

Urban Development in Newly Industrial Regions in Peripheral India: A Case Study of Rudrapur

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Abstract After the mid 1990s, the Indian economy grew rapidly owing to industrialization. However, most industries are located in certain metropolitan regions. In order to reduce the regional disparity, the Indian government promotes investment in the peripheral areas through a preferential taxation system. This paper aims to present a report on the development of the industrial city in India. Uttarakhand is an underdeveloped state in the north-eastern part of India. Its territory includes a few Himalayan mountains, hills, and a few plains. In an effort to boost its economy, the Uttarakhand government developed the Integrated Industrial Estate (IIE), Rudrapur. However, the local government does not have a housing board for workers. Therefore, it depends on private developers for housing provisions. The wealthy communities are comfortable and secure because their residential areas are protected by strong, big gates with several security guards. Therefore, these are ‘prestigious gated communities.’

Key words urban development, housing supply, Gated community, Rudrapur, India

I. Introduction

Along with the concentration of industry in large urban areas, large-scale industrial development projects in underdeveloped regions aimed at reducing vast economic disparities have attracted attention in India. Development of underdeveloped regions in India is not simply industrial development, but also fulfills the role of comprehensive regional development as it requires urban development including housing for workers and their families, as well as infrastructure development such as water for industry and roads. After the economic liberalization policy in the 1990s, large cities and large urban areas within India attracted vigorous foreign development investment, and remarkable industrial development was seen in those areas that were highly convenient. On the other hand, the economic development of areas far removed from metropolitan areas tended to fall behind due to the inconvenience of locating factories. However, the Indian government designated mountainous states that were not suitable for the location of industry as “special category states,” and applied special industrial policies and preferential grant allocation (Tomozawa 2008).

Although Uttarakhand is a mountainous state that was designated as a special category state, it is a region where agriculture thrives with prominent granaries located within the state on the edge of the plains of Hindustan that extend to the southern foot of the Siwalik Hills paralleling the south slope of the lesser Himalayas. At the same time, this region is a valuable flatland for Uttarakhand

with possibilities as an industrial site. Therefore, the choice of whether to preserve the valuable farmland or use the rare flatland for industrial development presents an important dichotomy to the state of Uttarakhand. Amid such circumstances, Uttarakhand established the SIDCUL (State Industrial Development Corporation of Uttarakhand) in 2002, and adopted a policy to plan the development of the state’s economy by creating the IIE (Integrated Industrial Estate) Pantnagar in a large area of land next to Haldwani and bordering the north section of Rudrapur. For corporations, locating in areas with underdeveloped economies has the attraction of preferential tax aspects, and several distinguished corporations such as TATA Motors and Bajaj Tempo opened locations in IIE Pantnagar (Tomozawa 2008). With a total planned area of 3,339 acres, the enormous IIE Pantnagar Industrial Park was developed as an inland industrial park; however, access to the park faced serious transportation problems with large trucks blocking the main highway with extensive traffic jams.

The purpose of this paper is to clarify the actual situation of urban development and its formulation as an industrial park in the provincial city of Rudrapur. Although the author has previously studied Pithampur in the state of Madhya Pradesh as an example of residential development accompanying industrial park development in underdeveloped regions, in the case of Pithampur, residential development for industrial workers and the large industrial park was conducted by a publicly owned development company in a rural area quite a distance

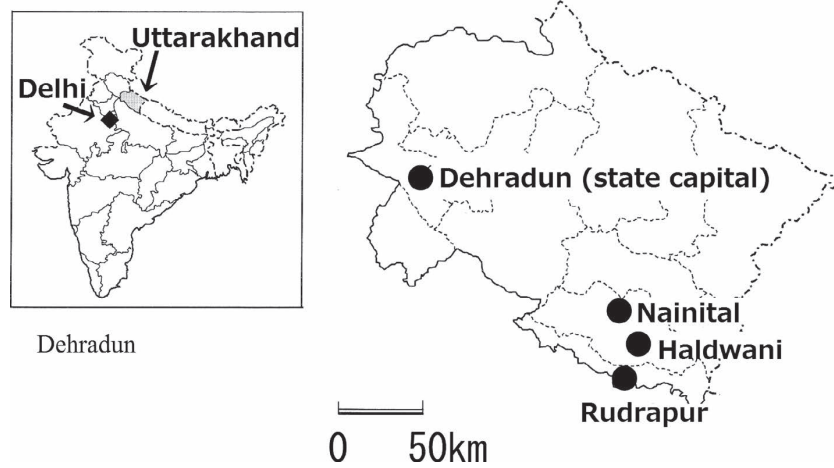


Figure 1. Study area

from Indore (Yui 2009). In contrast, development of the new industrial park and residential development for Rudrapur, the current subject of study, was conducted in existing urban suburbs (Figure 1). Furthermore, while industrial park development was conducted by a publicly owned development company, the provision of residences was conducted using private capital, and thus differs from Pithampur where all development was conducted by government sectors. Furthermore, the fact that residential development with private capital developed businesses in provincial cities also sheds light on the recent state of the provision of residences by private real estate developers in India.

As mentioned above, development of industrial parks in underdeveloped regions of India requires infrastructure such as residences for industrial workers and water and sewage. While basic urban development has traditionally been implemented by government, there has been a rapid growth in private real estate capital recently in India.

Our research methods were as follows. Interview surveys were conducted from the mid to the end of September of 2009 and materials related to urban planning were collected at departments in charge of urban planning at the Municipal Office of Rudrapur and urban planning departments at state governments in charge of urban planning. Interviews and material collection were conducted at some private developers for information about their development.

II. Overview of Rudrapur

Rudrapur has its origins in eight villages (e.g. Udam Singh Nagar) that were constructed as evacuation destinations for followers of the Sikh religion immediately after the separation of India and Pakistan in 1947. The current

urban area was formulated from the implementation of city plans targeting these eight villages to establish the entire city area as a limited development region in 1958. Hence, the origins of Rudrapur city were not the result of extension or development from a traditional village, but were the result of planned development implemented from the formation stage of the current city. Moreover, because the city was formulated after independence and not formulated in the period of colonization by the British, one of its characteristics is the absence of segregation through division into British settlements and traditional Indian settlements, such as the cantonments and civilian districts.

Although Rudrapur is located in Uttarakhand, which was separated as an independent state from Uttar Pradesh in 2000, it differs from other cities in mountainous areas within the state as it is located entirely on flat land in the Ganges River basin on the northern edge of the plains of Hindustan. Moreover, it borders Haldwani on the north, the central city of this region, and is located strategically on traffic routes bordering National Highway 87 (NH87), which connecting Delhi to hill regions such as Nainital.

Rudrapur had a population of 88,676 according to the 2001 census. It is sixth largest city in Uttarakhand. In Uttarakhand, city rankings are ranked by population, and the size of Rudrapur's population places it in second tier (Class II: 50-100,000) behind cities with populations exceeding 100,000, such as the state capital Dehradun. Because it is a mountainous state with a smaller population, the establishment of departments related to city development and the provision of housing in Uttarakhand, such as city development authority and housing boards, has lagged behind since separation from Uttar Pradesh, and there are many municipalities that do not have urban development authority because of their

small size. While housing boards with jurisdiction over urban development-related Urban Development Authority and the provision of housing have not been established in Rudrapur, this is common in small scale provincial cities in India where development and implementation of urban planning in provincial cities typical lags behind.

Because Rudrapur was originally constructed as a city in a rural region for Sikh refugees, its functionality as a central region for traditional commercialism was minimal, and because it is not a prefectural capital, its governmental centrality was also limited. To the mountainous state of Uttarakhand, using its status as an economically underdeveloped state for the development of IIE Pantnagar transformed the economic environment of Rudrapur by introducing regional development into a state with limited industrial potential. A major transformation of urban structure accompanying the development of the industrial park took place in Rudrapur as construction of commercial facilities such as shopping plazas, development of housing estates, and construction of hotels for business travelers occurred one after the other.

III. History of Urban Planning in Rudrapur

Uttarakhand relies on the central government in the state capital Dehradun for making urban plans. City plans formulated by the central government are categorized by zones for all regions within the state, and master plans are created for each zone. While it is extremely rare for urban planning to take place in provincial cities, Uttarakhand, Rudrapur formulated plans in combination with the development of the IIE Pantnagar industrial park by SIDCUL in 2001. However, because there was no urban planning department in the Municipal Office in Rudrapur, the master plan was formulated by the department in charge of urban planning at the district office. As a mountainous state without large cities, there are no municipalities in Uttarakhand that have urban planning departments, and town planners at the six districts in the Kumaon division establish master plans at the district level on behalf of cities. Therefore, while urban planning for the small-scale city of Rudrapur is formulated at the district office in the neighboring Hardwari, plans are assigned to IIT (Indian Institute of Technology) at Roorkee with a planner from IIT Roorkee.

Because Rudrapur is a land that was newly settled as a refuge for Western seeks at the separation as mentioned above, sections of the city were formulated by plan from the beginning. The first urban plan for Rudrapur was implemented in 1958, and the master plan included the

implementation of plans that designated the entire city as a limited development region. The region targeted by the plan at this time was the central region of Nagar Palica and the surrounding eight villages. The concentric division of the central shopping streets of Nagar Palica was formulated by the 1958 urban plan, and the area now functions as Rudrapur's city market, reminiscent of a small-scale version of Connaught Place in the center of Delhi (Picture 1). The Sikh religious site of Gurdwara was created in the central portion of Nagar Palica and represents an iconic presence demonstrating that Rudrapur as a town that was created for Sikhs. The city market area surrounding Gurdwara includes not only daily commodities and food products, but also the formulation of a small scale commercial business district with various types of commercial facilities and offices. Today, the central portion that is Nagar Palica is a mixture of offices and residences with commercial facilities. While land utilization is mixed use, it is not a highly centralized commercial area as many of the commercial facilities are operated by individuals on a small scale, and shoppers utilizing them are largely from neighboring regions.

Because the Master Plan for 2011 established in 2001 was formulated in response to the development of the SIDCUL IIE Pantnagar industrial park, the planning targets were a range of an area that included 16 villages surrounding Rudrapur. Previously, Rudrapur was a small-scale provincial city developed in 1958, and while only the city center was substantially targeted for implementation of the urban plan, it could be said that substantial development of urban areas including suburban areas was initiated due to the Master Plan for 2011 establishing an urban plan that included industrial park development. However, because the ability to control and manage through urban planning with rapid urban development was lost, a Mas-



Picture 1. Nagar Palica
21 September 2009

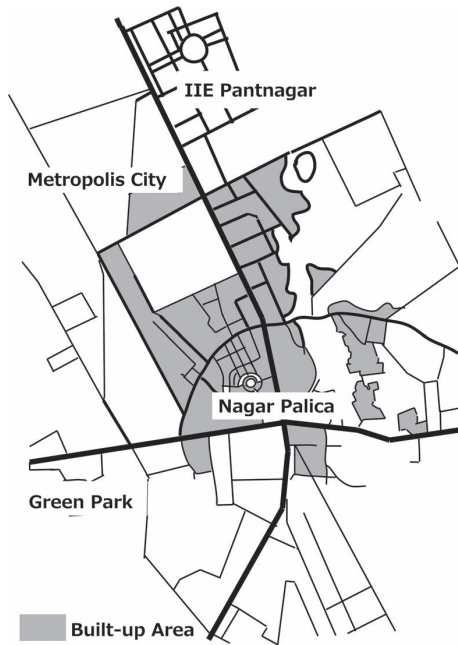


Figure 2. Masterplan for Rudrapur, 2021
Source: "Masterplan for Rudrapur, 2021" (Excerpt)

ter Plan for 2021 that included 25 villages surrounding Rudrapur was established in 2006 (Figure 2). The aim of the Master Plan for 2021 was an urban development for combination with development of the industrial park by SIDCUL, and road improvements for the industrial park and provision of housing in regions surrounding the industrial park. Redevelopment of the aging city center of Nagar Palica was also not stipulated in this master plan, thereby shedding light on the relative importance of urban planning transitioning to development of suburban areas.

Established in 2009, the Master Plan 2031 further expanded the target area, and an area encompassing 31 villages around Rudrapur was included in its planning area. While a large scale urban plan became necessary for this provincial city, the surrounding villages other than Rudrapur were actually rural villages, and rather than industrial development in these areas, it could be said that the development of rural villages in surrounding areas was planned as a countermeasure for inadequate housing in order to deal with expected population growth exceeding the capability of the central regional city of Rudrapur. The Master Plan for 2031 was formulated in accordance with urban planning guidelines of the Ministry of Urban Development of the state government, and importance was placed on residential development as well as industrial development, which was also viewed as most important in the Master Plan for 2021. The housing development measures that were newly released in this regard stipulated a low cost housing project, a policy common in the provision of public housing in India. This was a hous-

ing policy that placed priority on quantity over quality as a countermeasure for a serious deficiency in housing, and something that had been created by some poor states in India with low development funds in order to provide a large number of low-priced houses. Low cost housing projects that provide simple and inexpensive housing with a minimum of furnishings and leave subsequent building improvements to purchasers is a policy that is often seen in developing countries that have inadequate funds for city and housing development, and a common housing policy in metropolitan development in all areas of India.

IV. Housing Development

Traditional housing development in Rudrapur largely consisted of construction of individual homes in areas stipulated as housing areas in initial urban plans. This partial urban development of areas surrounding the city centered on development using small-scale local real estate capital with land partitioned as model colonies supplied and land purchasers constructing individual housing. The houses in the residential areas themselves were large, and while there were many houses built to high standards, the road management conditions were poor, and maintenance and management of infrastructure became problematic with clogged gutters, many places with water overflowing, etc. Moreover, there was lack of unity among the individual houses, and there are large disparities among living spaces.

This type of housing situation shows that the housing supply in Rudrapur was not administered uniformly with public capital, and also demonstrates the problems faced by provincial cities in India's remote areas thought to be caused by lack of public entities to manage and maintain infrastructure. Some aspects of housing development in Rudrapur have changed since the commencement of the development of the IIE Pantnagar industrial park in the beginning of the 21st century. There has been an increase in housing supply coinciding with development of the industrial park. This chapter introduces recent examples of housing development in Rudrapur.

IV.1 Development of "Metropolis City"

The focus in Rudrapur is on several large-scale housing developments in suburban areas. None of these housing developments relied on local capital, but were rather business developments by private developers with metropolitan capital with headquarters in Delhi metropolitan region. The trend toward utilizing private capital instead of public entities for city development and hous-

ing development is somewhat similar to what is known in Japan as the “privatization” method of development. India has adopted a mixed economic system through the nationalization of key industries, the use of private capital is convenient in that it makes up for insufficient national, state, or municipal development funding. Even in the Delhi Metropolitan region, the direct development activities implemented by the Haryana Urban Development Authority (HUDA) are limited in Haryana and Gurgaon with the majority of urban development utilizing private real estate capital. In this manner, the privatization of development is progressing even in India.

A huge development called “Metropolis City” is in progress on the wide flatlands on the west side of the main highway (NH 87) from the middle of Rudrapur city to IIE Pantnagar industrial park (Picture 2). Although “Metropolis City” was built on diverted experimental farm land from G.B Pant University of Agriculture and Technology, the shortage of housing for industrial workers is becoming serious due to the insufficient current stock of housing in Rudrapur.

“Metropolis City” is a joint venture between ASSOTECH and SUPERTECH that started in 2006 and slated for completion in 2011. The headquarters of ASSOTECH,

the implementing company, are located in Noida in Uttar Pradesh. While the company is currently involved in housing development projects in the suburbs of Delhi, in recent years they have also embarked on business development outside of the Delhi Metropolitan region.

In addition to housing, the large-scale comprehensive development of “Metropolis City” is located on a vast site with a total area of 47.27 acres that includes a shopping mall (opened in 2010), a five star hotel (scheduled for



Picture 2. Metropolis City
19 September 2009



Figure 3. Site plan of Metropolis City
Source: ASSOTECH local sales office

opening in fall 2010), a cinema complex, etc. (Figure 3). The housing in the development consists of 2,000 planned housing units with the price of each unit ranging from Rs.4 million-Rs.14 million. This price range of the houses shows that they are targeted toward upper middle and upper classes. At the time of the survey in September 2009, approximately 60% of the housing units had been sold with approximately 100 households already resided in their occupying units. According to interviews with the sales office of real estate, approximately 40 households had moved in by 2008, which equates to an increase of only 60 households within the period of a year. According to the sales officer, an additional 100 households are scheduled to move in during 2009 (October to December), which would result in an occupancy rate of only 10% by the end of 2009 after adding these.

As can be seen by an actual occupancy of only 5% in spite of a 60% contract rate of the 2,000 houses (by fall of 2009), there is a likelihood that purchasers will not occupy the home immediately after it is available, which indicates speculative purchasing with no intent to occupy. According to interviews with the sale office, many homebuyers were families from other bigger cities in Uttarakhand, such as Haldwani and Nainital, with few local buyers from Rudrapur. Furthermore, the majority of current occupants are members of the wealthy class and industrial park workers (manager class) from nearby Haldwani and members of the wealthy class from Nainital, with many of the buyers from outside of Rudrapur reportedly

being buyers for speculative purposes. According to the executive officer at the Municipal Office and personnel in charge of urban planning at the district office located in neighboring Haldwani, many industrial park workers take buses provided by their companies from Haldwani to work, while there are few commuters from Rudrapur, the location of the industrial park. Therefore, even though “Metropolis City” is next to the industrial park, the ratio of people living in “Metropolis City” and working at the industrial Park is small.

Furthermore, there is an alliance between banks and home loans for “Metropolis City” purchases, and most homebuyers take out loans from partner banks. While people in India have not traditionally relied on loans for home purchases, it is evident that a system of home loans is in place, even in India, for most homebuyers to use a home loan from a partner bank.

The floor plan of the housing development in “Metropolis City” (Figure 4) shows that the supplied homes are quite spacious with total usable area of over 100 m². Hence, the individual floor plans within each home are targeted to nuclear families with couples and children. Although each room is not equipped with its own bathroom or toilet, the housing units are of a high standard in view of living conditions in provincial cities. As indicated by the large number of young mothers waiting for the kindergarten shuttle bus in front of the gate at drop-off time, there are many relatively young nuclear families occupying the housing units in “Metropolis City.”

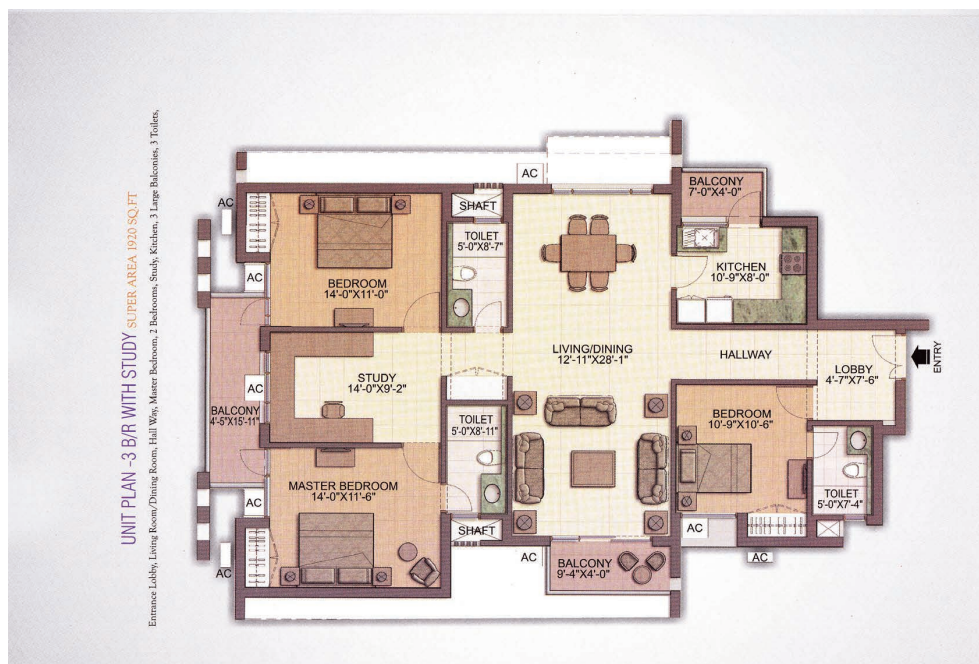


Figure 4. Floor plan in Metropolis City
Source: ASSOTECH local sales office

IV.2 The development of “Green Park”

Located in the urban fringes of the western suburbs, “Green Park” was developed by SOBTIS, which established its headquarters in Delhi in 2003. While “Green Park” is in the city fringe of Rudrapur in Uttarakhand state, administratively, it belongs to the Rampur district as an enclave of Uttar Pradesh. According to residents, being a state enclave reportedly presents no hindrance to the lives of residents.

The development entity, SOBTIS, has headquarters in Bareilly, a suburb of Delhi in Uttar Pradesh. Similar to the headquarters of SUPERTECH, SOBTIS also utilizes Delhi suburbs as their base of operations. It is believed that the ties of H.S. Sobotis (the founder and Chairman of SOBTIS and a Sikh) to the Sikh religion led to his embarking on the development of Rudrapur, which was constructed by Sikh refugees. According to interview surveys with the local sales office of SOBTIS, this company was originally the main entity for road and building/housing construction projects in the Delhi suburbs of Uttar Pradesh, but then expanded its business to comprehensive urban development projects that include housing, commercial facilities, hotels, and religious facilities. The company began business development in Rudrapur around the year 2000 with full scale residential construction in the city of Rudrapur targeted to the wealthy and hotel projects targeted to business travelers to the SIDCUL industrial park. With the success of the Bareilly and Rudrapur projects, the company also started resort development within Naukuchiatal, a resort area in Nainital that was undergoing development, in addition to expanding urban development projects in the state capital of Uttarakhand (Dehradun) and the Delhi suburb of Hapur,

Situated along the Kashipur-Rudrapur highway stretching west from Rudrapur (NH 74), the “Green Park” project began in 2003 with an initial development plan to supply 1,000 housing units on 148 acres of land. This was a large-scale project that included construction of various facilities including office buildings, Hindu and Sikh religious facilities, community facilities, hotels, and commercial facilities. It is believed that the construction of gurdwara (Sikh temples) in housing districts for followers of the Sikh religion was out of consideration for the abundance of Sikhs in the Rudrapur region (Figure 5).

Occupation of the standalone residential district in “Green Park” began in 2004, and offices, a commercial complex, and low income apartments were under construction in neighboring plots of land in 2009. SOBTIS was also planning future housing construction in neighboring areas, with the rollout of comprehensive urban

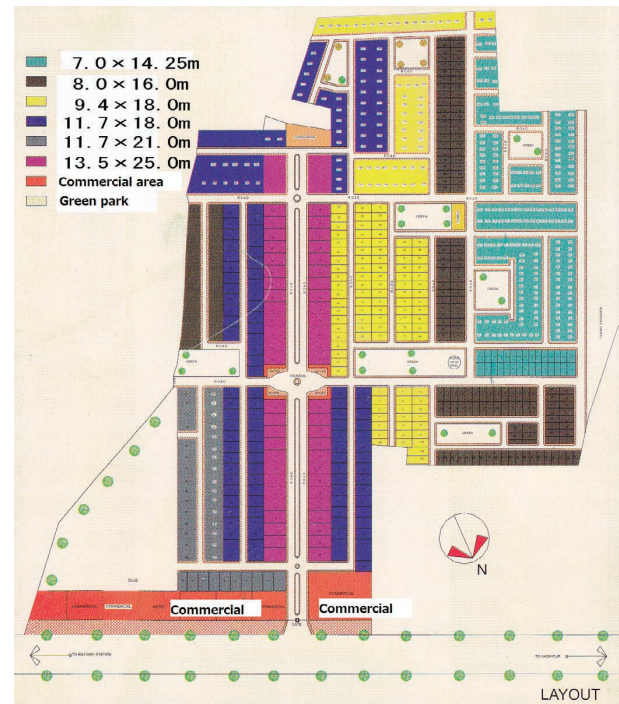


Figure 5. The Layout Plan for “Green Park”

Source: SOBTIS local sales office



Picture 3. Green Park

21 September 2009

development that would include various functions. The development plans of “Green Park” depict development of hotels and a commercial complex facing the main highway, with the majority of standalone housing having gated access.

The unified residential landscape is one characteristic of the “Green Park” (Picture 3). It is extremely rare case in India. This housing development, with its unified landscape of European-style buildings, is the result of the housing supply policy of SOBTIS. Built slightly earlier than Rudrapur, “Green Park” project in Bareilly buildings are all built with uniform brick walls and white pillars. The uniform exteriors and building designs of white walls and red roofs are characteristic of the homes in “Green Park”

project in Rudrapur. This type of unified housing design is rarely seen in India's housing estates, where non-uniform building designs are popular. Upon entering "*Green Park*," a totally different landscape than the cityscapes of India unfolds. With a main street over 30 meters in width and streetlights placed within 10 meter intervals, the image of an organized luxury housing district is projected almost to the extreme.

This type of organized urban landscape is extremely rare in India, and it is even rarer for such landscapes to remain after housing has been occupied. Descriptions from the local sales office regarding preservation of this landscape include loose landscape preservation covenants that permit expansion, but prohibit expansion of the living space into open spaces such as the front yard. While there are no covenants regarding the color of walls and roofs, it is believed that residents preserve the current uniform exteriors in order to avoid adversely affecting real estate prices.

The development plan for "*Green Park*" is a large scale project with a total number of 1,000 standalone housing units planned in an area of 148 acres, with a future capacity plan of 3,000 to 5,000 housing units. Occupancy of the standalone housing development began in 2004, and 600 units had been occupied in September 2009. While offices, a commercial complex, and low-income apartments are under construction, SOBTIS is planning construction for the future as well, with the rollout of comprehensive urban development that would include various functions.

According to interviews with the development office, the highest end of the price range for standalone housing units was 14 million rupees with over 70% of these units occupied by families employed at the industrial park, including families of faculty at G.B Pant University of Agriculture and Technology (over 200 people are professors) and family of companies that have expanded into the IIE Pantnagar Industrial Park. Income levels of residents could be classified as the wealthy class for a provincial city, with families of university professors (their monthly income of 60,000 rupees or more) and manager levels at the famous factories of Bajaj and TATA. The price of houses ranged from 5.5 million–14.1 million rupees. According to the local sales office, 99% of purchasers took out bank loans to purchase homes, which demonstrates a change from the traditional custom in India to purchase a home to taking out a bank loan to make the purchase.

IV.3 The development of "*Lake City*"

"*Lake City*" is another development that begun along the western edge of Rudrapur's NH 74. Its status at the

time of the survey in September 2009 included a road connecting the developed regions. Construction of the housing complex had just begun and "*Lake City*" project started in June 2009 by SAMIAH (Samiah International Builders Pvt Ltd.), developer with headquarters located in Delhi. The plan calls for a total development area of 123 acres with a mid-level housing complex supplying 3 story housing units. A mid-level housing complex is composed of three types of flats, with the plan calling for 685 units, 958 units, and 1,285 units each. The main goal is the supply of affordable houses with the lowest price units consisting of three-room flats that sell for 790,000 rupees. Having just begun development, there were no personnel in charge among staff at the SAMIAH local sales office who could provide detailed explanations regarding the overview of the plan. According to SAMIAH's corporate website, the company was established as a construction company in Kuwait in 1982. In the 1990s it began business development in the greater Delhi Metropolitan area and Haryana focusing on office construction, development of housing estates, and luxury housing construction. In addition to construction of luxury housing complexes (also referred to as "group housing") in the suburb of Delhi in recent years, the company has also expanded business into Haryana, Hapur in Uttar Pradesh, and Uttarakhand, and embarked on housing development in the provincial cities of Nainital and Rudrapur. The unveiling of projects such as these in provincial cities such as Rudrapur by private real estate developers from large metropolitan areas is typical condition of recent urban development in India.

V. Communities on Newly Developed Housing Estates

The new housing developments introduced in the previous chapter are all gated communities surrounded by high fences, and the comings and goings of outsiders are managed by means of strong gates (Picture 4). According to Blakely and Snyder (2004), there are gated communities in the United States both for high income earners to display their prestige and for security, and there is an increase in gated communities in India as well. Because of poor security and the prevalence of theft and robbery in Delhi's satellite cities, gates are placed at the entrance of residential areas and housing complexes and checks are carried out by a security guard. Furthermore, gates are often installed by developers for the purpose of selling to the middle and upper classes. While crime prevention appears to have become an issue due to the increase in theft targeting housing areas of the middle and upper



Picture 4. The gate of Green park
21 September 2009

classes as economic development in India has progressed, living in homes surrounded by gates affords the residence a sense of distinction from those outside.

In this manner, gated communities, which are increasing in large metropolitan suburbs, are also being formulated in provincial cities. While it can be said that such gated communities have been “orchestrated” in the new residential area of Rudrapur, residents transferring from other areas do not have much interaction with residents of the conventional town and choose of their own will to live in separated areas from their surroundings.

VI. Conclusion

This paper clarified the actual state of urban development in provincial cities using the example of Rudrapur. Because individual provincial cities in India usually do not have their own urban development authority at the district level are in charge of urban development of small neighboring municipalities. Because small-scale provincial cities like Rudrapur do not have urban development authority, wide-ranging master plans are established by higher-level administrative organizations, and development activities must rely on the activation of private capital, with aspects of reliance rather than utilization of private capital. Residential development was undertaken for industrial park workers in parallel with the development of IIE Pantnagar Industrial Park in Rudrapur. Rather than purchasing new homes, the working-class employees at operational departments in the industrial park occupied rental housing within the existing city and neighboring rural areas. There are a limited number of wealthy people in provincial cities like Rudrapur, and occupants of new

housing developments consisted mainly of the wealthy and the upper middle-class associated with the industrial park development.

Private real estate capital tends to emphasize preservation of occupant security at the time of sale, and gates are placed at the entrances to housing areas to severely restrict nonresidents. While security is an important issue for residents, emphasis is on ostentatiously exhibiting a high standard of living by limiting intercourse with the outside. It is for this reason that prestige-type gated communities are formed.

The largest issue in India’s urban development is the problem of infrastructure maintenance for public services such as roads, water, and sewers. Devastation of area roads prior to development has occurred, even while work is underway on new developments, due to poor maintenance. Because public funding is often not available for repairs of devastated roads, the deterioration of roads occurs quickly.

On the other hand, the situation with gated communities have systems for cleaning and emergency repairs, there are no mechanisms for regular maintenance. This is common with urban developments in India. When asked about maintenance of infrastructure for developed land, a private developer gave the candid response that “maintenance is a non-profitable item for developers.” Infrastructure maintenance conducted by municipalities is limited to the public portion of roads, and maintenance of private gated communities, despite their large size, is the responsibility of residents.

Acknowledgement

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