita Health Expenditure NHA-04-05	Rs 761

Source: PHD RESEARCH BUREAU, Compiled from Annual Report to People on Health, September 2010

(c) Housing:

In Rajasthan, Development Authority of particular district, UIT and Rajasthan Housing Board are main body for development of Housing infrastructure. Rajasthan Housing Board was established in 1970 with the objective of providing housing facilities to citizens of the State. Starting with housing activities in 7 cities, the activities of the Board has now spread to 60 cities. Rajasthan is still predominantly a rural State and its proportion of urban population to the total population is 23.4 percent, which is less than the overall percentage of urban population for the entire country i.e. 27.78 percent as per Census 2001. Jaipur Development Authority is engaged in the overall development of Jaipur city through its various activities. An expenditure of Rs. 340 crore is likely to be incurred during 2010-11 on various activities of the Authority like roads, drainage, sewerage, electrification etc. An outlay of Rs. 344 crore is proposed for the Annual Plan 2011-12. This amount is the internal resource of the Authority. It is proposed to take up work of 850 km roads, 25 km drainage, 80 km sewerage and electrification of equivalent length of 105 km with the proposed outlay. Jodhpur Development Authority and 9 Urban Local Bodies viz Bhilwara, Bikaner, Udaipur, Ganganagar, Ajmer, Koa, Bharatpur, Bhiwadi and Alwar are also contributing towards State Plan as internal resources. Likely expenditure of these ULBs in 2010-11 is Rs. 985.92 crore. A provision of Rs. 1311.10 crore is proposed contribution of these ULBs for the Annual Plan 2011-12. Of late, Rajasthan has emerged as a perfect destination for **real estate** individual investors. The state has made considerable investment in IT and Biotech.

Findings & Conclusions:

On the basis of the study I reveals following findings in respect of various part of infrastructure of Rajasthan:

1. **In case of Road infrastructure**, Rajasthan is showing a fast development. Total road length reached to 189034 Km in the year 2011 in comparison of 107436 Km in the year 2000. It is almost 80% increase, which is a good sign in development of a state. Such development is going continuously through different projects such as MLP and CRF. For better development state government is also collaborated with RIDCOR.
2. **In case of Energy sector**, for becoming self reliant , 14 projects of 11590 MW have been sanctioned in the state, of which 9 projects of 7750 MW have been sanctioned in the state sector and 5 projects of 3840 MW have been sanctioned in private sector.
3. **In case of Railways**, Rajasthan is well connected with all major cities through railway. Railway is playing a pivoting role in the economy of Rajasthan. Railway is showing a steady growth in its operations and development. During the year 2008 total length was about 5683 Kms., which has been reached to 5911 Kms, in the year 2011.
4. **In case of state aviation services**, Rajasthan has 7 airports including 1 International airport in Jaipur. case of state aviation services Rajasthan has 7 airports including 1 International airport in Jaipur. The domestic traffic handled by the Jaipur airport increased from 3, 38,763 in 2004-05 to 12,67,876 in 2009-10, the international traffic handled by Jaipur airport increased from 47,033 in 2004-05 to 2,55,704 in 2009-10. Total traffic increased from 3, 85,796 in 2004-05 to 15, 23,580 in 2009-10.
5. **In case of Housing**, In Rajasthan the total housing shortage projected for 2011, 2012, 2017 and 2021 is 12.42 lakh, 12.82 lakh, 14.94 lakh and 17.06 lakh respectively. Out of which 85% shortage is expected to be in EWS/LIG category. There have been efforts made towards providing affordable houses. Year 2010 was declared as the year of affordable housing. More over general housing schemes and schemes for slums have been initiated from time to time The Rajasthan Housing Board has been working actively in the state ever since it was established. Yet, some more efforts are needed, to strengthen its grounding and working.

6. **In case of Health,** The state government follows a three tier system of health services. Health indicators have improved overtime. It has shown improvement over time and has performed well in NRHM (National Rural Health Mission) too. There is low per capita health expenditure in Rajasthan and a high IMR (Infant Mortality Rate). This is not a very good sign; its per capita expenditure is greater than that of Bihar and Jharkhand only. It has the third highest IMR in the group. Its performance is not that impressive. Various Schemes have been launched with a view of improving on the health situation in the state, like Chief Minister's BPL Jeevan Rakhsha Kosh to provide free treatment to BPL families in the state.
7. **In case of Education,** Rajasthan stands out to be the only state which took a huge leap in terms of improvement in literacy rates but the high dropout ratios and lower enrollment rate amongst females is the reason for a lower ranking in comparison to the other states in India. The state ranks 7th in terms of Primary schools. But there is an altogether different scenario when we talk about the rank in primary education, it ranks 17th amongst the big 20 states. Much has been done, but still much more can be done. The All India trend shows that the literacy rates at national level exceeded literacy rates of Rajasthan at every successive time period, but from 1991 to 2001 there is a steep increase in Rajasthan's literacy level which exceeds the increase the national literacy.

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Appendix- I

Different Components as indicator of development of infrastructure of Rajasthan:

Components	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
GSDP at current prices (Rs Cr ore)	128644	153344	176420	201675	219769	303358
GSDP at constant prices (Rs Cr ore)	110293	124339	135654	144568	148200	196045
NSDP at current prices (Rs Cr ore)	111323	133476	153697	176044	191539	269381
NSDP at constant prices (Rs Cr ore)	97277	110039	120267	128496	131331	172656
Real GSDP growth rate (%)	6.70	12.73	5.14	7.09	4.30	9.69
Per Capita Income at current prices (Rs)	18008	21203	23986	27001	28885	39967
Per Capita Income at constant prices (Rs)	15736	17480	18769	19708	19806	25616
Gross Fixed Capital Formation (Rs. Crore)	9334.34	13836.1	24492.9	26909.6	30076.2	N.A.
Public Sector						
Private Sector	18948.1	22614.5	25667.0	26851.6	32163.0	N.A.
Total	28282.4	36450.7	50159.9	53761.2	62239.2	N.A.
Budget Surplus(+)/Deficit (-)	-660.2	638.3	1652.9	-283.0	-1408.6	-1098.2
Revenue Deficit (Rs Crore)						
Budget Deficit (Rs Crore)	205.7	272.1	-921.2	9.5	39.2	48.2
Primary Deficit (Rs Crore)	59.9	1732.0	2534.6	-472.6	-1665.6	-1034.0

State Capital	Jaipur					
Fiscal Deficit (Rs Crore)	-5150.0	-3969.7	-3408.3	-6714.1	-8419.8	-8461.1
Revenue Deficit/GSDP	-0.51	0.42	0.94	-0.14	-0.64	-0.36
Budgetary Deficit/GSDP	0.16	0.18	-0.52	0.00	0.02	0.00
Primary Deficit/GSDP	0.05	1.13	1.44	-0.23	-0.76	-0.34
Fiscal Deficit/GSDP	-4.00	-2.59	-1.93	-3.33	-3.83	-2.78
Budget Expenditure (Rs Crore)	21499.2	24953.8	29127.6	34666.2	39676.6	43561.7
Revenue Expenditure						
Capital Expenditure	4293.6	4809.3	6555.5	5985.6	6864.2	7433.0
Total Capital Expenditure	27219.5	31856.2	37816.6	43624.4	49737.3	54347.8
Employment in Organised Sector (Lakhs)	11.97	12.17	13.32	12.5	12.7	12.68
Index of Wholesale Price	135.68	149.76	161.06	177.15	182.14	194.46
Index of Industrial Production	251.39	257.49	282.95	319.61	330.7	N. A.
Index of Agricultural Production	153.84	167.63	166.66	185.09	138.2	N. A.

Governor	Smt. Margret Alva
Chief Minister	Shri Ashok Gehlot
Ruling Party	Congress
Area (Sq. km)	3,42,239
Population(2011 Census)	6.86 crores
Population Density(Sq.Km)	201 persons per sq. km
No. of Districts	33
Important Rivers	R. Luni, R Chambal
Desert and Mountains	The Thar Desert, The Aravali Mountain Ranges
GSDP at Current Prices (2010-11)	Rs3,03,358Crore
Economic Growth (2010-11)	9.6%
Per capita income (2010-11)	Rs39,967
Fiscal Deficit to GSDP (FY09)	4.03%
Government borrowings (2007-08 to 2009-10)	Rs 18705 Crore
Poverty (2004-05)	22.1 %
Employment in organised sector (June,10)	12.68 Lakh
WPI Inflation (2010)	7.19%
National Highway length (March, 2011)	5724Km
Rail Length	5911 Km
International Airport	Sanganer Airport Jaipur
Domestic Airport	Kota, Bikaner, Udaipur, Jodhpur, Jaisalmer
Govt. Medical Institutions	13,874
Per Capita Health Expenditure	Rs761
Human Development Index	* 0.71 9 th Rank
Literacy Rate (2011 Census)	67.06
Longevity (2002-06)	62years
Sex Ratio (2011 Census)	926 females per thousand males
Key Industries	Mineral Based Industries, Textiles, Tourism, Gem and Jewellery, Dimensional stones, Agro Processing
Prospective Industries	Oil and Gas, IT and ITES, Electricity generation and Distribution
Composite ranking of the state [^]	12th rank
Macro economy [^]	14th rank
Agriculture [^]	10th rank
Infrastructure [^]	11th rank
Investment environment [^]	15th rank

Source: PHD RESEARCH BUREAU, Compiled from Government of Rajasthan. Annual Report to people on Health, Sep 2010
 *Human Development Index lies between 0 and 1. [^] India Today, 29th Nov 2010, an article by Bibek Debroy and Laveesh Bhandari