

Changing Land-Use Scenarios Of Peri Urban Areas In A Developing Country-Case Of Aligarh City (India)

Vidhu Pandey, R.Chandra and V.Devadas

Department Of Architecture and Planning, IIT Roorkee, India

Abstract

21st century, an era described as a place of astronomical growth and development in the time period of 1900s. The fact can't be denied that things have definitely changed and growth in its holistic sense does exist but development pattern in the observed time period remains questionable. There are many such issues which could be organized into this vast zone of strategic failures. Concentrating our focus on the issues of growth and urban rural planning scenario, then few focal points like city core's decay and chaotic formation of new urban lands has taken up many think tanks to ponder upon myriad range of solutions

The following article aims to examine issues pertaining to this set of urban and rural planning which involves having a great impact in the development of lands and its people in the era of 21st century. The issue dealt here would be development changes which occur peri urban lands. It would be a case specific study of currently developing town of India.

The city taken here is Aligarh which lies in the western part of Uttar Pradesh in northern India. The study area considered in this investigation is one of the tier II cities of India and is in the phase of accelerated urbanisation. It has been observed that since 1990, it has grown almost 3 folds of its original area. Hence making it a live laboratory to observe the experiment of city – Expansion and drawing out some specific conclusions.

Keywords: peri urban areas, land-use, urbanization, city expansion, Aligarh.

Indian urbanisation scenario

As the wave of urbanisation is sweeping the world over, so is its presence being felt in the Indian main land. 2011 census report puts 31.1% of total population in the urban lands as compared to a 27.8% of 2001 statistics. If comparing the movement of population then the tier 1 cities hold a population capacity of 68.7% in 2001 as compared to 70 % in 2011(GoI, 2011). The medium and small towns had a share of 21.9% and 9.4%, respectively, of the total population. By 2031 nearly 600 million people will live in urban centres while another report estimates that of these, 91 million urban households will be middle class households, which was about 22 million in 2009-10, estimates report on Indian Urban Infrastructure and Services - 2011 .(Dilip Singh, Kate Hawley, Bijay Singh ,ISET 2013)

What are Peri -urban areas of a city?

This expression of peri urban or fringe areas originates from the French word *périurbanisation*, which describe spaces—between the city and the countryside—that are shaped by the urbanisation of former rural areas in the urban fringe, both in a qualitative (e.g. diffusion of urban lifestyle) and in a quantitative (e.g. new residential zones) sense. It is frequently seen as a result of post-modernity.

Hence modifying it in context of Indian cities, fringe area or peri urban area as would be used in this study would hereby mean as those areas which exist beyond the municipal boundary of the city but lie within the development authority's boundary. They show characteristics which are dynamic in range, from the urban flavours for those adjacent to urban catchment area and on the other side they would also have rural influences infused into them because of their vicinity to rural hinterland.

Peri urban /fringe area - worldwide characteristics

Peri urban/fringe areas exist throughout the world but the nature of existence differs throughout. With the developing countries on one side and developed nations on the other, then the situation could be easily contrasted.

European context- If we talk about European context then, there are many areas in which population is on the shrinking side and hence the pressure on land due to population is less as compared to developing countries. The peri urban areas there show fragmented urbanisations with uses like that of large shopping complex, hospitals, automobile industry and other manufacturing units only. These are those uses which occupy the place here because they need large tracts of land or maybe they ought to be segregated from the main residential areas.

Author's observance of the peri urban areas of Berlin (Honow Lichtenberg corridor) shows similar findings.

The other important characteristic which is shown by European peri urban areas is there emphasis on conserving their natural green lands and forests. Many of these areas get conserved as natural parks with strict restrictions for allowing any other land use activity.

Indian context-few points could be made out in Indian scenario

- They can also be defined as urban areas with presence of rural activities and urbanised rural areas.

- There is Lack of development and chaotic growth of settlements.
- There is encroachment of agricultural lands and older settlements.
- Change in land use from predominant agricultural lands to housings and other uses.
- There is lack of adequate services and infrastructure facilities.
- They act as magnets for real estate developers as there is high probability for land price speculation.
- Areas as job market for migrant labourers.

Study area



Fig1:Location

Source: Internet

- Aligarh is situated in the Northern Indian state of Uttar Pradesh. It is headquarters for the district Aligarh too.
- Education and industry forms two poles of attraction for this land. Industry being that of lock making and education in the form of legendary Aligarh Muslim University being situated there.
- Aligarh is situated 90 miles (140 km) south-east from capital city of New Delhi.

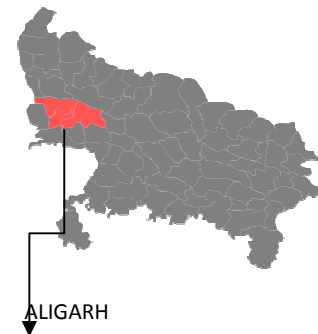


Fig2:Location

Change in land use and expansion of city

Aligarh city since past 3 decades has observed an increment of 3 times its original

area (fig 3). The expansion of city has been observed along the major lines of communication. All the major roads, states and national highways have been witness to increased development with they being the spinal chord for this growth.

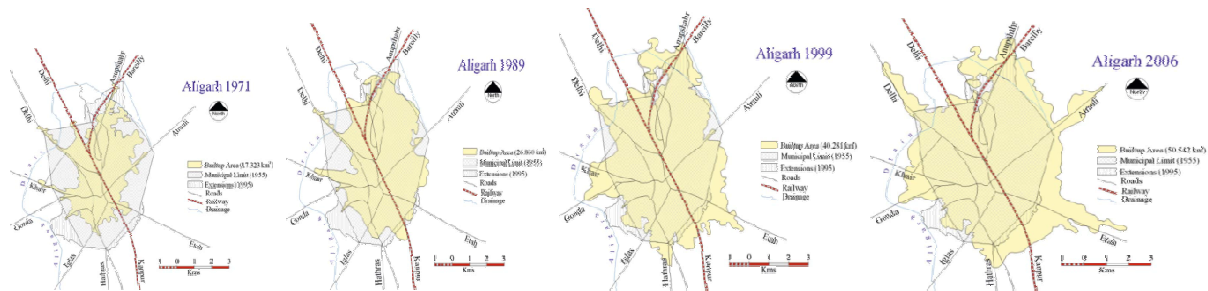


Fig3: Current state of expansion of Aligarh

Land use comparison 1980 (base year) - 2010 (final year)

Table 1

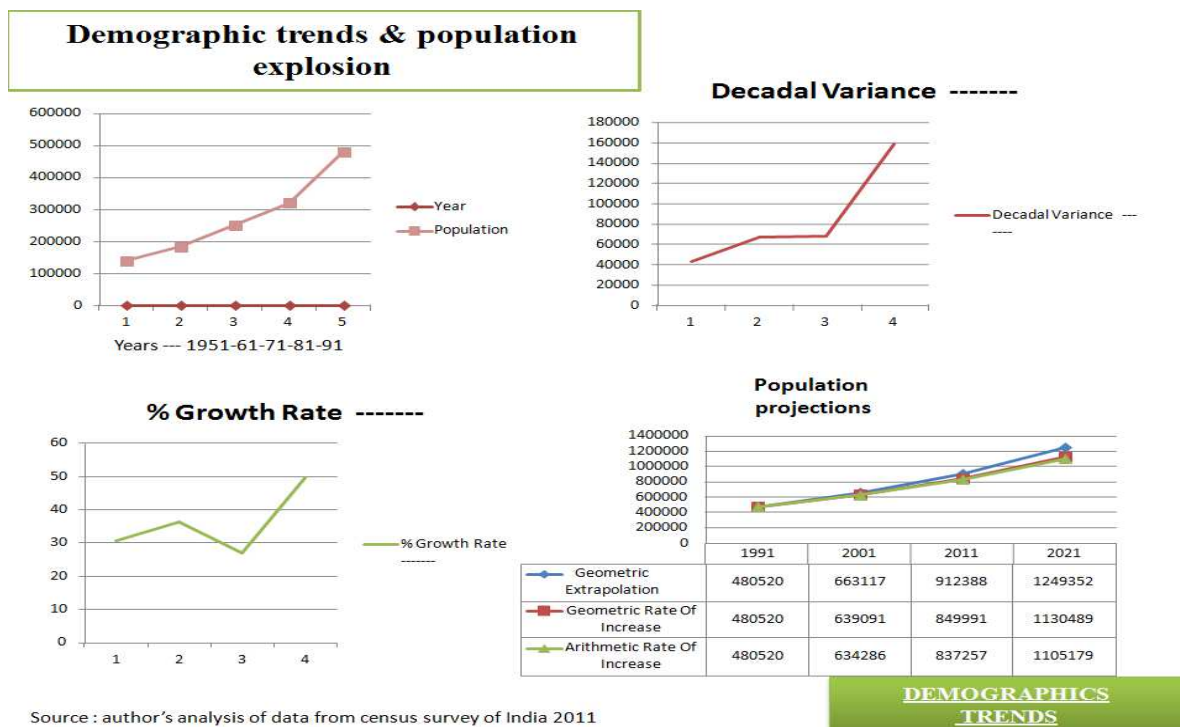
Land use	Area (ha)		Change in area	% change
	1980	2010		
Residential	994.5	3590	2595.5	260.9
Villages	111.5	293	181.5	162.78
Commercial	56.5	240.5	184	325.6
Educational	28.5	113.5	85	298.2
Government offices	64	133	69	107.8
University area	351.5	351.5	0	0
Aligarh fort	17.1	17.1	0	0
Industrial	64	149	85	132.8
Recreational	42.5	101.5	59	138.8
Grave yards	27.5	32.5	5	18.1
Vacant land	441.5	2538.5	2097	474.9
Tree plantation	172	191.5	19.5	11.3
Agricultural land	13209	7761	-5448	-41.2
Brick kilns	14.5	17.5	3	20.6
Water bodies/logged	45	109.5	64.5	143.3
Total built up	1601.5	4679	3077.5	192.2

area				
Total non built up area	13882	10618	-3264	-23.5
Total urban area	2257	7459	5202	230.48

Note: Area in hectares (Fazal, Shahab, 2013)

Inference from table 1

- The land use comparisons show that there has been a steep increase in urbanised lands in Aligarh area while agricultural lands have shown a proportional decline. Total built up area has increased from 1600 ha in 1980's to 4679 ha in 2010 which is almost 3 times the base years area. On the same note non built up area has decreased from 13882 ha in 1980s to 10618 ha in 2010. This can be attributed to that fact that population increase has been observed in the same time periods due to migration. The demographic profile of city shows (graph illustration1) that it would be million plus city by 2021 and hence the approach for organising growth and sustainable development of the new city areas i.e. peri urban areas should be such that they are able to behave in a resilient manner and are able to absorb the pressure of population.



Source : author's analysis of data from census survey of India 2011

Delineation of area of study (sector 5 of Aligarh city)

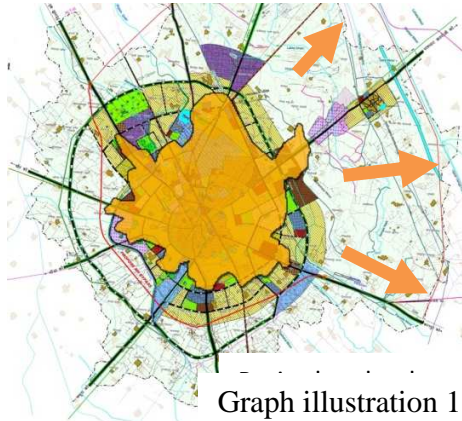


Fig: 4 current built up area

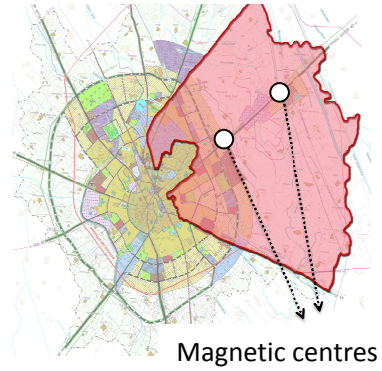
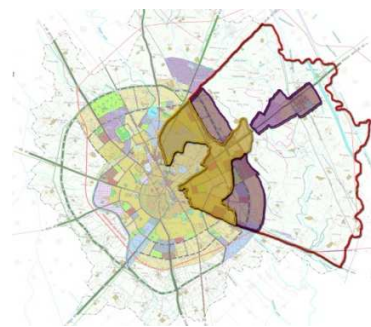
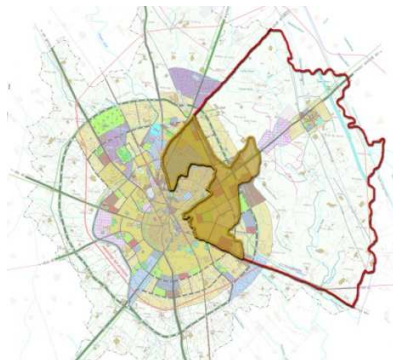


Fig: 5 total area under sector 5



The figure above shows **Development pattern** overlaid on the master-plan of 2021. The area has been delineated on the basis of sector zoning in the city of Aligarh. The study area in this case has been taken as sector 5 since it shows dynamic growth pattern along the lines of communication i.e. Ramghat road. Moreover it has been allocated with maximum residential area as compared to other sectors of the city.

Fig 4 shows the built up area in the current times and area to be developed as overlaid on the master-plan of 2021.

Fig 5 shows the total area as allocated to sector 5 and the magnetic centers of commercial and industrial area which has attracted the settlements to grow around them.

Fig 6 and fig 7 describes the built up area and the un-built area ratio of sector 5. Approx. 2/3 of area remains to be urbanized as mentioned in the sector 5.

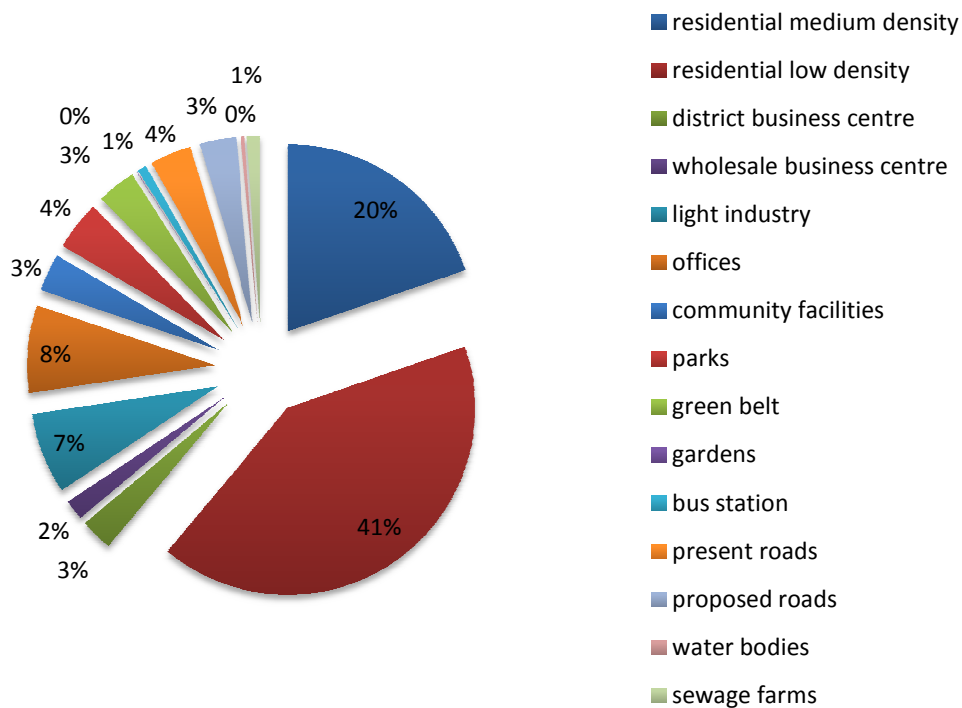


fig:8 Proposed Land Use in Sector 5 according to masterplan 2021

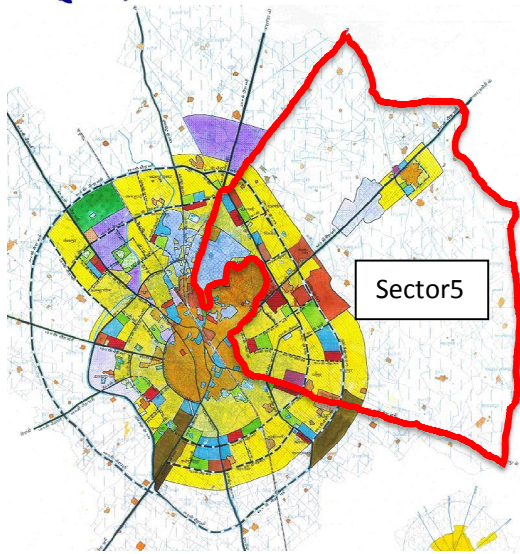


Fig: 9 sector 5 in red boundary

- ❖ Major land use in this sector is HOUSING and few industries are developing here and others are rural areas which are gradually changing into the new urbanised area

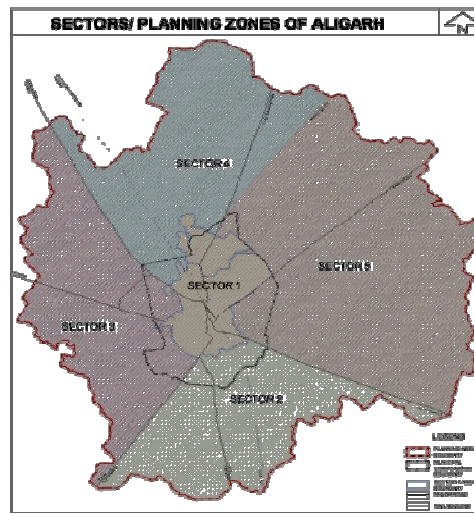


Fig: 10 The 5 sectors of city

Areas which needs to be developed till 2021 under sector 5 = 3229.37 ha (28% of total area)

Areas that would be developed till 2021 will be 11470.75 ha (for whole Aligarh)

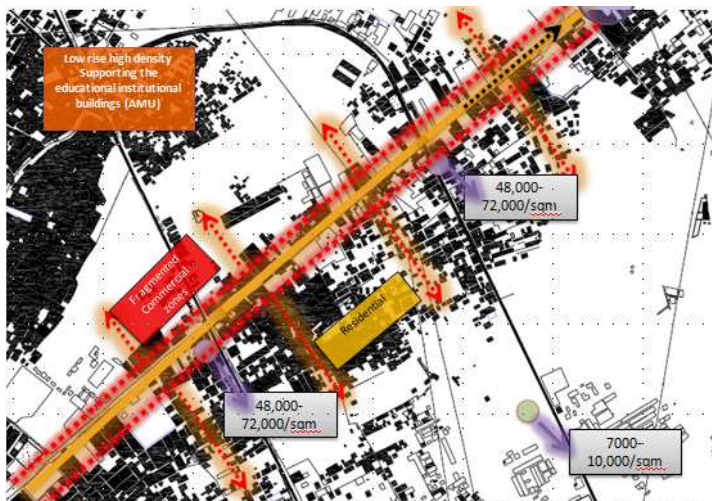


Fig: 11 The settlement pattern along Ramghat road

Observed here is the growth pattern along the major road that is Ramghat road.(fig 12)

In fringe areas, development occurs along major lines of communication since more the distance from core city increases, less becomes the infrastructure facilities.

Observations- The current scenario of development in fringe areas of Aligarh

With many issues on single platter, Aligarh as the case, offer multitude of issues to look upon. Few of them have been stated as below.

- The current nature of development of settlements in the peri urban area of Aligarh city is quite haphazard. Some of the colonies which have been developed are low rise (normally level g+1 only) and high density.



Fig: 12 Snaps from Sector 5

- The other developments taking into place are a bit higher than their previous ancestors. These being apartment styled building going anywhere from G+ 4 levels to G+ 7 levels. But again the problem of roads and proper access is completely ignored. Green spaces which are developed in relation to these buildings are generally inadequate.
- Moreover there is lack of allied infrastructure like roads, parks, parking spaces, community centres, hospitals, shopping and education centres. A major part of earnings of the citizens go into the energy utilization for commuting purposes to fulfil various needs.
- The other issue which can be examined here is the changing land use and its impact on agricultural lands without proper investigation of their impacts on the environment as a whole.
- Monopoly of informal developers because of lack of government schemes. Further elaborating here is one very important scenario is that rich property builders buy the agricultural land from farmers and then make apartments over them and sell at high rate.

Limitations of Master plan as development tool

- Master plan as a development tool focuses its area as urban city core and develops policies accordingly. This happens irrespective of the fact that cities which are developing on the outer extents need to be monitored, taking care of the fact that it lacks proper infrastructure to support them and problem occurs because the plan in original never

caters to the peri urban areas as spaces with special needs in particular.

Findings

The above observations by author and surveys done amongst the residents of Aligarh city show that the following statistics.

■ Better Education ■ Better job ■ Others

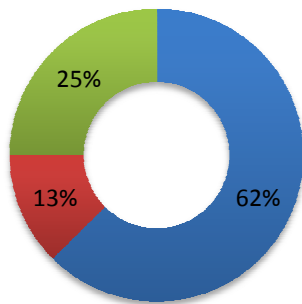


fig:13 Reason for migration

- People migrate to city of Aligarh for better education, mainly because it is considered as education hub.

■ peri Urban Area ■ Inner core

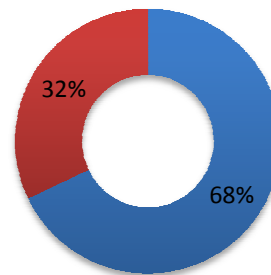


fig: 14 Preference for residence

- People prefer to stay in the peri urban areas as compared to core inner city. Reasons for that can be attributed to the fact that inner city has become saturated in its carrying capacity; hence the burden lays on the peri urban areas to fulfill the needs of this migrating population as well as the native residents.

Moreover problems encountered by the people in these peri urban zones are:

- No sewage lines present/sanitation issues.
- Lack of infrastructure like proper roads, water supply and electricity supply.

- High prices quoted by builders for apartments, not affordable by all.
- Check on informal settlement providers is not present, i.e., there are storey in apartments which are not permitted according to bye laws.
- ✓ Study of URDPFI guidelines 2014 in accordance with NBC says that peri

urban lands should be developed in accordance with regional planning approach and hence guides us with few basic guidelines in matters of habitat, roads and land-uses. Mixed use is encouraged in such spaces. Low income habitat planning norms of National Building Code are suggested to be followed in peri-urban areas. which could be further developed according to the growth trend of that particular city.

- To promote pedestrian friendly Township designs in fringe areas.
- Modernization of land records by adopting GIS based system
- Adoption of low-cost building materials, pre-fabricated components and cost-effective construction techniques
- Review of regulatory processes to simplify the procedure for approval of affordable housing projects
- Promote private investment in housing & infrastructure development through PPP

Recommendations

Keeping in view of aforesaid situations, few recommendations are as follows:

- To promote group housing through increase in FAR & density commensurate with infrastructure development to optimize use of scarce land and conserve prime agriculture land.
- Time-schedule for preparation of Zonal Development Plans by skilled professionals
- Review of draft plans to be done by competent officials
- Thorough investigation required while changing the land use from master plan/strict zoning.
- Housing guidelines to be given so as to promote contained & compact urban growth with high density, FAR & mixed land use.

Conclusion

Hence the urbanism of peri urban area can be concluded as the infancy stage of the cities in expansion, which need proper care and attention in the forms of policy and programs. They are the outgrowths which need to be merged with the existing city system taking into the fact that they have unique characteristics due to ru-urban influences. Moreover the peri urban area of developing country is much more significant because not only they provide for our agricultural needs but also act as provider for the lands of shelter. They are scarce and precious and hence need to be continuously monitored. Physical land issues like urban sprawl in these areas should be countered through proper policy recommendation. Fragmented urbanization should be replaced by more compact planning idea.

References

- Dilip Singh Kate Hawley & Bijay Singh, Indian Housing Policy Landscape: A Review of Indian Actors in the Housing Arena, Institute for Social and Environmental Transition-International, 2013, SHELTERING SERIES #3 Sheltering From A Gathering Storm, P-1
- Fazal, Shahab (2013), Land Use Dynamics in a Developing Economy: Regional Perspectives from India. Regional Perspectives from India, Series: SpringerBriefs in Geography
- Chander, Sheeba, Understanding peri urban areas with the case of Chennai metropolitan area ,Ngarlok (Urban affairs quarterly), P-32-39
- National housing and habitat policy,(2007) & National housing and habitat policy- draft report (2013)
- Peri-urban Land Use Relationships (PLUREL) Project (2007-10) ,website-<http://www.plurel.net/>
- Urban and regional development and plan formulation (URDPFI) Guidelines Vol I Draft- 1. 1 (February 2014)
- Aligarh Master plan 2021
- Case study of Aligarh city and Berlin city 2013 by Vidhu Pandey(author),2013-14
- Surveys by Vidhu Pandey(author),2013-14