

smart villages using GIS

a case study on punsari village

[disclaimer/ all the data and maps are prepared on primary survey. the survey information and the map is only for the representation purpose. for further details and information please contact us on sud.choksi88@gmail.com]



/introduction

31.6% urbanization in india

2.76% is the growth rate of urbanization in india

but then it doesn't deny the fact that most of the population still resides in the rural areas and their development can't be taken for granted.

according to the vision of our hon'ble prime minister shri narendra modi, "if we have to build the nation we have to start from the villages." and in the state of gujarat they have believed in the strength of village development and have taken many innovative steps for progress of the village.

So, the study intends to integrate GIS with village development. The main aim of the study is based on the concepts of smart villages and mainly focuses on various innovative measures that can be taken so as to head the village development in a self-sustaining direction using GIS. Taking a case of Punsari, the study intends to represent how a smart village in India can be used as an example to further improve the existing village situation using various kinds of technological approaches such that the villages can lead towards a futuristic smart rural development.

- /why smart villages ?
- more land under rural areas as compared to urban areas
- large share of population living in rural areas
- risk of losing agricultural land
- contribution to the economy
- lack of provision of services in rural areas
- few policies and initiatives by the government to provide infrastructure in rural areas

/rurban

The word 'rurban' (rural+urban) refers to an area which possesses the economic characteristics and lifestyles of an urban area while retaining its essential rural area features. Gandhiji saw three conflicts in the way of building a modern India:

- /conflict between labor and capital
- /conflict between landless and land owner
- /conflict between city and villages

After India gained its independence, despite of a plethora of welfare schemes and activities aimed at rural areas in successive five year plans, a skewed development model increasing the disparities between the rural and the urban areas has proliferated. Lack of livelihood opportunities, modern amenities and services for decent living in rural areas led to migration of people to urban areas. There are wide gaps in the availability of physical and social infrastructure between rural and urban areas.

Twin objectives:

- /Strengthening of rural areas and de-burdening the urban areas.
- /Balanced regional development and growth of the country by simultaneously benefiting the rural as well as urban areas of the country.

/methodology

- 1st Identification of the particular topic
- 2nd Identifying the need and concepts for the identified topic
- 3rd Identifying the challenges faced by rural area
- 4th Suggesting proposals using various types of technological approaches

/pura

according to the pura (provision of urban amenities to rural area) project which is visionary of late mr. a. p. j. abdul kalam (ex-president of india), a concept of smart villages was born. the project had a simple aim of providing basic amenities like infrastructure, education, awareness, technology and many more. the objective of the mission is to improve the economic, social and infrastructural development in the rural areas. this can be achieved in three ways:

- improving the life of people of the rural clusters
- bridging the rural-urban divide
- reducing distress migration from rural to urban areas

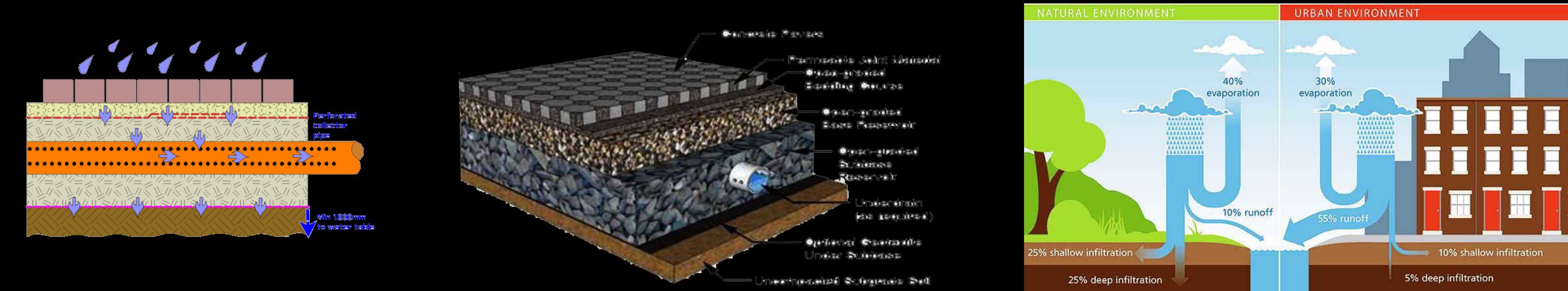
in order to provide these amenities technologies like gis can be very helpful where mapping the existing scenario, land use and data from other types of surveys can be put into the software to analyze the situation for implementation of the project (which is provision of basic amenities). gis can act as an important factor in analyzing the situation which can ultimately help in decision-making, for instance; spending the local body funds in providing priority basic amenity according to the needs of the people like water may be more crucial than providing wider roads for future predicted increased traffic.

/challenges

- 1st even today after many efforts by the government, rural india lacks many basic amenities like water, sanitation, social infrastructure etc.
- 2nd due to this lack of basic amenities, people from rural areas feel the need of migrating to urban areas imposing a great pressure on urban areas.
- 3rd due to lack of opportunities in agriculture sector there is a tendency of people to change their occupation and it is leading to a loss in agriculture production
- 4th lack of transparency of governance.
- 5th there is lack of awareness amongst the rural population regarding government programmes which are indeed for their betterment and due to this fact they are unable to get the benefits which the government intends to provide for rural development.
- 6th there is a strong need of social infrastructure in rural areas for the development of people.

/proposal 2

Storm water management system



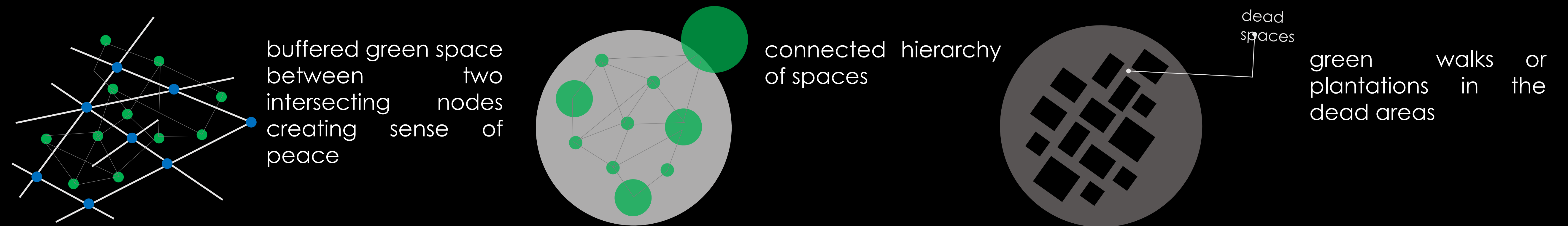
pervious pavement is a specially designed pavement system that allows water to infiltrate through the pavement and never become runoff. this system provides the structural support of conventional pavement but is made up of a porous surface and an underground stone reservoir. the stone reservoir provides temporary storage before the water infiltrates the soil. there are many different types of porous surfaces, including pervious asphalt, pervious concrete, and interlocking pavers. interlocking pavers function slightly differently than pervious concrete and asphalt. rather than allowing the water to penetrate through the paving, pavers are spaced apart with gravel or grass in between to allow for infiltration

/proposals

punsari is a model village which has all the urban infrastructure facilities present in its rural context. in this process it hasn't lost its rural characteristics like farming (agriculture) and high end community participation. it explains to us about the blend between technology and rural development and bring it at par with urban areas of the country in order to have a balance growth in the entire city. for intervening in the physical and social aspects for development, various initiatives have been proposed using gis as an analysis tool. thus the study is an approach to introduce options in the form of smart initiatives which are a way forward to future of rural development after studying punsari village.

/proposal 1

provision of social infrastructure facilities



an approach to develop a village level open space can be put forward as there is a missing hierarchy of spaces. this space will lead to society or community spaces which can be present with either with commercial market or recreational space. the next comes the buffer space which can be in terms of pocket parks small in scale yet active. dead spaces occur when the built fabric of the area is not uniform. these spaces act as waste of land and waste of space. these dead spaces in the village can be utilized in developing buffer spaces or if the spaces are private they might get converted into shaded area for cattle rest when the arrangements of the building are not proper these dead spaces are formed and remain unusable. these can be converted into green patches for walking in terms of internal streets connecting households or can be used up for plantation of shrubs as buffers between households. in order to keep the place active as seen during the visit the intersection points of the road were generally weak as we see the city level intersections, a partly commercial and mixed use can be implemented so that it gives out a nodal character of the village. hence every node created will respond lively with people and may remain active throughout the day. as it becomes more effective there is a need to provide a buffer space to reduce noise in the surroundings therefore a few buffer spaces or gardens should be implemented

/conclusion

The process of development is a continuous process and needs to be updated with the upcoming technologies and ideas from the surroundings that can help not only in village development but also in the development of the villagers. As the world is moving towards advancement in technology why should the rural areas lag behind in using it for its positive development! Certain innovative approaches need to be formulated to maintain and record the rural development such that even if the governing parties or ruling parties change it won't affect the village and its governance in the direction of its growth.

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