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Home Science

TRANSIENT STRUCTURES FOR STREET VENDORS: VIABLE DESIGN INTERVENTIONS

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ABSTRACT The commercial sector in India is ever-changing with a visible divide in different aspects of the operations, this leads to the creation of different sectors of the economy namely the 'formal' and the 'informal sector'. There is a wide disparity in documentation and assessment needs of the commercial setups involved in different types of activities in such 'unorganized' or 'informal' units. The Government of NCT of Delhi data on street vendors indicates that Delhi has an estimate of over 4 lakh vendors who are working in the informal sector as street vendors, roadside tea sellers, small roadside nursery owners, etc. all these setups require a special type of planning & consideration as these vendors have limited resource availability, with many of these street vendors finding accommodations in their mobile carts, and unplanned roadside setups. The state of livelihood and resource access remains limited for these 'informal' vendors. Issues such as the access to 'safe' infrastructure, permits & certification to operate as street vendors limit their social and economic well-being. Such concerns require significant social and design interventions to ensure the social, physical, and economic well-being of the vendors on 'the streets'.

KEYWORDS : transient structures, street vendors, affordable design interventions, social innovation, and sustainability.

INTRODUCTION

The Indian commercial sector very evidently sees a 'formal' and 'informal' divide. Charmes (2012), and Unni & Naik (2013) believe that in India, informal sector-based employment has persisted over the years. Various documented estimates place it anywhere between 60 to 90% of the total employment share depending on the definition being adopted. Jumani (1991) has attempted to categorize the sector of self-organized commercial setups into self-employed higher-income groups and self-employed lower-income groups, where lower-income commercial setups comprise street vendors, mobile vendors, roadside plant sellers, and kiosk operators, etc.

According to the Ministry of Housing and Urban Development, In India, there were more than 10 million street vendors. Some studies have highlighted that street vendors constitute 2% of the population in metropolitan hubs nationally and account for 14% of total urban informal employment. These street units take onto different available infrastructure in the market such as carts, kiosks, etc. which is within their reach and affordability. The transient structure needs are experienced by individuals 'on streets' and vendors such as roadside tea stalls, pop-up kiosks, etc., that lack proper means of finding a suitable accommodation or vending store, this structural efficiency of transient setups provides a means of dynamic income generation for these vendors looking for viable self-employment opportunities.

It is important to understand the established importance of such structures for commercial purposes such as vending. The vending setups such as small-scale street carts, vendors at stores and malls offer such short-duration outlets on certain occasional organizations, etc. are all 'temporary' setups. This is termed “Flash selling” or “pop-up store selling”.

Researchers such as Pellegrini (2009) & Zarantonello (2005, 2009) have illustrated the use of temporary shops, stores open for a short time, often in a highly representative location of a large metropolitan, that quickly draws customers around an event before disappearing or morphing into something else. These researchers are of the view that transient structures are used with respect to developed economies and the emergence of temporary shops or pop-up stores. This is the transient nature of such set-ups that is conditional to purposeful planning and planned set-up of transient structure design. The temporary or transient infrastructure is required at spaces such as cultural events for the motive of vending by upscale vendor units such as brand pop-ups.

Using the temporary structures is also unique to developing countries with wide demographics and commercial requirements for vending, Indian vending market relies heavily on the fast-selling consumer goods and flow of customers at small-scale vendors and street vendor units. The unorganized segment of vendors is a unique challenge to incorporate in design and space planning at a metropolitan level, with changing and temporary markets.

A major concern is the affordability of viable materials that are user safe, accessible and that can meet government guidelines and mandates.

METHODOLOGY

The present study entitled “Transient Structures for Street Vendors: Viable Design Interventions” was undertaken to investigate the needs and applicative design areas for street vendors (especially small private nurseries) with regard to trade activity in selected localities of Delhi (North West & Central) which had a high density of commercial hotspots and viable street vending zones. Convenience sampling was used to collect data from the stakeholders which included transient structure designers and Street vendors.

Transient Structures For Vendors: Indian Scenario

According to the Street Vendors Act, 2014, “mobile vendors” are defined as street vendors who carry out vending activity in a specific location moving from one place to another offering their products and services. These vendors have a characteristic element of a transient cart or a mobile vending cart that is a structural requirement in their commercial trade.

Street vendors and informal units such as small-scale gardeners & roadside plant nurseries play an important role in the economy and must be given credit for providing valuable services to the huge urban population while trying to earn a livelihood and it is the duty of the state to protect the rights of vendors to earn their livelihood (National Policy for Urban Street Vendors, 2009).

In reference to the Indian context, a very limited number of researchers have explored the possible context of temporary or transient structures and analyzed the use of such structures by street vendors and small-scale 'roadside' gardeners from a design perspective.

The advantages of using transient structures in these applications and the specific commercial sector have been observed, where there is a significant measure of cost and financial benefits in terms of using transient structures for commercial purposes as the setups are usually resource efficient.

Need For Design Interventions

It was observed in the present study that 58% of the street vendors were engaged in seasonal vending or vending of goods that were seasonal in the market, such as peanut sellers, winter food sellers, etc. This highlights the nature of street vending as 'temporary' in nature for a large majority of the sampled vendors. It was also noted that 27% of street vendors were using transient structures that were mobile carts and mobile structures for their vending purposes. Some of the vendors had limited resources and used transient structures for their daily means of income, about 10% of respondents were engaged in daily use product vending businesses such as tea stalls and food stalls. These items were sold throughout the year, though the vending structures used by these respondents were also made out of cheap and non-durable materials that made the structure vulnerable to the physical

environment and not appropriate for long-term usage.

It was interesting to note that 5% of the street vendors in the study were alternatively using the transient structure area as their roadside dwelling, it can be understood that street vending structures are being used for a variety of applications and were not 'exclusively' limited to commercial retailing.

There is an evident need for design intervention in this sector as the street vendors rely on the mobile transient structures as a means of livelihood, and shelter and require immediate remedial measures to make such applications more economically viable, sustainable as well as acceptable by local and governmental bodies.

- **Transient Structures: Design Interventions & Recommendations**

Material In Practice: Use, Applications, And Recommendations

The analysis showed that the street vendors and small-scale nursery vendors were using conventional materials that were low in cost such as reclaimed wood, metal tin sheets, etc. It was also noted that materials such as tarpaulin sheets and wooden crates were extensively used by vendors in the study while small-scale private nurseries were using bamboo for the frame of small transient nurseries. Another critical factor found was that these materials usually required maintenance over a period of use due to their quality, and low durability but the overall material structure cost remained low. The additional cost incurred was only from the Maintenance cost component which was a factor of concern for street vendors using conventional materials.

A close analysis of design practices and alternative material applications in the industry gives a suggestive area of materials that can be used for viable applications, these materials included bamboo, wood composites, etc. It was understood that these materials were sustainable and affordable for the stakeholders. Such materials can be used for transient structures which are low in cost, Durable, Easily available, low in maintenance, reusable, recyclable, and sustainable.

Sustainability: Present Scenario

In the present study, 42% of the respondents have shown to be somewhat willing if not completely to pay for the eco-friendly material alternatives which may cost a little more than the current expenditure. The respondents agree with the benefits of such alternatives to the transient structure design. A list of conventionally used materials in transient structures from the perspective of the present study has been provided in Table-1, these materials can be conveniently replaced with low-cost, 'non-conventional' materials that are easily accessible, easy to use, and more sustainable than the conventional counterparts (Table-1).

Table – 1 Different Materials For Transient Structure Fabrication

Materials	Cost	Characteristics
Conventional material		
Wood	High	Aesthetic
Metal	High	Durable
Concrete	High	Durable
Bricks	Low	Durable
Plastic	Low	Easily available
Non- Conventional material		
Bamboo	High	Sustainable
Agricultural waste composites	Low	Sustainable
Wood composites	Low	Sustainable
Industrial waste composites	Low	Sustainable
Refurbished and reused waste	Low	Sustainable

Transient Structure Design Recommendations

A set of design recommendations are suggested after the comprehensive study and data analysis, this also leads to the remediation of the existing gaps in vendor practices and the different strategies that can be used to make transient structures for vendors were more viable in terms of government protocols, regulations, affordability, and sustainable design. A model cart with refurbished materials that are highly accessible is also suggested as a part of this study.

Design Suggestions

It is revealed that street vendors lack access to basic facilities such as proper sanitation facilities, clean drinking water and electric outlets that limit the commercial operations as well hamper the overall social and physical well-being of the vendors. The availability of such critical resources should be increased in economic zones, markets, and high-density markets in Delhi.

A further analysis of the working conditions and transient structure space utilization reveals that these structures are not ergonomically viable, despite being used as a residential space by a small minority, these structures are evidently used for long durations (More than 8 hours) by a majority of subjects in the study which reveal a need of proper space utilization, ergonomically designed vending units for such users. Design of the transient structures should 'exclusively' lie in the regularized categories as per governmental protocols, i.e., the transient structures should be movable and mobile, the structures should only be parked in regularized and permitted vending zones, appropriate dimensions and regulations should be checked while designing such structures.

Some Suggestive Design Interventions Include

- For the mobile vending structures on the streets with high mobility and footfall, efficient dimensioning should be used that should not interfere with the 'normal' movement in public spaces with sufficient clearance spaces.
- Providing an efficient display area that could be used over long-term use and can be repurposed as per requirements of the vending use.
- Efficient use of sustainable materials such as reclaimed and refurbished wooden crates should be made to justify the affordability factor.
- Durability and maintenance costs can be checked within transient structure design with efficient use of 'composite' design elements.
- Simple and easy construction models of transient structure designs should be made available that can be easily replicable.
- Making use of 'knock-down' structures and modular kiosks in relevant applications of vending such as small-scale and roadside gardener nurseries.
- Providing sufficient shelving for the average stock to avoid spoilage and damage to the products and inventory.
- Keeping the preparation area and display areas of transient mobile carts at 'ergonomically' viable heights to avoid any strain and physical injury.
- Providing a 300 lux lighting condition at the vending structures in low ambient lighting and night conditions.
- For some specific applications where vendors are living or using the transient structures for extended durations, simple installations such as tents can be used with efficient 'knock-down' capacity.
- Equipping the vending structures with the vendor's personal basic requirements for a decent operation and executing business with dignity
- Small-scale Gardner nurseries, roadside plant nurseries, Small Street gardening units, and similar applications can make use of mobile/installation-based playhouses made of bamboo and poly sheet for micro greenhouses to prevent damage to saplings and inventories.

Suggestive Design Model For Transient Structures

The street crate cart model designed as a part of this study is a movable cart on wheels that can be pulled with the help of a bicycle, or manually transported.

The structure has multiple uses and feasibility as it is made with refurbished materials that are low cost, require less maintenance, and minimum time in a regular vending setup. This structure can be used by a variety of vendors such as fruit and vegetable sellers, street accessory sellers, etc. This cart design uses wooden crates of varying heights.

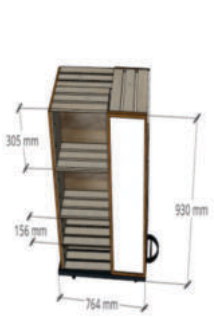
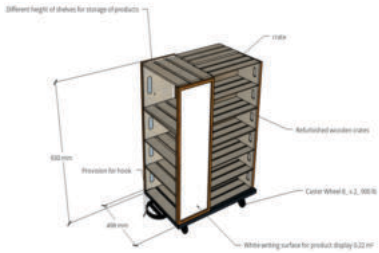


Figure 1: (D1) Street Crate Cart

Structural Dimensions- 764× 502× 930 mm (length× breadth× height)



Materials Used For Construction- Wooden crates, Nails, Clamps & Screws, White acrylic sheets (5 mm), Wooden ply (15 mm), Fevicol SH.

Cost Estimate-

1. Wooden crates- 15-20n (350 240 180 mm) = ₹400
2. Nails= ₹100
3. White acrylic sheet (2000 mm) dimensions as per availability = ₹850
4. Wooden ply (500 mm) = ₹350
5. Fevicol SH (1l) = ₹400

TOTAL COST= ₹2,100

CONCLUSION

In the context of street vendors, small private gardener nurseries, mobile vendors, etc transient structures have a wide range of application and use scenarios. These structures run on restricted budgets which cannot be disrupted in the name of providing aesthetic designs. It is learned through the present study that the street vendors were not interested to pay any more than they were currently paying for their carts and vending 'temporary' structures because the affordability of the vendors remained extremely low in most cases. It is also observed that the current materials used in the mobile carts and other structures used for street vending are cheap and constitute a basic design element. In long-term and repetitive use of such structures, maintenance is also required and often such structures are not 'safe' for use. Viable design interventions in terms of sustainable, 'safe', and adaptive street cart designs need to be provided for the need-based interventions.

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