

1 Annexure01:

1.1 Establishing Coordinates of Livability matrix for informal settlement

1.1.1 What is a liveability Index and how can one arrive at co-ordinates that govern liveability within informal Settlements?

Liveability establishes the well-being of a community and many more qualitative and quantitative characteristics that make a place people want live now and in future. The neighbourhood or region within the city meets the social, environmental and economic needs of the inhabitants, thus making it a harmonious environment to live in. It nurtures community values, sets preferences for amenities, well-being and a good sense of place.

On the basis of 17 SDG's (Sustainable Development Goals) by UN (United Nations) following indicators are listed to derive liveability index for informal settlement. Each case is studied and tested at Neighbourhood level and at the Housing Unit Level.

1.1.1.1 Parameters and points allocation at Neighbourhood Level

1. Environmental Systems:	Total points allocated: 03
<ul style="list-style-type: none">Working with Brownfield¹ and greenfield² site	(0)
<ul style="list-style-type: none">Working with Greyfield³ site	(01)
<i>(Exception for in-situ rehabilitation on green field site – 01 point allocated)</i>	
<ul style="list-style-type: none">Consideration of Natural Resources like water body, water courses, mangroves, wells, vegetation farmlands etc during planning process	(01)
<ul style="list-style-type: none">Conserving 25% of vegetation on site either by replantation or not cutting trees on site	(01)

This parameter ensures that the planning process is not devoid of environmental systems that exists on site or are developed over the period of years owing to inhabitation on a particular site. Vegetation on site forces one to address the open space planning as an integral part pf the design process and not just a default production of design flaws and incompetency.

2. Access to Life, Work and Play:	
<ul style="list-style-type: none">Proximity to bus stop within 1Km distance OR	(01)
<ul style="list-style-type: none">Proximity to railway station with max 20mins commuting time	
<ul style="list-style-type: none">Access to any five listed basic civic amenities within 1 Km distance (Grocery store, Schools and Creche, ATM and Bank, Clinic or Hospital, Utility bill payment, water and Electricity, eateries, public parks and garden, post office, Theatre)	(02)
<ul style="list-style-type: none">Access to Designated recreational open space for all age groups	(02)

¹ Brownfield site is means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

² Greenfield site is undeveloped land in a city or rural area either used for agriculture or landscape design, or left to evolve naturally

³ Greyfield site is economically obsolescent, outdated, failing, moribund or underused real estate assets or land.

Ensures two important qualities access and convenience to make neighbourhood livable. Compact neighbourhoods make it easier for residents to reach the things they need the most and within walking distance. Additionally, neighbourhoods served by good access to more distant destinations via transit or automobile help residents connect to jobs, health care, and services throughout the greater community.

- 3. Micro-Climate (Working on the principles of Eco-System Services): (05)**
- 25% of the total open space allocated should be softscape (01)
 - Innovation in Design – Planters, urban farming at terrace level etc (02)
 - Softscape areas to have native species of plants, shrubs, trees and ground cover (01)
 - DEWAT (Decentralised Waste Water Treatment)system, RWH (rain water harvesting system) on site to make for additional water requirements for landscaping and flushing requirement (01)

Ensures workability and feasibility of landscape integration within built environment and use it for the advantages of the inhabitants. Prompts designers, developers to sensitively look at building facades and not limit it to the default creation of building byelaws.

- 4. Embeddedness and Integration: (05)**
- Participatory planning workshops with community right from start of the project (02)
 - Ensure good learning environment, building social skills, opportunities of self –development, offering benefits of diverse cultural settlement (01)
 - Workshops on awareness on hygiene, newer operating and maintenance systems for societies on regular basis (02)

Ensures long term goals rather than short term. Abridges reluctance of accepting newer systems, technologies and emphasis on community benefits from collaborative exchange and leaves very less scope for anti-social activities. It helps in building local reliance and self –sufficiency within community. Implements a methodological framework to avoid achieving short term goals and fragmentation. It encourages various disciplines, experts, stakeholders to share common platform and exchange ideas, discuss ways of implementation and operation on site etc.

- 5. Advocacy (Strategies to govern collective growth): (05)**
- Monitoring and advising on society formation and handholding in initial years for running a society and making them aware of responsibilities and heads to be taken care by society (02)
 - Committee on monitoring DEWAT, RWH systems installed on site overlooking their running and maintenance from time to time (02)
 - Institutionalise the working of NGO's and communities on gender inequality, women empowerment and counselling cells for children, women and men (01)

Awareness needs to be build up to make occupants aware of how building communicates. It could be practiced at community level where rules are set by the community in order to ensure swift running of implied rules. (E.g. garbage disposal) Intermediate workshops could be conducted by organizations to revisit occupant's mind about various implementation carried out on site and their role of responsibility to ensure its efficient working. Policies by local body to implement certain regulation within societies or communities to reinforce collective living. This will align individuals to their set goals and value it over time to enjoy better living environments.

- 6. Opportunities of inclusion w.r.t site: (02)**
 - Identified the potentials on site for integration and consideration (01)
 - The project meets atleast 50% of opportunities cited on site (01)
Wells or ecological ponds on site could be integrated with the water systems during planning. Open spaces on site, Clear land to work during planning etc

1.1.1.2 Parameters and point allocation at housing unit level:

- 7. Access to affordable housing: (05)**
 - Access to housing units and neighbourhood connectivity (01)
 - Choice on different housing units on site (02)
(varied area and typologies)
 - Assistance in finance schemes for funding individuals to buy (02)
their respective houses as per requirements

Possession of a house in a city is directly related to the sense of security within individuals. It is a central component of livability as we spend a lot of our time in our homes. Decision of where to live should be within individual capacity as its closely related to most of the parameters which consitutes livability. Choice of house, housing cost and accessibility is critical. Providing free housing doesn't give a right to displace people from their respective sites and livelihood. Great communities provide housing opportunities for people of all ages, incomes, and abilities, allowing everyone to live in a quality neighbourhood regardless of their circumstances.

- 8. Safety and Security of inhabitants: (05)**
 - Fire safety and compliance regarding fire scape staircase and routes to be met in high density and highrise buildings (01)
 - Fire escape routes to be lit 24/7 either using daylight or artificial light with appropriate signages (01)
 - Common areas, open spaces, access routes to be lit up at ground site level with appropriate lux levels to avoid anti social activities (01)
 - Grievance cell for counselling in cases of domestic violence, children involved in anti social activities and community disputes (02)

Ensures safety and security of inhabitants which is usually overlooked and is one of the important criteria to nurture community well-being and healthy growth.

- 9. Health and Well being: Access to clean air and water (05)**
 - Municipal water supply for domestic purposes (01)
 - Clean storm water drains and gutters within the vicinity (01)
 - Maintenance of drainage system on regular intervals (01)
 - Maintenance of water tanks U.G and O.H.T at regular intervals (01)
 - Appropriate disposal of garbage on-site and off-site (01)

Ensures hygiene on site by embarking pest free and disease free immediate good environment for individuals and families to flourish.

- 10. Civic enagagement and Social involvement (05)**
 - Participating in social welfare activities like celebrating festivals together, annual GBM to discuss future development (02)
 - Intituitionalise disaster management cell on site to safegaurd life and manage lesser impact on property and belongings (02)
 - Participation on making one's community a livable neighbourhood (01)

one to like to belong to

A liveable community fosters interaction among residents. From social engagement to civic action to Internet access, residents' individual opportunities to connect and feel welcomed help lessen social isolation and strengthen the greater community. The Index explores and examines the different ways in which residents engage with and support their communities, and how they impact liveability as a whole.

11. Efficacy of housing units designed

(05)

- Access to daylight for minimum 8 hours a day (01)
- Access to night and day – time ventilation (01)
- Windows to be operable windows for 24 hours (01)
- Walls to be dampproof especially toilet walls (01)
- Designated storage spaces allocated within and outside the houses (01)

Ensures visual and thermal comfort within built forms . Strengthens the sense of security and address high level occupant control owing to shortfalls in design and execution which in turn affects the performance of the built form.

2 Annexure 02:

2.1.1 Assessment Survey and Qualitative and Quantitative Survey Questionnaire conducted on site:

Qualitative Survey - Project Name and Scheme

Building No:

Dated (month and year):

Household details:

Householder Name				
House no				
Floor No				
No of Occupants	Male:	Female:	Infants:	Children:
House facing Road or Aisle between buildings				

Occupation / Livelihood

Type	
No of earning members	
Monthly Income	
Monthly Expenditure	

Access to Resource and Amount of utilization

1. Electricity:

Monthly usage bill amount:

Source / Provider of Electricity:

No of Tube-lights: Living area: Kitchen:	Type: Toilet / Bathroom	Wattage:
No of Bulbs: Living area: Kitchen:	Type: yellow / white Toilet / Bathroom	Wattage:
Operational hours throughout the day: Timing: starting time:	End time:	

No of Fans:	Type	Capacity:
Operational hours throughout the day:		
Timing: starting time:	End time:	
Other Appliances:		No of 15 Amp plug points:
Micro wave: Refrigerator: Window / split A.C: Geyser:		
Water heating Electric rod: Television:		
Operational hours throughout the day:		
Timing: starting time:	End time:	
Power cut:		
Occurrence and duration of power cut:		

Common areas lighting operational time:

No of tube-lights in common areas:

No of Bulbs in Common areas:

Expenses bared by: Individual household or Society

2. Water:

Monthly water charges:

Source / Provider of Drinking water:

Source / Provider of Flushing water:

Water consumption per household in litres
Pipe connection in individual household
Common water tap at each floor level
No of fixtures: Working / not working No of leaks?
Does water come daily?
Timings: Duration:
Individual household storage type:
Capacity: Inbuilt tanks: Syntax tank: Plastic Drums:
Under ground tank capacity:
Overhead tank capacity:
Cleaning facility of these tanks: yes / no Interval:

3. Waste:

Typology:	Every Household: Common Toilet: No of W.C: No of Bath:
Maintenance	Sewage drain Blockages: yes / no Intervals:
Garbage disposal	Central disposing point: Individual household door to door pick up:
Municipal Garbage bins	Provided for each building: yes / no Entire Housing colony: No of bins provided:
Timing of garbage collection	Morning: Afternoon: Evening: Is it collected daily? Yes / No
Type of Garbage disposal	Wet: Dry: Electrical Waste: Sanitary Waste: Dippers:
Garbage disposed	Directly: Wrapped in plastic bag:

4. Health and wellbeing:

Dwelling unit details:

Size of Living area:

Size of Kitchen:
Floor to Ceiling Height:

Size of Toilet / Bathroom:

No of windows: Living: Kitchen: Toilet / Bathroom: Sizes of Windows: (in meters) Living: Kitchen: Toilet / Bathroom:	Type: (Opening / Sliding / Louvers) Living: Kitchen: Toilet Bathroom: Materials:
Exposure to Daylight: yes / no Daylight Lux levels measured at site: Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom:	No of Hours: Morning : Afternoon: Evening:
Duration for which windows are open:	
Windows covered by Mosquito net, Jali or Metal boxing	Yes / No
Any blocking of window opening area owing to storage	
Breeze observed in each of the windows: Living: Kitchen: Toilet/ Bathroom:	Morning / Afternoon / Evening
Observed wind velocity: (m/sec) measured on site: Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom:	Morning: Afternoon: Evening: Night:
Indoor Air Quality measured on site: Co2: Particulate Matter: No2: So2: Co2: Particulate Matter: No2: So2: Co2: Particulate Matter: No2: So2: Co2: Particulate Matter: No2: So2:	Morning: Afternoon: Evening: Night:
Mould / fungus / dampness occurrence (tick √ for yes) Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom:	Monsoon Winter Summer
Source of Dampness: (tick √ if internal and tick * for external) Living: Kitchen: Toilet / Bathroom: Living: Kitchen: Toilet / Bathroom:	Wall: Ceiling:
Which months the occupants feel hot: What measures they adopt to make themselves comfortable:	Daytime: Night – time:
Which months the occupants feel unbearable hot: What measures they adopt to make themselves comfortable:	Daytime: Night – time:
Which months the occupants feel comfortable: What measures they adopt to make themselves comfortable:	Daytime: Night – time:
Which months the occupants feel cold: What measures they adopt to make themselves comfortable:	Daytime: Night – time:

Occupants feel stuffy?	Yes / No
Possibility of Cross ventilation: Observation if any:	Yes / No
No of Occupants:	Morning: Afternoon: Evening: Night:

Pest Infestations: tick ✓ the type mentioned below Rat: Cockroaches: Mosquitoes: Ants:	Households: Common areas:
Measures adopted: tick ✓ the type mentioned below Jali / Net: Mosquito Coils: Mosquito Rackets: Pesticide spray: Pesticide powder: Electrical machine:	Households: Common areas:
Respiratory disorder: tick ✓ the type mentioned below Asthma: lungs: Tuberculosis:	Gender (Nos) Male: Female: Infants: Children:
Pulmonary disorder: tick ✓ the type mentioned below Heart Disease:	Gender (Nos) Male: Female: Infants: Children:
Bowel or digestive disorder: tick ✓ the type mentioned below Vomiting: Diarrhoea: Kidney Malfunction : Liver inflammation:	Gender (Nos) Male: Female: Infants: Children:
Water / vector Borne diseases: tick ✓ the type mentioned below Cholera: Hepatitis A: Leptospirosis: Typhoid Fever: Malaria: Dengue fever:	Gender (Nos) Male: Female: Infants: Children:
Skin Diseases: tick ✓ the type mentioned below Allergies: Ring worm: Prickles during summers: Chicken pox: Measles: Vitamin D deficiency:	Gender (Nos) Male: Female: Infants: Children:

5: Amenities and Infrastructure:

Accessible by Cemented/ tarred vehicular tarred roads?	Width of roads
Compound wall present on site?	
Open place area for kids and all age group people?	Accessible Non - accessible
Social gathering space for old and middle age group?	
Fire fighting equipment?	Type:
Landscape area:	Approximate area (Sqmts):

Night Lighting for Roads, Staircases, Internal courtyards or spaces between two buildings and compound wall.	Type:
Parking facility	Capacity:

6: Any aspirations / comments / remarks by household occupants?