

Assessing Planning Standards and Negotiating Alternatives

Formal, conventional infrastructure standards are unrealistic and impractical in informal settlements where space and resources are often scarce. To address residents' vulnerabilities, assess the implications of applying conventional, formal planning standards and negotiate with both government and communities to formulate alternatives that minimize the displacement of residents and the fracture of community bonds. At the same time, ensure standards prioritize collective needs for health, safety, dignity and accessibility over individual interests or ownership.



Who

Most useful for:

- Local Champions
- Local Governments
- Residents

- CBOs
- Urban Poor Federations
- Federation-support NGOs

Also useful for:

- NGOs

What

Conventional, prevailing planning practices and infrastructure standards are designed for making plans before development takes place and on land where ownership is formally registered.

Planning in informal settlements requires the inverse: planning after development has already occurred and where structure ownership is largely unregistered and owners unknown. Despite this reality, government-driven development in informal settlements typically seeks to uphold statutory planning standards.

Engage both local government and communities to negotiate revised, alternative standards. This process asks local government staff to rethink their conventional approach to planning and provides greater ownership over the planning process for communities. Local governments must clearly understand the absurdity of applying formal standards in informal settlements (e.g. the number of schools required per standards could displace most, if not all, of the households they are meant to serve) while seeing the promise of community-driven alternatives to improve health, safety and accessibility. At the same time, communities must be engaged to leverage their local expertise to formulate standards that recognize space and resource constraints while also ensuring access to essential services.

Start by cataloging and assessing development and land use regulations that apply in your settlement. Also assess existing conditions to better understand what types of re-development are possible. Then, using simple models, provide evidence for the outsized and negative impacts that adhering to formal standards would have in the settlement. At the same time, demonstrate that alternative standards can enable the improvement of living conditions without compromising on health, safety or accessibility standards for infrastructure and services. Finally, work closely with communities to develop alternative standards. See [How](#) for more detail.

Note that this work will establish revised standards, an important precursor to developing sectoral and spatial plans; for more on developing plans.

“ In the review of the standards, we did not relax or lower the standards, what we did is review the standards to fit the situation. ”

Peter Wachira Engineer, Nairobi City Water and Sewerage Company (Kenya)

Personal communication, 27-28 April 2022.

Why

To confront the vulnerabilities and resource scarcity in informal settlements, you must rethink conventional planning approaches and legislation. On average, 60 percent of urban Africans live in informal settlements. Despite 'formal' development being the outlier and informal development the norm, informality is typically viewed as a state of exception by governments and the planning establishment alike. It is therefore deemed illegal by statutory planning standards.

The scale of need and the complexity of planning, building and maintaining infrastructure and services in informal settlements in African cities requires the power and resources of governments working with community, civil society and private sector partners. This, in turn, requires the negotiation of official zones of exception (e.g. 'special planning areas') where formal, statutory standards can be suspended in preference for alternative, pragmatic standards that recognize both spatial and resource constraints and the urgency for improved health, safety, dignity and accessibility for residents.

Development interventions in informal settlements tend to be small and piecemeal; therefore, planning statutes can often be overlooked. However, in the rare event that government undertakes planning settlement-wide, infrastructure standards are normally upheld. This causes high levels of displacement. It is therefore critically important to negotiate alternatives.

Standards must recognize the realities faced by the urban poor and the historic and ongoing failure wrought by applying formal planning practices and standards in this context. Evidence suggests that the disparity between the informal and formal city is widening as living conditions continue to deteriorate and residents' vulnerabilities are amplified by climate change.

Upgrading plans must be more pragmatic. There is no panacea; cities do not have the resources or capacity to build infrastructure and services to the standards required in planning statutes for all their citizens. Trying to uphold these standards in informal settlements does more to exclude than include informal settlement residents. The goal should instead be to reduce residents' greatest vulnerabilities in the immediate term and decrease prolonged exposure to climate and other risks in the medium and long terms. For more on goals, principles and sequencing of upgrading investments.

Negotiating alternative standards centers communities in the upgrading process. Without this, the upgrading initiative will be no different than any other planning process. While residents lack technical planning skills, they are best positioned to understand what they need most from different infrastructure and service investments and what is inessential.

Residents should also be the ones to make tradeoff decisions between competing priorities as the space required to build infrastructure and services will directly affect them. Indeed, if they are not engaged in the process of formulating alternative standards, they will likely resist and even hinder the planning process.



“ Planning today largely abandons informal settlements. Statutory planning standards deny residents access to crucial infrastructure and services. The Mukuru SPA [in Nairobi, Kenya] powerfully questioned and challenged the legitimacy of formal planning standards in the context of the vulnerabilities and resource constraints present in Mukuru and other informal settlements. For the Mukuru SPA, we evolved and retrofitted standards to meet the huge need and at the same time minimize the huge social cost of applying statutory standards. ”

Professor Sejal Patel CEPT University (India)

Personal communication, 26 August 2022.

“ Understanding that we have to look at the informal settlements differently. When it comes to planning, if we treat them with the normal conventional standards, then we might end up losing. So, I think that’s generally applicable; let’s look at whatever the model of planning [should be] for these areas so that we are realistic and we plan depending on that context instead of just picking the formal and dropping it in the informal. ”

Patrick Njoroge Program Manager, Akiba Mashinani Trust (Nairobi, Kenya)

Personal communication, 27-28 April 2022.

Where

Discussion about unrealistic planning standards and the negotiation of alternatives must be centered in communities themselves. If the process largely takes place outside informal settlements, discussions will be abstract and the revised standards will remain impractical.

That said, all necessary government stakeholders must also participate throughout the process to ensure that alternative standards have a route to legal legitimacy. Their buy-in will be crucial for taking alternative standards from concept to practice. The mechanism for legitimacy may already exist (e.g. an exception zone or ‘special planning area’); if not, government staff will play an essential role in providing legality.

Finally, keep at the forefront of negotiations that development, and therefore its infrastructure standards, should prioritize local residents' urgent needs instead of outsiders' political or financial agendas.

“ One of the challenges of doing [a] road [using conventional standards], especially by engineers, is to see the road as purely meeting engineering solutions in the sense that it has to be a particular width, it has to be a particular material. It almost assumes that there are no people where the road will pass, it's actually seen as if it is just going to be used for connection only. ”

Professor Arthur Munyua Mwaura Department of Urban and Regional Planning, University of Nairobi (Kenya)

Personal communication, 29 July 2022.

When

Assessing standards and negotiating alternatives to apply settlement-wide should begin before detailed spatial and sectoral planning, as developing detailed plans will rely on the revised standards. The standards must be officially accepted before they can be used. That said, the details of sector-specific standards will likely be subject to ongoing negotiation as communities and government co-develop spatial and sectoral plans. Therefore, while this process can (and should) begin while planning consortia are still being formed, the consortia themselves will need to assess and continue to negotiate standards during their sectoral planning work.

How

Assess Relevant Development and Land Use Regulations

Before proposing alternatives, you must first understand the laws that regulate urban development in your relevant jurisdictions (i.e. city, county, state/province, country). These dictate **minimum planning standards** for things like the width of different classes of roadways, the size of sports fields in schools, and ventilation requirements in buildings. These are often called '*development control regulations*', '*building by-laws*', or (*formal*) '*planning standards*'. They typically include the following categories:

1. Health and hygiene

- Water
- Sewer
- Toilets and bathrooms

2. Safety

- Emergency services (fire response and ambulances).
- Law enforcement.
- Building design for adequate structural integrity, ventilation and lighting, fire safety, accessibility.

3. Built environment form and aesthetics

You must also investigate any **zoning or other land use controls** that are in place in the settlement. Zoning regulates what types of land use are permitted geographically as well as things like plot size, and the placement, height and density of structures. Is the settlement zoned for industrial use? Commercial? Public? Does it fall within multiple land use zones?

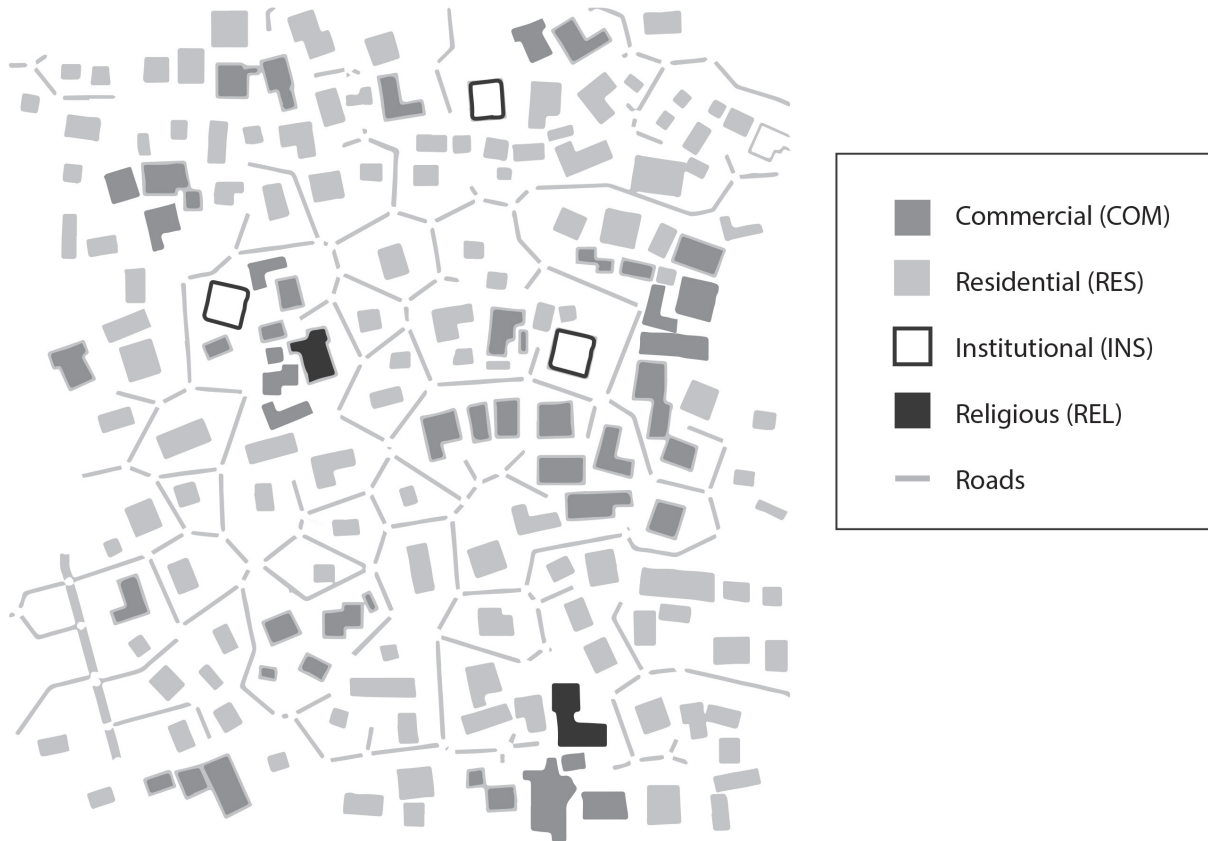
While the current land use pattern in the settlement likely already does not match with land use zones or meet minimum formal planning standards, plans for new infrastructure, services or housing may not comply with land use regulations and therefore meet resistance and require negotiation.

In this preliminary assessment, you should do the following:

1. **Formal standards:** Compile all relevant development control regulations for applicable jurisdictions. These are typically found in national and sub-national (e.g. county, city) development and building code handbooks.
2. **Land use:** Create two land use maps:
 - a. **Official land use / zoning.** You should be able to source this from the local government's planning department.
 - b. **Current land use.** As the local government will likely not have this data, you will need to rely on **Settlement Mapping** or other locally-generated data.

Common land use designations include:

(RES) Residential; (COM) Commercial; (MIX); Mixed residential/commercial; (IND); Industrial; (HLH) Health services; (ED) Education services; (COM) Community; (REL) Religious; (INS) Other institutional; (PUB-UTL) Public utility; (ROW) Right-of-way / Road reserve; (OTH) Other – specify.



Assess Existing Conditions

While a more detailed situational analysis of existing conditions should be undertaken by each consortia, it is important to ask several questions that will inform the design of alternative standards:

- 1. How many temporary vs semi-permanent vs permanent structures are there in the settlement?** The more temporary structures there are, the more negotiable space will be. The more permanent structures there are, the less that can be done to redevelop the settlement and the less flexibility there will be for redesigning standards.
- 2. What are the main environmental constraints?** These constraints will influence what is possible in terms of revised standards and subsequent spatial and sectoral plans.

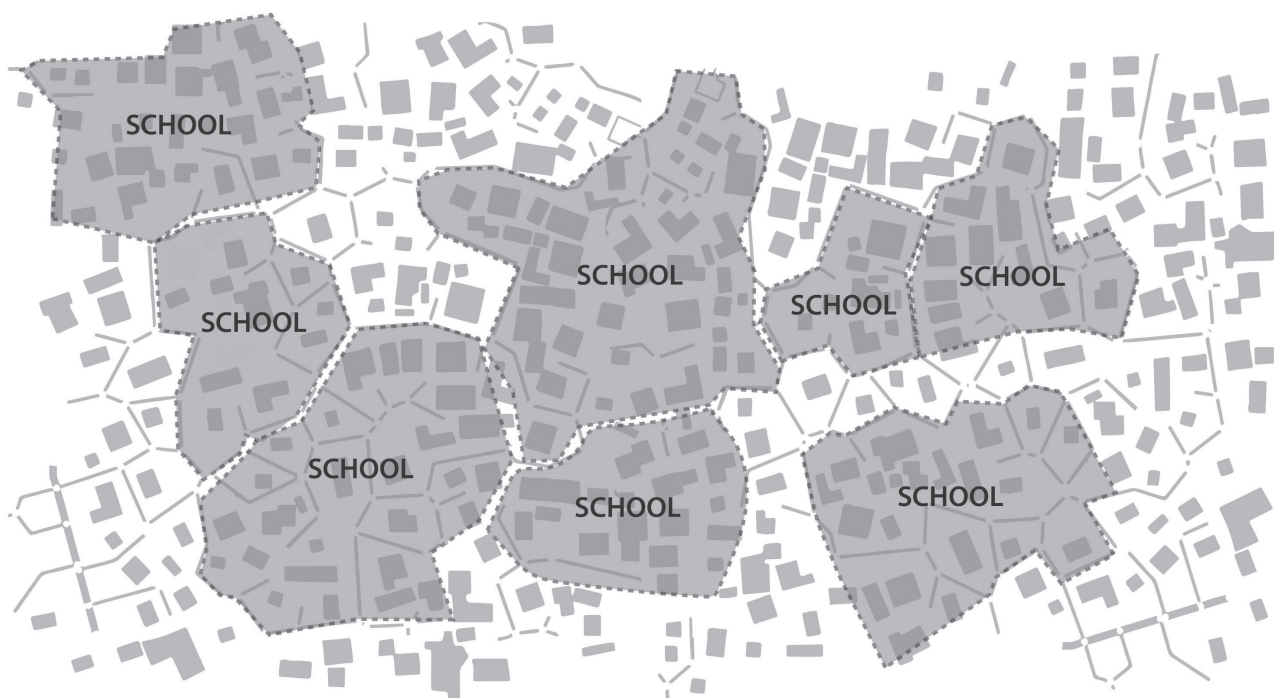
Negotiate With Government: Build the Case for Alternative Standards

Before communities and local government can work together to plan improvements in infrastructure, services or housing, you must **establish the need to formulate alternatives to the formal planning standards**. A zone of exception from local and national development regulations will need to be designated by government. For this to happen, local officials need to understand why this is necessary (and how it can be done without compromising on health, safety or accessibility).

Formal standards were designed to work with the conventional urban development planning process where planning precedes development. The opposite is true in informal settlements: development precedes planning. In this context, where space is typically a major constraint, formal standards are unrealistic and impractical.

The simplest way to demonstrate this is to **build spreadsheet models for different sectors**. For example:

1. **Number of facilities:** Calculate the number of schools required for the number of school-aged children in the settlement per national standards.
2. **Land area per facility:** Determine the minimum hectares required for a primary school per official development control regulations.
 - a. **Total land area:** Multiply the *hectares required for one school* by the *number of schools* to yield the *total hectares required* by formal planning standards.



b. **Compare:** Finally, compare the *total hectares for schools* to the *total hectares for the entire land area of the settlement*. The area required for schools per formal standards will likely take up most, if not all, of the land area in the settlement. This would displace a large number of existing structures and therefore be unrealistic. It would also be counterproductive, providing educational services to residents who would be displaced by them and therefore have to move to another part of the city.

You can build models to demonstrate a similar dynamic for other sectors, including circulation (roadways), emergency services (fire stations), law enforcement (police stations), open space (public parks), etc.

Negotiate With Government: Demonstrate the Promise of Alternative Standards

Providing evidence of how unrealistic and impractical formal standards are is an essential first step. However, you must also **demonstrate that alternative standards can enable the improvement of living conditions without compromising on health, safety or accessibility standards** for infrastructure and services.

To demonstrate this, work with residents to identify the essential elements of different services, facilities, and infrastructure. Use this to create alternative designs that serve their essential functions but in less space. For example, widths for different classes of roadways are often much wider than required to provide access for emergency service vehicles (e.g. fire engines, ambulances). Widths are instead intended to facilitate vehicular traffic flow. In informal settlements, many if not most residents do not own vehicles and get around on foot so wide roads are not a priority. Working with residents and local fire stations, you can determine the minimum widths needed for a fire engine to be able to access areas and their required turning radius.

Another example is simplified sewer systems (SSS). While conventional trunk sewer infrastructure is needed to connect settlements to citywide infrastructure, SSS provide an adequate last mile solution for improved sanitation and health. Conventional sewers requires a substantial amount of space and can be costly to build. SSS can be installed at shallower depths, need less space, and therefore require less displacement of existing structures. They also require less materials and labor and are therefore cheaper to build.

You will likely find that when you shift the priority to essential functions for health, safety and accessibility, less space is required and at a lower cost.

Negotiate With Communities: Define Principles and Establish Priorities

First, work closely with residents to define **guiding principles** for balancing contending priorities when developing alternative standards. Important principles include:

1. **Minimize** demolition, displacement and the fracturing of community bonds by adhering to the practice of ‘conservative surgery’.
2. **Prioritize** public health, safety, accessibility and dignity above individual interests or ownership.
3. **Mitigate** residents’ vulnerability to environmental risks.

Also **establish priorities for each sector** to guide discussions so that standards reflect what is most important to residents. For roads, for example, if most residents get around by walking, pedestrian mobility could be a priority over motorized vehicles.



Negotiate With Communities: Develop Alternative Standards

As the mechanism for going beyond simple community input or even participation, use a **process of iteration** to share decision-making power with residents to negotiate infrastructure standards. Beyond decision-making power, the iterative format also enables residents to conceptualize the implications of decisions and therefore balance competing priorities when envisioning standards. Use this process for each relevant sector.

The following is a **useful pattern** for engaging residents in the standards development process.

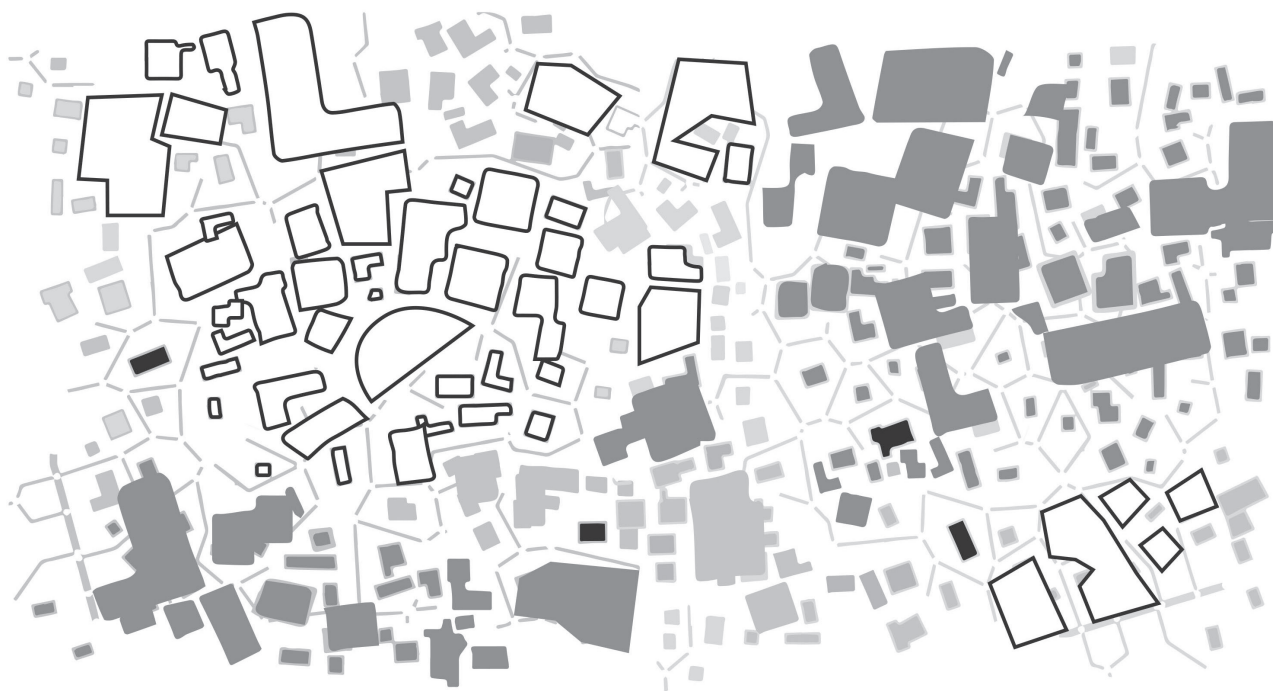
Iteration A. Baseline

Determine how much space would be needed using the conventional, formal standards. This is your baseline and will make it clear to residents how important formulating alternative standards will be for upgrading with minimal displacement and disruption. While the spreadsheet model gives a rough sense of this, residents will need to see it for themselves to understand concepts

and actively engage in formulating standards. Create physical, visual representations of different types of infrastructure and facilities (paper cut-out shapes) to place on a large, printed map. Use these during community planning meetings for each sector.

Variations of Iteration A could include:

- **Iteration A/1:** The conventional, formal standards with no adjustments.
- **Iteration A/2:** The conventional standards but with adjustments to save space. Principles for adjustments include: prioritizing essential functions and excluding non-essential ones; developing vertically to fit the same functions in smaller footprints; combining similar activities into one space; changing the shape of facilities to fit in undeveloped sites.



Iteration B. Community proposals and negotiation

Convene community planning meetings at the segment level (one to three areas/ neighborhoods). The goal of the meetings is to present the concept of formal standards and the impact they would have on the settlement and then invite residents to discuss priorities and propose alternatives.

Proposed Agenda for a Community Meeting

1. Formal standards

Explain formal, conventional standards and demonstrate their implications for development in the settlement

Come with the completed analyses for Iteration A—Baseline as well as the map and cut-out shapes to physically demonstrate the impacts that development with formal standards would have in the settlement.

2. Envision

Discuss residents' ideal vision of the infrastructure/facility and list its components

Bring easel pads (or other large sheets of paper) and invite residents to draw their ideal vision for different types of infrastructure or facilities (e.g. an arterial road, a local access road, a health clinic, a primary school, etc). Together, identify what the components of each type of infrastructure/facility are and list them.

3. Prioritize

Discuss residents' priorities for the infrastructure/facility and rank components

Using the lists of components, lead residents in exercises to rank components from most to least important. The simplest way to rank components would be to ask residents to assign importance using a scale of ten, ten being most important and one being least important; then tally the points assigned by residents to each component to produce the ranking.

A more robust method would be to do pairwise ranking; it would invite greater debate and negotiation among residents as well as demonstrate clearer consensus or disagreement on the importance of different components. See the table below for an example.

4. Propose

Invite residents to propose adjustments to standards that minimize the space and resources required while improving public health, safety and accessibility

Using the ranked list of components as well as the community-defined principles (e.g. minimize displacement) and priorities (e.g. pedestrian mobility), discuss how standards could be adjusted to accommodate space and resource constraints. Use the following criteria to guide the discussion:

- Prioritize essential functions and exclude non-essential ones
- Develop vertically to fit the same functions in smaller footprints
- Combine similar activities into one space
- Change the shape of facilities to fit in undeveloped sites
- + any other criteria that participants identify

5. Negotiate

Negotiate a final set of proposals as the outcome of the meeting

Table. Pairwise Ranking of Roadway Components

Components	Greenway	Footpath	Carriageway	Cycle lane	Score	Rank
	Greenway	-	0	0		
Footpath	1	-	0.5	1	3	1
Carriageway	1	0.5	-	1	2.5	2
Cycle lane	1	0	0	-	1	3
+ component						

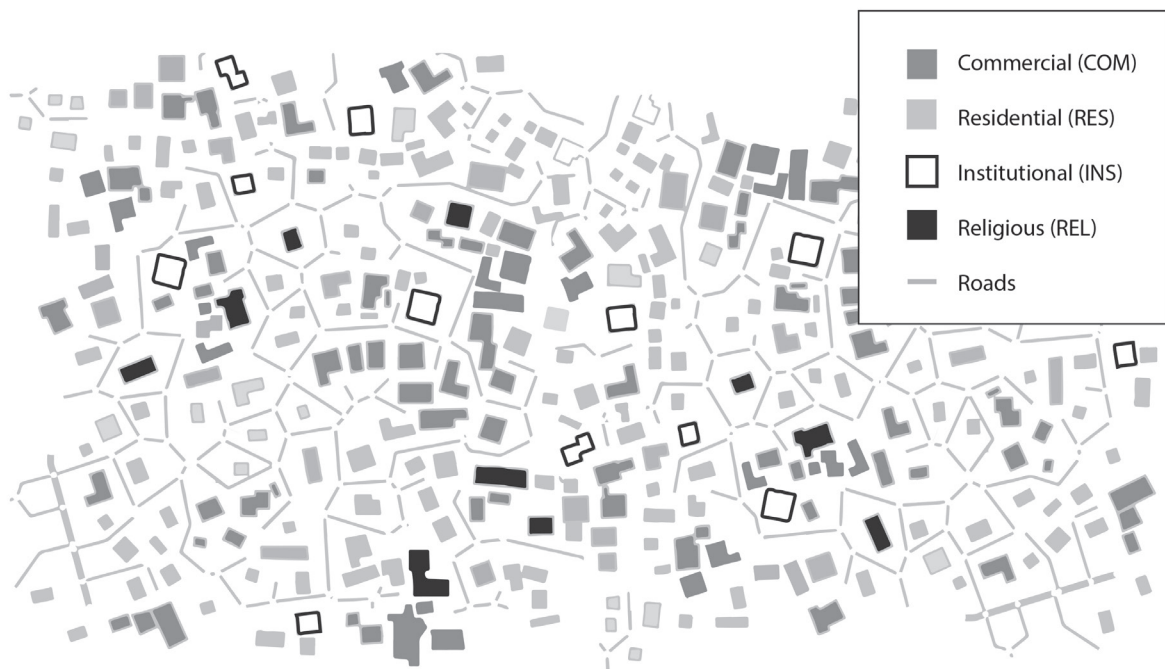
Pairwise ranking is a method for assessing the importance of competing priorities. For example, a road can include several different components like the carriageway, footpath, cycle lane and greenway (among others). Using the list of components generated during discussion, create one row per component and a mirror column for each row. This allows you to rank every component by comparing each to every other component one-by-one (instead of ranking them all at once). For example, if participants believe that a footpath is more important than a greenway, assign it one point. At the same time, assign its inverse (greenway vs footpath) zero points. In another example, if participants think two components are of equal importance (e.g. foot path vs carriage way), assign each 0.5 points. Once all components have been compared to each other, sum the values in each row to determine its score. Finally, assign a rank to each component based on its score – one to the highest score, two to the next highest score, etc. In the example table above, footpaths are the highest priority component while greenways are the lowest priority.

Iteration C. Reconciliation

For the final iteration, compile the final priorities and proposals from each of the community meetings in Iteration B and reconcile them. Reconciliation will come in two parts:

1. Each meeting will yield different alternative standards and therefore must be reconciled with each other to create one cohesive set.
2. Some of the community-defined standards will likely need to be refined based on:
 - a. Technical design and engineering considerations.
 - b. Minimum standards required to ensure basic functions and not compromise on health, safety or accessibility.

Once you have a reconciled set of standards, you must **validate** them with residents and **iterate to negotiate** as many times as it requires to achieve consensus (note that it is unlikely that there will be 100 percent consensus but it is important that most residents agree on the final set of standards).



To validate the proposed set of standards, convene another series of community meetings. Record residents' feedback and make any adjustments that are required. After adjustments have been made, present the updated set of standards to residents. Do this as many times as necessary.

Apply Standards

The final product of the process laid out in this Guide will be a set of alternative standards for each sector that is being planned as part of the upgrading initiative. Note that, at this point, these are *not sector nor spatial plans*. They are criteria to be applied when developing sector and spatial plans. Further negotiations will be necessary, in particular for spatial plans. At this stage, the spatial planning team and sectoral consortia will use the standards when planning the road network; water, sanitation and other infrastructure; and siting different service facilities. This may require more technical methods like mapping in GIS software. It will also require assessing environmental constraints (e.g. waterways, slope, soil, etc). It may even lead to the need to re-negotiate and update some standards or to assess their application on a case-by-case basis.

Considerations

How do we legitimize the revised, alternative standards?

This will depend on the laws that govern development and land use in your country. Work with local universities or research institutes that have expertise in these laws. In Mukuru (Nairobi, Kenya), they relied on a Special Planning Area (SPA) designation, a novel interpretation of a provision that previously had only been used for industrial development areas. Seek equally innovative legal strategies to enable the use of alternative standards in your city.

Can this be done on private land where landowners oppose the process?

Yes. While it will inevitably make it more challenging to achieve the use of alternative standards, rely on government's obligations to provide minimum levels of public health, safety, accessibility and public participation in planning.

Challenges

Government Adopting Alternative Standards

Government officials are beholden to their development guidelines. Persuading them to adopt alternatives can be challenging. To overcome this, rely on the numbers produced by the different scenarios. Show them how many people will be displaced using conventional standards (many or all) vs the revised standards (few).

Lack of Precedent

When there is little precedent, it can be difficult to come up with what the revised standards should be because there is nothing to compare them to. Work with universities to find useful precedents and to understand what is the minimum space that can be used while still producing functional infrastructure and services. Also, look to the Mukuru SPA (Nairobi, Kenya) for precedent.

Formulating Standards for Your Settlement Alone

Government may want you to develop standards so as to inform broader informal development policy. While you want your work to provide a precedent for these policies, getting them approved can take years when you have urgent health, safety and resilience issues to address today. To overcome this, work with receptive local government officials. Demonstrate the urgency and urge them to consider this work as a pilot that can serve to inform longer-term efforts to update development guidelines for informal settlements nationwide.

Areas of the Settlement That Are Reluctant to Participate

Do your best to show them the importance of their participation and its benefits. Ultimately, some will still refuse. That is ok. Focus your efforts on areas that are willing to participate and then hold those areas up as examples when re-engaging these areas at a later date.

Consulting the Right Stakeholders

All stakeholders must be engaged. However, be aware that when negotiating required space in the standards, tenants will likely be generous because they will not lose any assets. Even though they may be reluctant, make sure to engage structure owners who have more to lose so that standards are pragmatic and don't just serve tenants.

Reconciling the Proposals of Different Areas in the Settlement

Different areas will invariably have different ideas about what are the most important components of different infrastructure and services and how much space is required. Harmonizing their proposals will be tricky. Take all the input given and do your best to find a reasonable compromise that still results in viable infrastructure and services. Then, share this with residents, highlighting what they get in return for compromising.

Examples from the Field

Mukuru, Nairobi (Kenya)

Acknowledging the unique developmental and political challenges in Mukuru, planning partners adopted an unconventional planning framework. Enabled by the SPA declaration, it prioritized immediate needs and incremental, iterative improvements and adopted alternatives to conventional planning standards to minimize the displacement of Mukuru residents without sacrificing security, health or resilience considerations.

The Housing, Infrastructure and Commerce consortium, along with Indian partners SPARC and CEPT University, used iterative scenarios to model the space required according to different planning standards. Modeling done using conventional standards found that conforming to planning regulations used for public infrastructure in formal estates would displace all households in Mukuru. The alternative standards ultimately adopted instead optimized for the needs and proposals of residents while minimizing the fragmentation of community bonds by limiting the displacement required (about 12 percent of residents) to accommodate new infrastructure and services (e.g. a 12-meter-wide road instead of the conventional 48-meter road). In particular, the alternative standards prioritized non-motorized transport as few residents own vehicles.

Beyond minimizing displacement, the new standards upheld key objectives agreed on by residents: prioritizing public health, safety, dignity, and accessibility over individual interests or ownership and the mitigation of environmental risks and vulnerabilities. As a whole, these discourses among residents and local government and civil society partners formed a loose framework for navigating various competing priorities among stakeholders, balancing pragmatism and incrementalism with ambition and a groundbreaking scope for both participatory planning processes and subsequent investments in crucial infrastructure and services.

The SPA also explored alternative service delivery models and technologies. As a pragmatic compromise between the small, informal water vendors and piped water to every plot, “water ATMs”, also known as pre-paid dispensers (PPDs), were chosen as a pragmatic solution for clean water provision. Low-cost, easy to install and maintain simplified sewer systems (SSS) were chosen for last-mile sanitation infrastructure. Yet to be tested, a model that would rely on

informal energy providers as last-mile entrepreneurs with local expertise (instead of excluding them as predatory cartels and therefore adversaries) was also explored.

“ The plan aims to make sure that the standards are not just statutory-oriented in terms of meeting certain requirements of a formally planned area but to make sure that they are more performance-oriented in terms of their outputs with regards to say the road width, the housing and the commerce, the plan aims to make sure that these are integrated in the sense that it's not a single use zone, or one that is just going to have housing alone but in terms of transportation, that means your people are able to walk, not necessarily being able to drive, there are very few vehicles in Mukuru, but along with that transportation system then we have the housing and we have the businesses. So the idea is to make sure that these things are integrated in a way that makes it possible to perform and meet the needs of the residents themselves. So is more or less like a social and economic hub, that we aim to achieve in Mukuru, more than just a place where people live and also a place where they can also work. ”

Professor Arthur Munyua Mwaura Department of Urban and Regional Planning, University of Nairobi

Personal communication, 29 July 2022.

“ So you'll find that the physical planning handbook works with the population; let's say one school is supposed to serve 5000 people so we divide that with the total population of Mukuru and see how many schools we need at that level, so again we put stems and just by doing that even before we begun the consultation we realized that we even don't have the space, the schools are more than the total space we have so that would mean Mukuru is an educational hub but with no one to serve because that means you displace everyone. So that was what we were calling iteration one. Then we had iteration 1(b) which was playing around with the same stems but going vertical, now developing vertically, so again the space was still not sufficient, so that called for iteration two which is community consultation now. The community consultation was going to the communities and being very deliberate and asking what facilities do you need in this community; so the priorities were roads, schools, hospitals, social halls. Those were the priorities and recreation, now the next question was which road do you feel will be totally functional for you as a community, serve you very well but in the most minimum space that is available. So the community again was coming up with that and then we draw with the communities and then after that we created iteration 3 which is now standardizing all that because different communities have different spaces at village level. You'll find that the community that gave the highest road width was 18, but there are communities that gave the highest road width as 10, so that was the level one road. So we had to now standardize which was iteration 3 which again we did with the county and the Nairobi Metropolitan Services and the other consortium and then we took this back to the community and after they approved that they were satisfied with the rationalized, that is when now the implementation began. So that was the process of augmenting the standards. ”

Charity Mumbi Project Officer, SDI-Kenya

Personal communication, 29 July 2022.

“ The designation of Mukuru as a Special Planning Area removed it from the general planning for a city; it was supposed to be planned as a special area where there was review of the normal standards of implementation for the roads, water and those things, and [...] that’s how we have been able to now implement the simplified sewer system as opposed to the conventional systems. So, the main thing for the SPA was actually to remove it from the normal planning because of the peculiar challenges. ”

Kagiri Gicheru Manager of Informal Settlements Region, Nairobi City Water and Sewerage Company

Personal communication, 27-28 April 2022.

Related Components

Guides

- [Forming Interdisciplinary Consortia](#)

Sources

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