

# Infrastructure Requirements for Development of a Rural Area Through Public Private Partnership: a Model Study

Srikanth.N, Naga Chaitanya Kavuri

**Abstract:** *There is a drastic change in the life style scenario of the rural people due to lack of facilities, amenities and social equality. As a result there is a lot of migration from rural areas to urban areas resulting in increase of population, socio-economic fluctuation and environmental pollution. Due to such migration, the rural areas being deserted and the occupation is decreased resulting in now economic growth. Infrastructure development has key role to play in both economic growth and poverty reduction. The government has Launched many schemes for development of rural infrastructure, but did not achieve the desired goal. The paper proposes a public private partnership (PPP) concept to address the problems in infrastructure and improve the lifestyle of the rural people. The present investigation at Chandragudem village. The existing infrastructure and proposals in village were gathered by interacting with villagers. Further survey carried was carried out in chandragudem village covering all categories of citizens to understand their needs in way to make their life comfortable. The present paper proposes the public private partnership (PPP) opportunities for selected village that can develop the infrastructure.*

**Index Terms:** *Infrastructure development, Public private partnership, Socio-economic fluctuation, Schemes.*

## I. INTRODUCTION

In the Indian context, villages are the roots of the nation. In Indian an average 68.4% of the total population is living in villages as per 2011 census. Urbanization is taking place at a rapid phase in India due to employment opportunities, education, health, comforts, transportation, economic activities and better than amenities. The basic infrastructure required in rural areas is education, health, housing, drinking water. But the health, housing and education conditions are still poor. In the early 20<sup>th</sup> century, two important phenomena have emerged one is urbanization and the other one is information and communication technologies. A Rural development vision is to integrate multiple information and communication technology solutions in a secure fashion to manage a rural asset. The rural assets include local department information systems, school, libraries, transportation systems, hospitals, power plants, water supply, waste management, law of enforcement and other community services. Government has started many programs for boosting the rural infrastructure development.

**Public private partnership:** A public private partnership (PPP) is an agreement between two or more public and private sectors, typically long term nature. Government use

such a mix of public and private sectors. However, 21<sup>st</sup> century has seen a clear trend towards public private partnership arrangements in various government Programs. Public private partnership is a special kind of contract involved in infrastructure provision, such as schools, hospitals, transport systems, water and waste water system.

Public private partnership (PPP) is the provision, long term operation and maintenance of public infrastructure by private sector. It will be initiated by the public sector with clearly defined project. Building up a PPP ventures is perplexing assignment required aptitudes of a various sort numerous which are not regularly required for customary open area ventures. Accomplishment of PPP ventures relies upon the solid open segment, they ought to have capacity to distinguish, create, arrange, obtain and oversee venture through a straightforward procedure.

### A. Description of Study Area

Chandragudem village is located in the Krishna district state of Andhra Pradesh Chandragudem village is located in the middle of the city of Millavaram, about 200 years old. The village is located on the National Highway 221. This road passes from Vijayawada to Bhadrachalam and Jagdalpur. In this village there are a lot of jasmines. Supply of jasmine throughout the state. This is the livelihood for the villagers. The Budameru stream flows from this village. They are cultivated in a few hundred acres. Vegetable markets are also responsible for the development of this village. Markets have come from these jasmine gardens. The jasmines supplied from the village to Telangana, Hyderabad, Chennai and Bangalore.

**Climate:** Chandragudem village has a tropical atmosphere with sweltering, sticky climate the greater part of the year. The hottest time May and June with most extreme temperatures around 35– 42°C. January is the cooler, with least temperatures of 18– 20 °C. The town gets a large portion of its occasional precipitation from the southwest storm, albeit impressive downpour additionally falls amid the upper east rainstorm (from mid-October to mid-December). Chandragudem town winning breezes are from the southwest for the greater part of the year, aside from October to January when they are from the upper east. The town normal yearly precipitation is 110– 115 centimeters.

**Geological Conditions:** The primary soils in the Chandragudem town are alluvial, sandy topsoil and sandy mud. There is for the most part alluvial soil and dirt soil at the last part segments of Krishna River.

Revised Manuscript Received on April 09, 2019.

**SRIKANTH. N,** Department of civil engineering, Koneru Lakshmaiah Education Foundation (Deemed to be University), Vaddeswaram, Guntur, A.P, India.

**NAGA CHAITANYA KAVURI,** Department of civil engineering, Koneru Lakshmaiah Education Foundation (Deemed to be University), Vaddeswaram, Guntur, A.P, India.

**Geographical conditions:** This village is located in the Krishna district, state of Andhra Pradesh with 160.17772981 "coordinates and 800.0556219" between 42' long lengths.

## II. OBJECTIVES

1. To know the present infrastructure scenario and identify the needs of village.
2. To understand the possibilities for implementation of public private partnership policies of infrastructure sector.
3. To explain the present scenario of PPP Projects and various opportunities and challenges of infrastructure development sector.

## III. RESEARCH SIGNIFICANCE

This paper helps to identify and evaluate the various infrastructure required for various sectors in the chandragudem village and the available schemes that are best suited for the identified infrastructure. The possible sources of funding for the identified infrastructure through the schemes, Public private partnership (PPP) and other entrepreneurs.

## IV. METHODOLOGY

Detailed methodology in the present study is given in Flowchart.



**Flowchart: Methodology adopted**

Literature review is carried out; existing infrastructure is collected by visiting various offices. Stakeholders are identified; questionnaire survey is carried to understand the requirement and expectations of various identified stakeholders. The gap between the existing infrastructure and expectations of the stakeholder is identified. Various schemes offered by govt. of India and govt. of Andhra Pradesh for improving the infrastructure sector. The facilities are identified the infrastructure sector. The secondary information /data were collected from different sources like textbook, internet, articles, research papers etc.

## V. RESULTS AND DISSCUSIONS

### B. Survey Analysis

Survey on 20 issues, particularly in the village, has all the housing, education, toilets, safe drinking water, continuous power supply, every family life, or self-help community members, young people, skilled training. Development of bank and marketing affiliated companies, public deficits 100% institutional delivery, educating children school schooling, anganwadi, schools, healthcare, and nutritional disadvantage, Basic Situations in Village, Governance Session Analysis of management and complaints has been done. According to 2011 census the population of the village chandragudem is 4872.Total males in the village 2438, and female 2434.The major economy for the village is agriculture with 96% working in agriculture sector, and other 3% are working sector, 1% working in public sector. The important crop for this village is jasmine and vegetable plantation. The village literacy rate is 51%. The people above poverty line are 37% and people below poverty line are 63%.

### C. Existing infrastructure

- Education: One primary school and anganwadi center.
- Health: One rural health care center and mother, child care center.
- Farming: Jasmines and vegetables.
- Civil amenities: Power supply, existing water distribution system, street lights and LPG gas distribution system.

### D. Needs Identified by Various Categories of peoples

A project is successful only when the stake holders play a key role in the development process. As a part of this, various categories of stake holders (Employees, businessman, residents in slum areas, students, workers, houses wife's, Elders) were met and a survey was carried out to know their requirements and needs in order to make their life comfortable and happy. Table I provides the detail's of survey response.

**Table I: Needs identified by various categories citizens**

S.NO	Stake holders	Identified facilities
1	Employee	Transportation, hospitals, Government schools with English medium
2	Business	Cold storage, Framer market with complete infrastructure
3	Local people	Transportation, electricity, houses, water facilities, sports facilities in government schools



4	Students	Educational institutions, Establishment of cells for employment generation, Science exhibition
5	Workers	Transportation, Late night protection
6	House wife	Security, culture, heritage
7	Elders	Parks , Recreation centers

**E. Different Public Private Partnership Models in Infrastructure Sector**

Governments in most creating nations face the test to satisfy the developing need for new and better foundation administrations. The financing from the conventional sources and its ability in the open segment to execute numerous tasks at one time stay extremely restricted, Governments have discovered that association with the private speculators is an alluring choice to increment and improve the supply of foundation administrations. Table II speaks to the different models in PPP in foundation.

**Table II: PPP Models in infrastructure sector**

Public private partnership models in infrastructure development	Build own operate
	Design build finance operate maintenance
	Design build finance operate
	Design build finance maintenance
	Design build operate
	Lease develop operate
	Build finance maintain
	Build Finance
	Operation and maintenance
	Design build
	Buy build operate
Build own operate transfer	

**Degree of private sector Involvement the scale of Public Private Partnerships:** They described models like Buy-Build-Operate(BBO),Build-Own-Operate (BOO), Build-Own-Operate-Transfer(BOOT),Build-Operate-Transfer (BOT) Build-Lease-Operate-Transfer (BLOT), Design-Build- Finance-Operate (DBFO), Finance Only, Operation and Maintenance Contract (O and M), Design-Build (DB) and Operation License.BOT provides short term agreement with a concession to finance, build operate and maintain a facility.

**F. Benefits associated with PPP**

- It bridges the gap between demand and supply of finance for creation of infrastructure projects.
- It also provides technical support, operational ability and managerial efficiency of the private sector.
- It brings in new and low cost effective technology.
- It puts contractual accountability on the private party to ensure timely and quality infrastructure service to the end users.

- PPP is method of financing with mutual cooperation for delivery of new public sector assets. It is because project financing is done by the private sector. Table III shows the various government schemes that are best suitable for the infrastructure.

**Table III: Government schemes in infrastructure development**

S NO	GOVERNMENT SCHEME	INFRASTRUCTURE SECTOR
1	Grama uday se bharat uday abhiyan	Social development of village
2	Pradana mantri awass yojana	Development of Rural housing
3	Rural Employment Guarantee program	Provide guaranteed employment
4	Pradhan Mantri Gram Sadak Yojana	provide good quality of roads in rural areas
5	National Rurban Mission	To develop Social, Economic and Infrastructure development in rural areas.
6	Adarana Scheme	To uplift and develop people belonging back ward classes. Provide financial assistance for the benefit and welfare of backward classes.
7	National Rural health mission	This mission provides health services to the people in the remote regions
8	Saubhagya scheme	To scheme provide electricity connection to houses in rural areas
9	Indira Awass Yojana	This scheme provides financial assistance to construct houses for people belonging to finically backward classes.
10	Bharat Nirman	Bharat Nirman helps in building rural infrastructure, mainly roads, water supply, power, housing, irrigation, telecommunication and information technology.



11	Rajiv Gandhi National Drinking Water Mission	This Scheme provides an integrated approach to provide sustainable of safe drinking water to the rural population.
12	Central Rural Sanitation Program	This scheme aims at improving the quality of life of rural people and to provide privacy and dignity to women in rural areas

Schools and institutions	Ekalavya model schools	nil	100% fund by government
--------------------------	------------------------	-----	-------------------------

## VI. CHALLENGES BEFORE PPP IN INDIA

There are various opportunities of PPP in rural infrastructure development in India but at the same time it has huge challenges and difficulty in its way. These challenges disturbed the speed of success of PPP projects in India. Still government has not framed policy for PPP. Many states have framed their own policies and guidelines that give a lot of confusion for private sectors. Some of the challenges that were investigated during my study can be discussed under the following heads.

- 1) Lack of clear understanding of PPP policies.
- 2) Private sectors do not want to invest in rural area due to low return on investment (ROI) and low literacy level.
- 3) Absence of extra incentives by government for private player in rural area.
- 4) Unwillingness on part of rural peoples to pay toll charges & sometime even them they protest against this.
- 5) Lack of Proper coordination between central, state and local level government.
- 6) Unclear roles of public and private sectors in PPP projects with regard to rural areas.
- 7) The biggest challenge is the slow process of PPP projects approval.
- 8) Governments are not recognizing the importance of projects development activities.

## VII. CONCLUSION

The study in Chandragudem (v) has uncovered that current foundation in the town for training, wellbeing transportation water supply, sanitation, drinking water, waste isn't adequate to the town. Review did in the town, has all the lodging, safe drinking water, constant power supply, each family life, different wellsprings of assets under different focal state government plans are accessible for execution of the equivalent. However the, projects implemented in rural infrastructure the role of PPP is very less in number. Government should give top priority to rural infrastructure development and must start schemes for rural development at the earliest possible. Government must apply understanding that encourage private sector to investment in rural development along with the public sectors. Both the public and private sectors have to come together and work together in rural areas for the development of rural economy and social encouragement.

## REFERENCES

1. Gaurav Singh and M. S. Khan, "Public private partnership (PPP) in infrastructure development of rural India: opportunities and challenges," *International Journal of Multidisciplinary Research and Development*, Vol. 1, Issue 2, 2015, pp. 171-176.



2. Mital KM, Mital V, "Public Private Partnership and Social Infrastructure," Computer society of India. (2019, January, 25) Available: [https://www.csi-sige.gov.org/1/13\\_353.pdf](https://www.csi-sige.gov.org/1/13_353.pdf).
3. Tharun shastry, "A Study on Public-Private Partnerships with Reference to Indian Infrastructural Projects," *International Journal of Business and Management Invention*, Vol. 3, 2014, pp. 56-62,
4. V.V. N. Reddy, S.M.Reddy, "Public and Private Partnership in Infrastructure Development in India" *International Journal of Business and Management Invention*, Vol. 4, Issue 3, 2015, pp. 20-27.
5. Sharma V. Public private partnerships for rural development through creating business opportunities, Vol. 4, 2008, pp. 70-74.
6. Nagesha G, K Gayathri, "Public Private Partnerships Growth Empricis in India's Infrastructure Development," Institute for Social and Economic Challenge (ISEC), Bangalore, Karnataka .India. (2018, October, 22) Available: <http://www.isec.ac.in>.
7. Chaudhary, S.k(ed), (2013)."Empowering Rural Development in India," SK. Book Agency, Newdelhi. (2019,january,21) Available:<https://business.mapsofindia.com/ruraleconomy/em-powering.pdf>
8. Ignacio Delos Riso-Caremadio, Maurico ortuno, "Private-Public Partnership as a Tool to Promote Entrepreneurship for Sustainable Development,"(10,February,2019).Available:<https://www.mdpi.com/2071-1050/8/3/199/pdf>.
9. Gurav singh, Mohamad shakel khan, "The Role of Public Private Partnership(PPP) in Building Society," *Management studies and economic system (MSES)*,Vol. 2, Issue 2,103-110 Autuma 2015.
10. Dr.Arпита Sharma, Government Programs for rural infrastructure. (12, November 16). Available: <http://iasscore.in/pdf>.
11. P. Vinod Kumar Reddy, Raja Sekhar Reddy K, SS. Asadi,, "Estimation of Infrastructure Requirements for Development of Smartcity: A Model Study," *International Journal of Civil Engineering and Technology (IJCIET)*,Vol. 8, Issue 5, (2017, pp.984–998.
12. Dr. Pritesh ,Y Shukla, "The Indian Smart Village: Foundation for Growing India" *International journal of Applied research*, 2(3), 2016, pp. 72-74.
13. Census Govt. of India Publication, 2011. (2018, December, 11) Available:<http://censusindia.gov.in>

referred Journals. His area of Interest is in "Air pollution modeling, Environmental Engineering."

#### AUTHORS PROFILE



**Ssi Kanth .N** received his B. Tech degree in Civil Engineering from Chalapathi Institute of technology, A.P. He is presently pursuing M. Tech degree in Construction Technology & Management from Koneru Lakshmaiah Education Foundation A.P. His area of Interest is in "Building planning, Quantity surveying, Construction laws and Regulations and Project management."



**Dr. Naga Chaitanya Kavuri**, working as an Assistant Professor in Department of Civil Engineering at Koneru Lakshmaiah Education Foundation A.P . He completed his B. Tech in Bio-Technology From Godavari Institute of Engineering and Technology, Andhra Pradesh, M. Tech in Chemical Engineering from National Institute of Technology Rourkela and PhD in Civil Engineering from National institute of Technology Rourkela. He published 16 (One six) research articles in international and National