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Psycho-Analysis of Tall Building Habitants in Mumbai

孟买高层居民的心理分析



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After graduating from the University of Mumbai in 2013 as a civil engineer, Vinda is working as a structural design intern in Sterling Engineering Consultancy Services Pvt. Ltd, Mumbai. She has worked on both concrete and structural steel designs for residential, commercial and hospitality buildings during her one year apprenticeship. With a special interest in Sustainable technology and strategies, she has been involved in optimization studies on her projects. She is also a volunteer in CTBUH's Life Cycle Analysis Research Project with the Illinois Institute of Technology.

2013年孟买大学土木工程师毕业，温达作为结构设计实习生在孟买斯德林 (Sterling) 工程咨询服务有限公司工作。在她的学徒时期，从事住宅、商业及酒店建筑的混凝土和钢结构设计。另外，对可持续性技术和战略具有浓厚的兴趣，已经参与了其项目的优化研究。同时任CTBUH与伊利诺伊技术学院合作研究的建筑全寿命周期分析研究项目的志愿者。

Abstract

India is poised to embrace high-rise buildings as it leaves behind traditional low-rises to make room for the growing population. Due to the re-development boom, a substantial part of Mumbai's population is undergoing a transition from low-rises to high-rise buildings.

The objective of this paper is to analyze the psychology of the occupants, their expectations and emotional interaction with a high-rise building. The study is based on surveys and interviews with people belonging to various classes of Indian society who have undergone this transition in recent years. The results of this psychological study may help improve planning, amenities and services for such structures.

Keywords: High-Rise Building, Psychological & Social Interaction, Sustainability

摘要

印度已为迎接高楼大厦作好准备，摒弃传统的低层建筑模式，从而为不断增长的人口腾出发展空间。由于重新开发热潮，很大一部分孟买人口正在经历从低层建筑上升到高层建筑建筑的过渡过程。

本文的目的是分析居住者的心理状态、期望，及与高层建筑情感交流等心理活动。这项研究是基于对印度社会不同阶层的调查和访谈，而这些阶层在最近几年经历了这种转变过程。心理研究的结果可能有助于改善高层建筑结构的规划，设施和服务质量。

关键词: 高层建筑，精神及社会互动，可持续性

Introduction

Mumbai is a mega metropolitan city that is home to millions of Indians hailing from humble backgrounds and smaller towns and villages spread across India. Mumbai has become the melting pot of India, embracing diversity, enticing immigrants with opportunities and promise of a brighter future. Land has now become a rare commodity, resulting in an alarming escalation in land rates and thus housing costs. In such a situation, building tall is the only way to build at all.

Need for Sustainable Vertical Development

Tall Buildings consume a massive amount of resources and are a great strain on both the immediate and global environment. The product of this investment of resources needs to have a greater shelf life if the overall impact on the environment has to be controlled. A longer shelf life simply means a more durable and sustainable structure – one that will be relevant to the present as well as to future generations. In today's "use and throw" age,

引言

孟买是一个超级大都市，数百万来自印度各地的不起眼小城镇和村庄的人居住在此。孟买已成为印度的大熔炉，具有高度的多样性。怀着对机遇的渴求和对更美好未来的希望，许多移民来到这里。如今，孟买的土地已经成为稀有的商品，土地溢价率惊人增长，因而住房费用也随之上升。在这种情况下，高层建筑是城市发展的必由之路。

可持续垂直发展的需要

高层建筑消耗大量的资源，并且对临近的环境和全球环境产生巨大压力。为了控制对环境整体影响，高层建筑，作为如此庞大资源投资的产品需要有更长的使用寿命。更长的使用寿命意味着需要一个更加持久和可持续的结构，而这不仅与当代人利益相关，而且对我们未来的后代也产生影响。当今的方式是“使用后便弃置”，与之不同的是未来将采用半永久性的概念，则可能意味着我们必须回到建筑的本质，为人类的需要开始设计产品，而不仅仅为了经济实力的竞争或展示。

this concept of semi-permanency may well mean that we must go back to the basics and start designing products for human needs rather than for an economic showdown or display of prowess.

When defining sustainability criteria of a product, the usefulness and efficiency of the product in relation to human needs is of vital importance. People tend to stick to things that make them feel comfortable and that keep them in tune with the environment. In the design of tall buildings, this human aspect of emotions, feelings, physical and psychological interactions need to have a more significant role in the sustainability rating. A tall building can be made more socially sustainable if it is designed for the needs of its future inhabitants and their natural instincts.

Transiting from a Low-Rise to a High-Rise in Mumbai

A substantial part of Mumbai's population is undergoing a transition from low-rises to high-rise buildings, be it residences, commercial and work spaces, hospitality as well as slum rehabilitation projects. An individual residing on the third floor suddenly finds himself adjusting to the thrills of the thirtieth floor. The transition from low-rise to a high-rise building has been coveted by some and enforced on some sections of society. This has made Mumbai an ideal site for conducting surveys of people who have experienced this radical transition in recent times.

Surveys were conducted amongst people residing in both high-end luxury high-rises as well as low-income housing for those rehabilitated from the slums. Online surveys were taken anonymously by respondents where a questionnaire enquiring about varied aspects and issues of living in a tall building was prepared and circulated through a network of professional contacts, families and friends. Personal interviews were conducted with the inhabitants from an SRA building project in Mumbai. Results for objective questions have been presented in the form of graphs whose values are in percentages. Answers to subjective questions have been incorporated into the overall conclusions enlisted in this paper.

As is common the world over, the middle-income group is left out from the surveys as tall buildings are yet a luxury unaffordable to this section of the society.

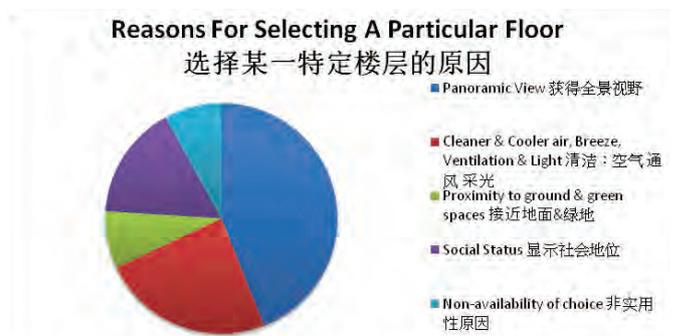
当定义产品的可持续性标准时，与人类需求有关的实用性和产品的效率是至关重要的。人们往往能坚持使用使其舒适并能与使用者协调的环境。在高层建筑的设计中，对人的情感、身体和心理互动等方面的考虑应在可持续发展评级中发挥更重要的作用。如果高层建筑为未来的居民和其自然本能的需要进行专门设计，建筑将具有更高的社会可持续性。

孟买，从低层建筑向高层建筑转变

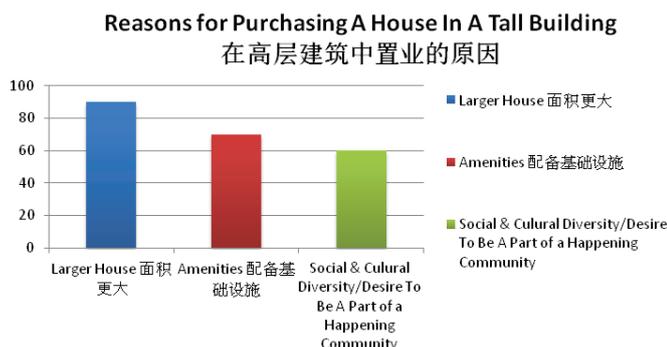
很大一部分的孟买人口正在经历从低层建筑向高层建筑的过渡过程，无论是在住宅、商业和办公空间还是酒店以及贫民窟重建项目中这种转变都在发生。原本居住在3层人突然发现自己必须面对居住在30层高楼而产生的惊讶和紧张。这种建筑从低层到高层的转变，对于某些人来说是期望之内的，但对于社会的阶层人来说则是强迫下的无奈。这使孟买成为调查经历过这种剧烈变迁的人的理想场所。

研究中，对两幢不同高楼的居住者进行调查，其中一幢是高端豪华大厦，另一幢大楼居住着从贫民窟回迁的低收入者。同时进行匿名在线调查，通过问卷进行，询问生活在高层建筑的各个方面和问题，并收集受访者的职业、亲属关系和朋友等信息网络。对孟买SRA建设项目的居民进行采访。客观题调查结果以百分比的形式呈现在图表中。主观题的解答归纳在本文的总体结论中。

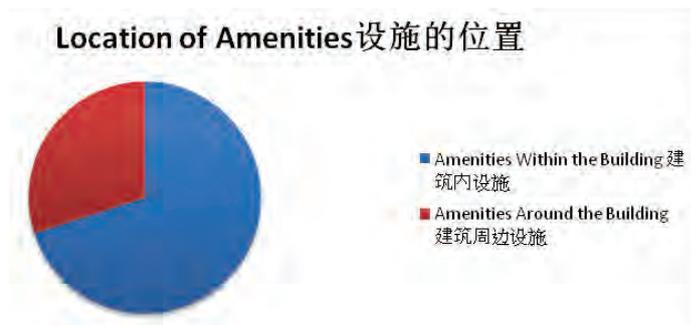
世界各地普遍的情况是，中等收入阶层由于无法承担高层建筑不菲的费用而未被纳入社会调查中。



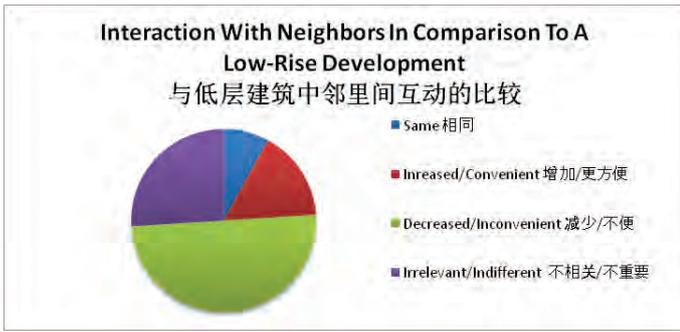
Graph 2. Reasons for Selecting a Particular Floor (Author's Survey, 2014)
图2-选择某一特定楼层的原因 (作者的调查, 2014年)



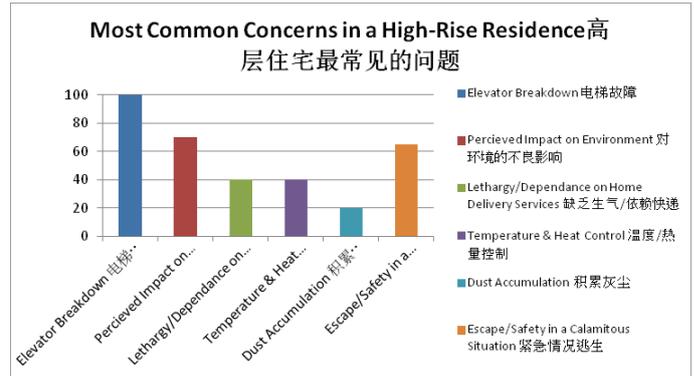
Graph 1. Reasons for Purchasing a House in a Tall Building (Author's Survey, 2014)
图1.在高层建筑中置业的原因 (作者的调查, 2014年)



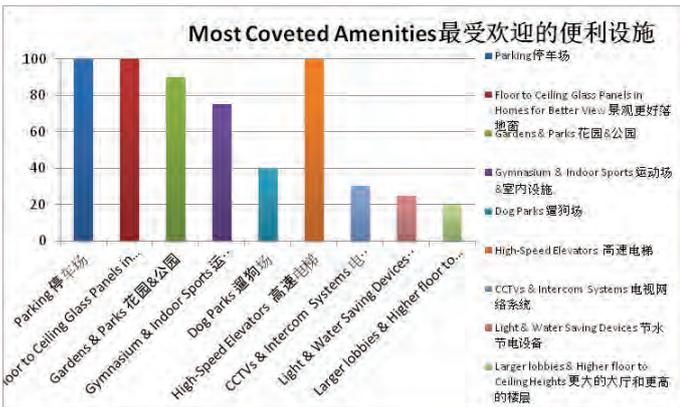
Graph 3. Location of Amenities (Author's Survey, 2014)
图3.设施的位置 (作者的调查, 2014年)



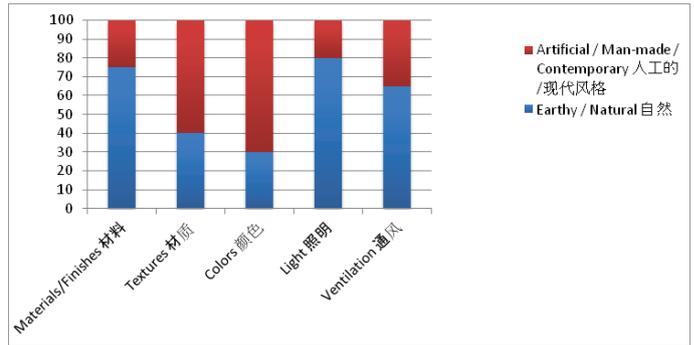
Graph 4. Interaction with Neighbors In Comparison To a Low-Rise Development
图4. 与低层建筑中邻里间互动的比较 (作者的调查, 2014年)



Graph 6. Most Common Concerns in a High-Rise Residence (Author's Survey, 2014)
图6. 高层住宅最常见的问题 (作者的调查, 2014年)



Graph 5. Most Coveted Amenities (Author's Survey, 2014)
图5. 最受欢迎的便利设施 (作者的调查, 2014年)



Graph 7. Consumer Preferences (Author's Survey, 2014)
图7. 消费者喜好 (作者的调查, 2014年)

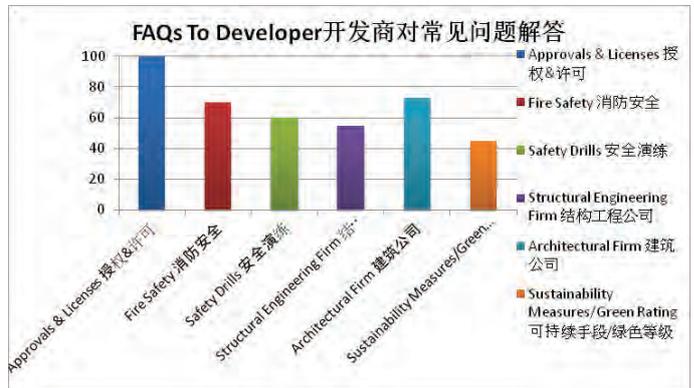
High-Income Group Housing

Conclusions

An ideal high-rise building would be one that includes sports, recreational amenities as well as groceries and small retail outlets in the building itself. As far as possible, the surrounding space around the tower should be green and made available to the common public for purposes of leisure, entertainment, art and culture and creation of a community hub.

The taller a building, the more isolated it should be from surrounding developments due to the high density of commuters accessing the roads to and fro from the building. Since tall buildings are pockets of high population density, the heavy vehicular movement and interaction with the road network should be studied and planned for. It is also observed, that people tend to desire apartments in a tall building for the view it affords. If this luxury is taken away due to the presence of other surrounding developments, the tall building may fall short on its most enticing amenity. This issue could perhaps be accounted for by customized FARs for every tall building project. This aspect is valid only during the transition phase. In the future, buildings will have to be constructed in close proximity due to lack of space, as the inhabitants will inadvertently be accustomed to the changed conditions.

According to the survey, sky gardens and private green spaces that provide shade and act as buffer zones came across as highly sought-after provisions. In addition to one common green area such as a park for the whole building, the classical courtyard style of housing can be incorporated into a vertical development for every group of floors thereby creating an interactive space for neighbors for that particular group of floors. Dust accumulation seems to be a problem at higher levels whereas noise and air pollution is an issue for the lower levels (see Graph 6). Both these problems can be solved through smart use of green spaces.



Graph 8. FAQs to Developer (Author's Survey, 2014)
图8. 开发商对常见问题解答 (作者的调查, 2014年)

高收入群体住宅

结论

理想的高层建筑应当包括体育、娱乐设施以及在建筑物内的杂货和小零售店。周围的空间应尽可能是绿色的，并为公众提供休闲、娱乐、艺术和文化的场所，成为社区中心。

建筑越高就更加孤立于周围环境，这是由于在道路和建筑之间来回穿梭的通勤者具有更高的密度。高层建筑具有更高的人口密度，应当研究更大的车行交通负荷以及与道路网络更密切的互动关系，进而改进规划的合理性。另外，人们也常常渴望公寓高楼提供的良好的视觉景观条件。如果外部环境对视觉景观作用造成了不良的影响，高层建筑可能失去其最大的吸引力。这个问题应当纳入每个高层建筑项目的财务会计系统考虑范围之内。而这种情况只在过渡阶段才是有效的。由于空间有限，未来的建筑将会建设的非常靠近，居民都会在不经意间习惯这种改变。



Figure 1. Around a Courtyard, Kingfisher Tower, Bangalore, India
图1. 印度班加罗尔翠鸟塔：围绕着一座庭院而建

Color schemes, textures and shapes that mimic nature generally tend to be more socially sustainable than clean geometric shapes and grey monochromes (see Graph 7).

Many people seemed to be concerned about the environmental impact of the construction industry and the degradation of natural surroundings. A building that is actively 'green' comes across as a desirable place to dwell in and thus becomes more socially sustainable. People feel more comfortable living in a building that does not indirectly hold them responsible for harming the environment. Thus a building that has a high standard of sustainability and uses innovative clean technology may sell faster than one that does not.

Appropriate technology must be incorporated into interior design. As staircases and walkways are not used frequently, automatic motion sensing lighting can be used to save energy. In a hot city like Mumbai, solar energy striking the façade in the east-west direction can be used efficiently along with wind energy at higher elevations for generating electricity to light staircases and lobbies in the building.

In hot tropical regions like Mumbai, glass façades should ideally be used in the north-south directions while concrete or green walls can be used for east-west directions to allow insulation from the harsh sunlight. Although this is obvious, many developments in Mumbai have not given this aspect much thought.

Low Income Group Housing

Slightly more than 28 percent of the country's population is urbanized. However, almost 21.68 percent (61.8 million) of the urban population live in slum areas (Census, 2011). Out of the 21 million inhabitants of

据调查，空中花园和私人绿地能提供遮荫并作为缓冲区，因此这些领域和建造方式非常受欢迎。另外一种常见的绿色空间，如整个建筑的公园、房屋的古典庭院式都可以被纳入为每层住户创造邻里互动空间的垂直发展方式。对于较高的楼层而言，灰尘积聚似乎是一个问题；而对于较低的楼层来说，噪音和空气污染也导致了一定的困扰（参见图6）。这两个问题都可以通过绿色空间的智能使用来解决。

模仿大自然的配色方案、材质和形状相比于干净的几何形状和灰色单色具有更高的社会可持续性（见图表7）。

很多人开始关心建筑行业对环境的影响和自然环境的恶化的问题。积极的“绿色”建筑让人觉得是居住的理想场所，因此具有更高的社会可持续性。在一幢对环境无害的建筑中居住，让人不负心理负担而感觉更为舒适。因此具有更高可持续性并使用创新清洁技术的建筑比其他建筑更为畅销。

室内设计应当采用适当的技术。由于楼梯和走道并不频繁使用，可采用感应照明节约能源。像孟买这样炎热的城市，东西方向充足强烈的太阳能以及在高空中的风能可以被有效用于建筑的楼梯和大厅照明中。

在像孟买这样炎热的热带地区，玻璃幕墙最好应安置在南北面，而在东西面采用混凝土或绿墙以防止刺眼的阳光。尽管这是显而易见的，但孟买的许多项目都忽略了这一个因素。

低收入群体住房

印度有超过28%的人口居住在城市。然而，城市人口的近21.68%（6180万人）仍居住在贫民窟地区（根据2011年人口普查数据）。孟买的2100万居民中有近55%的人居住在贫民窟里（Hagn, 2006）。这个社会阶层留下他们的传统家族企业而来到孟买，以寻找支持

Mumbai, almost 55% live in slums (Hagn, 2006). This class of society comes to Mumbai looking for a way to support their families living in small villages, leaving behind their traditional family businesses. Unable to afford the housing costs, they ultimately end up living among the many slums and shanties scattered across the city. These people aren't necessarily illiterate, unemployed or below the poverty line. Many people living in slum areas are in fact graduates who work in companies housed in fancy glass buildings or small business owners and minor entrepreneurs.

Since the 1970's, the Indian Government has been looking for ways to free up the land for development. For over a decade now, the Slum Rehabilitation Authority (SRA) has been working to make this possible. Under SRA, slum dwellings, conferred legitimacy, are eligible for free rehabilitation in planned habitats.

The following graphs reflect the results obtained through personal interviews conducted with the rehabilitated slum dwellers who now reside in low-income housing complexes, prospective SRA inhabitants as well as those who have given up their SRA apartments after rehabilitation to move elsewhere.

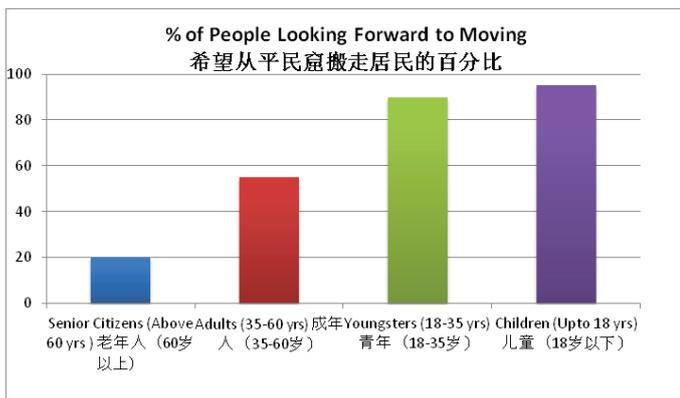
他们生活在小村庄的家庭的方式。他们承担不起住房费用，最终在分散于城市之中的贫民窟和棚户区生活。他们不一定是文盲、面临失业或经济状况处于贫困线以下。很多生活在贫民窟的人在时尚的玻璃建筑中工作，他们可能从事一些小买卖或是小企业家。

70年代以来，印度政府一直致力于为发展提供释放土地的寻找各种方法。十多年来，贫民窟复兴管理局 (SRA) 都一直在努力使这成为可能。贫民窟复兴管理局 (SRA) 的努力下，贫民窟住房被赋予合法地位，居住者有资格获得规划居住区的回迁机会。

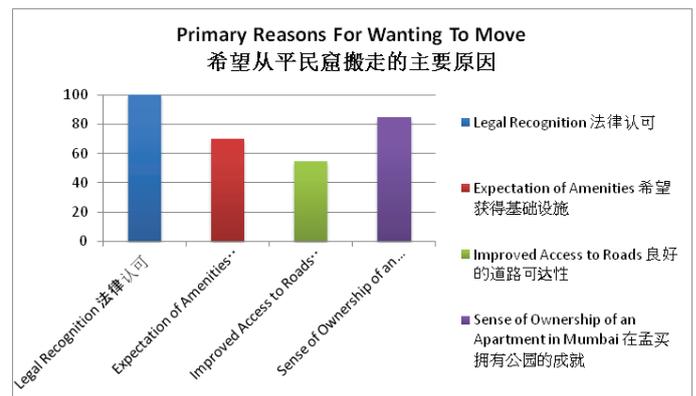
下面的图表反映了通过对平民窟回迁居民个人访谈的调查结果，包括已居住在低收入者的大楼中的居民，未来有意向回迁的平民窟居民，以及那些放弃SRA公寓而迁往别处的原平民窟居民。

垂直发展模式的积极影响

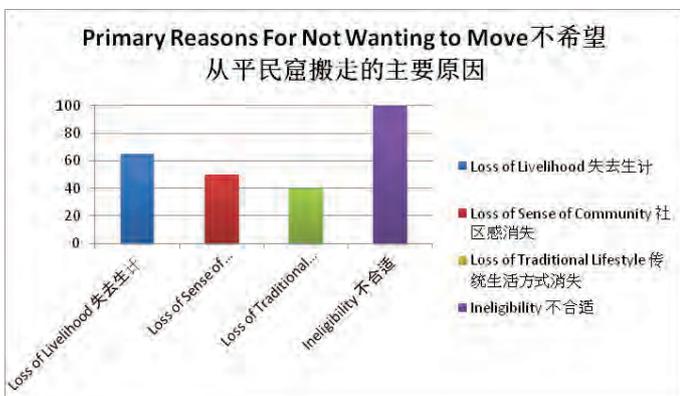
贫民窟复兴管理局 (SRA) 法案下回迁的平民窟居民得到了其居住合法性，并且其在都会区的公寓得到法律承认。这促使人们，特别是拥有研究生学位、说英语并且在豪华商业空间工作的新一代希望像孟买的其他人一样提高生活方式，能够居住在通过他们个人的能力永远无法企及的豪华高楼公寓中 (见图表10)。



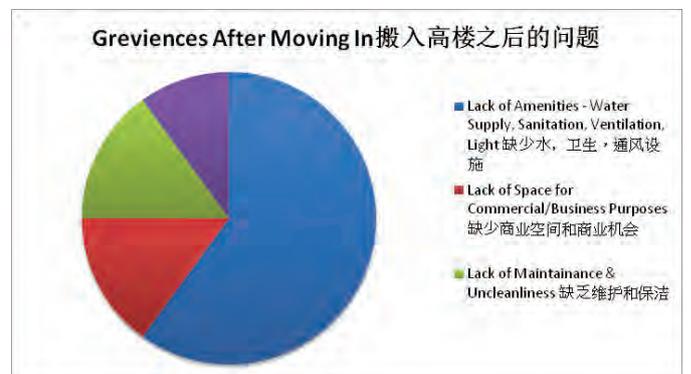
Graph 9. % of People Looking Forward to Moving (Author's Survey, 2014)
图9. 希望从平民窟搬走居民的百分比 (作者的调查, 2014年)



Graph 11. Primary Reasons for Wanting to Move (Author's Survey, 2014)
图11. 希望从平民窟搬走的主要原因 (作者的调查, 2014年)



Graph 10. Primary Reasons for Not Wanting to Move (Author's Survey, 2014)
图10. 不希望从平民窟搬走的主要原因 (作者的调查, 2014年)



Graph 12. Grievances after Moving In (Author's Survey, 2014)
图12. 搬入高楼之后的问题 (作者的调查, 2014年)

Positive Aspects of Vertical Development

The rehabilitated Slum dwellers under the SRA Act receive legal recognition for their residence and an apartment in a metropolitan area. This motivates people especially the new generation who have graduate degrees, speak English and work in posh commercial spaces who wish to elevate their lifestyle and live like the rest of the people in Mumbai – in an apartment in a tall building. A luxury they can never afford of their own accord (see Graph 10).

The new buildings are properly designed concrete structures that are much safer and more durable than their original make-shift houses which are made from materials like GI sheets, bricks, tarpaulin etc.

Having a residential unit in a building allows for better access to main roads and for vehicular movement as opposed to narrow lanes and allies in slums. This enables quick and efficient measures to be taken during emergencies such as medical or natural calamities.

These buildings come with basic amenities such as legal water supply, electricity and sanitation facilities for every housing unit and privacy – a luxury that wasn't available in their previous slum complexes (see Graph 10).

The decreased expenditure on health suggests that moving out of slum pockets and into a building with the above mentioned amenities has a positive effect on the health of the residents (see Graph 12). This may seem contradictory to the results of Graph 11 which suggests a lack of amenities such as good light, ventilation and space as a major grievance. However, at the same time, a building provides a clean water supply, electricity and gas connections and cleaner surroundings compared with the filthy environs of slum pockets abounding in open sewers and garbage heaps.

Rehabilitated slum inhabitants have more time on their hands to perform useful activities due to reduction in time spent on water collection & storage, sanitation and travel. This also reflects in increased expenditure on entertainment and higher savings (see Graph 12).

Negative Aspects of Vertical Development

The problem of low income group housing is multi-layered. Slums and shanties are major business hubs of Mumbai and are home to countless cottage industries that support daily needs ranging from the manufacturing of small edibles, apparel, fashion accessories, authentic leather goods, tanneries, clay pot-making, and recycling of plastics. Slums provide work space and community interaction which is lost when they are shifted to a miniscule 269 square foot apartment. Moving to vertical developments disrupts the livelihoods of vendors, shopkeepers and fishermen, whose work calls for them to live in ground-level homes where they can store their boats and nets or closely supervise their stores. (Graph 9 & 11)

Slums more or less evolve into clusters, having similar religious proclivities which make it ideal for political leaders to spur emotions while campaigning. However, various religious groups co-exist harmoniously as neighboring clusters. This co-existence may be lost when areas of slums are shifted to a building. There is a strong resistance towards the intermixing of clusters from vested interests, such as the breakdown of vote-banks for these political leaders.

相比瓦片、砖、防水油布等材料建造的简陋房屋，新建筑物通过钢筋混凝土的合理设计具有高的安全性和持久性。

相比于狭窄小巷和贫民窟，在建筑物内拥有一个住宅单元使居住者能够有更好的道路可达性和机动车交通条件。这使得在诸如医疗或自然灾害突发事件中人们能够采取快速而有效的措施。

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医疗支出的降低表明，搬出贫民窟区域并搬入一个具备基础设施的建筑物对居民的健康产生积极的影响(见图表12)。这似乎与图11的结果相矛盾，图11表明缺少设施，如良好的光线，通风和空间是主要问题。然而，与此同时，与贫民窟区域到处污水横流垃圾成堆的污秽环境相比，高层大楼有清洁的供水、供电、供气和更清洁的环境。

由于减少了在水收集和储存、卫生和路途上时间花费，回迁的贫民窟居民有更多的时间进行有益的活动。这也在娱乐花费和储蓄金额的增长上反映(见图表12)。

垂直发展的消极影响

低收入群体的住房问题是多层次的。贫民窟和棚户是孟买主要商业中心并且是许多日用品的山寨小作坊的所在地，这些小型作坊生产零食、服装、时尚配饰、皮具、皮革、陶壶制作以及回收塑料。贫民窟为这些活动提供工作空间，社区互动时，他们被转移到一个269平方英尺的公寓中时，原来的社区协作活动便消失了。搬到垂直发展的高层建筑中，损坏了供应商、店主和渔民的生计，他们的工作要求他们住在地面，在那里他们可以存储渔船和渔网或密切监督他们的商店情况。(图9&11)

贫民窟或多或少存在着宗教的倾向，这使得它非常适用于政治领导人在竞选时发表调动选民热情的演讲。然而，各种宗教团体在平民窟簇中和睦相处。而当贫民窟居民搬到高层建筑物中，这样和睦的共存可能会消失。集群的混杂也利于居民于团结，维护既得利益以及进行在银行崩溃时对这些政治领袖的抵制。

根据政府的规定，贫民窟复兴项目必须给所有人分配面积相同的空间，不论他们在贫民窟里原有土地的大小，最大能分配到269平方英尺的公寓。SRA官方网站指出，“每一个合格的贫民窟都对应配给269.00平方呎的公寓。并且最好是相同的地方，而不论原有贫民窟区域的情况。”

如果开发商在同一块土地上建造贫民窟复兴住宅项目，作为对企业的价格补贴，私人开发商可以使搬迁而腾出的城市空间。私人开发商为争夺便宜的土地而随意建造伪劣的建筑成为了一个不好的趋势，这些低劣的项目具有豪华外观内部却质量堪忧。这些住宅区都缺乏基本设施，如照明、通风、隐私和清洁设施。

由于水电供应的合法化和合作住房社会关系的形成，居民要支付比以前房子更高的维护费用。这导致许多人最终选择搬出这些公寓，而很多时候，搬出的居民将在另一幢非法使用谁点的贫民窟大楼中以减少使用成本(见图表12和13)。

除了建筑标准，结构安全也是一个问题，而结构安全没有在设计中被充分考虑。建筑越高，缺乏监管结构的安全性风险越大。

According to government regulations, a slum rehabilitation project must allot the same space to all people, irrespective of how much land they occupied while living in a slum – a maximum of 269 sq. feet per apartment block. The official SRA website states “Every eligible residential slum structure is provided with an alternative tenement ad measuring 269.00 sq. ft. preferably at the same site, irrespective of the area of slum structure.”

A private developer is allowed to use the space made available due to relocation of the slums at subsidized rates for commercial ventures, if he constructs a slum rehabilitation housing complex on the same land. The involvement of private developers vying for cheaper land has led to a bad trend of haphazardly constructing shoddy buildings for the rehabilitated slum dwellers nesting in the shadow of a luxury high-rise tower. These housing complexes are claustrophobic compartments lacking basic amenities such as light, ventilation, privacy and cleanliness.

Due to legalized water and electricity connections and the formation of a co-operative housing society, the rehabilitated building dwellers have considerably higher expenses in housing maintenance than what they previously spent. This discourages people who ultimately move out of these apartments, many times, to another slum complex where water and electricity are free of cost due to illegal usage (see Graph 12 and 13).

Apart from architectural standards, structural safety is also an issue, as there is not much thought put into their design. The taller they rise, the riskier it gets to ensure the safety of such poorly supervised structures.

Conclusions

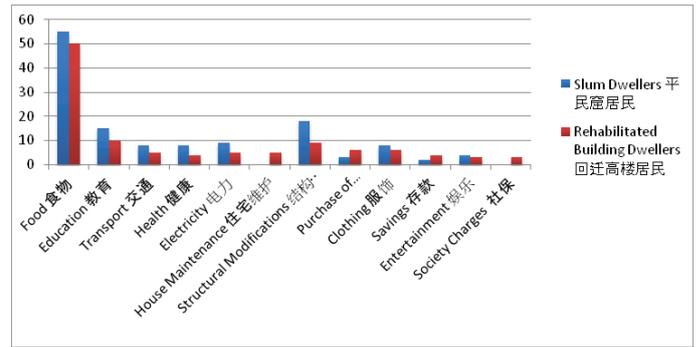
In order for such low-income housing projects to not end up as vertical slums, they should be converted into revenue generating models for the developers. This would encourage developers to design and plan them in a better way and also look after their maintenance.

Observation decks, public parks, cultural or social spaces, car parks, rooms for small business enterprises, shops and provisions for commercial hoardings can be created in these buildings to collect revenue for managing the building premises while creating incentives for the developer to take care of the building property. The inhabitants of the buildings themselves can work on a payroll in such public areas, thereby creating a sustainable social environment.

Provision of a common work area or a spacious community hall as a substitute for the lost work space and community interaction available in the previous horizontal development may encourage slum dwellers to embrace houses in vertical developments.

The rehabilitated slum dwellers of a tall building need to be educated about fire safety, evacuation procedures and safety drills in case of emergencies.

The Policies and Regulations in Mumbai need thorough review and social assessment if Slum Rehabilitation Projects need to be made sustainable.



Graph 13 – Comparison of Expenses Before & After Moving into a Building (Paula Restrep, 2010)

图13 - 搬入高楼之前后费用的比较 (Paula Restrep, 2010)

结论

为了使这些低收入住房项目不至于沦落成垂直式的贫民窟，它们应该转换为可以创造税收的开发模式。这将鼓励开发商以更好的方式进行设计和策划，并进行日常维护。

观景台、公共公园、文化或社会空间、停车场、小企业办公场所、商店、储存等功能空间可以在这些建筑中创建以增加税收用于建筑管理，并为开发商建立维持大厦物业管理的激励机制。建筑内的居民可以在这些公共区域工作，从而创造一个公共的可持续发展的社会环境。

规定提供一个共同的工作区或宽敞的社区会堂，以替代失去的工作空间，并激发原有水平发展模式下的社区互动，这将鼓励原贫民窟居民接受垂直发展的社区模式。

对居住在高层住宅中的原贫民窟居民进行有关消防安全的教育，包括在紧急情况下疏散程序和安全演练。

对孟买的政策法规进行彻底检讨和社会评估，以保证贫民窟复兴项目的可持续性。

社会差距

富人愿意进入昂贵的高端公寓摩天大楼居住，而穷人则被迫搬入垂直的鸽子洞中，中产阶层希望获得更好的景观并希望现代都市社会的一部分，因此渴望能居住在高层建筑中。而世界各地的中产阶级都负担居住在高层建筑中的高额费用。

由于高层建筑中采用可持续性基础设施导致建设项目成本升高。这表现在建筑住宅单位的高昂售价上，而中产阶级无法承担这样高额的费用。只有通过有效的创收模式，如在低收入住房开发项目中采用上述建议，这种差异才能得到解决。搬到高楼在不久的将来不再是一种选择。只有通过可持续发展战略，如保护环境、减少对环境影响、清洁技术和社会稳定的高度工程化的高层结构才能使建筑像家一样温馨，人们才愿意居住在住其中。

Social Disparity

While the rich willingly move into expensive high-end apartments in skyscrapers and the poor stuff themselves into vertical pigeon holes, it is the middle class that looks upwards broodingly, lusting after panoramic views and wistfully longing to be a part of the modern metropolitan community. All over the world, it is the middle class that find itself unable to afford a residence in a high-rise building.

Construction and project costs escalate due to the kind of facilities and infrastructure involved in making a high-rise building sustainable. This manifests in the selling price of their residential units which people from the middle-income group cannot afford. This disparity can only be solved when efficient revenue generating models, such as those suggested for low-income housing development are utilized. Moving to a tall building will cease to be an option in the near future. It is only through sustainable strategies that encompass environment preservation, reduced impact, clean technology and social stability that highly engineered high-rise structures can be made to feel like homes people would love to spend their lives in.

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