FRAMEWORK FOR AGE FRIENDLY NEIGHBOURHOOD - OLDER PEOPLE

BACHELOR OF PLANNING

MANNAM HANEESH

Sch. No. 2017BPLN030

SCHOOL OF PLANNING AND ARCHITECTURE, BHOPAL

NEELBAD ROAD, BHAURI, BHOPAL (MP)-462030

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By

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DECLARATION

I **MANNAM HANEESH**, Scholar No. **2017BPLN030** hereby declare that the thesis titled **FRAMEWORK FOR AGE FRIENDLY NEIGHBOURHOOD - OLDER PEOPLE** submitted by me in partial fulfilment for the award of **Bachelors of Planning**, at the School of Planning and Architecture, Bhopal, India, is a record of Bonafide work carried out by me. The matter/result embodied in this thesis has not been submitted to any other University or Institute for the award of any degree or diploma.

Signature of the Student

MANNAM HANEESH

Date:21-05-2021

Certificate

This is to certify that the declaration of MANNAM HANEESH is true to the best of my knowledge and that the student has worked under my guidance for one semester in preparing this thesis.

RECOMMENDED

Signature of the Guide

Dr. Kshetrimayum Bangkim Singh

Head, Department of Urban and Regional Planning (Prof. Dr. Natraj Kranthi)   Date: _____   Place: _____

Dean (Academic Affairs) (Prof. Dr. Nikhil Ranjan Mandal)   Date: _____   Place: _____

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ABSTRACT

First of all, what is a neighbourhood, the term neighbourhood is often used to describe the sub-divisions of urban or rural settlements. In its purest definition, a neighbourhood is vicinity in which people live. Neighbourhood concept has been arguably the major planning landmark which the urban form in twentieth century.

Why the neighbourhood or community should be age-friendly, as we know Indian population has been growing rapidly and with the increase in medical facilities the population of age >60 has been increasing steadily. It is expected to grow from 8% in 2015 to 19% in 2050. Since older generation had a strong and firm relationship with their neighbourhood and home, it enabled them to keep them active and help them in their "well-being".

The design of a community neighbourhood is always a key factor to influence the support, care, security, and homeliness of the aged population. It exerts a significant necessity for the aged people who are mainly affected by the type of housing and their neighbourhood settings.

The paper is divided into three parts, first part focusing on the fact-finding about the current scenario of the aging population in Indian context and fundamental understanding of inter-relationship of neighbourhood design for healthy aging the second part highlights the review from literature about various aspects on neighbourhood design and the perception of aged people on healthy aging in their neighbourhood. The third part of the paper concludes with a set of design guidelines for neighbourhood design to create a safe pedestrian environment, easy access to public transportation, shopping centres, public and recreational facilities and nearby healthcare centres and to create aspects for healthy aging and wellbeing for the aged people.

Keywords: Active ageing, built environment, ageing, healthy ageing, neighbourhood design.

<u>सार</u>

सबसेपहले, पड़ोसक्याहै, पड़ोस शब्द का प्रयोग अक्सर शहरी या ग्रामीण बस्तियों के उप-विभाजनों का वर्णन करने के लिए किया जाता है। अपनी शुद्धतम परिभाषा में, एक पड़ोस एक ऐसा क्षेत्र है जिसमें लोग रहते हैं। पड़ोस की अवधारणाय कीनन प्रमुख नियोजन मील का पत्थर रही है जो बीसवीं शताब्दी में शहरी रूप है। पड़ोस या समुदाय को उम्र के अनुकूल क्यों होना चाहिए, जैसाकि हम जानते हैं कि भारतीय जनसंख्या तेजीसे बढ़रही है और चिकित्सा सुविधाओं में वृद्धिके साथ >60 वर्ष की आयु की जनसंख्या लगातार बढ़र ही है। इसके 2015 में 8% से बढ़कर 2050 में 19% होने की उम्मीद है। चूंकि पुरानी पीढ़ी का अपने पड़ोस और घर के साथ एक मजबूत और दृढ़ संबंधथा, इसने उन्हें सक्रिय रखने और उनकी "कल्याण" में मदद करने में सक्षम बनाया। वृद्ध आबादी के समर्थन, देखभाल, सुरक्षा और घरेलू पनको प्रभावित करने के लिए सामुदायिक पड़ोस का डिज़ाइन हमेशा एक महत्वपूर्ण कारक होता है। यह वृद्ध लोगों के लिए एक महत्वपूर्ण आवश्यकता है जो मुख्य रूप से आवास के प्रकार और उनके पड़ोस की सेटिंग से प्रभावि तहैं।

पेपर को तीन भागों में विभाजित किया गया है, पहला भाग भारतीय संदर्भ में उम्र बढ़नेवाली आबादी के वर्तमान परिदृश्य के बारे में तथ्य-खोज पर केंद्रित है और स्वस्थ उम्र बढ़ने के लिए पड़ोस के डिजाइन के अंतर-संबंध की मौलिक समझ है, दूसरा भाग साहित्य से समीक्षा पर प्रकाश डालता है। पड़ोस के डिजाइन पर पहलू और अपने पड़ोस में स्वस्थ उम्र बढ़ने पर वृद्ध लोगों की धारणा। पेपर का तीसरा भाग एक सुरक्षित पैदल यात्री वातावरण, सार्वजनिक परिवहन, शॉपिंगसेंटर, सार्वजनिक और मनोरंजक सुविधाओं और आस-पास के स्वास्थ्य केंद्रों तक आसान पहुंचबनाने और स्वस्थ उम्र बढ़ने और भलाई के लिए पहलुओं को बनाने के लिए पड़ोस के डिजाइन के लिए डिजाइन दिशानिर्देशों के एक सेट के साथ समाप्त हो ताहै।

कीवर्ड:सक्रियउम्रबढ़ने, निर्मितपर्यावरण, उम्रबढ़ने, स्वस्थउम्रबढ़ने, पड़ोसडिजाइन।

FRAMEWORK FOR AGE FRIENDLY NEIGHBOURHOOD - OLDER PEOPLE

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CHAPTER 1: INTRODUCTION

1.1. Introduction

WHO defines healthy as "the process of developing and maintaining the functional ability of an individual that enables wellbeing in older age"? Functional ability includes the intrinsic capacity (mental and physical capacities of a person defining his ability to walk, think, see, hear and remember), relevant environmental characteristics (include the home, community, and broader society, and all the factors within them such as the built environment) and the interaction (people and their relationships, attitudes and values, health and social policies) between them. Healthy ageing emphasizes the need for action across various sectors and enables an older population to be a resource to their families and communities. Healthy ageing is about "optimizing opportunities for good health so that older people can take an active part in society and enjoy an independent and high quality of life". (Swedish Institute of public health 2006: healthy ageing - a challenge for Europe). Since the older generation had always developed a strong and firm relationship with their neighbourhood and home, it had enabled them to keep them active and help them in their well-being. "Ageing in place" gives them integrated physical, social and emotional support to keep them active and wellbeing. The neighbourhood comprises of built environment along with the socio-economic aspects of sustainability. The built environment, comprising of both indoor and outdoor environment within a built-up space which varies from the unit, block, neighbourhood, community, settlement, and cities, which contributes to the ability of an aged person to stay healthy thereby enabling him to participate, involve and contribute to the society. Therefore, there is an urge to develop the built environment age-friendly for the aged people which would restrict them from their confinement in homes thereby reducing the tendencies of feeling tranquil, stress, reduced health and fitness, and increased mobility issues.

1.2. Background study

The term neighbourhood is often used to describe the sub-divisions of urban or rural settlements. In its purest definition, a neighbourhood is the vicinity in which people live. Neighbourhood concept has been arguably the major planning landmark which the

urban form in twentieth century. There has been a steady increase in the percentage of elderly in recent years and the scenario is expected to higher in the upcoming years. The estimated aged population over the age of 60 is projected from 8% in 2015 to 19 % by 2050 (Fig. 1).
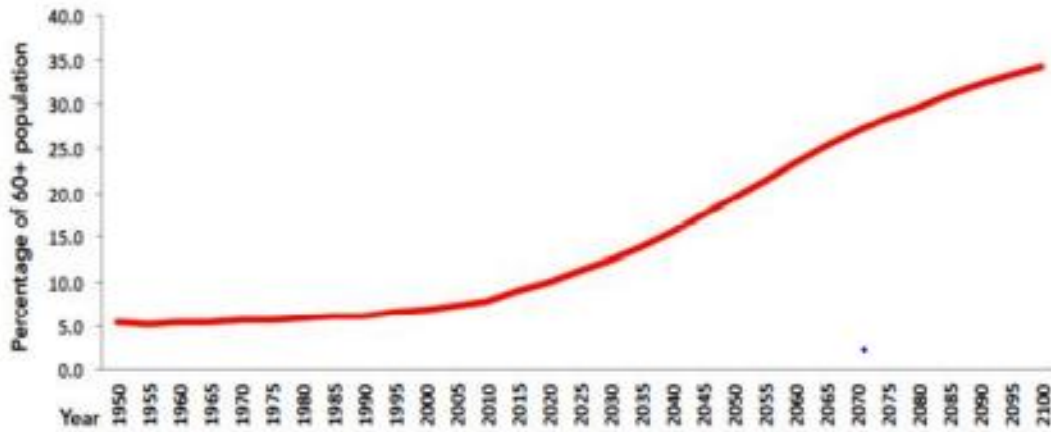
Figure 1: Graph indicating the population of 60+ (1950-2100)
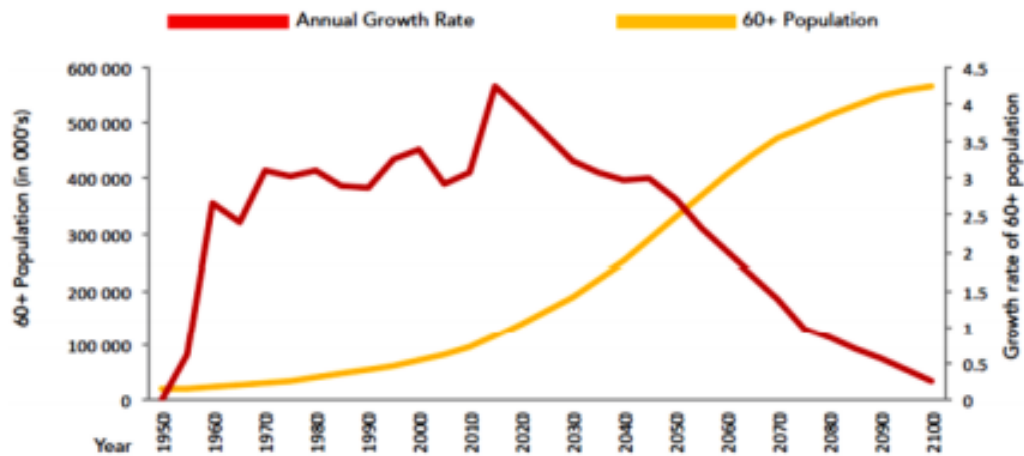
Figure 2: Graph indicating growth rate and size of population (1950-2100)

Fig-2 represents the growth rate and size of the older aged in India taken as an estimate from 1950 till 2100. It shows that the annual growth rate will be more than 3% till the middle of the decade which indicates the fastest growth rate of aged growth than the other aged growth category. Therefore, it can be concluded that there shall

be an increased growth in the ageing population in the future decades. There has been seen a significant interstate disparity in terms of growth rate and level of aged populations within the country.

1.3. Aim

To prepare a framework for age friendly neighbourhood for older people

1.4. Objective

Objective 1: to explore the existing scenario of health conditions and try to improve them

Objective 2: to provide proper spaces and walkability for overcoming physical and psychological difficulties

Objective 3: to provide physical infrastructure for safe use of roads and public transport

Objective 4: to develop design principles from issues identified and include ageing factor in urban design

1.5. Scope & Limitation

This work only limits to the framework of neighbourhood/community just highlighting the requirement's that can make a neighbourhood age-friendly. This has been done without having the pandemic situation keeping in mind (because people have to refrain from moving around these days).

1.6. Methodology
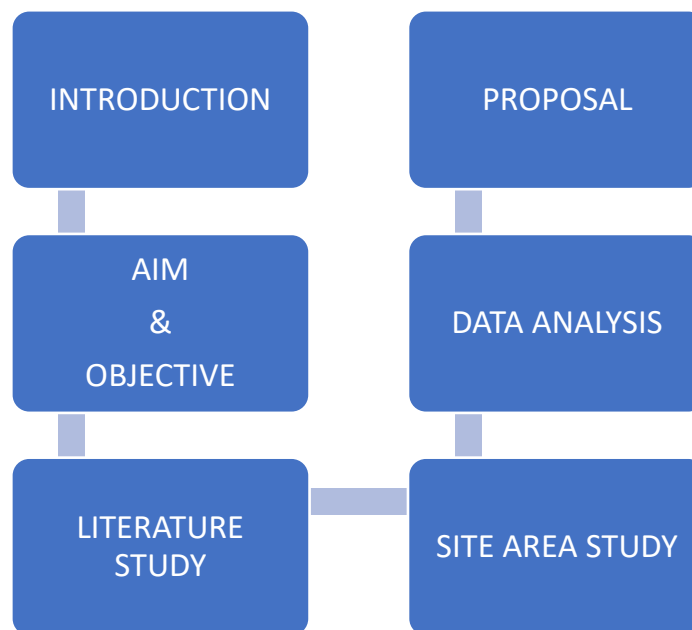
Figure 3: Methodology

Basic introduction of the subject followed by aim and objective and studying related papers and get the takeaways. A methodology chart has been prepared [Fig. 3]. After selecting the study area, surveys done and later the data collected has been interpreted and analysed and final proposal suggestion from the data analysed.

CHAPTER 2: LITERATURE REVIEW

2.1. Basic definitions

The term neighbourhood is often used to describe the sub-divisions of urban or rural settlements. In its purest definition, a neighbourhood is the vicinity in which people live. Neighbourhood concept has been arguably the major planning landmark which the urban form in twentieth century.

There are different types of neighbourhoods:

- Master-planned Communities: Master-planned communities are large, residential neighbourhoods - with some even stretching over multiple zip codes - that have been strategically planned to include amenities you'd find in a walkable city. This usually includes a city centre where you'll find grocery stores, shops, restaurants, and parks. Another selling point is the amount of indoor and outdoor activities readily available like gyms, a golf course, trails, tennis and basketball courts, and pools.

- Urban neighbourhood: You'll find these neighbourhoods highly walkable, accessible to public transit and major roadways, dominated by tall condo buildings, and having high populations. These neighbourhoods appeal to those looking to be in a fast-paced area, access to shopping, dining, and work, and don't mind high-rise or condo living.

- Suburban Neighbourhood: Contrary to urban neighbourhoods, suburban communities reside farther out from the city and are more spread out rather than highly concentrated. Suburban neighbourhoods often have more greenspace, lower walkability to everyday necessities, and a larger number of single-family residences.

- Pocket Neighbourhood: Architect Ross Chapin was the first to put the concept of a pocket neighbourhood into action in 1996 in Langley, Washington. His

idea was to have a small cluster of cottages that surrounded a garden or courtyard, creating a small-scale neighbourhood. The appeal is for those looking for simplicity and low maintenance at their home.

- Active Adult Community: These are similar to master-planned communities in that they aim to offer sought-after amenities and residences all in one neighbourhood. In fact, many MPCs are actually active adult communities. So, what is the main difference? These communities are age-restricted, often 55 and up, and offer ways to encourage both an active social and physical life to its residents.

2.2. Study on the impact of neighbourhood planning on healthy ageing - 2020

The study emphasizes the need and the theoretical approach of improving the POS to achieve healthy ageing with safe and secure, integrated interiors. This paper discusses about that there has been a significant impact on the status of aged persons in India because of the death of spouse and loss of living arrangements, work, income, health, insecurity and unsafe in stay. Aged people in India not only work for themselves but also contributing economically to the families. NSSO [National Sample Survey Office] 71st Round, 2014 says rate of hospitalization amongst elderly is much higher than general population. So, the design of community neighbourhood is always a key factor to influence the support, care, security and homeliness for the aged population.

In recent years there has been significant focusing on influence of environment on elderly. So, neighbourhood characteristics such as walkability, safety, in come can affect their ability to stay healthy. "Ageing in place" is when elderly choosing to remain and age in their own houses, sometimes without any other physical aid [WHO]. So even small and comfortable spaces within a community which triggers the intimate sociability are given a prime value [Sarkissen, 2013]. It is important to create a residential environment which allows independency and social interaction [Sarkissen, 2013].

The key characteristics "Age-friendly" neighbourhood are housing, transportation, social participation, community support and health services, communication and information, social participation, civic participation and employment, and outdoor spaces and buildings, which include parks and open spaces [WHO – these are termed "city elements"]. The neighbourhood should constitute a well walkable environment for their health regarding issues. There should be spaces to offer the older people to be more social and provide them with an opportunity to connect them within the built environment, arrange built up and open spaces so that neighbour and social contact is possible without being forced. Promote mobility and accessibility in the transport system for the elderly population with the reduced mobility conditions [Karekle, Fujiyama and Tyler, 2011] providing safer mobility to the differently abled population. [Fig. 4]

NEIGHBOURHOOD FEATURES	SELF HEALTH	PHYSICAL LIMITS	SKILLS	HEART DESEASE RATE	OBESITY	PHYSICAL ACTIVITY
Walkable – more sidewalks and crosswalks, cul-de-sacs	↑				↓	
Compact – mixed land use in walkable proximity		↓		↓		↑
Accessible – barrier free and well maintained streets		↓				↑
Safe – neighbourhood safety		↓				↑
Resources – community centres, parks and libraries		↓	↑			
Healthy air – low concentration of fine particulate matter air pollution			↑			

Figure 4: Relationship between Neighbourhood and Ageing

2.3. Walkability analysis for age friendly neighbourhood - 2019

The attributes of Physical Environment have greater impact on walkability of age friendly Neighbourhood. As there is significant increase of young population in India, (UNICEF 2019 report) there is a need for age friendly infrastructure for the future. Walkability is a key factor for Age friendly Neighbourhood in order to create a sense of healthy and liveable community. This study identifies the factors that have a higher impact on aged communities in terms of walkability in the neighbourhood.

Walking has been extensively reviewed and measured as a main component of Age friendly neighbourhood. Researchers have measured the built environment for different types of walking such as walking for recreation or exercise (physical activity) or walking to reach a destination (active transport) (Handy et al., 2006). A 'walkable' environment has been described as one that supports active transport modes including walking, cycling and public transport, enabling equitable access to destinations (Freeman et al., 2013) and enhancing social inclusion (Leyden, 2003), while also improving health outcomes through promoting physical activity engagement (Frank et al., 2010; Witten et al., 2012). Walking in and around local neighbourhoods is an important component of most adults' total physical activity (Humpel et al., 2004b). In the context of the public health goal to increase regular moderate-intensity physical activity, walking is the behaviour that is most likely to be amenable to influence (Siegel et al., 1995). Higher population density, greater connectedness of streets (higher number of intersections) and mixed land use has been consistently associated with higher rates of walking and bicycling trips for transportation (Saelens et al., 2003b). Physical environment is one of the key determinants of the walkability of the individual and hence Planning and Design of the Neighbourhood environment has an effect towards the health of the residents in that particular community (Frank et al., 2010).

Including an analysis of Geographic Information System databases, street connectivity has a greater impact on an individual's walkability in a given society. Walkability allows us to reduce greenhouse gas emissions, resulting in a cleaner world (Azmi & Karim, 2012). One of the most important parts of constructing sustainable and liveable communities is walkability. The ability to walk helps create a sense of community in the neighbourhood (Du Toit et al., 2007). Community amenities have become a

primary determinant of residential density, and hence optimal use of an urban neighbourhood is dependent on the area's walkability (Azmi & Ahmad, 2015). The public health of a community benefits from a walkable environment (Stockton et al., 2016). Street connectivity is highly dependent on the vehicular and pedestrian traffic of a particular area. The land use mix and the social infrastructure of an area significantly influence the walkability aspect of a neighbourhood. The transport related factors have a higher priority towards the social connectedness criteria and therefore the planning for the connective infrastructure becomes a prime important factor in determining walkability of an individual (Kaczynski & Glover, 2012). Green space walkability is contributed to the healthiness of an individual from a particular urban area (Lwin & Murayama, 2011).

The research methodology of the paper constructs for the study was extracted from the Neighbourhood Environment Walkability scale (NEWS) and the survey sample size is limited to 413. The sampling methods chosen for the study is purposive sampling with the respondent aged 50 and above is taken into consideration for the study. The analysis is carried out using the SPSS (version) and the Structural Equation Modelling is carried out using Smart PLS 3.0 software. The statistical test used in the study is Analysis of Variance and Chi square test in order to find the relationship between demographic variables.

2.4. Neighbourhood supports for active ageing in urban India - 2020

Developing urban environments that promote healthy, active living for older adults is at the forefront of global planning policy debates, resulting in concepts and design guidelines to support population ageing. However, current urban planning in India is overlooking the design of age-friendly cities. The share of older adults in India is estimated to increase from 8 per cent in 2015 to 20 per cent in 2050. This demographic shift towards a higher proportion of older adults and the associated health and social care expenditures makes healthy ageing a public health priority. Existing studies in gerontology have focused on improving housing environments, but we now understand the significance of neighbourhood environments for active ageing. This study contributes to the knowledge on factors shaping active ageing in urban India. We present findings from 55 semi-structured interviews conducted with older adults

(age > 60 years) in the metropolitan cities of New Delhi and Chennai in India. The findings explore three themes that emerged from this research: (a) neighbourhood design for active ageing, (b) social participation in community spaces and (c) navigating urban transport and mobility. Across these themes, this study highlights that access to neighbourhood amenities such as transportation, parks and green spaces, and opportunities for leisure and social interaction play a key role in determining older adults' health and quality of life. In drawing on older adults' lived experiences in their communities, this study informs policy efforts to improve neighbourhood supports for active ageing in urban India.

A purposive sample of older adults (N = 55, female = 51%) was recruited from the metropolitan are s of New a Delhi and Chennai, India. Purposive sampling is known to be effective in exploring anthropological situations and is recommended by researchers who have conducted similar studies of this nature in low- and middle-income countries contexts. This type of sampling was appropriate for this study as it enabled the identification and selection of individuals that were especially knowledgeable about or experienced with the phenomenon of interest (Palinkas et al., 2015).In addition to knowledge and experience, purposive sampling reinforced the selection of information-rich cases intended to achieve depth of understanding on the lived experiences of older adults (Ames et al., 2019).In order to ensure selection of a diverse sample, recruitment was conducted in neighbourhoods differing by levels of socio-economic status in both cities. Neighbourhoods were divided into 10 deciles by socio-economic status. Neighbourhoods in deciles 3, 4 (low-income) and 7, 8 (middle-to high income) were selected for participant recruitment. Neighbourhoods in lowest and highest income deciles (1, 10) were excluded to avoid outliers and deciles 5 and 6 were excluded to create separation between the categories.

Multiple recruitment pathways were undertaken to reach participants, including canvassing in the local community, recruitment during social activities hosted by apartment blocks and housing areas, utilising recommendations provided by community gatekeepers, resident welfare associations, neighbourhood watch groups, resident associations and snowball sampling from an initial set of participants. Participants were contacted either in person or via telephone and asked about their interest and eligibility to participate. These residents, through their social networks,

recommended older adults who were interested in participating in the study as part of the purposive sampling approach which was applied to reach a larger sample. Eligibility criteria for participation included: (a) current residents of Chennai or New Delhi, (b) residents of the city for at least six months, (c) > 60 years of age, (d) being able and willing to answer questions in English, Hindi or Tamil, which are the official languages in the study regions and (e) no visible signs of inappropriate behaviour (e.g., drunkenness and drug use). All participants that were contacted agreed to being interviewed and provided written consent.

2.5. Age-friendly built form and infrastructure design model and knowledge networking

Contemporary demographic shift records alarming increase in the population of the elderly which is creating irreversible socio-economic changes in societies, deteriorating their living conditions, health and relationships. Further, the growing elderly population morphs the traditional population pyramid to a population rectangle. The gifts of longevity lead the designers and planners to centre urban development and architecture on the healthy family and children and motorized traffic. While the US suburbia conceived as a great escape from pollution and hassles of urban life later lead to isolated and subserviced elderly habitation, in India the shift from joint family to nuclear family, separated the elderly.

Younger generation shifted in search of job lead to the deprival of the elderly of care and destined them to loneliness and destitution, lack of medical care and insecurity. Thus, elderly is helpless, alienates themselves from family and society, bearing disrespect and worthlessness. However, the Maintenance and Welfare of Parents and Senior Citizens Act contain effective provisions for the maintenance and welfare of parents and senior citizens guaranteed and recognized under the Constitution. Current institutions that provide old age care; after care homes and other elderly facilities are not in an acceptable state. These only cater to a very small section of the large elderly population.

Further, research in India to find out the specific preferences and needs of the various strata, gender and class of elderly are insufficient and in nascent state. Hence, it is

important to tackle the alarming situation by developing appropriate Elderly-friendly built form design and infrastructure design model with the Government's intervention; reformed acts, programmes, awareness and incentives. Such a model shall be enabling the elderly and provide for their physical, social, and emotional requirements and integrated with services, medical and security required. Further, Aging profiles in India necessities an urgent compilation of Standards and Design Heuristics or norms that can be used by professionals in the scenario of Urban and Rural Infrastructure planning, design and management.

Elderly / Senior Citizen/ Aged Most developed world countries have accepted the chronological age of 65 years as a definition of 'elderly' or older person. However, unlike these westernized concepts, 65 years prescription does not adapt well to the situation in India. The definition of elderly / senior citizen / aged (65 years) is somewhat arbitrary. It is better associated with the age at which one can begin to receive pension benefits. At the moment, there is no United Nations standard numerical criterion, but the UN agreed cut-off is 60+ years to refer to the older population

- Ageing process is a biological reality which has its own dynamics, largely beyond human control. However, it is also influenced by the constructions by which any society makes sense of old age. The age of 60 – 65 years, is the range of retirement ages in most developed countries and is the commencement of old age. In many parts of the developing world, chronological time has little or no importance in the meaning of old age. Other socially constructed meanings of age are more significant such as the roles assigned to older people; in some cases, it is the loss of roles accompanying physical decline which is significant in defining old age. Thus, in contrast to the chronological prescriptions, old age in many developing countries is seen to begin at the point when active contribution is no longer possible

- However, for the project lower age limit of 60 years is considered beginning of elderly life.

- Friendly Like other countries around the globe, India too must gear up to face the problems ageing of our population, plan and identify strategies, we need to adopt and the provisions we must make to create an age-friendly society, both now and in the future. Such age-friendliness is defined basically as the

empowerment for independent or assisted life in a socially pleasing and communally harmonious setting without the fear of being isolated, vulnerable to abuse or lack of medical and other emergency assistance [Fig. 5].

- Further, the elderly shall be made to feel 'aging a blessing' by providing rightful opportunities where they could contribute positively for the building-up.

AGE-FRIENDLY BUILT FORM AND INFRASTRUCTURE DESIGN MODEL & KNOWLEDEGE NETWORKING

Literature Review
- Role and development of House for the elderly, Systems and services
- Safe & secure, Integrated Interiors
- Types of electronic sensors and deployment strategy
- Special needs of elderly

Study of Elderly Ergonomics &Comfort
- Indian context Male and Female
- Assessment of need through national seminar / conference; • Workshop-I
- Establishment of Sub Centers

Case studies
- Study ofidentified elderly housing
- Identification of problems & prospects
- Case study of geriatric needs for assisted living especially at centers
- Study of social, behavioral and emotional needs
- Study of elderly exteriors

Studies, Surveys, Measurements and Interviews-Procurement of Equipments and appointment of staff
- Creation of nodal centers • Generation of databank for the elderly Ergonomics &Anthropometrics • Creation of knowledge sharing network.

ANALYSIS AND ELDERLY RESIDENTIAL DESIGN
- Concept and residential design for the elderly
- Identification of types of residences; Govt., Private and others.
- Systems and services
- Development and detailing with specifications
- Establish the knowledge network; **KNAFBFID**

System and service Integration for coordinated performance.

Networking with health providers, security, and emergency services

Feed Back

DEVELOPMENT OF THEDESIGN
- Simulation and performance evaluation
- System integration and intelligence
- Integration of residential unit with local network
- Conference on the Design and peer review; Workshop-II

VALIDATION OF THE DESIGN DEVELOPED
- Validating the Design developed through surveys, and model and prototype studies.
- Setting-up of evaluation units for use over specified period and feedback. Workshop-III
- Evaluation by industry for potential manufacturing

Feed Back

Stage I 12 months
Stage II 12 months
Stage III 12 months

Guidelines, Conclusion Report

Fig. 1: Methodology

Figure 5: Methodology followed

FRAMEWORK FOR AGE FRIENDLY NEIGHBOURHOOD - OLDER PEOPLE

CHAPTER 3: CASE STUDY

Guntur is the administrative headquarters of Guntur district. It has a total area of 168.4 km². Railpet (ward no.11) of Guntur Municipal Corporation has been taken as case study area. It is being the centre of the city and is densely populated and all age groups live in this area and mostly elderly people. It is very near to the Guntur Railway Station and the Government General Hospital (GGH). The areas in the yellow boxes are the residential areas in Railpet with few houses having kerana store in ground floor [Fig. 6]. The total perimeter of this Railpet community is 1.47 km and its area being 0.10 km². This area has been the retirement community for the GGH workers and Railway workers.
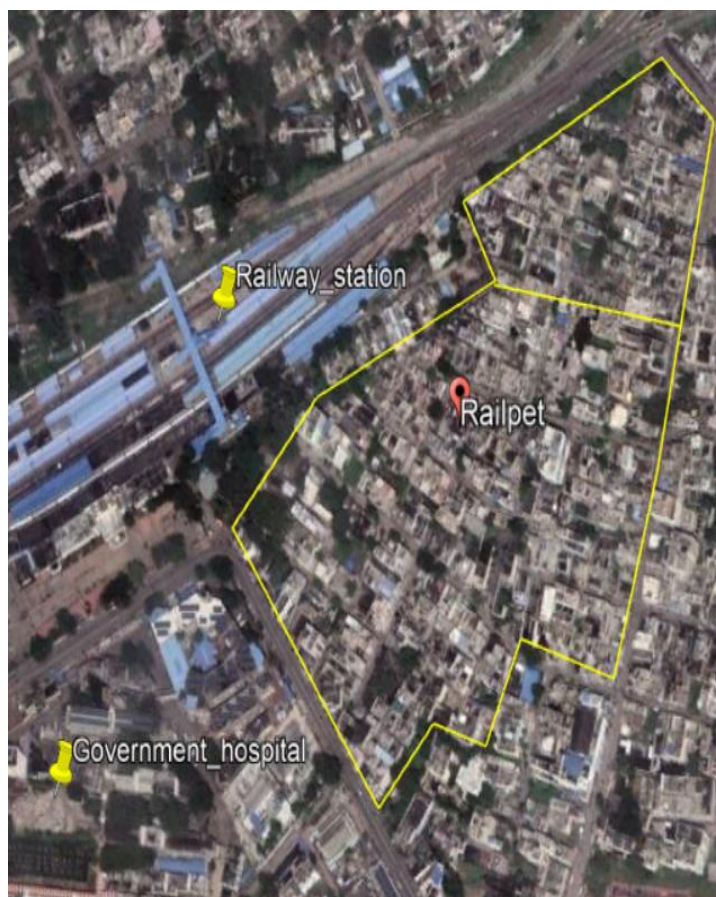
Smaller area being mostly restaurants and lodges because it's close to the railway station.

The bigger area being all residential area

Figure 6: Railpet community divided to two parts

CHAPTER 4: DATA COLLECTION AND ANALYSIS

Data collection consists of mainly in-depth reviews and survey would be qualitative survey. This in-depth survey was about the difficulties they suffer from day-to-day life. In this survey I have also asked about the built environment around them and what are the challenges and also some suggestions which would be useful for them. Data on transportation for the basic needs and issues are collected. Active mapping was done which covered their hobbies their daily routine and activities they do every day which might help to incorporate the built environment for them.

4.1. Data analysis

4.1.1. Walkability analysis

- Many of the respondents were supporting to the fact that they feel comfortable to go for morning walk to get their daily needs

- This being 70% older people of the families wants to do the above early morning walk

- This is not only for elder people but all try walking a proximity distance of 5 minutes prefer walking

- And for retail shops and malls and other public services they prefer to their private vehicles and public transport

- So, in this case study walkability was not an issue cause people mostly prefer walking not only early morning but also evening walks

4.1.2. Facilities analysis

- The respondents also expressed some issues they face while their walk was roads being narrow and more vehicles being used by people for their jobs

- But during these pandemics they were not able to use this feature so their mental health has been affected this was said by almost all the respondents

- They also complained about the services like street lights and speed breakers

- No designated footpaths for crossing of roads

- And they felt if there were some segregations of pedestrian and vehicular movements

4.1.3. Neighbourhood analysis

- Many of the respondents were comfortable with design but they also pointed out the roads being narrow and some houses coming further on the road obstructing the movement in the specified lanes

- They also expressed that no ambulance or the daily waste collection rickshaws find difficult and they stay at the end of the streets and it's difficult for them to throw away their waste

- Many asked for some open spaces and parks but they also pointed out that they might be misused by the youth using it for bad habits, so they refrained from having any open spaces in their neighbourhood

4.1.4. Transportation use analysis

- About 80% of the people interviewed has their own vehicles and they said they don't prefer the public transport because they have to walk a distance of 2-3 km and in some cases 500mt but they prefer their own vehicles

- They also said especially older people doesn't want to use the public transport as they feel it's not safe

- In more cases, they depend on their younger ones in the family for any kind of travel and about 60% respondents felt the same

CHAPTER 5: PROPOSAL

The literature review led to the outline structure of the framework of age-friendly housing in which the most recurring determinants of housing quality were reported. The structure of the framework is based on the checklist proposed by the WHO. It brings together the major concerns to consider when assessing the suitability of dwellings to the needs of older people. The framework has therefore been structured in 7 domains. Compared to the checklist, the framework does not mention 'housing option' as it was not considered useful to assess the age-friendliness of housing, but rather the availability of living options. Furthermore, to be more consistent with the topics addressed in the checklist, the domains 'living environment' and 'ageing in place' were renamed respectively 'safety and security' and 'access to services.' The other five domains overlap those reported in the guide by WHO.

The below is the Age-friendly housing checklist. (Source: World Health Organization (WHO). Global age-friendly cities: A guide; WHO: Geneva, 2007)

<u>Affordability</u>: housing is available for all older people

<u>Essential Services</u>: Essential services are provided that are affordable to all

<u>Design:</u>

- Housing is made of appropriate materials and well-structured
- There is sufficient space to enable older people to move around freely
- Housing is appropriately equipped to meet environmental conditions
- Housing is adapted for older people, with even surfaces, passages wide enough for wheelchairs, and appropriately designed bathrooms, toilets and kitchens.

<u>Modifications</u>

- Housing is modified for older people as needed
- Housing modifications are affordable
- Equipment for housing modifications is readily available. Financial assistance is provided for home modifications
- There is a good understanding of how housing can be modified to meet the needs of older people

<u>Maintenance</u>

- Maintenance services are affordable for older people
- There are appropriately qualified and reliable service providers to undertake maintenance work.
- Public housing, rented accommodation and common areas are well-maintained

<u>Ageing in Place</u>

- Housing is located close to services and facilities
- Affordable services are provided to enable older people to remain at home, to "age in place"
- Older people are well-informed of the services available to help them age in place

<u>Community Integration</u>: Housing design facilitates continued integration of older people into the community.

<u>Housing Options</u>

- A range of appropriate and affordable housing options is available for older people, including frail and disabled older people, in the local area
- Older people are well-informed of the available housing options
- Sufficient and affordable housing dedicated to older people is provided in the local area
- There is a range of appropriate services and appropriate amenities and activities in older people's housing facilities
- Older people's housing is integrated in the surrounding community.

With all these checklists made by WHO we had made a framework which might help in built an age-friendly neighbourhood and this can also be used to build an age-friendly city and the framework is as follows:

5.1. Framework for age-friendly neighbourhood

5.1.1. Affordability

According to WHO, affordability is "a major factor influencing where older people live and their quality of life. The report finds that housing costs are the major economic challenge for most low-income older people. Housing costs can be a barrier to ageing in place and reduce the ability to afford other vital expenses. There is a common agreement that 30% of the monthly income is the maximum an older adult can allocate to housing costs (renting cost or mortgage payment, utilities, repair and maintenance costs) without being considered at risk.

5.1.2. Community connections

Feeling part of the local community contributes to the age-friendliness of a city. According to the WHO the design of housing can facilitate community interaction on multiple levels.

5.1.2.1 Presence of public open spaces

Research reports that housing can impact on a feeling of community connection through outdoor spaces that connect the dweller to the neighbourhood: Balconies, patios, gardens, porches, terraces are all elements that can promote socialization and interaction of older people in the neighbourhood. Concerns are expressed about high-rise buildings and modern flats without outdoor spaces because they impede personal contact with neighbours. To be suitable for the needs of older people, outdoor spaces should meet a list of minimum requirements, which are: Accessibility, adequate size to accommodate furnishings (like chairs and tables), protection against atmospheric conditions, and a certain degree of privacy.

5.1.2.2. Overlooking communal facilities and green area

Older people can benefit from a view of external spaces. Overlooking communal facilities and establishing a physical and visual relationship with the surroundings makes older people more involved in the community and helps to reduce their sense of isolation. There is a consensus among researchers that the quality of the view plays an important role in reducing the feeling of loneliness and on the general wellbeing of individuals. For example, for older people that spend most of the day at home, overlooking green areas can be the main way they interact with natural elements which in turn has a positive impact on wellbeing.

5.1.3. Security

Older people are exposed to a number of hazards in the home environment and, among them, falls are the most recurring. Besides personal determinants of the inhabitants like age or health status, the features of the home environment greatly impact on the occurrence of falls. The most common risk factors for falls are: slippery surfaces, low chairs, absence of grab bars or handrails, loose rugs, no arm rest on chairs, missing second banister on stairs, poor lighting, obstructed pathways, and storage areas out of reach.

A cause of concern for older people is feeling safe in their living environment. Security from crime is the major aspect of neighbourhood satisfaction and impacts on health and mental wellbeing of older people.

5.1.4. Maintenance

The household should be able to maintain their own house, and inspections and checks replacements. Preventative replacement of parts at risk to undertake if needed. Regular maintenance is essential to ensure a safe and healthy environment in which a person can age in place. Poorly maintained homes increase worry and stress, the risk of illness, disease, and injury, as well as increased spending on utility bills and repairs due to the lack of maintenance. Frequently older people are worried about being able to maintain the upkeep of their home environment. Relying on assistance with home repairs and maintenance provided by associations, persons of trust, or family is considered an age-friendly measure. Report that being involved in home

maintenance tasks benefits the autonomy and wellbeing of older people and their participation in such activities should be supported.

5.1.5. Design

Housing designs as well neighbourhood designs impact the ability of older people to live comfortably. Accessibility is crucial feature to consider when designing for older people giving them a barrier free environment. In terms of dimension of spaces, housing size must be adequate to enable older people to safely perform activities of daily living. The authors of found that housing size, expressed in square meters, was differently associated to life satisfaction in relation to the age of inhabitants. The young-old (65–80 years) experience high life satisfaction when living in larger homes whilst older-old (80 years and older) are more satisfied if their homes are smaller.

Overcrowding, defined as "the condition where the number of occupants exceeds the capacity of the dwelling space available, whether measured as rooms, bedrooms or floor area, resulting in adverse physical and mental health outcomes" is a concern for the older people.

5.1.6. Access to services

Location of the housing can have great impact on desirability if it has high number of amenities. It is utmost importance for the older people to be able to access to their daily needs. The location of housing can have a great impact on its desirability and several benefits are recognized in living close to a high number of amenities. It is considered of utmost importance for the independence of older people to be able to access basic services located within short distances from home, such as shops, health care facilities, public transportation, community centres, leisure facilities, parks, places of worship, and public services. The extent to which the proximity of such places is important in older people's daily lives varies according with the type of amenity. Place connectivity contributes to establish a social link within the community and encourages physical activity with positive implications on health and wellbeing. The distance commonly accepted to be easily walkable by older people is 500 meters which corresponds to a 10-minute walk.

5.1.7. Essential services

The basic essential services like water and electricity being guaranteed in all dwellings. Air cooling systems in individual housing where the temperatures reach high in particular areas. Lightning system with is essential for vision regulation reducing fall risks and sleep disorders.

CHAPTER 6: CONCLUSION

This study provides a synthesis of resources regarding age-friendly and end of life planning strategies, incorporating information from a variety of reputable sources including the World Health Organization (WHO), the AARP, and existing city plans, which are used to generate a framework for analysing and evaluating smaller-scale neighbourhoods and communities on how well they incorporate age-friendly practices in their design and management. The case study intended to determine if the WHO's framework for age-friendly cities could be adapted and applied at a smaller neighbourhood scale. The results of the case study indicate that with regards to the two model retirement communities assessed, they indeed can, particularly within the framework of planned unit development where master planning allows a more flexible approach to adapting these guidelines to local needs.

The existing built environment in the urban areas like Guntur which is a highly compacted and dense developed area with highly private vehicular dependency, are not safe and sympathetic towards the elderly people in the urban environment. There is always a need to create safety pedestrianized environment, easy accessibility to public transport facilities, recreational and public facilities. The principles of New Urbanism like walkability, mixed use spaces; good public realm etc. could be an approach to address these facilities. These elements, if successfully incorporated into design, will lead to healthy and active ageing of elderly fostering their sociability. There is no perfect neighbourhood solution for the elderly but the design of neighbourhood always has a substantial impact on the well-being of aged people. So, it has necessitated the requirement of developing suitable design solutions for a neighbourhood design for active ageing of elderly.

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