iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** V **Month of publication:** May 2018

DOI: http://doi.org/10.22214/ijraset.2018.5044

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue V, May 2018- Available at www.ijraset.com

Data Analysis of Village Sangawade (An Approach to Town Planning)

Aniket Bhondve[1], Kishore Wakode[2], Anuja Surve[3], Aboli Patil[4], Rutuja Ambhure[5], Supriya Mhetre[6], Prof. Pravin Mane[7]
[1, 2, 3, 4, 5, 6, 7]*Department of Civil Engineering, Dr. D. Y. Patil Institute of Engineering Management and Research, Akurdi, Pune, Maharashtra, India, 411033*

Abstract: Village development planning is a technical and methodological process concerned with the controlled land use planning and design of the sound environment including utilities and transportation network to guide and ensure the orderly development of settlement and communities. It concerns itself with research and analysis, strategic planning, urban design, public consultation, policy recommendations, implementation and management .These project is associated with collection of data like water samples, soil samples and detailed road surveys along with an analysis and design of the same. These will helps to future planning and designing of study area within improved quality of work and other benefits comes with environmental and social benefits.

Keywords: Development, Environment, Planning.

I. INTRODUCTION

village development is an art of shaping and guiding the physical growth of the village creating building and living environment to meet the various needs such as social, cultural, economic and recreational and providing healthy condition for human to live, to work, bringing about the socio- economic well-being for the majority of mankind. throughout human civilization settlements were built according to geographical location, water and land resources, trade or other reasons that were beneficial for human habitation. these settlements developed through time into towns and cities of which some achieved historical meaning. the development of new settlements still continues, although today, there are different reasons for their existence such as the supply of housing needs.

the stress on rural development is also due to many constraints facing the rural areas, which generally suffer from inadequate infrastructure facilities and technological advancements. the rural areas are not well placed in terms of even minimum required needs like safe drinking water, primary health and road transport facilities. this apart, the rural population suffers from indigence, ignorance and illiteracy. their traditional outlook towards development has been preventing them from taking full advantage of the incentives offered by the government. also, the ownership of land and other assets has been heavily concentrated in hands of a few. it is precisely for this reason that the benefits of rural development programs failed to reach the rural population targeted for these benefits to the extent expected. to overcome this types of critical issues the samples are collected at various selected points and some test and experiments are conducted related to soil, water, and road. this offers a critical review of key literature on the issues relating to planning and designing of transportation and communication facilities, zoning of area according to is and t&p rules, development like primary health centre, school, any semi industries and other requirements too. need of rural development in india

the rural economy is an example of an agrarian economy. although farming and agriculture are one of the most important primary activities, the problem lies in the fact that the share in gdp of agriculture sector is on a constant decline. at the same time, about two-thirds of india's population depends on agriculture. as a result, the productivity is not up to the mark, with conditions only getting worse. moreover, public investment declined since 1991 coupled with lack of adequate infrastructure, credit, transport, employment and other health issues. henceforth the agricultural output has grown at only 3.2% during 2007-2011. all these factors have been denting the process of development. therefore there is a need to focus on rural development and not just urban development.

A. Scope for Improvement

The primary area to improve should be providing utilities, transportation and communication facilities, employment in rural areas and improving the productivity of agricultural sector. Often villages in our countries are not in sync with the urban areas because of bad connectivity. Eventually, this leads to segregation and a social divide between urban and rural areas. In essence, the infrastructure of rural areas should drastically improve. Even after so many years of Independence, these stigmas still have a grip on rural people.

Quality education can help in achieving the goal of eradication of such social evils. The dwindling literacy rates in rural India, especially for females, are a major matter of concern. There is a need for land and technical reforms. Modern technologies like organic farming should be incorporated to improve outputs and profits. Lastly, people should be given access to easy transportation and health issues by improving the communication and health aspect in rural areas.

It can be easily concluded, that for development of an economy both rural and urban areas need to be focused upon. Rural areas need drastic changes in areas like infrastructure, credit availability, literacy, poverty eradication etc. The schemes that are already in place with the aim of rural development need a new outlook and proper updating. Accordingly, the others trying to act for the upliftment and development of rural India.

B. Introduction to the study area

Sangavade is a village in Maval taluka in Pune district of Maharashtra State, India. It belongs to Pune division of Paschim Maharashtra region. It is located 22 KM from Maval taluka, 25 KM away towards west from district headquarters Pune and 114 KM from State capital Mumbai. Sangavade Pin code is 410506 and postal head office is Talegaon Dabhade. This Sangavade village is surrounded by Pimpri-Chinchwad Taluka towards East, Maval Taluka towards west, Mulshi Taluka towards South, Pune Taluka towards East. Also, Talegaon Dabhade, Pimpri-Chinchwad, Pune, Lonavla are the nearby cities to Sangavade village.

the overall population of the village is 1938 with 420 individual houses build improperly (i.e. without using build bye laws and t & p laws) very narrow streets are there with very few transportation facilities. there is no provision of any solid waste management, drainage and sanitary facilities. the main source of drinking water is ground water by using wells and hand pumps. by study it is observed that the above mentioned are the main reasons behind slower development or reduced development growth of the village.

II. LITERATURE REVIEW

Review of literature is an important aspect of research work as it helps in understanding specific problems and in drawing some hypotheses. Keeping in this view, literature connected with the problem in hand has been reviewed gleaning it from various sources, viz. relevant books, journals, dissertations, reports, research projects, surveys, etc.

A. Kulkarni Ratan (1989)

He carried out a study in Bajapur district of Karnataka. They find that different socio-economic factor affecting the success of failure of different schemes of IRDP. According to them the success of IRDP mainly depends upon the level of education, family size, ownership of livestock, durable assets and occupational structure. The study highlights that one of the reasons for poor performance of IRDP was the delay in actual sanctioning of loans and releasing of the subsidy amount by the development authorities. They suggested that single window approach both for subsidy and loan would reduce the time gap and transaction cost of borrowing for the beneficiaries.

B. Thippaiah and Devendra Babu (1986)

They have come out in their study with some major defects in the implementation of the programme Non identification of proper persons as beneficiaries, non-availability of trained personnel, misuse of loans and poor repayment position and lack of infrastructural facilities are some of such defects.

C. R. Banarsi Lal and Dr. Pawan Sharma

India is a rural dominated country and villages are said to be the heart of this nation. According to 2011 Census, the population of rural areas comprised of 68.84 per cent. Migration of the people from rural areas to urban areas causes some burden on the urban areas. If the vision of the founders of this nation is to be respected and implemented, then we all need to have the responsibility to make our villages smart, which means self-sufficient, efficient, healthy and educated villagers. To make the villages smart means to make the country self-reliant, stronger and secured. Some of the ways to make villages smart include offering basic facilities, education, employment generation activities, technology etc.

III. DATA COLLECTION AND ANALYSIS

For development of study area it is necessary to know that, what changes are needs to be occur, and for that changes which tests and surveys should be conducted. In order to procure the development of transportation and utilities, various health aspects, zoning of area and to identify the feasibility of any construction project should know the various parameters such as soil bearing

capacity ,density of soil, compaction factor, quality of drinking water, alignment of road and other investigations are important. So that, different test are conducted and results are as given below:

A. Geotechnical analysis.

So as to check the feasibility of infrastructure development the selected study area various soil samples are collected at pre-decided stations and tests are carried out to know the specific gravity, water content, bulk density dry density, degree of saturation, voids ratio etc. these results are given below:

Samp -le No.	Tin No.	Wt. of empty pycnometer (W1)	Wt. of P + Soil (W2)	Wt. of P + S + Water (W3)	Wt of water + P	Sp. Gravi ty	Wt. of cont. (M1)	Soil + wt of cont. (M2)	Dry wt. of cont. (M3)	Water content (%)
1	Z1	602.48	803.22	1.573	1.445	2.75	18.56	62.37	57.58	12.27
2	Z2	609.09	809.91	1.598	1.45	3.84	29.69	105.03	90.39	24.11
3	Z3	428.94	630.29	1.567	1.44	2.69	28.94	116.89	106.69	13.11
4	Z4	416.55	617.92	1.551	1.49	1.43	28.11	91.63	77.25	29.26
5	Z5	415.05	616.21	1.552	1.45	2.03	23.61	74.32	62.18	31.47
6	Z6	663.29	863.46	1.652	1.55	2.04	25.60	104.90	99.04	7.97
7	Z7	427.67	627.58	1.57	1.46	2.22	26.66	113.44	106.88	8.17
8	Z8	418.97	618.97	1.57	1.47	2.06	18.32	69.93	65.210	10.06
9	Z9	0.426	0.626	1.567	1.44	2.63	18.95	65.49	61.21	10.35
10	Z10	0.427	0.625	1.543	1.45	1.88	20.00	65.49	51.75	43.27
11	Z11	0.418	0.617	1.557	1.454	2.07	19.92	63.18	56.42	18.52
12	Z12	0.487	0.687	1.469	1.398	1.65	17.09	67.79	62.62	11.35
13	Z13	0.415	0.614	1.589	1.49	1.97	29.30	92.95	86.04	12.17

1) Specific Gravity And Water Content

Table 01
Results of Specific Gravity and Water Content Test.

2) Density Of Soil Sample

Table 02
Results of Density of Soil Sample Test.

3) Sieve Analysis

Table 03
Result of Sieve Analysis Test.

IS Sieve	Wt retained	% Wt retain	Cumulative %	% Fineness
4.75	356	35.6	35.6	0.35
2.36	208.6	20.86	56.4	0.56
1.18	132.5	13.25	69.7	0.69
600	95.5	9.55	79.2	0.79
425	55.5	5.55	84.76	0.84
300	34	3.4	88.16	0.88
150	64	6.4	94.5	0.94
75	28	2.8	97	0.97
Pan	20	2	100	0.10

B. Environmental Investigation

For clean water provision different test are conducted on water available at various points of selected study areas like river, weir, stream, and bore water and their results are given below:

Sample no.	PH	TDS (PPM)	Turbidity (MTU)	Fluoride (mg/l)	Hardness (mg/l)	Sulphate (mg/l)	Alkalinity (mg/l)
1 (@Weir)	7.74	239	3.84	0.43	200	6	83
2 (@River)	6.90	50.8	2.20	0.24	48	1	59
3 (@Stream)	7.41	193	1.94	0.44	180	4	70
4 (@Bore)	7.74	352	0.30	0.69	266	48	83

Table 04
Result of Environmental Investigation

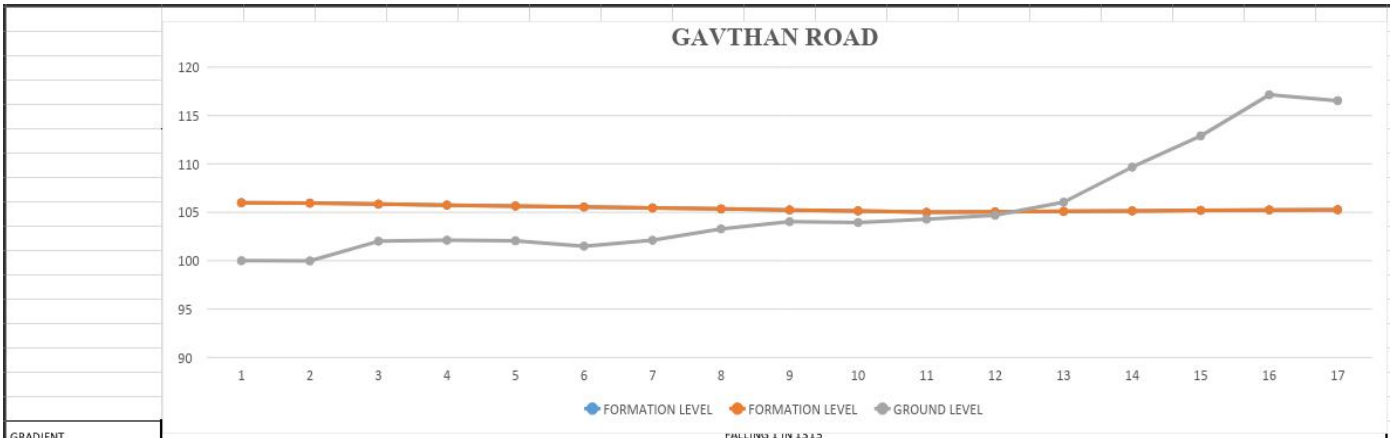
Sample No	Wt of sample	Volume of Sample	Bulk Density	Dry Density	Voids ratio	Degree of saturation
1	1.705	0.00102	1671.56	125.96	213.175	15.82
2	1.469	0.00102	1440.19	57.35	655.85	14.11
3	1.422	0.00102	1394.11	98.80	266.09	13.25
4	1.710	0.00102	1676.47	55.40	252.21	16.59
5	1.648	0.00102	1615.68	49.75	399.28	15.99
6	1.745	0.00102	1710.78	190.72	103.93	15.64
7	1.852	0.00102	1815.68	198.00	108.99	16.64
8	1.857	0.00102	1820.58	160.40	124.98	16.58
9	1.679	0.00102	1646.07	37.18	692.92	3.92
10	1.471	0.00102	1442.15	32.57	565.25	14.39
11	1.678	0.00102	1645.09	84.21	240.14	15.96
12	1.530	0.00102	1500	121.45	133.27	14.05
13	1.570	0.00102	1539.21	116.87	165.36	14.49

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue V, May 2018- Available at www.ijraset.com

C. Analysis And Design Of Roads

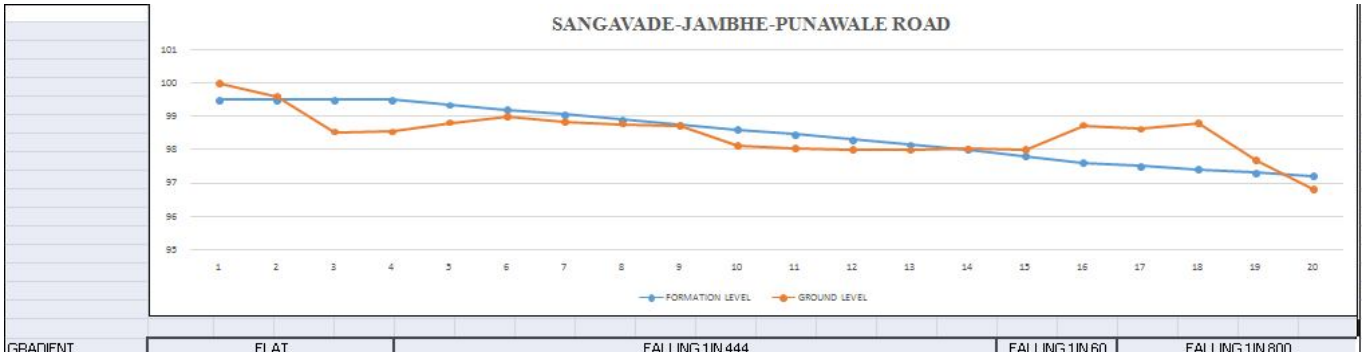
Planning with respect to road construction takes into account present and future uses of the transportation system to assure maximum service with a minimum of financial and environmental cost. Selected road alignments and there results are given below:

Graph. 01
Formation Level at Village Road.



GRADIENT																	
HEIGHT OF BANKING	6	5.969	3.835	3.632	3.586	4.043	3.337	2.065	1.217	1.202	0.705	0.354					
DEPTH OF CUTTING													-0.951	-4.52	-7.697	-11.891	-11.266
FORMATION LEVEL	106	105.95	105.85	105.75	105.65	105.55	105.45	105.35	105.25	105.15	105	105.05	105.1	105.15	105.2	105.25	105.27
GROUND LEVEL	100	99.981	102.015	102.118	102.064	101.507	102.113	103.285	104.033	103.948	104.295	104.696	106.051	109.67	112.897	117.141	116.536
CHAINAGE	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	960

Graph 02
Formation Lavel at Sangawade-Jambhe-Punawale Road



GRADIENT	FLAT				FALLING 1 IN 444										FALLING 1 IN 60		FALLING 1 IN 800				
HEIGHT OF BANKING			0.971	0.964	0.54	0.219	0.226	0.13	0.026	0.479	0.406	0.3	0.177								
DEPTH OF CUTTING	-0.5	-0.116												-0.014	-0.188	-1.13	-1.12	-1.385	-0.365	0.413	
FORMATION LEVEL	99.5	99.5	99.5	99.5	99.35	99.2	99.05	98.9	98.75	98.6	98.45	98.3	98.15	98	97.8	97.6	97.5	97.4	97.3	97.2	
GROUND LEVEL	100	99.616	98.529	98.536	98.81	98.981	98.824	98.77	98.724	98.121	98.044	98	97.973	98.014	97.988	98.73	98.62	98.785	97.665	96.787	
CHAINAGE	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140	1200	

IV. DISCUSSION

To improve the condition of rural people, we have studied the selected village (Sangavade) for next 50 years development. As per the requirements, in this paper we are implementing advance technology to improve the infrastructural, geotechnical and environmental conditions surrounded by people by analyzing and designing from the collected data.

The current population of the village sangavade is 1411. Authors had forecasted the population for next 50 years by using various forecasting methods and it is computed to 30,000. For these forecasted population authors carried out testing on soil and water in different areas of the village. Also for proposed infrastructural development, surveys are conducted and accordingly analysis and design of roads are made.

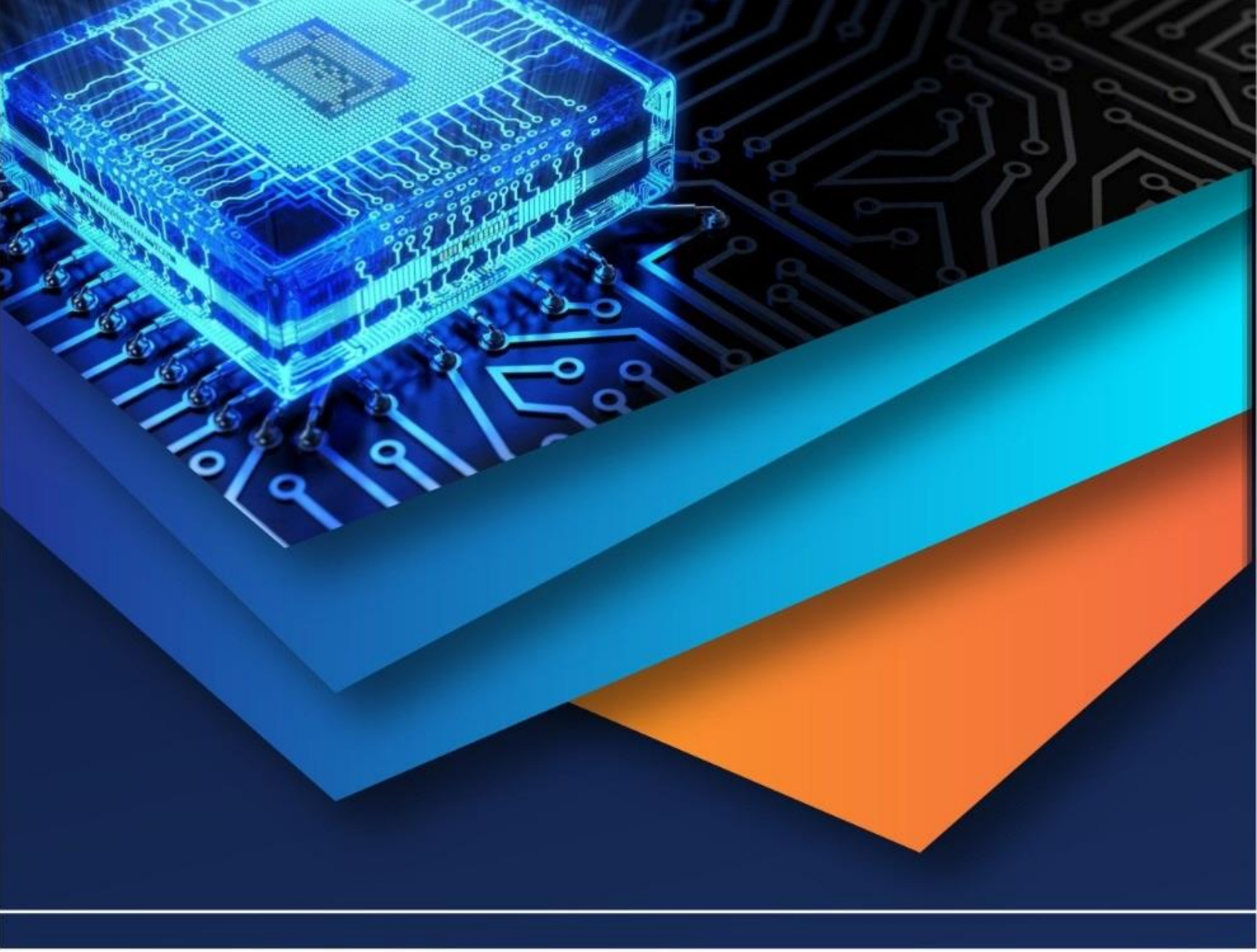
V. CONCLUSION

It clears that until and unless some spectacular changes occur, the rural sectors might continue to remain backward. By analysis of collected data conducted by authors the main source of drinking water is from ground water which is not drinkable as the quality of

ground water is too ill. So to improve the quality of water the provision of water treatment plant is necessary. According to geological investigation results we had concluded that there is hard strata is available in many areas, so there might not be having any problems regarding construction of infrastructural facilities.

REFERENCE

[1] Minhas B. S. (1970), "Rural Poverty Land Distribution and Development", Indian Economic Review, March.
[2] Khanna Publisher, Publish by, S. K. Garg, For Environmental Engineering Volume. I.
[3] "Principle of Town Planning and Architecture", By Biswas Hiranmay.
[4] Surveys, Plans and People: A Review of Land Resource Information and its Use in Developing Countries By Barry Dalal-Clayton and David Dent (December 1993).
[5] Carley (1994): Policy Management Systems and Methods of analysis for Sustainable Agriculture and Rural Development, IIED and FAO, Rome.
[6] https://www.toppr.com/guides/economics/rural-development/rural-development-in-india/
[7] https://www.brighthubengineering.com/building-construction-design/125227-highway-construction-and-engineering/
[8] Unwin, Raymond. Town Planning in Practice: An Introduction to tile Art of Designing Cities and Suburbs. New York: Benjamin Blom, Inc., 1971.
[9] Upper Southampton Planning Commission. Somhampton Village Designbook. 1985.
[10] ASTM. (1963). "Standard test method for particle-size analysis of soils." Designation D422−63, Philadelphia.
[11] AASHTO (1971): "Highway Materials, Part 2," AASHTO, Washington, D. C.
[12] Bjerrum, L., A. Casagrande, R. B. Peck, and A. W. Skempton (1960): "From Theory to Practice in Soil Mechanics: Selection from the writings of K. Terzaghi," John Wiley and Sons, Inc., New York, 425 pages.
[13] https://books.google.co.in/books/about/Soil_Mechanics_and_Foundations.html?id=3q0iWIt_kxQC



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY