

Perceived Security of Tenure in Squatter Settlements: A Case Study of Vijayawada, India

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Abstract: Security that comes along with land tenure and property rights of the urban poor settlements has been a subject of discussion for many years. It is a well-known fact that the residents of these settlements may feel secured through different forms of tenure, ranging from statutory to customary arrangements. Perceived tenure is one such form or tenure typology, where the inhabitants feel secured despite the absence of legal tenure. In particular, most often this phenomenon can be found in the squatter settlements. However, understanding the degree of perceived security is not an easy task, as it depends on various contributing factors.

This paper is a scholastic attempt to assess the impact of various identified context specific factors that contribute to the perceived security of tenure in squatter settlements. For this purpose, different generic notional typologies were reviewed. Based on the identified factors, two squatter settlements located in the hazardous areas in the Indian city of Vijayawada were studied. The case studies were carried out through documentation, mapping and response recording. A comparative analysis was done to assess their impact on the degree of perceived security through the Likert scale method. Further, these factors were classified into three categories i.e., low, medium and high. Based on their impact, a conceptual model for understanding the perceived security of tenure in squatter settlements was developed.

Keywords: Perceived tenure, tenure security, squatter settlements.

1.0). INTRODUCTION

1.1) Squatter Settlements: Squatter settlements usually refer to residential areas with no legal claims to land or permission from the concerned authorities to build (Srinivas, 2005). Squatting consists of occupying of an abandoned or unoccupied area of land (usually residential) without lawful permission to use such as title, right, or payment of rent (Roberts, 2006). Despite the lack of formal recognition by public authorities, perceived tenure can often provide good levels of security. Perceptions of tenure security most often can prompt actions, such as access to credit and investment, that formal title is meant to ensure. As a result, residents of the poor settlements invest on house improvements although they do not officially or legally own them (Leap, 2005). Most often, this phenomenon can be observed in the squatter settlements.

1.2) Perceived Tenure versus Formal Tenure: Formal property rights was hitherto considered to be the best means of encouraging access to credit and housing consolidation for the urban poor. However, a recent paradigm shift rebuts this link and suggests that perceived security of tenure (PST) is enough for housing consolidation (Kiddle, 2010). PST is often referred to as defacto security that the urban poor settlements perceive or enjoy despite the absence of legal rights. If households have adequate defacto security, formal title or tenure may not always be critical. But, access to services and credit may be more important (Payne, 2001).

1.3) Factors of PST: Perceived security is based on circumstances and not on individually secured rights. A number of factors can provide perceived security. These include: support from local politicians, non-government organisations (NGOs), provision of basic services, pending court order, land under litigation, street addressing, customary rituals, surrounding areas of religious structure, identity cards, and unsuitable land for human habitation (UN-HABITAT, 2003). Besides, it can also be based on the size of the settlement and the period of stay. A majority of households living illegally is likely to feel more secured than a minority of illegal households (Payne, 2001). Similarly, the longer period of stay in an area may also make people feel more secured (Balamir, 2002).

1.4) Measuring PST: PST cannot be easily weighed or measured as it depends on the choice of relevant indicators, and methods of monitoring, changes between types or within types over time (Payne & Durand-Lasserve, 2012). Payne (2001a) provided a generic typology illustrating a notional range of objectively defined tenure categories viz., pavement dweller, squatter tenant, squatter 'owner'- un-regularized, tenant in unauthorised subdivision, squatter 'owner' – regularized, owner - unauthorised subdivision, legal owner - unauthorised construction, tenant with contract, leaseholder and free-holder. This typology attempted to relate the increasing tenure security with the corresponding increase in the degree of legality (Payne, 2001a). Later, this notional typology was developed to include full range

of property rights for any given tenure category. These rights include: use, occupy, restrict others, buy/transfer/dispose, inherit, develop/improve, cultivate/produce, sublet, access services, and access formal credit (Payne, 2004). Further, Durand-Lasserve and Selod (2009) simplified this typology to record information related to different levels of rights and different tenure categories (Durand-Lasserve & Selod, 2009). These generic typologies attempted to assess the perceived degree of security of various tenure categories and their associated bundle of rights. The degree of security is indicated on a broad scale ranging from low to high levels. However, these typologies do not provide a picture of the causative factors that impact the perceived security. Therefore, it is significant to identify such factors and their degree of impact on the PST. For this purpose, two squatter settlements located in the Indian city of Vijayawada were identified for undertaking case studies (see Figure-1).

2.0). CASE STUDIES

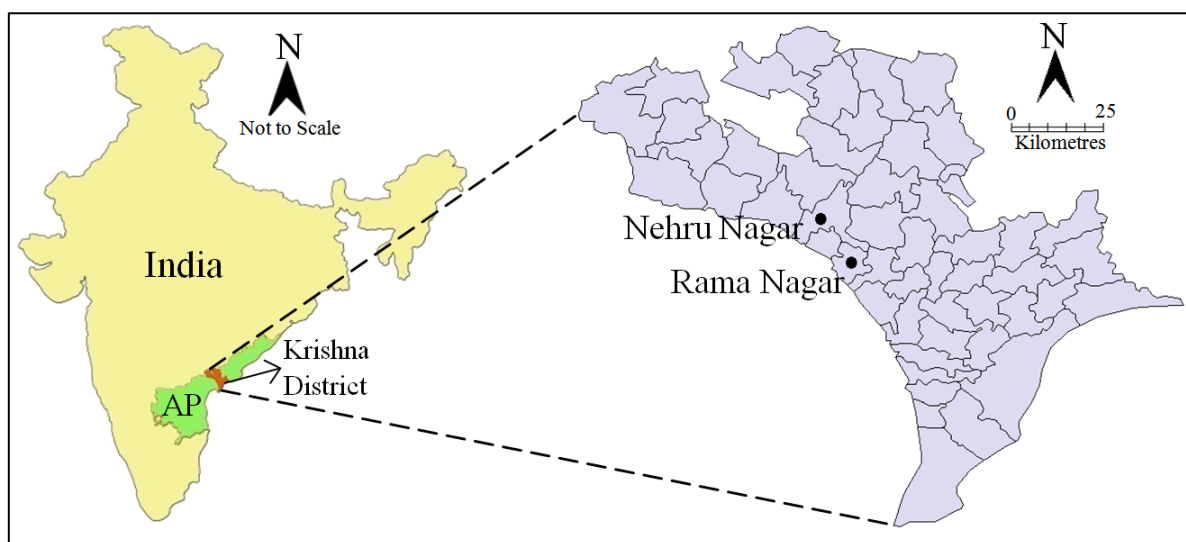


Figure-1: Location map of Rama Nagar and Nehru Nagar

2.1.2) **Factors** - To assess the impact of factors on PST, a total of 21 factors were identified and studied. These include a list of context specific factors as given by the UN-HABITAT (2003). Based on a reconnaissance survey, additional factors such as location of the settlement along the margins, land ownership status, assets, proximity to workplace, religion / caste, possession of legal / semi-legal documents, occupation / employment, education, income, access to media, benefits from government, etc., were identified.

2.1.3) **Sample and Sampling** - The case studies were conducted on 05 March 2015. Utmost care was taken to

2.1) Criteria for Selection:

2.1.1) **Study Area**-Vijayawada is the second largest city with a million plus population in the Indian state of Andhra Pradesh (AP), located on the banks of the River Krishna (Census of India, 2011). The city has a major share of population living in the poor settlements. The proportion of slum households to the total urban households of the city is around 40.6 % (Census of India, 2011a). Based on their location, informal settlements in Vijayawada are classified into two categories i.e., hazardous and non-hazardous (Vijayawada Municipal Corporation, 2013). For undertaking the case studies, two squatter settlements located on the hazardous areas were identified. These are: (i) Rama Nagar, located along the canal and the main road with no legal tenure and (ii) Nehru Nagar, located along the canal and railway tracks with no legal tenure. This is because, poor settlements located on the land not required for any other purpose and unsuitable for human habitation such as steep slopes, railway margins, etc., are often perceived as secured (Banerjee, 1999).

see that the sample selection for conducting the household survey was not 'biased' and was representative of the settlement. To eliminate bias and to reduce the sampling error, probability sampling techniques such as 'area sampling' and 'simple random sampling' were adopted. Size of the household sample in each of the settlements was based on the total number of households of the settlement. In each of the two settlements, a representative sample size was surveyed. The sample was distributed across the entire settlement to ensure geographical coverage of the area. From the randomly selected

structures, only one household from each structure was selected through simple random sampling technique. From each of these households, the response of the head of the family was recorded. Utmost care was taken to represent all income groups distributed across the settlement.

2.1.4) Research Methods-Household survey was conducted through a questionnaire, based on the factors discussed above. During the household survey, sample responses were recorded against each factor mentioned in the questionnaire, on a Likert¹ scale with five ordered response levels ranging from 1 to 5 (where 1 indicates the least and 5 indicates the highest impact of the factor on the PST). Accordingly, scores to each of the response levels were assigned as follows: least impact = 1, low impact=2, medium impact=3, high impact=4, and highest impact=5. For each factor, the summated score was calculated. Based on the summated score, the contribution of factor to PST was determined as low (0 to 1.67) or medium (1.67 to 3.33) or high (3.33 to 5.0).

2.2) Rama Nagar Settlement, Tadigadapa:

2.2.1) Brief Profile of the Settlement- Rama Nagar was a linear shaped squatter settlement located along the Bandar canal and the Bandar road on the government land (see Figure-2), around two kilometres from the city of Vijayawada in Tadigadapa (a census town of Penamaluru mandal of Krishna district in AP). For the purpose of this study, only the roadside portion of the settlement was considered due to its vulnerability to threats of eviction. As this was a squatter settlement, no official details or records or documentation about this settlement were available with the concerned authorities. In this portion of the settlement, around 30 households (with a total population around 200) were living since 1999. However, this settlement was evicted on 18 March 2015 for the purpose of road widening. The field studies were conducted before and after the eviction.

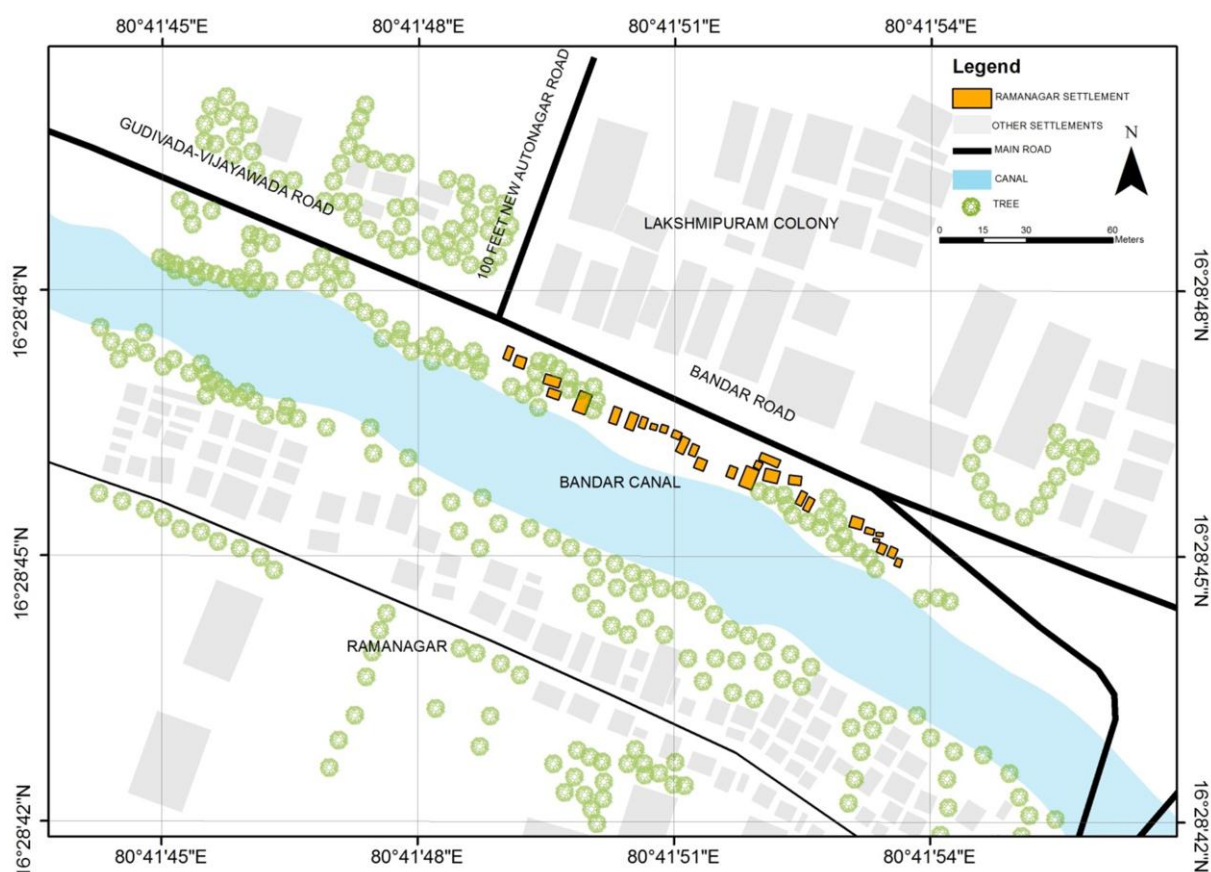


Figure-2: Rama Nagar settlement (Tadigadapa) map

¹ a psychometric scale commonly involved in research that employs questionnaires (Wuensh, 2005).



Figure-3: Aerial View of Rama Nagar settlement



Figure-4: Self-made houses along the main road



Figure-5: View of the area after eviction

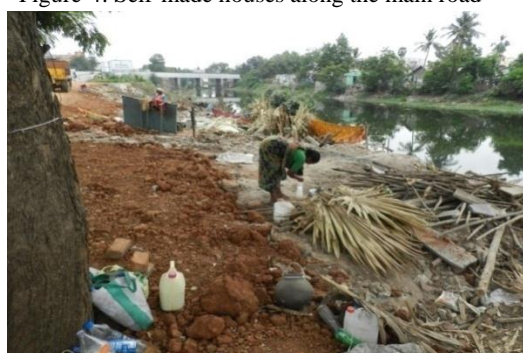


Figure-6: Demolished houses

2.2.2) **Insecurity and Eviction-** The inhabitants were living in self-made temporary houses (see Figure-4) just around two metres away from the main road. These closely knit houses were made in temporary material such as hay, wooden planks, zinc sheets, rubber sheets, and plastic sheets. The residents felt insecure as these temporary houses could be easily demolished or removed. Besides, their lack of access to basic services also increased their insecurity. Basic services such as water supply, sanitation and electricity were not available. However, the residents managed to steal electricity from the main electric lines. They would dump the waste into the water body adding to its pollution and contamination. Due to this, the surrounding areas of the settlement turned out to be very unhygienic.

A unique feature of this settlement was that a majority of the men were daily wage labourers while, the women were engaged in toddy or palm wine (known as *kallu* in local language i.e., Telugu) selling activity from their home

place. When enquired, they revealed that they received several warnings from the police against selling the toddy. This was because many times the customers, under the influence of toddy, would indulge in petty quarrels creating nuisance. Despite having support from the local politicians, the residents still had the fear of eviction due to the proposed road widening. As anticipated by them, the settlement was evicted. Even after eviction, women continued to sell toddy as it was their only source of livelihood (see Figure-8).

One of the main reasons, supposedly, for the eviction of this settlement was its close proximity to the tri-junction. The heavy vehicles such as private trucks or lorries that were not permitted into the city were diverted at this junction to the 100 feet wide connecting road (see Figure-7). This settlement was therefore considered to be one of the main obstructions for diverting the vehicles, as it was close to the turning radius of the vehicles.



Figure-7: Diversion board for heavy vehicles



Figure-8: Women selling toddy after eviction

2.2.3) **Household Survey**– A sample size of 33.3% i.e., 10 households were surveyed. The responses of the sample households were recorded on the Likert scale. The number of responses is multiplied with the score of the response level. For example, 70% sample respondents felt that their PST was not due to the location of the settlement. However, the remaining 30% felt that the location somewhat contributes to their PST. The summated score for the location factor is calculated as $(0.7 \times 1) + (0.3 \times 2) = 1.3$. An index (named as PST Index) was calculated to assess the degree of PST of the settlement. It is useful to understand the degree of PST of the settlement. Also, it facilitates comparison of PST between two or more settlements. PST Index of the settlement is the average of the summated scores of all the factors on the Likert scale. The calculation of the PST index can be

represented through generalized mathematical empirical formulae as below:

$$T_n = \sum_{k=i}^j (P_k)(S_k) \dots \dots \dots (1)$$

[Where ' T_n ' is the summated score of the n^{th} factor, ' k ' is the k^{th} response level ranging from ' i ' to ' j ' (here ' i '=1 and ' j '=5), ' P ' is the percentage of the sample respondents of the respective response level, ' S '=score of the respective response level]

$$I = \sum_{n=q}^r (T_n) / N \dots \dots \dots (2)$$

[Where ' I ' is the perceived security of tenure, ' n ' is the n^{th} factor ranging from ' q ' to ' r ' (here ' q '=1 and ' r '=21), ' T_n ' is the summated score of the n^{th} factor, ' N ' is the total number of factors]

The details of the household survey are given in the Table-1 below:

S.No.	Factors	Response Level-1	Response Level-2	Response Level-3	Response Level-4	Response Level-5	Summated Scores	PST
		Least Impact (Score 1)	Low Impact (Score 2)	Medium Impact (Score 3)	High Impact (Score 4)	Highest Impact (Score 5)		
1	Location (along the margins)	0.7	0.6	0	0	0	1.3	Low
2	Size of the settlement	0.7	0.2	0.6	0	0	1.5	Low
3	Period of Stay	0	0.2	1.2	2.0	0	3.4	High
4	Investment in basic services	0.9	0.2	0	0	0	1.1	Low
5	Land ownership (government land)	0.8	0.2	0.3	0	0	1.3	Low
6	Unsuitable land for human habitation	0	0	0	3.6	0.5	4.1	High
7	Assets (livestock, own house, etc.)	0.9	0	0.3	0	0	1.2	Low
8	Proximity to work place	0	1.0	1.5	0	0	2.5	Medium
9	Street addressing	1.0	0	0	0	0	1.0	Low
10	Identity cards	0	0.2	1.2	2.0	0	3.4	High
11	Religion / caste	1.0	0	0	0	0	1.0	Low
12	Documents (legal / semi-legal)	1.0	0	0	0	0	1.0	Low
13	Occupation/ employment	0.4	0	1.8	0	0	2.2	Medium
14	Education	1.0	0	0	0	0	1.0	Low
15	Income	0.3	0	2.1	0	0	2.4	Medium
16	Customary rituals / social bonding	0	0	0.6	3.2	0	3.8	High
17	Access to media	1.0	0	0	0	0	1.0	Low
18	Benefits from government	1.0	0	0	0	0	1.0	Low
19	Political support	0	0	1.8	1.6	0	3.4	High
20	Any other support (police/ middle men/ NGOs)	1.0	0	0	0	0	1.0	Low
21	Land under litigation / pending court order	1.0	0	0	0	0	1.0	Low
PST Index of Rama Nagar Settlement - $I_{(RN)}$							1.88	Medium

Table-1: Survey details of Rama Nagar settlement, Tadigadapa

2.2.4) Survey Findings– In the Rama Nagar settlement, a PST index of 1.88 indicates that on an average, medium levels of security was enjoyed by the residents. However despite this, the settlement was evicted. The survey revealed that their perception of security was not in any way helpful to them. The following were the observations from the survey:

- i. The inhabitants had a high perception of security due to the support from the local politicians, their longer period of stay, possession of Aadhaar² cards, good social bonding among themselves, and their location of their settlement along the canal which is unsuitable for human habitation.
- ii. The degree of security perceived was medium due to their proximity to work place, occupation / employment and their income.
- iii. The remaining factors such as location, size of the settlement, investment in basic services, land ownership, assets, street addressing, religion / caste, documents, education, access to media, benefits from government, land under litigation and support from NGOs, etc., have not contributed much towards their perceived degree of security.

2.3) Nehru Nagar Settlement, Nidamanuru:

2.3.1) Brief Profile of the Settlement -Nehru Nagar is a squatter settlement located in the Nidamanuru village on the outskirts of Vijayawada.

It is a linear shaped settlement characterized by poorly built houses and irregular roads (see Figure-10 and Figure-11). It is located along the railway margins near the Nidamanuru railway station and the Eluru canal (see Figure-9). Due to the close proximity to the railway track, the residents expressed their high vulnerability to accidents and noise pollution.

Despite their vulnerability, the residents continued to stay in this settlement as it is closely located to the city. The average period of their stay is around 30 years. The settlement is located just around five kilometres away from the municipal limits of Vijayawada and around nine kilometres away from the Vijayawada airport.

2.3.2) Perceived Security – Nehru Nagar is a large settlement with a population of around 672 and 120 households. The survey revealed that the large size of the settlement is one of the reasons for their high perception of security. The residents said that there were no threats of eviction in the past. It is predominantly a muslim community, with an average household size of 5.6. They feel secured because a majority of them belong to the same religion i.e., Islam. According to them, they would never be evicted in future due to strong community support. Also, their perceived security can be attributed to the support they enjoy from the village local body.

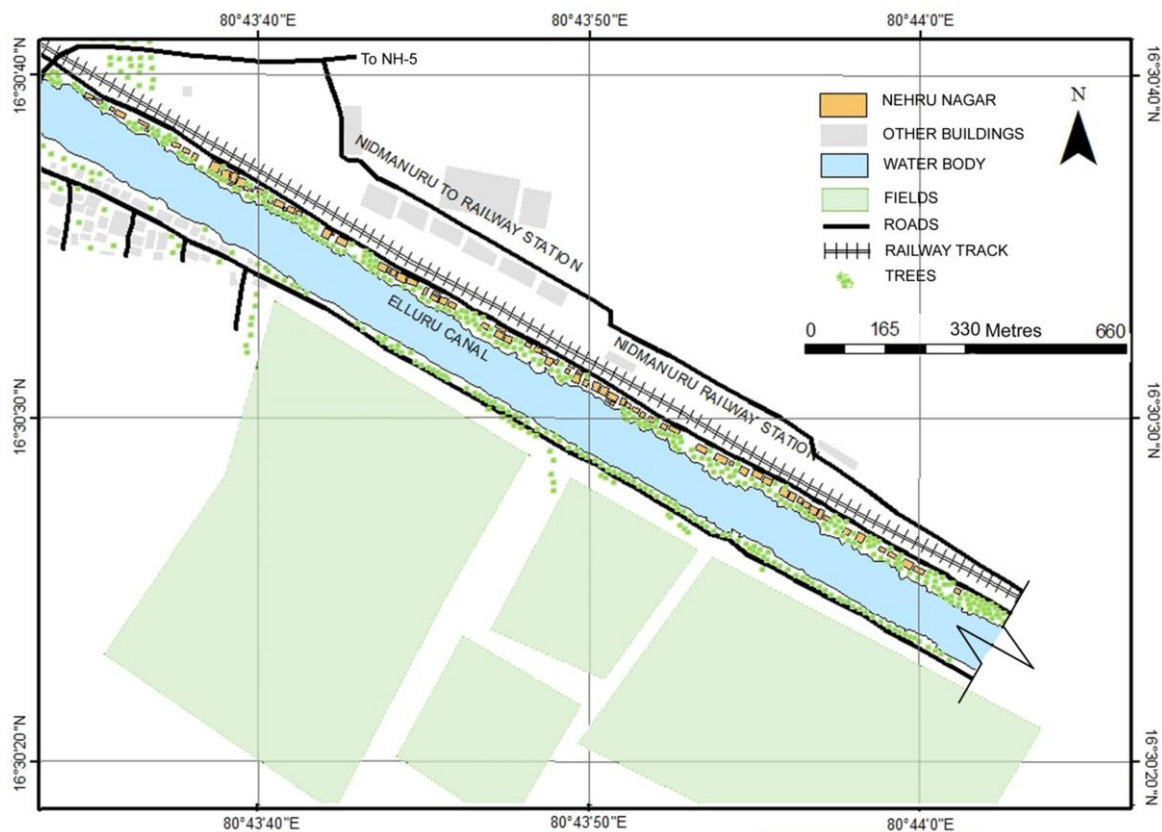


Figure-9: Nehru Nagar Settlement (Nidamanuru) map

²an identification for residents of India, widely perceived as an identity card legitimizing citizenship of the country



Figure-10: A view of Nehru Nagar settlement



Figure-11: Street view



Figure-12: Self-made house



Figure-13: Live stock

2.3.3) Household Survey - A sample size of 16.67% (i.e., 20 households) was surveyed. The survey revealed that the average monthly income of the sample households is adequate for their survival. For a majority of the households, livestock (see Figure-13) is their only source of income. A few residents are well-educated and employed in government and private firms. Education, employment and income levels seemed to have

contributed to their perceived security. However, they also feel insecure due to a newly proposed additional railway track. What is surprising is that the residents use the existing railway track and fencing for domestic purposes such as drying of clothes, spending leisure time, etc. (see Figure-14). Most frequently, children are found playing close to the railway tracks and are vulnerable to accidents (see Figure-15).



Figure-14: Drying of clothes on the railway fencing



Figure-15: Children playing on the railway track

S.No.	Factors	Response Level-1	Response Level-2	Response Level-3	Response Level-4	Response Level-5	Summated Scores	PST
		Least Impact (Score 1)	Low Impact (Score 2)	Medium Impact (Score 3)	High Impact (Score 4)	Highest Impact (Score 5)		
1	Location (along the margins)	0	0	0	1.6	3.0	4.60	High
2	Size of the settlement	0	0	0	0.4	4.5	4.90	High
3	Period of Stay	0	0	0	3.0	1.25	4.25	High
4	Investment in basic services	0	1.4	0	0	1.5	2.90	Medium
5	Land ownership (government land)	0	0	0.75	1.0	2.5	4.25	High
6	Unsuitable land for human habitation	0	0	0	2.0	2.5	4.50	High
7	Assets (livestock, own house, etc.)	0.2	0	0	0	4.0	4.20	High
8	Proximity to work place	0	0	0	2.4	2.0	4.40	High
9	Street addressing	0.8	0.4	0	0	0	1.20	Low
10	Identity cards	0	0	0	0.8	4.0	4.80	High
11	Religion / caste	0	0	0	0.8	4.0	4.80	High
12	Documents (legal / semi-legal)	0	1.2	0.6	0.8	0	2.60	Medium
13	Occupation/ employment	0	0	0.6	2.0	1.5	4.10	High
14	Education	0	0.4	0.6	0.8	2.0	3.80	High
15	Income	0	0	0.6	2.0	1.5	4.10	High
16	Customary rituals / social bonding	0	0	0	1.6	3.0	4.60	High
17	Access to media	1.0	0	0	0	0	1.00	Low
18	Benefits from government	0	0.6	0.6	2.0	0	3.20	Medium
19	Political support	1.0	0	0	0	0	1.00	Low
20	Any other support (police/ middle men/ NGOs)	0.3	0.2	1.5	0	0	2.00	Medium
21	Land under litigation / pending court order	1.0	0	0	0	0	1.00	Low
PST Index of Rama Nagar Settlement - $I_{(NN)}$							3.43	High

Table-2: Survey details of Nehru Nagar settlement, Tadigadapa

2.3.4) **Survey Findings**—A PST index of 3.43 indicates that on an average the perception of security is high in the Nehru Nagar settlement. The following were the observations from the survey:

- The residents felt highly secured due to location along the railway and canal margin, size of the settlement, period of stay, proximity to workplace, religion/caste, education, income, occupation / employment, government ownership of the land, unsuitable land for human habitation, assets, identity cards, and good social bonding / customary rituals.
- Investment in basic services, documents such as property tax receipts, benefits from government and

support from the *gram panchayat* (village local body); have contributed to medium degree of perceived security.

- The remaining factors such as street addressing, access to media, political support and land under litigation have not contributed much towards their perceived degree of security.

2.4). Comparative Analysis:

For the purpose of finding out the contribution of the factors to PST, average summated scores of each factor across both the settlements were calculated. The details are given in the Table-3:

S.No.	Factors	Rama Nagar	Nehru Nagar	Average Summated Scores	PST
1	Location (along the margins)	1.30	4.60	2.95	Medium
2	Size of the settlement	1.50	4.90	3.20	Medium
3	Period of Stay	3.40	4.25	3.83	High
4	Investment in basic services	1.10	2.90	2.00	Medium
5	Land ownership (government land)	1.30	4.25	2.78	Medium
6	Unsuitable land for human habitation	4.10	4.50	4.30	High
7	Assets (livestock, own house, etc.)	1.20	4.20	2.70	Medium
8	Proximity to work place	2.50	4.40	3.45	High
9	Street addressing	1.00	1.20	1.10	Low
10	Identity cards	3.40	4.80	4.10	High
11	Religion / caste	1.00	4.80	2.90	Medium
12	Documents (legal / semi-legal)	1.00	2.60	1.80	Medium
13	Occupation/ employment	2.20	4.10	3.15	Medium
14	Education	1.00	3.80	2.40	Medium
15	Income	2.40	4.10	3.25	Medium
16	Customary rituals / social bonding	3.80	4.60	4.20	High
17	Access to media	1.00	1.00	1.00	Low
18	Benefits from government	1.00	3.20	2.10	Medium
19	Political support	3.40	1.00	2.20	Medium
20	Any other support (police/ middle men/ NGOs)	1.00	2.00	1.50	Low
21	Land under litigation / pending court order	1.00	1.00	1.00	Low
	PST Index	1.88	3.43	--	--

Table-3: Average summated scores of Rama Nagar and Nehru Nagar settlements

A comparison of the impact of factors on the PST (low impact in red, medium impact in blue and high impact in green colour) is shown in the Table-4 below:

S.No.	Factors	Rama Nagar (PST)	Nehru Nagar (PST)	Both Settlements (Average PST)
1	Location (along the margins)	Low	High	Medium
2	Size of the settlement	Low	High	Medium
3	Period of Stay	High	High	High
4	Investment in basic services	Low	Medium	Medium
5	Land ownership (government land)	Low	High	Medium
6	Unsuitable land for human habitation	High	High	High
7	Assets (livestock, own house, etc.)	Low	High	Medium
8	Proximity to work place	Medium	High	High
9	Street addressing	Low	Low	Low
10	Identity cards	High	High	High
11	Religion / caste	Low	High	Medium
12	Documents (legal / semi-legal)	Low	Medium	Medium
13	Occupation/ employment	Medium	High	Medium
14	Education	Low	High	Medium
15	Income	Medium	High	Medium
16	Customary rituals / social bonding	High	High	High
17	Access to media	Low	Low	Low
18	Benefits from government	Low	Medium	Medium
19	Political support	High	Low	Medium
20	Any other support (police/ middle men/ NGOs)	Low	Medium	Low
21	Land under litigation / pending court order	Low	Low	Low

Table-4: Impact of factors on the PST

Based on the average summated scores (see Table-3) of the factors in both the settlements, all the factors are arranged in the increasing order of their impact on the PST in low, medium and high categories (see Figure-16).

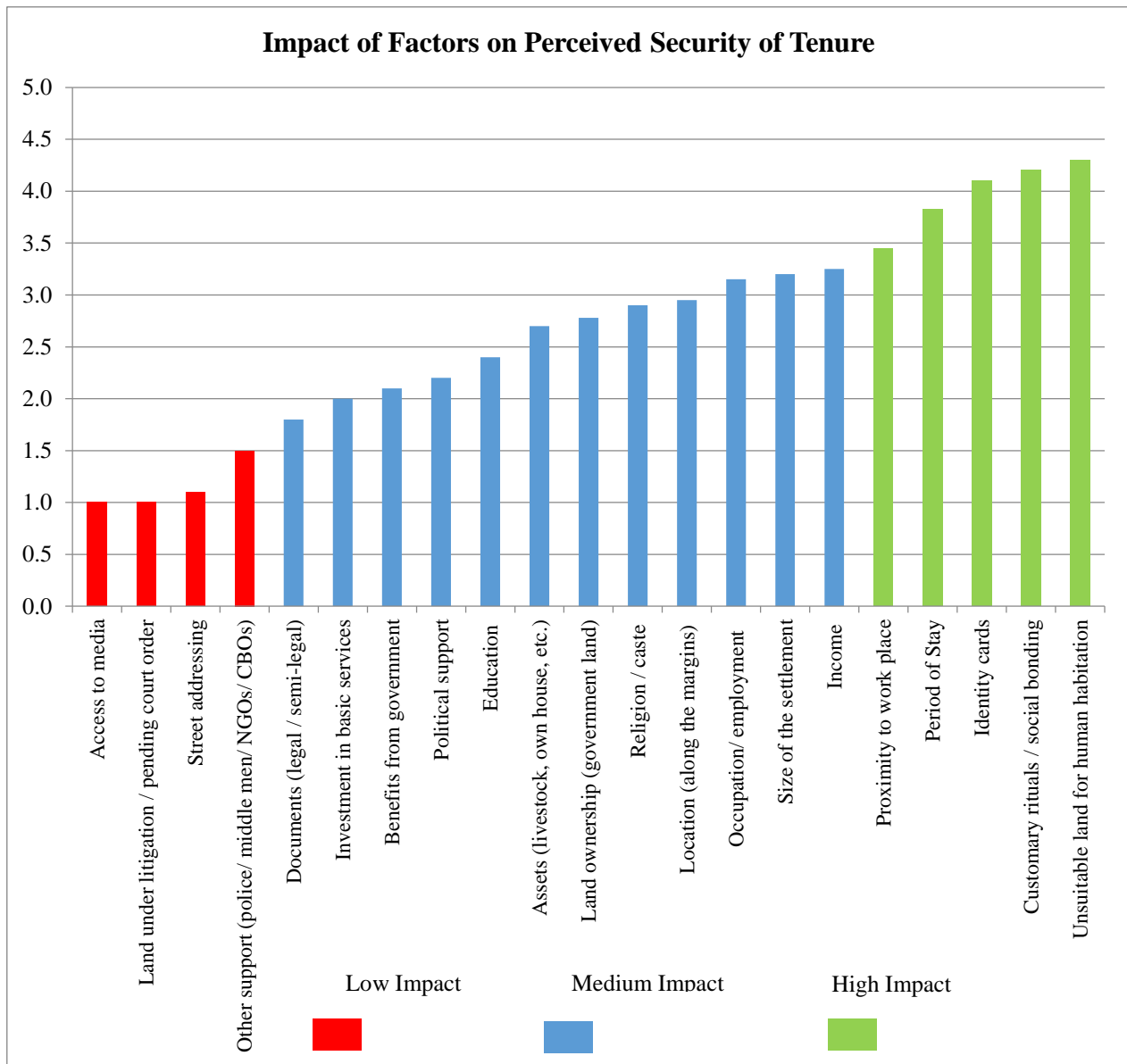


Figure-16: Contribution of factors to PST

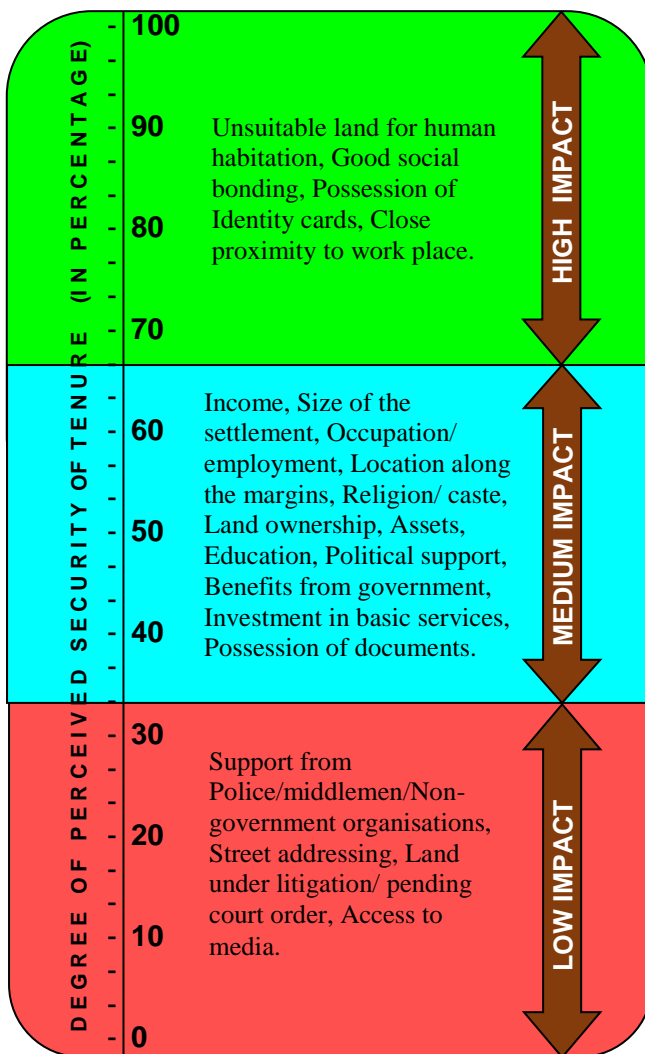


Figure-17: Conceptual model for understanding perceived security of tenure in squatter settlements

3.0). CONCLUSION

It is evident from the Figure-16 that on an average, factors such as longer period of stay, unsuitable land for human habitation, customary rituals /good social bonding, possession of identity cards and close proximity to work place provide high perceived security to the residents of the squatter settlements. While other factors like education, religion / caste, investment in basic services, possession of legal / semi-legal documents, political support, land ownership, assets, income, benefits from government, location along the margins, and the size of the settlement are in general instrumental in providing medium degree of perceived security. However, factors like access to media, litigation issues, street addressing, and support from the local body, do not usually have much impact on the perceived security.

Based on the above findings, a conceptual model for understanding the PST in squatter settlements was developed (see Figure-17). This generic conceptual model 'Perceived Tenure Model (PTM)' provides a general picture of the impact of various factors on the PST in the squatter settlements. It is divided into three equal categories based on the impact of the factors on a linear scale ranging from 0 to 100 indicating the degree of PST in percentage. Further, in this model low impacting factors are grouped in the red colour (0%-33%), medium impacting factors in blue colour (33%-66%) and high impacting factors in green colour (66%-100%).

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