

Chennai's Peri-urban: Accumulation of Capital and Environmental Exploitation

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Abstract

Peri-urban areas such as those of Chennai, once characterized as rural, have transformed into places of luxurious living and globally invested special economic zones (SEZs). This industrial region includes Tamil Nadu's State Industrial Promotion Corporation (SIPCOT) SEZs, which house global firms. Such investments have spurred publicly funded mega infrastructure projects such as expressways connecting to existing and new ports, all facilitated by land acquisition for 'public purpose'. An important dynamic relates to the variety of players in the residential real estate market—ranging from low-income workers to mid-level executives. This peri-urban region's connection to Chennai's city centre happens not just via these globally oriented investments but also when natural resources, mainly water, are exploited for urban needs—supplied to Chennai city and also particular locations in its peri-urban region. Other locations in these peri-urban areas have transformed into dumping yards for Chennai's wastes. Such environmental degradation shows how peri-urban areas are subjected to multiple processes and their dynamics cannot be captured through a single phenomenon. To theorize this situation, this work explores circuits of capital through ethnographic fieldwork. It argues that peri-urban areas of Asian metro cities like Chennai are sites of accumulation of capital whose exploitation for urban need extends to environmental degradation in complex ways. Such a joint conceptualization of environment and urbanization in urban peripheries is witnessed in other centres of the global North and South such as in Mexico City and Ho Chi Minh City, and within Indian cities as well. This points to a wider applicability of the concepts explored here.

清奈城郊区域：资本积累和环境剥削

城郊区域，以印度清奈周边为例，过去是农村地区，现在已经改造成了奢华生活的场所和全球投资的特别经济区（SEZs）。包括泰米尔纳德邦产业振兴委员会（SIPCOT）经济特区在内的工业区，驻扎了全球性的公司，如富士康、现代、福特、诺基亚、圣戈班集团等。类似投资促使公共资金投入大型基础设施项目，例如连接新旧港口的高速公路，所有这些项目都是由“公共目的”的征地推动的。一个重要的动态变化涉及到住宅房地产市场的各种参与者——从低收入工人到中层管理人员。城郊地区与清奈市中心的联系不仅仅是通过这些面向全球的投资产生的，也发生在自然资源，主要是水，应城市需求被开发的时候——自然资源被提供给清奈市，特别是城郊的特定位置。城郊其他区位的土地则转化为清奈的废物倾倒场。这样的环境恶化表明了城郊地区是如何受到多个过程的支配，并且它的动态变化无法通过一个单一现象来描述。

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为了把这种情况理论化,本研究通过田野调查探讨了资本循环。研究认为,亚洲例如清奈这样的大城市,其近郊区是资本积累的场所,它为了应对城市需要而产生的剥削以复杂的方式涉及到了环境的恶化。这种环境和城市化在城市边缘结合的概念在全球南北半球的其他中心城市也得到了见证,如墨西哥城和胡志明市,以及印度的班加罗尔。这一概念更广泛的适用性也在文中进行了讨论。

Keywords

Peri-urban areas of Chennai, accumulation of capital, development of the real estate sector, degradation of peri-urban environments, exploitation of peri-urban natural resources

Introduction

In recent times, peri-urban areas of Indian metros have attracted the attention of scholars, with respect to the spatial expansion of cities. The major cities in India for a long time, Mumbai, Kolkata and Chennai, have grown drastically and turned into metropolitan cities. Many new cities have also emerged, such as Bangalore, Chandigarh, etc. The spatial expansion of cities has resulted in contested occupancies of peri-urban areas, which in turn resulted in their morphological and spatial restructuring. Peri-urban areas are considered neither rural nor urban and are subjected to urbanization. Oliveau (2005) defines as, 'Periurban spaces are still physically separated from the city by agricultural land and/or natural open spaces (there is no continuity with the built-up area of the city).' According to Allen (2003), 'The peri-urban interface constitutes an "uneasy" phenomenon, usually characterized by either the loss of "rural" aspects (loss of fertile soil, agricultural land and natural landscape, etc.) or the lack of "urban" attributes (low density, lack of accessibility, lack of services and infrastructure, etc.).' In keeping with Allen, Janakarajan (2008) says,

The peri-urban area is neither rural nor urban. This terminology is derived from the word 'peripheral'. The expression peri-urban could be defined as fringe; edge city; urban stretch/sprawl; bordering villages. Effectively, these words also convey meanings of being less important, incidental to main activities, outer edge, fringe to the main, spillover or over flown. Nevertheless, the term peri-urban is not fully explicable because of complexities and ambiguities involved in it.

The definition of peri-urban areas suggests that peri-urban areas lie outside the city and are characterized by both rural and urban aspects.

Such hypotheses of peri-urban areas point to an urbanization that has resulted in the formation of mixed spaces, which lies in between urban and rural areas (Dupont, 2007). McGee who works on spatial economy in Asia, particularly on the spaces in between urban and rural areas, coined a term called Desakota, which for him is neither urban nor rural are separate processes both are interrelated with each other (McGee, 1991). The occupancy of peri-urban areas has resulted in conflict among different stakeholders. The conflicts arise because of polarization of rich and poor (Arabindoo, 2009). Peri-urban areas are under the threat of ecological degradation and environmental pollution. There are a few initiatives at local level to address environmental issues and also those initiatives are successful, but sustainability of these areas requires state intervention (Shaw, 2005). Despite these works, research on peri-urban areas is growing, because peri-urbanization has become a global phenomenon. Both global North and South are witnessing a rapid peri-urbanization, for example, Mexico City in North America and Ho Chi Minh city in Vietnam. According to Aguiar (2008), the growth rate of population in peri-urban areas of Mexican

city is higher than that of the central city, this result in occupancy of eco-sensitive peri-urban areas—despite the pressure of laws to prohibit this. Such pressures are unable to control the growth of informal settlements and have resulted in deforestation. Similarly, Kontgis et al. (2014) observes rapid peri-urbanization in Ho Chi Minh city of Vietnam, and they point out that peri-urbanization occurred in less than 40 km from the central city. Moreover, they argue that opening Vietnam's market to Foreign Direct Investment (FDI) has resulted in industrialization and in rapid development of housing in the peripheries of Ho Chi Minh City.

In this wider context, this article focuses on real estate development and exploitation of natural resources and environmental degradation of peri-urban areas. It addresses these issues through a framework that postulates: 'peri-urban areas are the sites of accumulation of capital and sites of environmental exploitation for fulfilling the needs of the core of the Chennai city'. On the other hand, circulation of capital and commodities are very important in the process of capital accumulation. Aoyama, Murphy and Hanson (2011), considering Marx, point to three circuits: production, money and commodity circuits. These circuits are constantly repeated in order to accumulate capital. In the words of Marx (2010, p. 355),

The direct process of the production of capital is its labour and self expansion process, the process whose result is the commodity-product and whose compelling motive is the production of surplus value. The process of reproduction this direct process of production as well as the two phases of the circulation process of capital comprises proper, i.e., the entire circuit which, as a periodic process—a process which constantly repeats itself in definite periods—constitutes the turnover of capital.

Therefore this article also focuses on accumulation of capital and develops a circuit of capital in the real estate sector.

The first section of this article narrates the occupancy of the peri-urban area of Chennai from the colonial period to the present time. The second section of this article gives a brief account of the methodology. The third section argues that the private-initiated housing developments in peri-urban areas are profit-motivated and are not able to fulfil the housing needs of the urban poor. The fourth section narrates the exploitation of natural resources of peri-urban areas: mainly exploitation of ground water and the fifth section elucidates the destruction and environmental degradation of peri-urban areas. The final section tries to map out the circuit of capital in real estate sector of peri-urban areas. In conclusion, this article suggests that peri-urban areas are sites of accumulation of capital that are subjected to exploitation of natural resources for the use of cities. This emphasizes that the ecological degradation and environmental pollution, which threatens peri-urban areas, are linked to circuits of capital accumulation rather than naturalized from the perspective of urbanization and population growth.

Occupancy of Peri-urban

In order to understand the present context of peri-urban areas of Chennai, it is important to look at the history of land development in peri-urban areas. The transformation of peri-urban areas had not happened in a short period and it has a long history from the colonial period. This section gives a brief account of the history of transformation. Chennai has grown by occupying its peri-urban areas from the Colonial period for residential use and both for residential and industrial uses at present. The occupancy of peri-urban areas is carried out by expanding and marking the boundaries of Chennai.¹ The occupancy of peri-urban areas of Chennai can be classified into three phases: the colonial, the post-independence and the post-neoliberal period.

The first phase of occupancy of peri-urban area happened during the colonial period (1600–1947). According to Neild (1979), Madras² was ‘city of villages’, there were around sixty villages under the control of *Mirasdars*³ and the economy was agrarian. Soon after the arrival of British East India Company in the 1600s, Madras had become an important centre of political and military activities of the British and they settled at Fort St George. Neild classifies colonial Madras as White Town, Black Town and its suburbs. White Town was the settlement areas of Europeans and Black Town and its suburbs were the settlement areas of Indians. There was a lack of opportunity for expansion with respect to growth of population at Fort St. George and the situation resulted in suburbanization. Moreover, Europeans preferred the suburbs as their personal residence, for their satisfaction and prestige, and to have a healthy life. In the meantime, Lewandowski (1975) argues that the British dictated the morphological and spatial pattern of Madras; they had developed a municipal apparatus to administer Madras and to regulate the land use. During colonial period, Madras emerged as a city with commercial, administrative and service sectors rather than as an industrial city, unlike Calcutta and Bombay. The population of Madras increased due to in-migration of people from the neighbouring district of Chengelpet. People from faraway places also migrated to Madras for their education. The migration resulted in increasing the concentration of the population in Black Town and there was a high risk of an epidemic. On the other hand, the British segregated their settlements from the indigenous population and settled in low-density garden suburbs. A significant part of income generated by the municipality through taxes was used to provide urban and transportation facilities for the colonial rulers. Archer (1997) argues that the suburbanization of Madras was due to consciousness of self-identity, which is primarily to differentiate private from public. British people colonized the peripheral spaces of Madras and consequently indigenous settlements and European settlements were separated socially and spatially. Therefore, the first phase of occupancy of peripheral spaces of Chennai was to distinguish the settlement of Europeans and the indigenous population and mainly to fulfil the need of Europeans who preferred spacious private housing.

The second phase of the occupancy of peri-urban areas can be considered from the independence to the neoliberal period (1947–1990). In this phase, the peri-urban areas were occupied in order to fulfil the housing needs of the local elite. The work of Arabindoo (2009) captures the proliferation of high and middle class housing in two neighbourhoods in the southern periphery of Chennai. According to Arabindoo, in the 1950s and 1960s, a group of elite working with state apparatus, who mainly worked at the High Court of Madras, purchased land in Valmiki Nagar to construct houses after their retirement; and since most of the land and houses in Valmiki Nagar belonged to the bureaucrats working at the High court, it was called the ‘Judges’ colony’. In the same period Neelangarai, which lay between the seashore and the Buckingham canal, were fishing hamlets and there were *kuppams* where the fishermen resided. The poor people who migrated to Chennai settled on the banks of the Buckingham canal since it was easy for them to encroach. From 1978 onwards, for Arabindoo, Valmigi Nagar and Neelangarai were brought within city limits; these areas came under the planning process of the state apparatus and the local people lost their control over the transformation of their places. The para-statal agency Tamil Nadu Housing Board (TNHB) constructed high-rise apartments to fulfil the housing needs of middle-income and low-income groups and the initiatives of TNHB resulted in the skyrocketing of the price of land. In order to fulfil the housing needs of the increasing population, private developers were allowed to enter into the housing sector. Most of the absentee landowners sold their land to the land developers and turned their land into money. In Neelangarai, according to Arabindoo, the Chennai Metropolitan Authority (CMDA)⁴ plotted land and sold it to the employees of Southern Petrochemicals Industrial Corporation (SPIC). The layouts of private developers were also approved by CMDA. This clearly shows that the second phase of occupancy of peri-urban areas was to fulfil the luxurious lifestyle of the upper class and the housing needs of the middle class.

The third phase of occupancy of peri-urban areas is from the 1990s to the present date. In the third phase, the peri-urban areas were occupied for both residential and industrial purposes. According to Purushothaman (2014), peri-urban areas of Chennai were converted into residential and industrial areas. Mainly, the agricultural lands were converted for non-agricultural purposes. Moreover, for Purushothaman, local players and real estate businessmen play a key role in converting the agricultural land into residential plots. Based on his fieldwork in Kondancheri Village, a peri-urban area of Chennai, he argues that the policies, which were set to prevent land conversion, are unable to prevent the conversion of farmland into residential use. A review of the Second Master Plan of Chennai (CMDA, 2008) suggests that the pattern of development in Chennai periphery is designed as an information technology (IT) corridor in the southeastern periphery of the city and Special Economic Zone (SEZ) and industrial cluster development along the west and the southwestern periphery of the city. At present, industrial clusters are a dominant pattern of development along these corridors. According to Kumar (2004), Mahindra World City at Marai Malai Nagar, in the south-west periphery of the Chennai, is a city of its own, it has all facilities including good infrastructure. The Mahindra World City was developed through a public private partnership between Mahindra and Mahindra and the Tamil Nadu Industrial Development Corporation. Mahindra and Mahindra hold at most 89 per cent of the total shares. Mahindra city, for Kumar, is designated as an SEZ for IT companies and auto ancillary production companies. Moreover, Infosys has also acquired 126 acres for constructing software development centre.

In the course of the development of IT and manufacturing units, peri-urban areas have attracted a huge amount of foreign investment. For example, manufacturing industries have proliferated in Sriperumbudur, a peri-urban region that lies in the Chennai–Bangalore corridor. Industries in Sriperumbudur can be broadly classified into two major categories: automobile manufacturing and electronics manufacturing companies. Homm and Bohle (2012) call Sriperumbudur as ‘India’s Shenzhen’. According to Homm and Bohle, Sriperumbudur is a successful story of Chennai’s industrial development and they point out that about 23 global firms have their presence in Sriperumbudur; as per their assumption, Sriperumbudur will become the largest automobile hub. Therefore, peri-urban areas have become the destination of manufacturing and IT companies in the past two decades and have emerged as globally competitive manufacturing areas. The rise of industrial development has attracted a considerable amount of foreign direct investment; according to Rohit (2009), about 5 billion dollars have been invested in the Sriperumbudur region. This clearly shows rapid industrial development in the peri-urban areas of Chennai.

In short, in the first phase, peri-urban areas were occupied for fulfilling the luxurious housing needs of colonial rulers, and in the second phase peri-urban areas were occupied for the housing needs of the local elite, mainly the upper and the middle classes. In the third phase, peri-urban areas were occupied for both residential and industrial purposes.

Multi-sited Ethnography and its Relevance

A multi-sited ethnography method is used to carry out field research in different parts of Chennai’s peri-urban areas as well as in its central parts. This multi-sited approach addresses the complex peri-urban dynamics that cannot be captured by examining a particular location since the transformation of peri-urban areas is carried out by various stakeholders in different parts of peri-urban areas; mainly the real estate agents (builders, land developer and brokers) and financial institutions in Chennai city. In this way, the research explores the process of accumulation of capital in peri-urban areas and environmental exploitation for urban needs.

Three sets of respondents were identified for understanding the three main issues related to peri-urban areas: real estate development, exploitation of natural resources—mainly water—and finally degradation of the natural environment. In case of real estate development, native residents and the settled population of peri-urban areas were interviewed to understand the transformation and housing development in peri-urban areas and the preference of the population to settle in peri-urban locations. Land developers in Chennai who were involved in real estate business in peri-urban areas were also included. Moreover, land brokers and officials of financial institutions as well as agents of financial institutions such as Direct Sales Agencies (DSA) marketing the products of financial institutions were interviewed to collect information related to real estate. People who buy bottled water, managers of bottling companies and dealers of bottling companies who buy and supply water to customers were interviewed to understand the exploitation of groundwater in peri-urban areas to fulfil Chennai's drinking water needs. Social activists, dumping yard workers and residents who live near dumping yards were interviewed to find out the environmental consequences related to dumping waste that is generated in Chennai, in peri-urban areas. In all, about 45 people were selected by using random sampling and in-depth interviews were used to collect rich qualitative information. Since various methods were used, the method used in this research is mixed. This research aims to provide more importance to the narratives of various stakeholders related to peri-urban areas and therefore excerpts from the interviews are placed throughout the article.

The Housing Question

The peri-urban areas of Chennai are subjected to massive residential development. Many players ranging from global to local are involved in the real estate business. Most of them are private players, except in certain cases where the CMDA and TNHB and the Tamil Nadu Slum Clearance Board (TNSCB) are involved in housing projects such as construction of tenements and developing housing plots. The involvement of private players in the real estate business is much higher than that of the state institutions. In this context, this section concentrates on the role of the private players in real estate business, tries to understand the profile of buyers and addresses the questions: Why do private players prefer peri-urban areas? How far are private players able to solve the housing needs of people in the heart of the city? Has the private-initiated housing development in peri-urban areas of Chennai created opportunities for the poor to buy a house or land of their own?

First, lands in peri-urban areas, in most of the cases, are developed by real estate players in Chennai. For instance, Senthil, a 35-year-old real estate broker, says,

Mostly real estate businessmen, who operate in Chennai buy, develop and sell land in peri-urban areas. Land owners who own land and live in peri-urban are not involved in real estate business, because they do not know the business. They do not know how to lay out the housing plots, and also they are not familiar with marketing. Therefore, people from Chennai who are already in real estate business are buying and developing land in peri-urban areas and making profit out of that. Moreover, land owners are not ready to take the risk of laying out land and getting approval for the housing layouts, instead they are ready to sell their land and make money out of that.⁵

This clearly shows that very few players in peri-urban areas are involved in developing land. The landowners in peri-urban areas restrict themselves to making money out of the sale of their lands to private real estate developers. This is because developing land and construction of houses requires knowledge on plotting the land and construction techniques and involves various bureaucratic processes.

Second, Chennai-based real estate agencies show more interest in operating in peri-urban areas because the price of land there is cheaper than the price of land in the city and also because of the availability of land. In the words of Senthil, a 35-year-old real estate broker,

The main reason for the interest of real estate companies on peri-urban areas is the price of land. The developers are able to buy land at cheaper price and make more profit. For example: A developer will buy land for 10 lakh rupees and spend another 10 lakh rupees for developing land and make profit more than 50 lakh rupees. On the other hand, developer cannot find land in acres within city and even if he/she finds land in acres within city, the price of land is very high. The price of land per square feet within city is around ten thousand rupees. But, in case of peri-urban areas developers can purchase land in a price 200–300 rupees per square feet and then they will develop and get permission from government authorities and fix price as they wish⁶.

Senthil's statement clearly shows that real estate businessmen prefer peri-urban locations because the price of land in peri-urban areas is cheaper and they are able to make more profit through the sale of both housing plots and residential property.

Third, buyers who live in the city also show an interest in buying land or residential properties such as apartments, semi-independent and independent houses in peri-urban areas because the price of land is cheaper there than in the city. In the words of Lakshmanan, a 56-year-old real estate broker,

If people want to buy property or land in city they should have money in crores. However, in peri-urban areas people can buy property or land in affordable price. Therefore, people prefer to buy property or land in peri-urban areas.⁷

This clearly shows that people in city also interested to buy land or property in peri-urban areas because the price of land is cheaper compared to the central parts of the city.

Fourth, real estate companies and brokers target salaried government employees, employees of private companies and self-employed people who have good turnover. Clearly, real estate companies and brokers target people who have a guaranteed monthly income and belong to the middle-income groups. For instance Siva Kumar, a 58-year-old small scale builder, says,

I prefer salaried middle class people because they have proper eligibility to get loan from banks. They have proper income proof and IT returns. This is not the situation in case of low income people because they do not have income proof and IT returns. Moreover, I do not prefer high income people because they prefer to buy flats inside city, if I do projects for them then I have spent more money for buying land and land cost is high in city.⁸

The statement of Siva Kumar clearly shows that the preference of the middle-income group arises in the context that these group of people are eligible for housing loans from financial institutions.

Fifth, the situation clearly shows that poor people are clearly excluded from the benefits of housing opportunities created by private players. The reason for the exclusion of poor from buying land and residential property from private players is that they do not have the eligibility to make use of housing loans from financial institutions. For instance, Vimal Raj, a 36-year-old man and a former direct sales agent of financial institutions, says,

The financial eligibility of salaried people is determined by their monthly salary. A salaried person can get 50 to 60 per cent of his/her monthly salary as loan. For example: if a person is getting one lakh rupees as salary per month then he/she is capable to pay 60 per cent of his/her salary as EMI per month and banks provide loans based on that. In case of self-employed person the financial eligibility is determined by his/her annual income and three years IT Returns. A salaried person should submit his/her three month pay slips, six-month bank statement of

the account in which his/her salary is credited, Employment Stability Proof, Know Your Customer (KYC) documents, details about previous loans and PAN Number. A self-employed person should submit details of one year income, three year Income Tax (IT) Returns documents, one year bank statement, Business Stability Proof and KYC documents.⁹

It is also evident that the poor people do not have income stability as well the documents required for housing loans except KYC documents and hence they are excluded from the housing initiatives of private players in peri-urban areas.

Even though poor people are excluded from buying land and residential property developed by private players in peri-urban areas, there are certain schemes of the state institution, which aim to house poor people in peri-urban areas. For example, Chemmencherry was a resettlement scheme introduced by the TNSCB 10 years ago. The aim of the Chemmencherry scheme was to house poor people who lived in a slum inside the city and the people who were affected by the tsunami. People who lived in the slums were evicted and resettled in Chemmencherry. However, the resettled people do not get a title deed of the allotted house for a period of 20 years because they have to pay the price of the house in instalments for 240 months, that is, 20 years; hence the allottee cannot sell the house and they do not possess ownership of the house for a period of 20 years. According to Ramesh,¹⁰ an employee of TNSCB,

The price of the house in Chemmencherry is sixty thousand rupees and allottee should pay two hundred rupees per month for twenty years and after successful payment of instalments TNSCB will provide title deed to allottee.¹¹

In case of the tsunami housing scheme, the allottees are not required to pay money for the allotted house and they too do not get title deed. If an allottee dies then the allotment can be transferred to one of the members of the family, in both the cases: the resettled slum dwellers and the tsunami victims. However, such initiatives result in a crisis of social reproduction and result in a return movement of the population into the city. According to this author (2015), the resettled people are unable to get employment and jobs with social security, which in turn resulted in a return movement of the population and the people resettled themselves in city. On the other hand, the people who suffer from high housing rent in the city moved into the resettlement colony in order to escape the high housing rents. However, poverty is conspicuous, both among those forcefully resettled by the state as well as those who voluntarily migrated, and hence poverty is visible in the resettlement site Chemmencherry and Chemmencherry has become ghetto of poverty. This situation clearly shows that the housing scheme introduced to house the slum dwellers and tsunami victims does not ensure ownership of houses.

In certain cases, poor people are also able to buy residential plots from private developers through instalments schemes. However, the location of plots lies outside the Chennai corporation limit and the land is also approved by the panchayat and not by the CMDA or Directorate of Town and Country Planning (DTCP). Since panchayat-approved lands are far away from Chennai, middle-income groups do not show an interest in buying those plots, since housing loans from financial institutions are not available for panchayat-approved lands. This situation opens up space for poor people to buy plots in remote peri-urban areas. Developers get a power-of-attorney¹² from landowners by paying initial deposit and they divide land into plots and sell to mostly low-income customers. Usually the instalment period is 60 months, that is, five years. In most cases, at the end of five years land owners recognize the increase in the value of land and they demand more money from developers. In order to ensure a profit, developers insist that the buyers to pay either more money or to take half the size of land out of the land which was promised to the buyers at the beginning of the sale. This situation clearly reveals that the poor are in

a vulnerable situation, where they can buy land only in remote peri-urban places and they are unsure about getting the land size promised at the beginning of the sale.

In short, real estate businessmen prefer to do housing projects (residential plots and property) in peri-urban areas because they are able to buy lands at a price, which is much lower, than the price of land in the city. On the other hand, people in the city also tend to buy land and property in peri-urban areas, since it is affordable to them. However, the target population is the middle-income group, mainly salaried government employees and private company employees and self-employed businessmen. Many real estate players target middle-income group because they are eligible for housing loans. This situation clearly excludes poor people from buying land or residential property. There are also certain government schemes (resettlement schemes), which aim to house poor in peri-urban areas, but the schemes are not successful and result in a return movement of the resettled population. Moreover, poor people do not completely benefit from the schemes introduced by private real estate developers. Therefore, the housing developments in peri-urban areas have not created good opportunities for the poor to buy land or property in peri-urban areas. This section highlighted the housing question of poor people and revealed that the real estate projects of private developers are targeted towards the middle-income group and to make huge profits out of that. The next section concentrates on the exploitation of natural resources, mainly water, for fulfilling the city's needs.

Exploiting the Water Resources of Peri-urban Areas

As the population of Chennai grows, the demand for water to fulfil the needs of people living in the city has also grown. According to Vedachalam (2012), the projected water requirement of Chennai in the revised master plan of 1997 was 710 MLD water in 2001 and 942 MLD in 2021 without including industrial and urbanized areas in the periphery of city. Including the industrial and urbanized areas and the city, the Chennai requirement was 1327 MLD in 2001 and 1927 MLD in 2021. In this context, exploiting water resources of peri-urban areas solves the demand of water in Chennai city. According to Srinivasan (2005), Chennai is drawing water from villages in its surroundings. The water used for agriculture and drinking purposes in peri-urban areas is taken away for Chennai's use. In the mean time Srinivasan points out that the water in the peri-urban villages are taken in the situation where there is a decrease of groundwater, and rain-water harvesting in the peri-urban areas has not given good results in increasing the groundwater level.

This serious issue of exploitation of water can be understood from the work of Janakarajan et al. (2007). According to Janakarajan et al. (2007), the demand of water in Chennai was fulfilled by four rivers, namely, the Araniyar, Kusathalayar, Cooum and Adayar rivers, for a long period of time. At present Chennai has no access to perennial rivers and depends on four reservoirs (the Poondi, Cholavaram, Chembambakkam reservoirs and the Redhills Lake). However, these reservoirs are unable to fulfil Chennai's need. On the other hand, the water that Chennai receives from rain is 1290 mm per year, but only 5 per cent trickles down into the ground. The piped water supply by the Corporation of Chennai is not adequate to provide enough water supply to the people. In this situation, Janakarajan et al. argues that Corporation of Chennai pumped water from the wells in the peri-urban villages and supplied to people living in Chennai through tanker lorries. Their fieldwork in two peri-urban villages (Velliyur and Palayaseevaram) clearly reveals the exploitation of water resources of peri-urban areas. The village Velliyur is in the A-K Basin and 50 km away from Chennai. Since 1969, water has been pumped from the bore wells installed in the common land in this village and there were 280 agricultural wells in the

1980s. Due to continuous extraction of water the groundwater table had dropped and in 1995 people in this village started fighting against extracting water and demanded that the panchayat should pass a resolution against water extraction; however, the panchayat refused to pass the resolution since water is extracted from common land. In 2004, the people once again protested against the extraction of water, which resulted in violent conflict and a peace committee was formed to resolve the issue. In the peace committee meeting the officials of the Metro Water Board agreed to stop the extraction of water after 15 September 2004, but the extraction of water continued, stating that the higher officials had not agreed with the agreement. This angered the villagers and they destroyed the pipeline structure of the Metro Water Board, the police arrested a few people of the village and the court ordered them to pay the compensation demanded by the Metro Water Board. Thereafter, the Metro Water Board openly appealed to the farmers who wished to sell water, to approach the board. The village Palayaseevaram, according to Janakarajan et al., is located in the Palar Basin and is 50 km away from Chennai. A decline of water is experienced in this village. On the other hand, the Tamil Nadu Water Supply and Drainage Board planned to pump water from the Palar river bed. The villagers opposed this initiative, and they gave a memorandum to the district collector and the chief minister of Tamil Nadu, but the government had decided in favour of the city's water needs and the extraction of water continued. Moreover, Janakarajan et al. (2007) point out that the government, by extracting water for peri-urban villages, violates its own legislation. According to the Chennai Metropolitan Area Ground Water (Regulation) Act, 1987, extraction of water is prohibited in 229 villages initially which was then increased to 302 villages. However, water is extracted from the villages where extraction is prohibited, to fulfil the water demand in Chennai. By this action, Janakarajan et al. argue that the government bypasses its own rules and regulations.

The people who live in Chennai collect water for their daily use from multiple sources, such as the piped water supply provided by the corporation of Chennai, bore-well water, packaged water, water supplied through tanker lorries both by private companies and the corporation of Chennai. The water supplied through lorries are crucial in particular localities such as tenements of TNSCB, because the residents are not allowed to access bore-well water and they completely depend on piped and lorry water services. On the other hand, there are also multiple uses of multiple sources. For example, packaged water is used for drinking, piped water is used for cooking and bore-well water is used for bathing and washing. In this context, this section concentrates on bottling companies in the city and its peri-urban areas and shows how these companies exploit water resources of peri-urban areas.

Most of the households in Chennai use bottled water for drinking purposes. They rely on bottled water, because they feel that the water they get from piped connection supplied by the corporation of Chennai is not suitable for drinking purposes. This situation has resulted in the thriving of bottled water market in Chennai. According to Janakarajan, there are 1200 water-bottling companies across India and out of the 1200 water-bottling companies, 400 companies are in Tamil Nadu; and out of the 400 companies, 200 water-bottling companies are in Chennai and its peri-urban areas. There are two types of bottling companies; the first supply bottled water and collect the empty bottles and the second category fills the empty bottles with the purified water. Moreover, bottling companies are located both in peri-urban areas and within the city. Even though bottling companies are located in Chennai city these companies depend on the water resources of peri-urban areas, mainly water is collected from bore-wells in peri-urban areas and transmitted to bottling companies in city through tanker lorries and water is stored in underground tanks and then subjected to purification. For example, Giri Prasad, a 36-year-old manager of a bottling company in the heart of Chennai city, says,

This is a purification and bottling plant, water is brought from other places. There are thirty dealers with us. Dealers will purchase cans, we will paste our company sticker on the purchased can. We fill 2000 cans per day

and each can has a capacity of 20 litres and the capacity of this plant is also 2000 cans per day. Our company water is mainly supplied in Choolaimedu and Nungambakkam areas (areas in the heart of the city). The owner of this company has land in Inam Poondi, a peri-urban region. He has dug a well in his land and we get water from the well. The water is transmitted to this plant through lorries.¹³

The statement of Giri Prasad clearly reveals that the groundwater in peri-urban areas is exploited by the bottling companies, which operate in city. In some cases the owners of the bottling companies do not have land in peri-urban areas, so they cannot extract water from their own lands. In this situation these companies rely on private water suppliers who supply water through lorries by extracting groundwater of peri-urban areas either from their own land or by purchasing water from farmers who have a well in their lands. Therefore, it is conspicuous that the peri-urban water resources are exploited by bottling companies both in cities and peri-urban areas to make a profit out of drinking water demand in the centre of Chennai city.

To sum up, this section elaborates the extraction of natural resources of peri-urban areas, mainly water, by both state and private players to fulfil the water needs of the city and the conflict over the extraction. This section emphasizes that the private bottling companies extract water from peri-urban areas in order to make a profit out of drinking water demand in the central parts of the city. The next section concentrates on the government's initiatives to ensure additional water supply for Chennai's needs through a desalination plant, dumping of waste in peri-urban areas and environmental degradation due to such initiatives.

Destroying the Ecology and Environment of Peri-urban Areas

The ecology and environment in the peri-urban areas are destroyed and polluted for Chennai's needs mainly for two reasons: to provide additional water supply to Chennai through desalination of sea water into usable water and to dump the waste generated in the city. First, this section discusses the desalination plant installed in peri-urban areas and its impact on the ecology and environment and then deals with the dumping of waste and its impact on the peri-urban areas.

The earlier section concentrated on exploitation of groundwater in peri-urban areas and this section explains the conversion of sea water into usable water through desalination process and associated environmental degradation in peri-urban areas of Chennai. A seawater desalination plant was installed in Minjur, a peri-urban area, which has the capacity to produce 100 MLD per year under the newly created institution Chennai Water Desalination Limited (CWDL). According to the information published in the Chennai Metro Water website, Chennai Metropolitan Water Supply and Sewerage Board (CMWSS) invested money to construct the plant, an agreement was made between CWDL and CMWSS and according to the agreement CMWSS would purchase water from CWDL for 25 years. After 25 years, the ownership of the plant would be transferred to CMWSS.¹⁴

In this context, von Medeazza (2006) argues that the desalination plant results in destruction of marine ecology due to brine discharges and environmental pollution due to the emission of greenhouse gases from the fuel used in the plant. According to him, the aim of the desalination plant in Chennai is to provide additional supply of water and desalination plants are not the major source of water. About 100 MLD of brine water, for von Medeazza, is discharged from the Minjur plant and merged with seawater. The discharge of brine water into the sea results in the destruction of biodiversity in the sea due to hyper-salination of seawater. The author also gives the example of the Gulf coastline where desertification of marine life was experienced due to brine discharges. Moreover, von

Medeazza points out that coal is the main source of energy in Minjur plant for its operation and about 30,000 tons of carbon dioxide will be emitted during the production of 100 MLD water and will result in polluting the nearby areas. This clearly suggests that peri-urban ecosystem and environment is under the threat of destruction and pollution.

On the other hand, waste generated in the Chennai city is dumped in the peri-urban areas. According to the information published in the Corporation of Chennai website, there are two dumping yards in peri-urban areas of Chennai: Kodungaiyur and Perungudi.¹⁵ The size of the dumping yards Kodungaiyur and Perungudi are 200 acres; about 2100–2300 metric tons of solid waste is dumped in Kodungaiyur and about 2200–2400 metric tons of solid waste is dumped in Perungudi. It seems that Chennai lacks a proper solid waste management system, according to Sivaraman (2013), the Corporation of Chennai has no comprehensive plan to manage the waste generated in Chennai city, the garbage generated is only dumped rather being disposed and recycled. The statement of 39-year-old dumping yard worker Palani follows,

The wastes dumped in Perungudi dumping yard are not recycled. Wastes are dumped upon already dumped waste. Earlier, wastes were dumped by expanding the area of dumping yard by occupying Pallikaranai marsh land, now it is stopped, but wastes are dumped upon the already dumped waste and it continues.¹⁶

Dumping of waste without proper disposal has resulted in spread of diseases in the peri-urban areas near the dumping yards. According to Parvathi (2014), garbage has been dumped in Perungudi for more than 10 years and turned it into a breeding place for mosquitoes. Malaria and other diseases affect people in the locality. In addition, it seems that the groundwater in the adjacent areas of Perungudi dumping yard has been contaminated and has become unsuitable for drinking and cooking purposes. In the words of Saravanan, a 36-year-old man who lives adjacent to the dumping yard,

The groundwater in this locality is contaminated because of this dumping yard. Earlier, we used to drink bore well water, but now we cannot use bore well water for drinking purposes. The taste of the water has changed; if you drink it you can sense the presence of chemicals through its taste. We use bore water only for washing cloths and for bathing and we buy bottled can water for drinking and use corporation piped water for cooking purposes.¹⁷

Moreover, frequent fire accidents at dumping yards were reported in the dumping yards at Perungudi and Kodungaiyur. According to the news published in a newspaper (*The Hindu*, 4 February 2014), fire at Perungudi occurs frequently and causes serious pollution in that area. Moreover, the information published in newspapers cautions about the threat to the biodiversity at the Pallikaranai marshlands.

The Pallikaranai marshland is very close to the Perungudi dumping yard and a part of the marshland is occupied for dumping purposes; there is no separation between the marshland and the dumping yard (see Figure 1). It seems that over a period of time the marshland has been occupied for various purposes. According to the study conducted by Community Environmental Monitoring: A Program of the Others Media (2005), there are 45 species of fish, 10 species of frog, 21 species of reptiles, 110 species of birds and 10 species of mammals in the Pallikaranai marshland. The size of the marshland was 5500 ha about 30 years ago and now the size of the marshland is 550 ha, that is, 90 per cent of the marshland is converted for other uses. This created an antagonistic feeling between environmental activists and the local people. In 2012, the Corporation of Chennai handed over about 170 acres of marshland to the forest department under an eco-restoration programme by decapitalizing¹⁸ the value of the marshland. On the other hand the local people were also alienated from Pallikaranai marshland.



Figure 1. Junction point of Perugudi Dumping Yard and Pallikaranai Marsh

Source: Taken by the author.

The narrative of Selvaraj, a 75-year-old native resident of Pallikaranai, clearly maps out the transformation of the Pallikaranai marshland and the alienation of local people from using the resources of the marshland,

I have not gone to the marshland for the past seven years. However, I heard that the marshland has been given to the Forest Department of government and also people are saying that no one is allowed to catch fish and shoot birds. But, this was not the situation in those days. The village people depend on the marshland for their livelihood for three months in a year. Usually the Tahsildhar and a Revenue Inspector would come to our village once in a year and during their visit, the Panchayat would pay a certain amount of money to the government through the officers. Then the Panchayat would call for an auction to get permission to catch fish in the marshland. We used to form groups and the number of members would be around 25. Like us, there were also other groups and all the groups would participate in the auction; finally one group would get permission to catch fish in the marshland. The money collected through the auction would be used to develop our village. The school in this village was started with the money organized through the auction and later the school was converted into a government school and the government has taken the school under its control. The people who obtained permission would catch fish in the marshland and sell the fish in various places in Chennai like, Saidapet, Aayiramvilakku, Chindadhrivet and other places. The money collected through the sale of fish would be given to a person selected

in the group and at the end of the fishing season; the group members would sit together and share the money equally. At present, the size of the marshland has reduced very much. Lots of lands are converted for other uses. The government has allotted the marshland for various purposes. A part of the marshland has been used to construct the Velacherry Railway Station and a part of the marshland is used by the corporation for dumping waste (Prungudi dumping yard) and the size of the marshland is reduced due to allotment of land for other purposes.¹⁹

The narrative of Selva Raj clearly shows that the Pallikaranai marshland has been used for various purposes such as housing, dumping waste, etc., clearly shows that the local community life associated with the marshland has disappeared over a period of time and the local people are alienated from the ecosystem of the marshland.

To sum up, the ecosystem and environment in peri-urban areas are destroyed and polluted in order to fulfil the need of Chennai city and the local people in the peri-urban areas are alienated from their community life associated with their ecosystem. The above sections elaborated the occupancy of peri-urban areas for real estate development and exploitation and destruction of natural resources and environment for fulfilling needs of Chennai city. The next section concentrates on the accumulation of capital and its circuit in the real estate sector, which ensures the sale of commodities such as residential property and housing plots.

Accumulation of Capital in Real Estate Sector

The prime motive of the real estate business in peri-urban areas is the accumulation of capital. Various players such as builders, land developers and real estate brokers (multinational construction companies are not taken into account in this research) are involved in the accumulation process. In this context, this article tries to understand the various processes of accumulation and capital circulation (see Figure 2). Even though the secret of capital accumulation lies in the exploitation of labour, the circulation of capital as well as commodities are very important processes in the process of capital accumulation. In this context, this section pays attention towards organizing initial capital and working capital, and the mechanism of ensuring the circulation of commodities and their consumption. The organization of initial capital for a real estate project differs from person to person. Some organize initial capital from commercial capital through the sale of consumer products, some people arrange their initial capital through mortgaging their property to banks, some organize their initial capital by indirect exploitation of labour through labour contracts and other forms of organization of initial capital.

Once initial capital is organized, the developer or builder invests in real estate projects and then they need working capital to complete the project. Most of the builders and developers are unable to get loans from banks for their real estate projects. In the words of Mr Guru Prasad, a 54-year-old builder,

I am unable to get a loan from bank. According to the banks, builders come under negative profile. Only big players can get loans from banks and banks do not provide loans to small builders. Yesterday one of my friends said that Reliance Bank is providing loans to builders and he asked me to give my project to them, but in most of the cases banks do not provide loans to small builders.²⁰

However, banks prefer to provide loans to end users (buyers) because bank officials feel that it is easy to recover loans from end users than builders or developer. In this situation, the builder prepares a plan before starting a project and selling it to the customers, and the customers get loans from banks

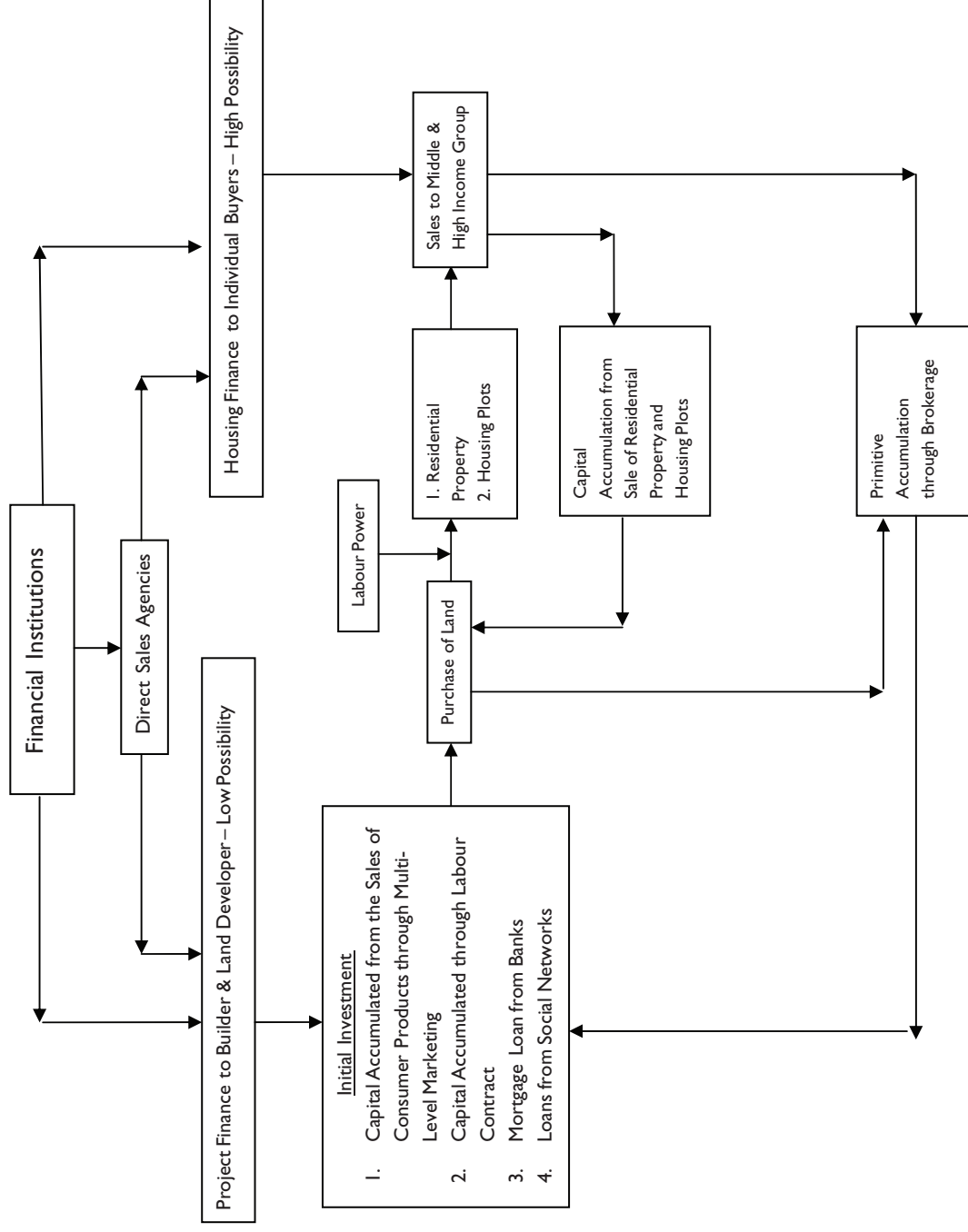


Figure 2. Circuit of Capital in the Real Estate Sector
Source: Conceptualized and drawn by the author.

and the banks sanction loans according to the progress of the project. Therefore, the circulation of commodities is ensured by providing loans to end users and the issue of organizing working capital is solved.

On the other hand, real estate brokers make money through brokerage; they act as intermediaries between the buyer and the seller. They are involved at the beginning of the project by acting as an intermediary to buy land for a project and they act as an intermediary at the end of the project by arranging customers to buy the property or the housing plots; thus real estate brokers make money at the beginning and at the end of projects. After a period of time, these intermediaries become land developers or builders. Thus, real estate brokers organize initial investments from the real estate business and they invest it in a real estate project. This clearly shows that the real estate business is a site of both accumulation of capital as well as of primitive accumulation.²¹ This circuit of capital is repeated in the real estate business in peri-urban areas. Like real estate brokers there are other intermediaries, for instance Direct Sales Agencies (DSA) who act as brokers for financial institutions; they sell products of financial institutions such as housing loans and real estate project loans. If a product is sold through a DSA, then the DSA gets a commission from the bank ranging from 1 per cent to 2 per cent. In short, the real estate sector acts as a site of both accumulation of capital and primitive accumulation of capital, and the circulation of the commodity is ensured by financial support to the end users.

Conclusion

Chennai has emerged as one of the important metropolitan cities in India. It has grown for a long period of time by occupying its peri-urban areas. In the first phase, peri-urban areas were occupied to provide spacious garden houses for the colonial rulers; in the second phase peri-urban areas were occupied in order to fulfil the housing needs of the local elite; and in the third phase peri-urban areas were occupied for both residential and industrial use. At present, peri-urban areas have become the sites of accumulation of capital. Many players, ranging from global to local, are involved in the real estate business in peri-urban areas in order to accumulate capital and to circulate real estate products such as residential properties and housing plots by ensuring financial support to end users, that is, the buyers. On the other hand, peri-urban areas are exploited for urban needs and subjected to destruction. Exploitation can be observed from Chennai corporation initiatives to supply water in the city by extracting water from peri-urban villages and the destruction of ecology can be observed from the desalination project and dumping of wastes in peri-urban areas. In short, peri-urban areas are sites of accumulation of capital and places under exploitation and destruction to fulfil urban needs.

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Notes

1. According to Arabindoo (2009), the boundary of Chennai was expanded in 1798 by adding 16 square miles to the city limit and the size of Chennai after expansion of boundary was 67 square miles and in 1967, 450 square

- miles was identified as metropolitan area. At present, according to Krishnamurthy and Desouza (2015), the size of Chennai metropolitan areas is 1189 square kilometres including Chennai, 16 municipalities, 20 town panchayats and 10 panchayat unions in Tiruvallur and Kancheepuram districts.
2. Chennai was called as Madras by Colonial rulers in those days and the name was used till 16 July 1996. The name Madras was replaced by the name Chennai during the rule of the Dravida Munnetra Kazhagam (DMK). On 17 July 1996, the chief minister of Tamil Nadu Mr Karunanithi renamed Madras to Chennai.
 3. *Mirasdars* are village heads who had control over village lands and the authority of *mirasdars* was hereditary.
 4. CMDA is a para-statal agency of Government of Tamil Nadu, the aim of CMDA is to provide comprehensive planning for the development of Chennai.
 5. Interview dated 4 May 2015.
 6. Interview dated 4 May 2015.
 7. Interview dated 30 June 2015.
 8. Interview dated 28 August 2015.
 9. Interview dated 2 September 2015.
 10. Name changed.
 11. Interview dated 4 September 2015.
 12. The power-of-attorney only gives working power to developers, not the power to sell the property; the power of sale lies in the hands of the owners of the land.
 13. Interview dated 9 July 2015.
 14. According to the information published in the Chennai Metro Water website.
 15. Kodungaiyur is located in the northern periphery and Perungudi is located in the southern periphery of the Chennai city.
 16. Interview dated 24 June 2015.
 17. Interview dated 26 June 2015.
 18. The Environment and Forest Department has informed us that in another meeting chaired by the chief secretary to the government on 17 May 2012, it has been informed that the above said land is being placed at the disposal of Forest Department for maintaining it as a wetland and that there is no need for ascertaining the land value as there will be no payment of any land cost by the Forest Department (MC.I, 2012).
 19. Interview dated 28 August 2015.
 20. Interview dated 30 June 2015.
 21. Primitive accumulation here refers to the organization of initial capital.

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