Densification of Dzivarasekwa Extension

A collaboration between Slum Dwellers International and Dialogue on Shelter
Jan - Feb 2012
This report is intended to document and share aspects of a currently ongoing collaborative project between Slum Dwellers International (SDI) and Dialogue on Shelter (DOS).

The focus of this project was to use the slum upgradement, of Dzivarasekwa Extension, as an opportunity to develop new affordable housing models that could sustainably increase the density than the status-quo. For this, an architect from SDI, Greg Bachmayer, worked in the offices of DOS between 15 January and 16 February 2012, in Harare, Zimbabwe.

Hopefully, this will explain in plain terms, the technical and social processes that these projects go through, what they intend to achieve and where they are eventually heading. Even though the work is still ongoing, the report focuses on the timeframe mentioned above. This should help give an insight into the processes, rather than being an academic documentation of it.
Dzivarasekwa Extension (DZ Ext.), located 18km west of Harare, was established by the government in 1993. Over 2000 families originally resided here. In 2004 some of these families were allocated plots in the Hatcliffe Extension allocation. The 2005 Operation Murambatsvina evictions sent 150 families returning to DZ Ext. Today, DZ Ext. is home to 450 families. As the name suggests, it is an extension to Dzivarasekwa Main (DZ). DZ was established in the late 1950’s as a residential area for domestic workers, employed in the nearby, and formerly white only areas of Malborough and Mabelreign. DZ Ext. sits on the fringe of DZ and lacks basic amenities provided to the central area of the suburb, such as proper roads, drainage, electricity and sewerage. The area is also on the fringe of a neighbouring wetland, which further complicates the impacts of the heavy rains during the wet season.

Currently these residents are living in semi-permanent structures built from materials including brick and mortar, wooden cabins, polythene material and sheet metal. Communal toilets (eco-san and pit latrines) service their sanitation needs and water is provided from 3 boreholes in the settlement.
The problem facing the residents of DZ Ext. is that they are lacking decent basic housing and adequate amenity. The site, being on the periphery of the city, makes connecting water and sewer lines expensive. The challenge is therefore to deliver adequate services that can be delivered at affordable costs. This scenario is not unique to DZ Ext, as most cities in Zimbabwe have sprawled out, pushing the poor further from the centre where services are non-existent and costly to install.

When the land was allocated to the Federation, it was zoned for high-density residential development. The layout plan set aside 5 cluster plots that would be developed at higher densities to the norm in this area.

As part of an ongoing partnership with the City of Harare, the Federation decided to use DZ Ext. as a pilot project. This would demonstrate that increased densities are viable and can deliver affordable, adequate and aesthetically pleasing physical spaces for communities. This would demonstrate 3 proto-type designs, building 15 housing units that the DZ Ext. community could adopt for their own designs. The initial intent for these designs were for models similar to walk up flats and semi-detached housing.

Densification was therefore a central issue as to how this could be achieved in a prevalent culture where for most, improved housing is synonymous with free standing houses. Through increasing density, this would reduce the amount of land used, cost of services, cost of amenity provision and provide an urban mass that could develop into a local hub.
The initial designs were started between DOS and the City Architect in the City of Harare. With the City constantly overwhelmed with too many issues and not enough resources, it takes a long time to get these processes started and moving too. This ongoing scenario leads to significant delays on delivery.

SDI provided technical assistance, sending up an architect to workshop these plans over a 3 week period. At the time of this, initial designs had been prepared by DOS and the Federation’s technical team. The SDI architect worked with DOS’s Project Officer, who is a town planner, to develop the designs that would be used for consultations with the community at DZ Ext.

Upon arrival, consultation began with the Federation leaders at Dzivarasekwa. Prior to this, there had been discussions with the community at DZ Ext. which had included visits to localities within Harare that had varied higher density housing designs. At the first meeting, only 2 designs from the initial set were presented. A row house and a semi-detached house.

opposite: initial site layout plan for a cluster by (DOS)
Consultation Begins

There were mixed comments as people found issues understanding the plans properly. Furthermore, it was also difficult for them to imagine and understand the spaces drawn properly, as most of them have had little or no experience in this. Common patterns in the feedback were that they wanted a sense of ownership and individuality. Design features such as the continuous row houses, giving the effect of a on-going wall or the communal entrances for the semi-detached houses were contrary to this and were rejected. Demarcation was central to achieving this sense of individuality.

The comments from the initial consultation were taken on board and with a new architect (from SDI), the designs were re-worked to try and maximize spatial efficiency and explore new ideas that could plug into these proto-types.

The design changes weren’t a radical departure from the original plans but by building them as 3D models, this allowed a more holistic view of the designs. This would also prove to be a valuable tool for communicating the designs to a community of people who had little or no experience in reading architectural drawings. The designs were also discussed inhouse within DOS and further comments were received.
Consultation Begins (continued)

Duplex housing drawings presented (by DOS):

- Front elevation (not to scale)
- Ground floor plan (not to scale)
- Side elevation (not to scale)
- Level 1 plan (not to scale)
Design Development

The follow up presentation of designs took place in the community’s school hall, and using a generator, computers were setup with a projector to show the changes made.

This time, three designs were shown instead of two: row-house, semi-detached terrace, and a low-rise apartment block, as the brief required.

The ‘carpark’ of ideas being tested and modelled
The Semi-Detached House

In developing this design, the floor plan was opened up to economise and provide greater flexibility in the space. This resulted in the open plan living arrangements.

The coloured boxes was an idea that using extruded planter boxes, the individual dwellings could be individualised by the residents. This would be both through the nature of the plants and the applied finishes, to be determined by the owners.

1. 3D perspective of a typical semi-detached dwelling.

2. Ground floor plan - with the exception of the bathroom, the bottom floor becomes one big room.

3. Level one floor plan - rearrangement of the staircase and access allowed the bedrooms to become more generous.
The Row House

Similar to the semi-detached dwelling, the floor plans were opened up, removing unnecessary corridors that could be used as habitable spaces. The kitchen and dining areas were extended and enlarged as a result.

The bedrooms and bathrooms were also shifted forward, creating an entrance alcove and to break up the uniform facade the prior facade created. To further distinguish this in the exterior form, the two bodies would have opposing raked roofs so that from either front or back one half would read differently to the other, further breaking up the visible form. This could be also be distinguished through varying the exterior treatments/finishes applied to either of these forms, also allowing for greater sense of identity and variation.

1. 3D perspective of row houses with the bedrooms finished in a variety of colours

2. Row house plans - the two areas, living and bedrooms, differentiated through the shift. These could possibly be built separately in different stages.
Design Development (continued)

The Walk-Up Apartment Block

This followed on from prior designs, which used the row-house layouts, stacked up. In developing the row-house design, a similar sensibility of opening up the space was applied to this design. The planter ideas from the semi-detached dwelling were adopted and the use of alternating windows would help break up the uniformity of the structure.

1. 3D perspective of apartment block with the varying window arrangements and planter boxes. The facade was largely un-resolved at this point as the planning and arrangement was still being experimented with options being tested.

2. Typical floor plans - almost identical to the row-house except for the arrangement of the bathrooms and square footprint of each unit. As mentioned above, resolving the design issues here were a bit more challenging in the small time frame allowed, and thus less resolved.
The concept of densification was not accepted by the generality of the community at DZ Ext. The design that caused the most controversy was the apartment blocks. Some felt that they were ‘tricked’ or ‘pushed’ into apartments instead of houses. The reality was that the government had already zoned and commissioned this job to take on these densification requirements. Regardless, even when this was communicated, it was not fully accepted by the community.

The community believed apartments were more expensive to build and it would mean that half the families wouldn’t have access to their own private garden, an important issue to them. There was also the belief that these would not be maintained properly. This was the case with the examples they were familiar with in Mbare, which had gone into neglect and decay. The belief was that these buildings would meet a similar fate.
The semi-detached terraces were met with a warmer interest but there was still doubt about this building type.

Once the re-worked row-houses were presented, they were met with applause, as that is what they all wanted for themselves. Just as much, there was also a strong response to the suggestion that these could be incrementally built. This would be critical in making these houses affordable for them.

Other comments worth noting was that once the designs were understood, the idea of open plan living room, kitchen and dining were rejected. For a variety of reasons, they all preferred uses to have their own separate rooms. It became obvious that there was need for more time than had been originally allowed for.
There wasn’t enough time to redesign, meet with the City Architect at the City of Harare, present to the community and fully document everything. Even with a full week extension.

The reworked designs focused on trying to provide the following things that appeared to be crucial in the meetings:

1. Demarcation to allow individual’s a sense of ownership and individuality
2. Provide a private garden/outdoor space – everyone wants this for planting/gardening and it also reduces need for maintenance of communal spaces. People will take very good care of their own spaces but won’t make an effort if it is communal (evident in Mbare)
3. Design for incremental additions – increase affordability, and it will also allow for a variety of housing, even if they all stem from the same model.

On top of this, both the City of Harare and DOS wanted to use this as an opportunity to try do something new or different and to challenge the standards where possible. The row house was further tweaked to fully adopt these ideals.
Incremental is the key here. The plans 1-4 on the right indicate how the residents would begin with a core unit, with all the bare living essentials. As money becomes available, they can begin to add bedrooms and eventually open up the living room. There were other practicalities that needed to be accounted for as they were only revealed by authorities and locals as the process progressed.

1 - 4. Plans developing from a 1 bedroom house to a 3 bedroom.

5. 3D perspective fine-tuning the initial idea shown in the previous design.

Site Area: 150 sqm
Stage 1 area: 43 sqm
Stage 2 area: 68 sqm
Stage 3 area: 80 sqm
The idea of a terrace was arrived at by combining the need for a private outdoor space within the density of the walk-up apartments. Stacking dwellings atop one another prevented access to ground floor gardens. The semi-detached model used the two narrowest ends for access to the garden. Instead, a single long edge could be planned around to allow for greater access to a garden and allow for a more dense arrangement, than either two of the prior models allowed for.

The plans could also be built incrementally with the living rooms used as bedroom until the funds for an upstairs were raised.

Site Area: 64 sqm
Footprint area: 39 sqm
Garden area: 25 sqm
Terraces (continued)

The rotating arrangement of the individual residences would create a variety of street-front conditions, breaking up the mass, and minimising privacy issues. The top floor additions could also be finished in a variety of ways and the fencing (if used) would also provide further variety amongst the rhythm of extending blank walls which would frame this.

1. Ground floor plan - everything (except the bathroom) would open up onto the garden, making these spaces as breathable as possible and encouraging this spaces to extend into one another.

2. First floor plan - The bedrooms would predominantly look down into the courtyard

3. The arrangement of a 4 residences which would make up one block. Each residence looking away from one another.

4. (below) 3D model of a typical streetscape of completed terraces.
The designs will then be tweaked in response to the community feedback given. The City of Harare’s consultant team will also review the designs and see what will be required for this building to work structurally and construction wise too.

DOS will also coordinate the construction of a frame for these prototypes so that the federation members properly understand the scale of the spaces. By bringing the design to the human scale, this reduces any capacity the members can claim for misunderstanding not only what was happening in the drawings but the scale of them too.

Finally, once this process is approved for, the prototypes will be constructed and from there, the feedback cycle will continue. In the end, the new housing built at DZ Ext. will have been through so many consultation processes, that it would be hard to deny that the members have been co-producers in this process. The idea that we are working towards is that, by this stage, the designs will be so well polished, that the:

1. members will be enthusiastic about investing their time, efforts and finances further
2. The prototypes will be willfully picked up by other communities in their upgradements, and incorporated into their plans.
3. The buildings will be an improvement on the status quo. This will be in regards to affordability, aesthetics, planning and environmentally. In short, these should be building blocks of a better community than what the previous housing models allowed for.

Whilst the designs have begun to deal with these issues, there is still room for further development.

There is still capacity to further develop the incremental design to adopt a strategy for the owners to also rent out rooms to subsidize their living expenses.

With the terrace model this would look at how the plans could be tweaked to allow for the living room to be used as an additional bedroom and also allow for further vertical development as time goes on. With the row-houses, how can they build up, possibly fitting 2 separate residences on the one plot.

The designs approached the agenda from a strategic perspective. With the strategy in place, the trimming the fat and tweaking the planning can be done accordingly. From here, spaces can be further economised made more efficient.

There was not an opportunity to get feedback from the community so there is no doubt that they will also have some critical feedback which will also need to be taken on board too.

Where To From Here?