Transformation Dissemination

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Transformation Dissemination

This project arose from the need to disseminate the findings from a previous international comparative study, “Transformations of government-built low cost housing as generators of shelter and employment” sponsored by DFID (R4865B) that consisted of three years' research into user-initiated housing transformations. The aim was to hold national workshops in four countries. The workshops were held in Accra, Ghana; New Delhi and Bangalore, India; Pretoria, South Africa; and Mazvikadei, Zimbabwe.

Findings of the International Study

Our DFID-sponsored international study concentrated on housing built by government or its agencies primarily as mass housing for low income households. It showed that many people wish to extend their houses legally and with assistance from the authorities.

Transformations are defined as alterations or extension that involve construction activity. Both are studied but alteration is not enough for inclusion in our study as a transformer. Extension of the original built space is essential for selecting the house as a transformed one.

In areas where they are taking place, transformations allow more internal living space and improved services in the dwellings. The increasingly efficient use of existing urban space reduces the rate of expansion of the urban footprint and the environmental impacts of ever-longer journeys to work and service lines. Increased tolerance and enablement of transformations is, thus, likely to improve the immediate living environment of many millions of low income households. The external environmental conditions will benefit from an increased understanding of transformations, especially with respect to their effect on storm-water drainage, sewage disposal, water supply, and access.

More efficient transformations would, therefore, benefit the occupants of those houses especially women, elderly people and children who are more confined to them than the men. In addition, people living in poverty tend to occupy some of the new rooms for rent or as rent-free tenants as they come available. Also, small building firms and tradesmen benefit from the opportunities to build extensions.

All these and other findings are covered in great detail in the book from the project: Graham Tipple (2000), “Extending themselves: user-initiated transformations of government-built housing in developing countries”, Liverpool, Liverpool University Press.

The dissemination project

It was obvious from our study that transformations have great potential to improve housing for the poor. Thus, it was the purpose of the project to instigate government action to promote extensions as housing supply in both existing and proposed housing projects instead of the current hostility to, or ignorance of, extensions as valid housing supply.

Our intended outputs were as follows:

1. Local officials to have an understanding of the characteristics of extension activity and the housing, which results there from.

2. Promotion of the generally positive balance of advantages deriving from extension activity.

3. Local planners and decision makers equipped with arguments to enable them to assist in utilising extension activity in positive planning measures.

4. Final versions of codes of practice following local discussions.

5. Reports on workshops for local dissemination.

In order to achieve this, we conducted the workshops, in collaboration with local institutions, with the clearly stated aim of promoting transformations as a housing supply mechanism. At each, we invited about 50 local key professionals and people's representatives where possible (with expenses paid where necessary).

Pre-project workshop

Before the project had started, we conducted a two-day workshop in Barquisimeto, Venezuela in May 1997, in association with Universidad Centroccidental Lisandro Alvarado. Fifty government officials attended. Even though we had to work through an interpreter (who was excellent), the workshop showed that it is possible to alert local decision-makers and academics to the potential of transformations as housing supply. There is a large government housing stock in Venezuela and many are already undergoing transformation.

Partners

Each workshop was planned in collaboration with a local leading housing research institution and reflected local circumstances. These were as follows:

Department of Housing and Planning Research, University of Science and Technology, Kumasi, Ghana (Stephen E. Owusu).

National Institute of Urban Affairs, India Habitat Centre, New Delhi (Vijay Dhar), and Karnataka Urban Development and Finance Corporation, Bangalore, India.

Division of Building Technology, CSIR, Pretoria, South Africa (Mark Napier).

Department of Rural and Urban Planning, University of Zimbabwe, Harare, Zimbabwe (Amin Kamete).

The conduct of the workshops

Location of the workshops

It was decided that each workshop should be held in the capital of the country concerned. In India, an additional location (Bangalore) was selected in the south of the country. Each workshop was to be held in a conference venue in the city area but early experience in India, where senior officials attended for the part of the workshop in which they were most involved but did not stay for the discussion sessions on day two, suggested the option of an out-of-town venue. On the one hand, this was thought to be a way of keeping all the delegates together and focused for the two days. On the other hand, the remote venue might discourage some from attending at all. In the event, and in discussions with the local collaborators, only the Zimbabwe workshop was held out-of-town, in this case at the Mazvikadei Resort, Banket, to the east of Harare.

Each workshop was planned in collaboration with a local leading housing research institution and reflected local circumstances.

Inputs

The workshops contained a variety of inputs with the international comparative study as the core material. Our task was to present the main findings of the international transformations study and promote the balance of advantage of enabling transformations. The local institutional partner invited suitable speakers to present local experiences. In Delhi, Bangalore and Pretoria, where we had little local knowledge, there were many. In Ghana and Zimbabwe, we presented the local profile, as they were part of our study. Indeed the relevant appendix of “Extending themselves” appertaining to the local case study was provided for the local team ahead of publication. In the Zimbabwe workshop, our South Africa collaborator presented his experiences.

Our collaborators arranged press coverage and local publicity. Each also invited very senior housing officials to open the workshops and give a keynote speech, as follows:

In Delhi, Dr V Suresh, Chairman and Managing Director of HUDCO, presented an opening speech.

In Bangalore, Dr Arcot Ramachandran, Former Assistant Secretary General of UNCHS (Habitat) opened the workshop.

In Ghana, the Minister for Works and Housing, Hon. I.K. Adjei-Mensah MP, gave an opening address, part of which I had written, generally in favour of transformations. I suspect that this might be as important as anything else that happened at the workshop.

In South Africa, Dr Neo Moikangoa, Executive Vice-President, Policy and Technology for Development, and Acting Director of Division of Building and Construction Technology, CSIR, gave a very supportive address.

In Zimbabwe, Hon J.L. Nkomo, the Minister of Local Government and National Housing was unable to attend but Hon. Peter Chanetsa, the Governor and Resident Minister of Mashonaland West delivered his address.

As Principal Researcher in the project, I presented several sessions in each workshop. These were:

The Shortened Version of the Findings of the Study (Appendix 1) illustrated with 35mm slides and overheads, culminating in the explanation of the "Twelve Notable Points" (see box). The Draft Code of Practice (see below) was introduced so that the groups could be aware of the reasoning behind its components in the discussions.

In Ghana and Zimbabwe, I also presented the local case study and introduced the Householders' Guides for discussion..

Discussions

The presentation of the factual material, and discussions of its implications, was followed by discussions on the draft codes of practice to enable extension activity in currently built areas and to plan for them in new areas. The results of the discussions

were reported back in Plenary Sessions and have been used in compiling this report and the Suggested Code of Practice.

Twelve Notable Points

From the International Comparative Study we draw 12 summary points which give strong arguments in favour of transformations.

1. In transformations, housing consumers become producers of housing
2. Transformations make efficient use of existing finite resources, particularly serviced land, infrastructure and construction materials.
3. Transformations improve the social, economic and environmental quality of the living and working environment
4. Housing is productive; transformations increase that productivity
5. Transformations make efficient use of existing social resources
6. Transformations require realism in regulations and standards
7. Transformations can promote a balanced approach to shelter upgrading and new shelter construction
8. Transformations involve the efforts of citizens in planning and implementing improvements
9. Transformers add value to an area and increase the potential property tax base.
10. Transformations promote rental housing
11. Transformations change the emphasis of physical planning and residential area design

12 Transformations create variety out of uniformity

Variety of house size

Variety of accommodation for the main household

Variety of house value and housing cost

Variety of use

Variety of tenure

Variety of occupants

Site visits

Although it was our intention to visit transformed areas, our collaborators in India, South Africa and Zimbabwe advised against this, largely because of the effect the visit of dozens of officials would have on the transformers. In addition, they asserted that everyone was familiar with the activity. In Ghana, however, we visited an area of Kaneshie post-World War II housing that is being extensively transformed. The visit proved to be a seminal experience for at least a few of our delegates who seemed to moderate their negative opinions as a result of the brief walking tour. Had the research material been received negatively, the lack of site visits could have been a problem but, in the event, there was no problem of general acceptance arising from the negativity of important delegates.

Stephen Owusu wrote as follows in his report on the workshop:

> The field trip to Kaneshie Housing Estate, a suburb of Accra, underscored the observations that owner-initiated transformation activity has both positive and negative consequences; it results in changes in shelter, and impacts on infrastructure, urban services and urban land use. Transformation has far reaching consequences for the neighbourhood, community and the city. For instance it can lead to:
>
> - deterioration of community facilities;
> - building into alleyways to hinder vehicular/pedestrian circulation; and
> - building on [mains] services.
>
> Notwithstanding these, transformation was found to bring
> - families together;
> - cutting down [on] commuting within the city; and
> - enhancement of employment avenues within residential area.
> - [rejuvenation of] housing estates some of which are at the end of their useful life.

India

The India workshops were held as follows:

1. In Delhi, at the India Habitat Centre, Lodhi Road, 22-23 March.1999.

Papers were presented as follows:

V. Suresh, HUDCO, “Transformation of government-built dwellings as housing supply”.

A. Dasgupta, USAID, “Self-initiated transformation of public housing: Delhi case study”.

Dr P.S.N. Rao, SPA,”Transformations of Built Housing as Housing Supply - Case Study”.

Dr A.K. Jain, DDA, “Key Issues in Transformation of Built Housing”.

Prof. Subir Saha, SPA, “Key Issues in Transformation of Built Housing as Housing Supply”.

Mayank Mathur, SPA, “Issues for Planning for Extension”.

Dr Solly Benjamin, Consultant Bangalore, “Housing transformation for livelihood generation”.

A.N. Krishnamurthy and S.K. Gupta, HSMI, “Design feedback from JRR/Janta and EWS housing done by DDA”.

2. In Bangalore, at the Taj Residency, 3-4 February, 2000.

Papers were presented as follows:

Dr S.P. Bansal, DDA, “Transformation of government-built dwellings as a means of housing supply – case of Delhi.”

Dr M Nageswara Rao, ISEC, “Transformation of government-built dwellings as a housing supply – policy regime, scope and options in India.”

Ghana

The Ghana Workshop was held at the British Council Auditorium, Accra, 22-23 September, 1999.

No additional papers were presented.

South Africa

The South Africa Workshop was held at the CSIR Conference Centre, 25-26 October, 1999.

Papers were presented as follows:

Mark Napier (CSIR), “The Incremental growth of core housing in South Africa”.

Morgan Pillay (NHFC), “Micro-finance for housing in South Africa”.

Amanda Nair (North/South Central Local Council), “Management systems for stimulating low cost housing development – the Durban case”.

Jenny Rudolph (CMC), “Housing renewal: a current assessment and proposal on way forward for existing housing in the Cape Metropolitan Area”.

Professor Rodney Harber (UND), “Enabling designs for self-help extensions: learning from the field”.

Zimbabwe

The Zimbabwe Workshop was held at the Mazvikadei Hotel and Leisure Resort, Banket, 18-19 October, 1999.

Papers were presented as follows:

Mr M Napier (CSIR, Pretoria), “South African experiences”.

Dr S Jogi, (National Housing Strategy Committee), “The context of transformations in Zimbabwe”.

Preparatory material

Householders' Guide

As part of the original study, four householders' guide pamphlets had been produced, one for each country in the study. These guides contain advice for householders on the practicalities of extending their homes. They give guidance on such topics as:

- looking around to see what others in the area have done;
- planning with structural elements, room use and furnishings in mind;
- roof design;
- using the space for commercial use or renting out;
- working with neighbours;
- taking care not to damage utilities;
- taking care about security, drainage and structural strength, vermin;
- use of open space and vegetation;
- relationships with builders;
- storing materials; and
- self-help options.

We used a comic-book format to make it as accessible as possible to ordinary people. The guides were discussed at the Ghana and Zimbabwe workshops as to their suitability locally. As is inevitable with drafts produced out of country, there are details that require changing to remain faithful to local circumstances but generally they were well received by delegates.

The text of the ones for Egypt and Ghana are attached as Appendix 3 and 4.

Only in Zimbabwe was there detailed discussion of the Householders' Guide. The group contained many development control planners who were happy to look at the detail of the drawings and text but felt that a much more comprehensive and legally underpinned guide was needed. They suggested including the following:

Details of planning guidelines, reticulation, daylight and ventilation rules, site lines, good neighbourliness, preservation of flora and fauna, synchronising development and management skills. They suggested advice on contracts and some examples, how to make a cost-benefit analysis on contractor v. self-help construction, and advice on how to make sketch plans. The context for this would be that professional advice is fundamental to any building process and no compromise would be possible on the householder/local authority relationship unless the householder is a builder. Planners and architects should be involved in finding out what householders want to f=do and making the plans to enable it.

There is a fundamental difference of opinion between the CARDO team and local collaborators (academics and policy-makers) on the one side and local development control planners on the other. Despite the very hospitable reception the study's findings received at policy-maker level in Zimbabwe, there is a strong cadre of local officials who will accept no relaxation of controls or professional involvement, even though neither is effective at present. They appear to believe that planning enforcement by bulldozer is still realistic in Zimbabwe. There are, however, inconsistencies in the arguments used. For example, they argue that side building lines are required to allow maintenance of water pipes even though the water meter is located close to the main and just inside one front corner of the plot.

The discussions on detail brought out an important lesson: illustrative material must be correct in every detail to gain the support of officers who deal with black-and-white enforcement issues. Our Householders' Guides were developed by David Higdon, who has experience in Central Africa and Ghana, using our photographs as a context for the cartoon drawings. However, the local professionals could find substantive problems with one or two and detailed issues in some, as follows:

- Where we recommended (ticked) extensions to be separated from the original building for daylighting and ventilation, our Zimbabwean development controllers would not approve such structures but would approve those attached to the dwelling that were shown as "wrong" (crossed) in our cartoons.

- Where we take a pragmatic stand and advise householders to see where the front building line is in reality by checking the extent of local extensions, our delegates felt that no encouragement should be given to crossing standard building lines.
- Our advice on boundary adjustment to allow more usefully sized rooms would not be possible in Zimbabwe land practice.
- The siting of kiosks, shown in our cartoons as outside the plot, should be altered to inside the plot.
- There was disapproval of our giving advice on care taken when installing electrical wiring, even though we start with a warning "Electricity is dangerous: it can KILL. It is also a notorious cause of fire. You really need a skilled electrician to carry out the wiring for you" (emphasis in the original). Even with such cautions, delegates felt that this would encourage people to do it themselves.

Our Zimbabwean counterparts will have the final word on modifications to the Householders' Guide if they wish to put it into use.

Draft codes of practice

Drafts of the two parts of a code of practice were drawn up and are presented in Appendix 2, along with the discussions that took place in the various workshops. We present our suggested revised code below.

Outcomes of the dissemination project (to April 2000)

The majority of delegates welcomed the workshops as being very timely. We were, to coin a phrase, "pushing at an open door" in each country. In India, the Malhotra Commission had examined the ramification of the practice of adding storeys to buildings and had opened many professionals' minds to the idea of buildings' being extended through their economic life, even though they had not been designed to be so. A request to share our experience of transformations, received from A.K. Jain at Delhi Development Authority, had been one of the catalysts for the dissemination project. In addition, some work had been successfully carried out in designing government-built housing intended to be transformed by user initiatives.

In Ghana, our survey work in 1993 had begun a process of enlightenment that had been kept alive in DHPR by Stephen Owusu and his team. Their colleagues in the Department of Design included some whose architectural practices had designed transformations in our study areas. The workshop provided them with a venue in which to join discussions with more conservative planners to try to win the argument. As a result, the Ghana workshop resulted the establishment of a Review Committee to develop a Ghana-specific guide for alterations and extensions in the government-built housing estates as well general housing development. Revised copies of "A householder's guide to making extensions to the home" is to be distributed to all householders in relevant areas in Kumasi and Accra.

In Zimbabwe, where many extensions have full planning permission, our survey and other moves had opened the way for hospitable opinion about user-initiated transformations activity. My own discussions through the years with influential figures like Dr Sasha Jogi, the leading professional on the committee compiling the National Housing Strategy, showed how advanced was the move towards full recognition of the importance of household initiatives for providing extra rooms in the (not very) "high density" township areas. Dr Jogi attended the second day of the workshop and gave an important presentation on the thinking informing the preparation of the National Housing Strategy. The workshop was followed up with a report to his team. Paragraphs pertaining to transformations were accepted therein and now go into policy in the country.

The revised code of practice

The subtlety of the discussions and the enthusiasm of the local collaborators was such we left them to make the final modification to the draft code to suit their own circumstances. We feel that we can be most helpful if we generate a revised version of the code of practice for general use with suitable local modifications to be decided by the users.

Our revised code is as follows:

Part 1. Guidelines for controlling and enabling transformations in existing areas

"Think positive". Recognise the contribution extenders could make in housing supply.

It is surprisingly common for development controllers to be less concerned about housing supply than about fulfilling every clause of the building regulations. Thinking positively about transformations as new contributions to housing supply rather than encroachments helps to alter that mind-set. There is a need to balance regulatory requirements with the ability of people to fulfil them without seriously damaging the vitality of the process.

The supply of housing should be encouraged even if it is not of the highest quality. Governments can hardly expect respect for their housing rules when they usually fail to supply the housing they promise.

Be mindful of the need for more housing, more variety etc. in formulating policies for control and new housing.

The sameness of mass housing is one of its most serious flaws. It leads to dissatisfaction and alienation. People will change such environments if they can and should be allowed and, better, encouraged to do so. New housing must provide variety, or at least allow for it to be added by users.

Recognise that housing is a productive good and extension can make it more productive.

Housing is a very productive sector. The construction of houses and their maintenance and occupation generate large amounts of employment especially locally and at the lower end of the income scale. this is highly beneficial to an economy. More housing, locally produced with labour intensive methods (as is transformation) is very good for a local economy.

Encourage safer and more efficient extension activity instead of preventing less efficient current activity.

Assisting extensions is likely to ensure that standards of safety, daylighting, ventilation, and neighbour co-operation can be maintained.

Set areas around buildings in which extensions will be encouraged.

As in Project Renewal in Israel, where potential transformers live in dwellings not contained in plots, lines can be drawn on a large scale map of the area to dictate the extent of extensions and to guard utility lines, access ways. In plots, building lines can demarcate an area within which extensions should be permitted. The building lines should be reviewed to assist effective extension activity.

Consider making planning control a local community issue, through a suitable Community Organisation, with professional advisors on matters of health and safety.

The Planning Department need not be involved in every development, especially when it is of only local significance. The role of the local authority will be to safeguard utility lines, access ways and other infrastructure at a neighbourhood level.

Forbid (and implement control of) "problem" development:
that which blocks neighbours' access, light, ventilation to specified extents.
that which impinges on service lines unless they can be diverted by the developer.
that which is unsafe owing to inadequate foundations, etc.
that which breaches local norms of privacy.

This would prevent the worst problems addresses by planning control without having to be involved in every design detail. There is a need to negotiate with development control planners to develop a workable and accepted system. The permitting authority should maintain transparency in the rules it applies and be responsive to local opinion.

Do not expect government built areas in which dwellings have been sold to their occupants to continue as non-typical in the city.

People are bound to want to develop their areas so that they look like surrounding areas. Colonial and outmoded concepts of dwellings cannot be expected to remain unchanged in a dynamic housing system. Small dwellings with lots of open space around are untypical of most cities and are unlikely to survive long like that. Rented areas owned by government are quite likely to remain untransformed, at least through resident initiative.

Allow levels of development, plot coverage etc. that are common in the city.

If most development around covers 60 per cent of a plot, you can't expect someone to be content with only 20 per cent covered space and people crowding into the small spaces inside. Surrounding areas can provide useful guidelines for setting maximum coverage ratios.

Remember, in countries where moving is very difficult, extending is the only way households can change their housing circumstances.

Most housing policies reflect those developed in the West which assume that households who want more housing can move to get it. This is simply not the case for most cities in developing countries.

Be willing to increase property tax levels for extended property (this assumes an efficient existing system).

It seems entirely fair to increase property taxes when people extend their housing. It is essential to sustainable urban development that taxes are reasonable and conscientiously collected. Care must be taken not to make any tax increase so large that it becomes a disincentive.

Consider appointing enablers to act for potential extenders in a way similar to Israel's Project Renewal.

A professional in a local office, with a duty to enable extensions, can have a significant impact on their frequency, value and design.

Part 2. Guidelines for new housing following from transformations.

In countries where plots for low income households are currently small and narrow, they should be larger and wider. The space for two rooms and a corridor is recommended as a minimum width.

Early losses from lower densities resulting from larger plot sizes are likely to be reversed later as more efficient extensions can be made in the useful spaces left initially compared with the narrow strips currently available in most cases. This also increases the proportion of the housing development not financed from the public purse. Where plots are currently larger than 150sqm, width is probably more important than size in encouraging transformations.

Designers of buildings should remember that they are setting the context for a process of development rather than completing a product.
Thus: dwellings should be situated towards the edge or corner of the plot.
A long, rectangular shape may be more efficient in the long run than a nearly square rectangle for the initial dwelling.
A mono-pitched roof with room to extend at the higher side may be more efficient than a pitched roof.
Where a pitched roof is used, it is often easier to extend the house at the gable end. Therefore, account should be taken of this when placing the house on the plot.

These recommendations take into account:
The need for flexible spaces for extensions;
The fact that savings from efficient initial structure shapes may be lost when extensions occur;
The need to help the extender with structural support, easy roof lines, etc., all of which will encourage transformations to fit into the design and massing of the original designs.

Where core housing is favoured as the way forward the core should be sited at the edge of the plot. Where upward extension is the only feasible growth direction, foundations should be adequate to support the likely weight.

Service levels should allow for increases in density following from transformation over time. This is likely to involve using larger pipes than the planned population would call for, and selecting technologies suitable for higher densities rather than the lower initial density.

Transformations increase, or allow for increase in, population on site. Thus, servicing should take this into account from the beginning. Where excess costs are envisaged, the cost over 20 to 30 years should be the key issue and payment schedules adjusted to suit. Space for schools and other social services should suit the estimated long-term population.

Orientation of buildings should take account of the likely final shape of the building rather than the first shape.

It is tempting to align the original dwelling to minimise surface area exposed to the heat of the sun. Unfortunately, transformed houses often result in an orientation at 90 degrees to the original, thus maximising surface area exposed to the heat of the sun. This can be avoided by thinking ahead.

Building lines that limit the position of a building on its plot should be revised to allow for extension activities.

The purpose of building lines is often shrouded in mystery or may be based on circumstances no longer relevant. Their protection is impossible but their presence is a hindrance. Consider doing away with building lines and replacing them with a performance standard to do with access to the rear, prevention of fire spread, preserving sight lines down roads, or whatever. Where the political will to remove them is absent, their effect on extension potential should be minimised, especially at the front of the plot.

APPENDIX 1.

A SIMPLIFIED PRESENTATION OF THE CARDO STUDY ON USER-INITIATED TRANSFORMATION OF GOVERNMENT-BUILT LOW-INCOME HOUSING

In this presentation of the data, all tables use medians as simplified measures of centrality.

The full study is published as a book: A. G. Tipple, 2000, *Extending themselves*, Liverpool, Liverpool University Press.

Introduction to government housing

Small, well built, well serviced, low density but high occupancy, controlled, often occupied by middle income or at least higher low-income people. Poorly maintained, reaching the end of economic life. Fairly uniform in size, tenure, use, cost. Built to suit typical household. May be multi-storey and prefabricated.

Case study areas

We will use our own case studies from Mirpur, Bangladesh; Greater Cairo, Egypt; Kumasi, Ghana; and Harare, Zimbabwe. We will also refer occasionally to experience from elsewhere.

Housing adjustment theory

Housing stress, shocks and triggers

Households' needs change through time. There is the general growth in needs as furniture is bought, children grow up, etc. There are also events which cause new demand for space - babies, arrival of elderly relatives, a need to do homework on change of school, etc.

Move or improve

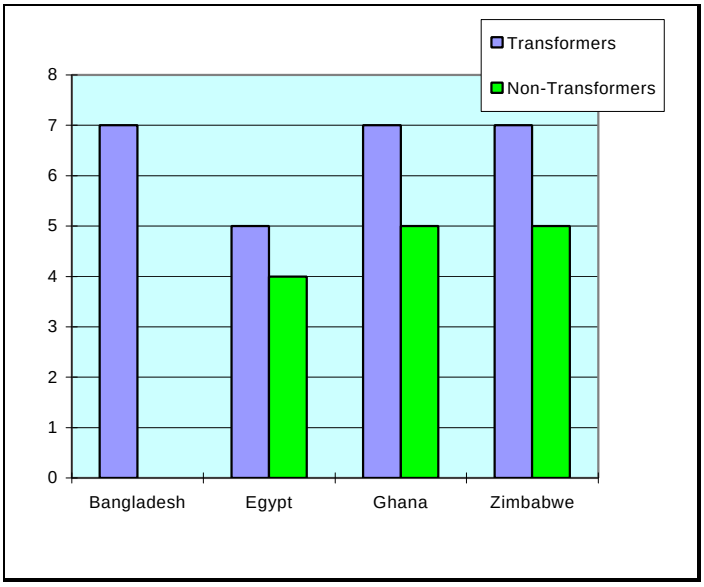
They could move or improve (extend) to cope, or just put up with the stress.

Introduction to Transformers

Household characteristics

Household size and composition

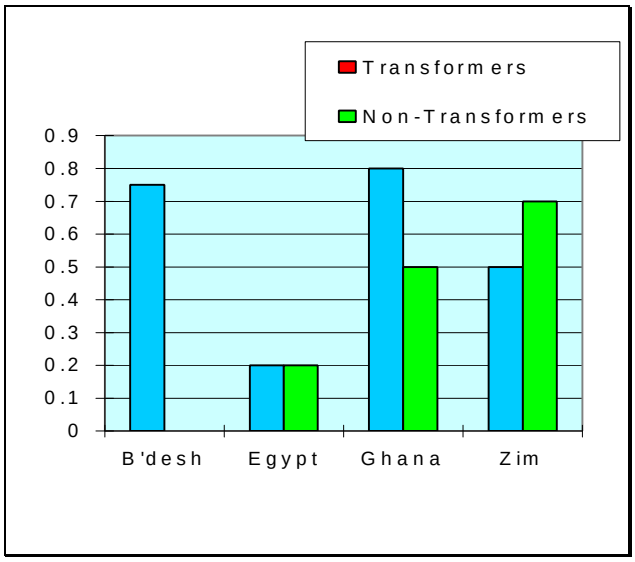
Number of people in the household



Transformers' households are larger than non-transformers', with medians of more than five in each case study.

Dependency Ratio

Number of children per adult



Government-built housing is not full of children. There are fewer than one child per adult in all our case studies.

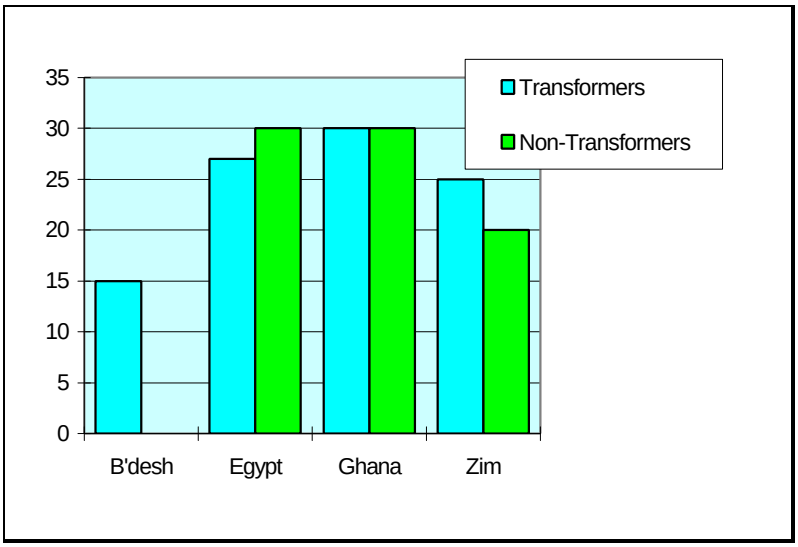
Tenure

Almost all are owners apart from in Bangladesh where they are all renting from the Development Authority. Ownership was thought to be a necessity but it seems possible to transform without owning in certain circumstances.

Age and establishment

Most of our transformers and non-transformers are middle aged, and long established in the city and the house.

Length of stay in the house



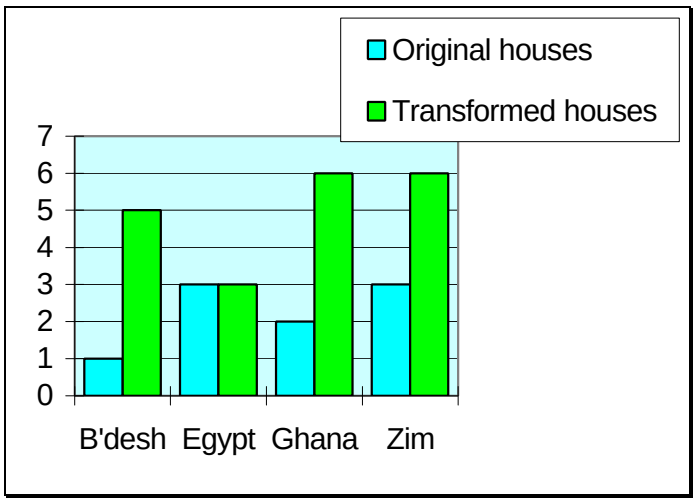
Most of the households in our case studies had lived in their houses for a long time. There is little sign that they are being bought out by richer newcomers

Increased space and reduced occupancy rates

Even though more people tend to occupy the houses, the original households tend to have more space than they would have had without the transformation. Furthermore, their occupancy rates per person are reduced.

Increase in space through transformation

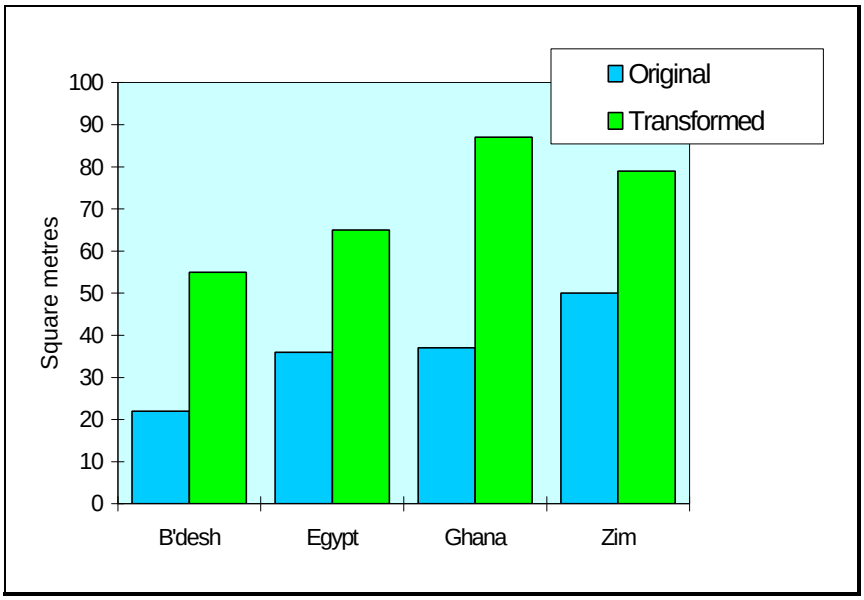
Number of habitable rooms in the house/flat



Most transformers want more rooms to such an extent that they subdivide the original rooms as well as adding more. In Egypt, most transformers do not divide rooms; three good rooms appears to be their goal.

More space through transformation

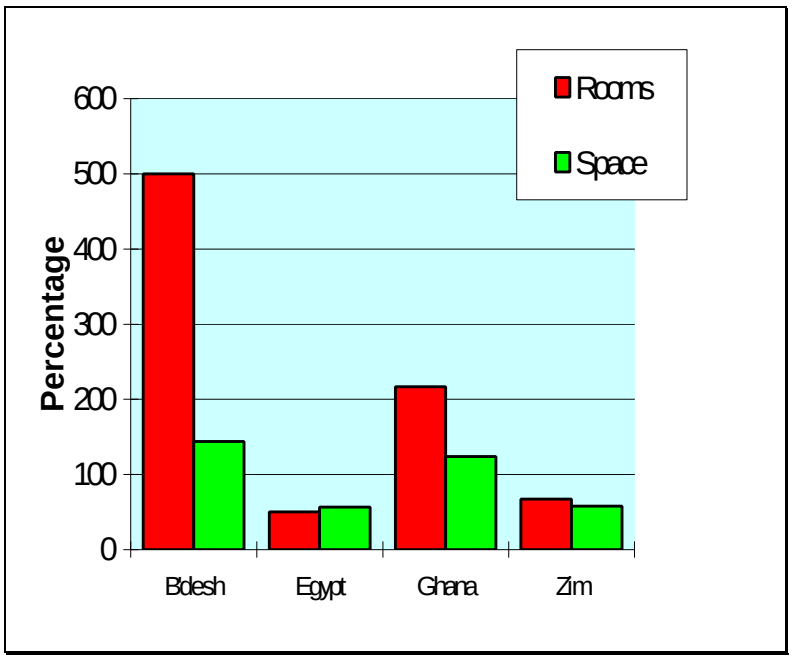
Increase in floor space through transformation



Transformation gives people considerably more space. The cramped spaces of Bangladesh have seen the largest proportion of extension.

Change in rooms and space through transformation

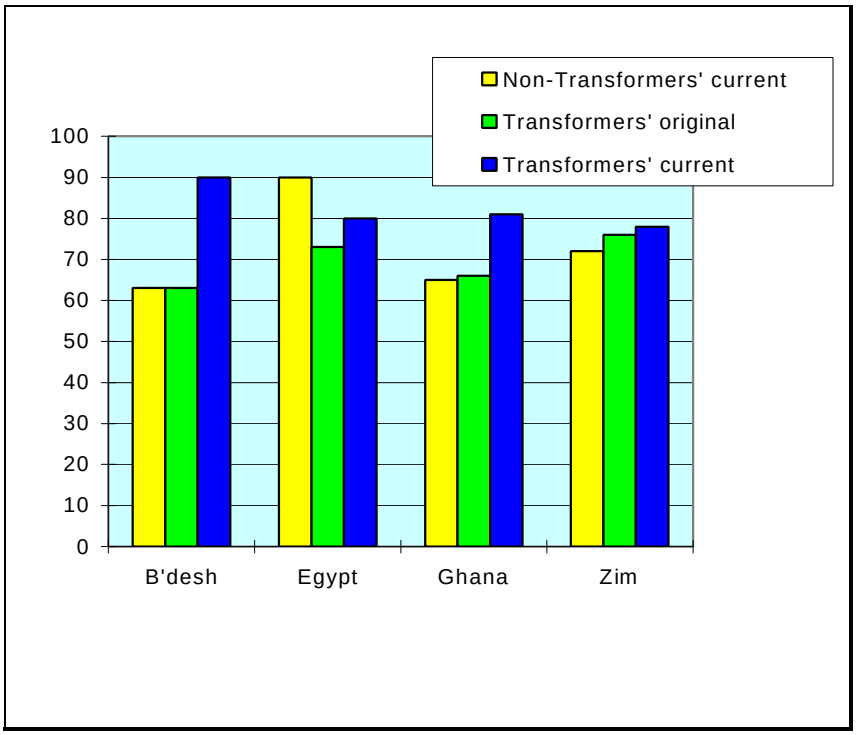
Percentage change in habitable rooms and space



In Bangladesh and Ghana, the division of existing rooms and adding relatively small rooms give a much larger change in rooms than space. In Egypt and Zimbabwe, there are similar changes in rooms and space.

Proportion of space which is habitable

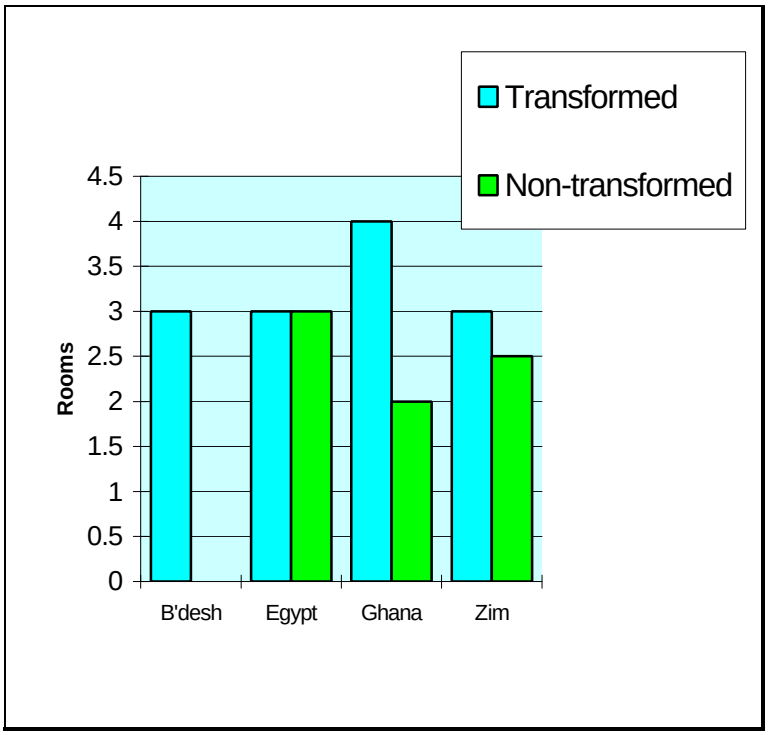
Percentage of housing space which is habitable



Transformation increases the proportion of the house which is habitable (i.e., not kitchen, bathroom, toilet, store, corridor, etc.). Transformation results in almost all of the house being habitable. In Egypt, non-transformers have changed the use of the kitchen so that it is now a living room as well.

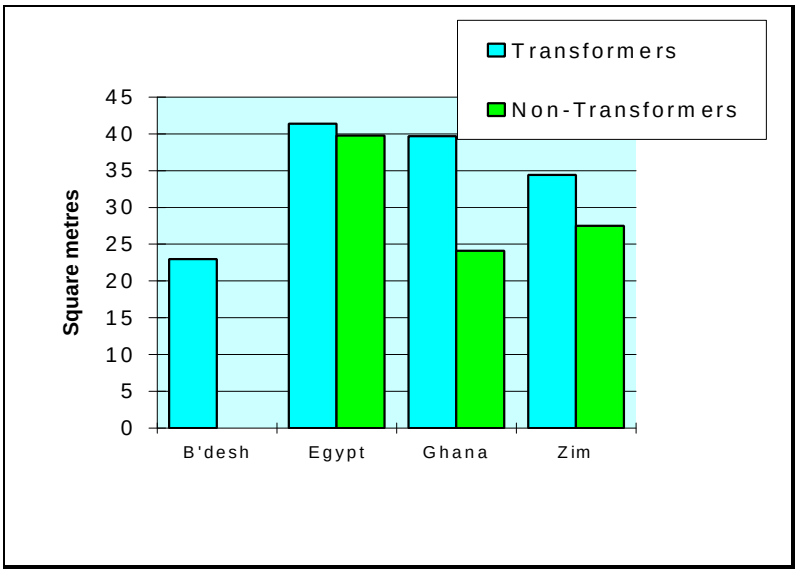
Rooms and space occupied by the main household

Rooms occupied by main households



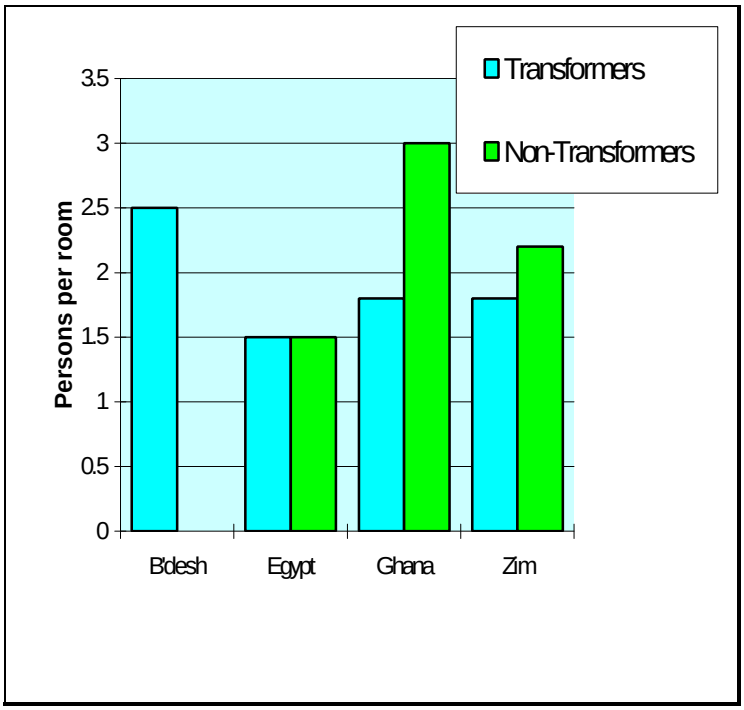
Transformers have added some rooms for their own use. In Egypt, the non-transformed flats are mainly the larger, three-roomed ones. Transformers have caught up with these. In Ghana, they have added two rooms, and in Zimbabwe, 0.5 rooms, for their own use at the median.

Habitable space occupied by the main household (square metres)



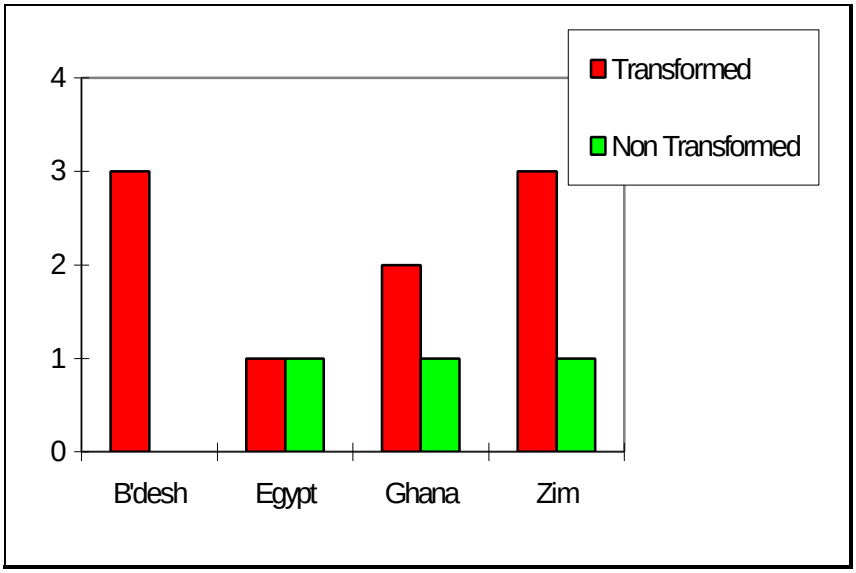
The main household tends to have more space when the house is transformed even though there are also other households in the house in many cases in Bangladesh, Ghana and Zimbabwe.

Persons per room for main households



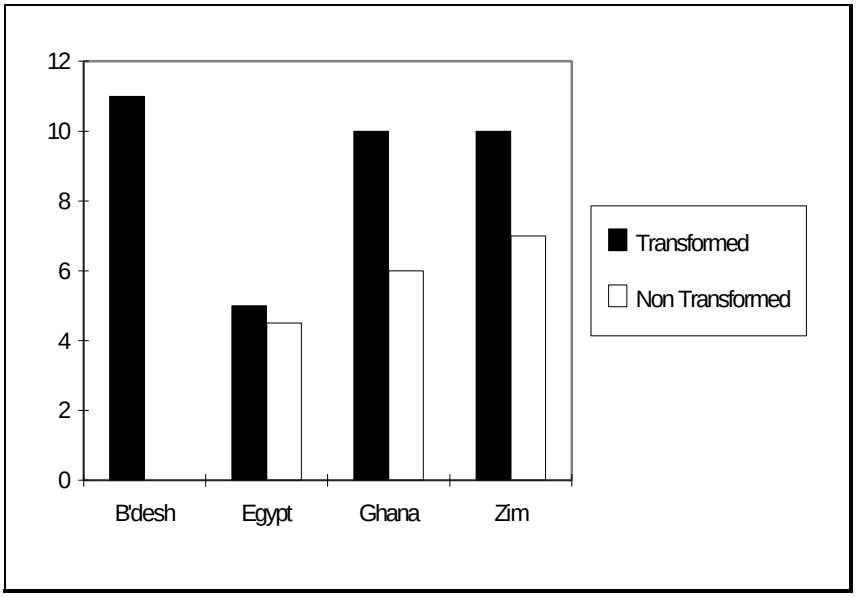
Transformation has improved the occupancy rates of the main households, even in Egypt where the occupants of smaller flats now have the same occupancy rates as those of the largely un-transformed larger flats. The occupancy rates compare favourably with other households in the cities studied

Households per house



Extra households are accommodated in the extended houses. Transformers have more extra households than non-transformers

People per house

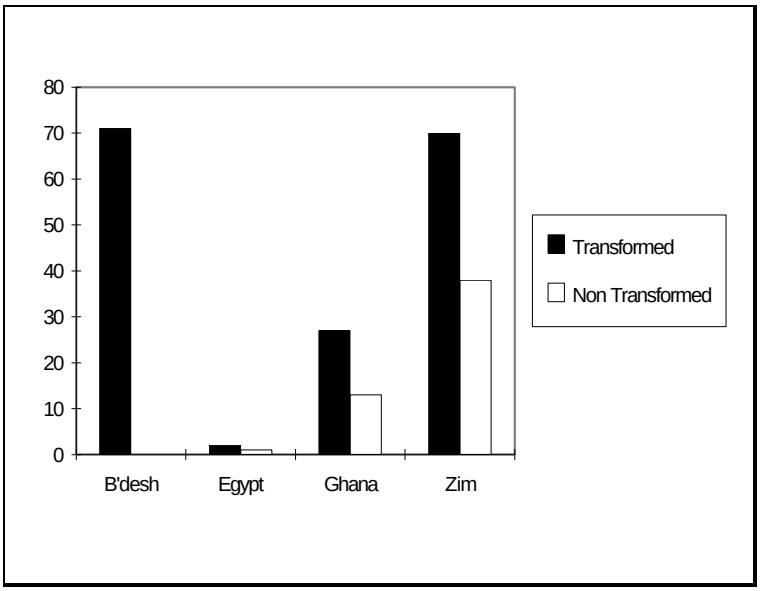


Transformed houses undoubtedly accommodate more people than non-transformed, although the difference in Egypt is very small.

Tenants and rent-free tenants and their characteristics

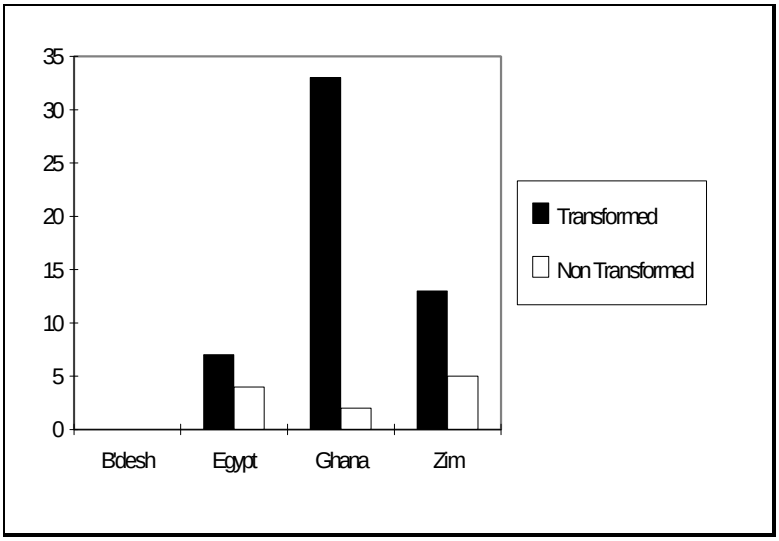
Some extra households pay rent as tenants, others live rent-free as family tenants.

Percentage of houses/flats with tenants



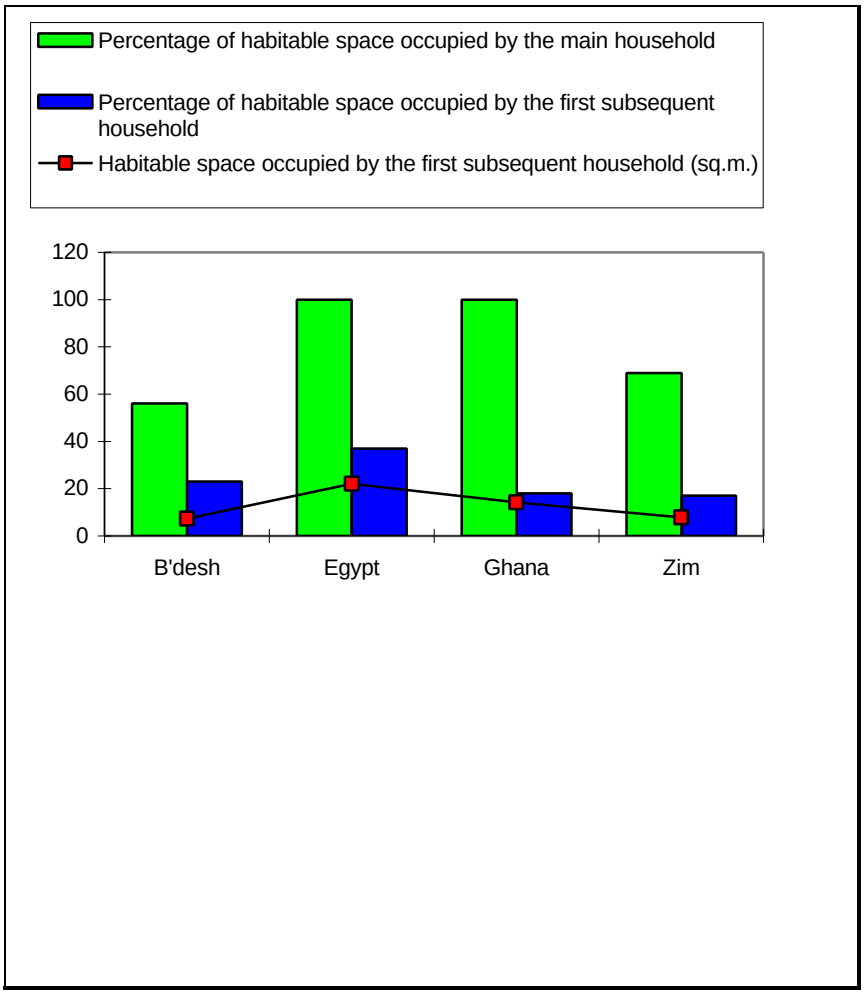
In both Bangladesh and Zimbabwe, there seems to be a common intent to extend to provide space for renters. Rents collected this way go towards paying for the extra housing provided. All tenants in Bangladesh were classified as rent-paying as no accurate distinction could be made from the interviews and it was felt that there would be few who did not pay rent.

Percentage of houses/flats with rent free (family) tenants



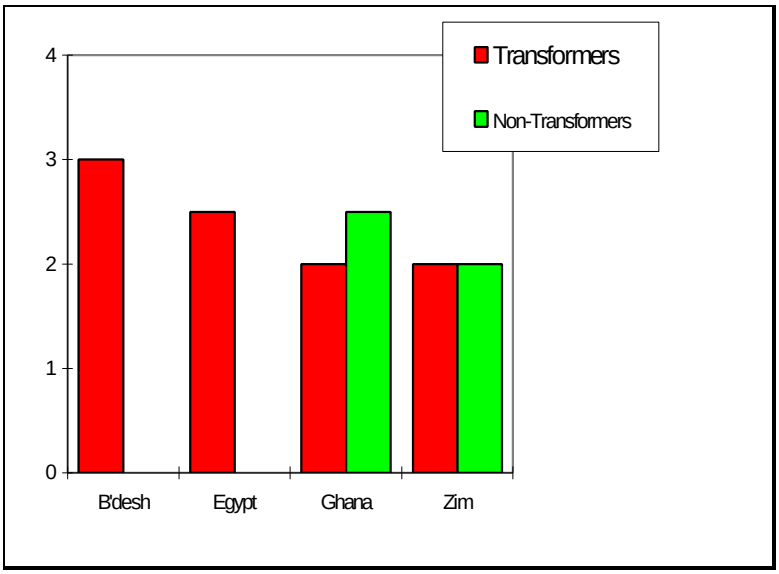
Although there are relatively few rent-paying tenants in the Ghana sample, providing room for members of the extended family is an important part of transformation.

Distribution of space among households in the houses



The median main households occupy all the house or flat in Egypt and Ghana. In Bangladesh and Zimbabwe, subsequent households are much more common so, at the median, the main household has less than the whole house. Where there are other households in the house/flat, they tend to have much less space than the main households.

Persons per room for subsequent households



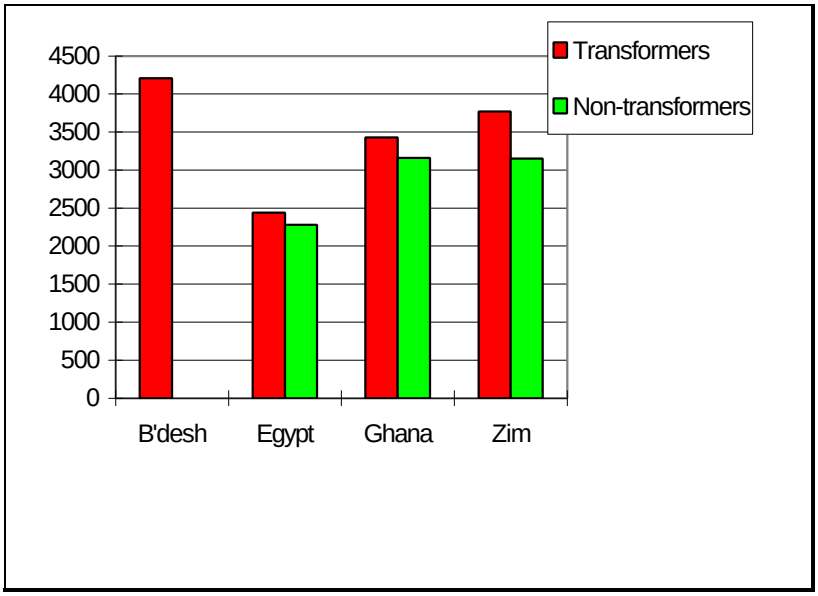
Although subsequent households have very little space and few rooms, their occupancy rates are not high in comparison with the norm in their countries.

Income and wealth

Transformers tend not to be in the lowest income group but neither are they rich. They are unlikely to be able to afford new housing in the formal sector.

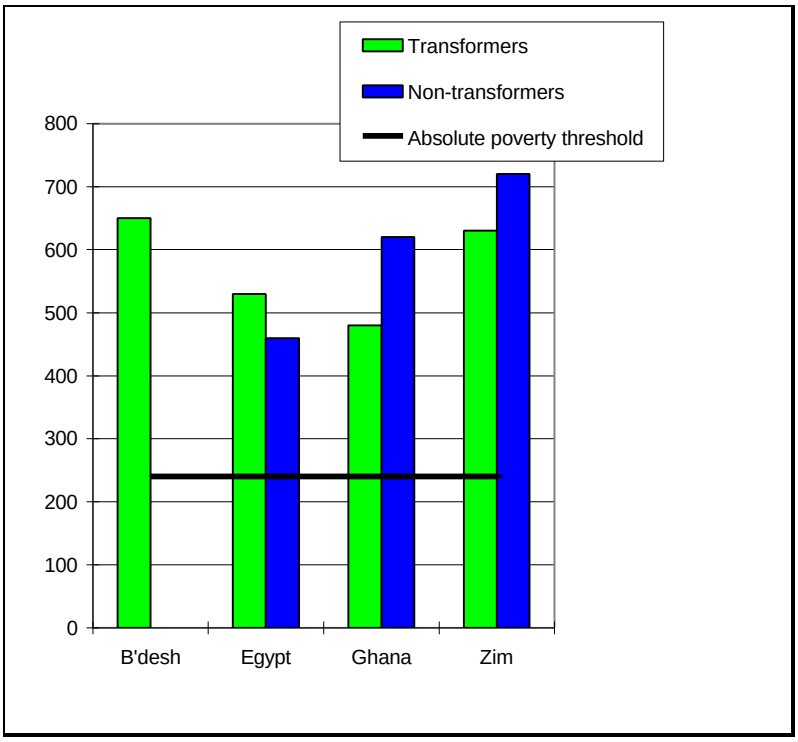
All income and house cost/value figures are in PPP Pounds - a unit which takes account of the differing value of money between countries

Annual Incomes in PPP Pounds



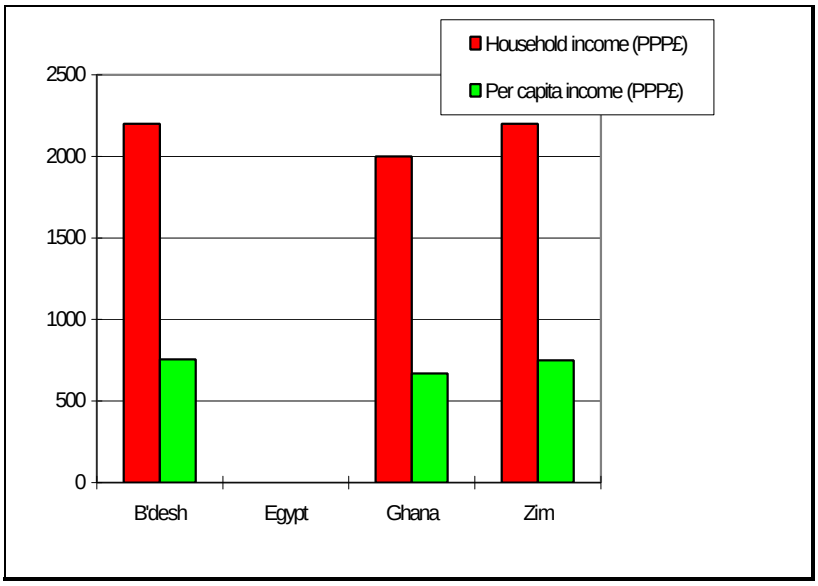
Our Egypt sample is affected by having many retired people on pensions. In the other case studies, median household annual incomes for transformers are in quite a narrow range between £3,400 and £4,200. Non transformers are only a little worse off.

Annual Per capita incomes in relation to Absolute Poverty Threshold



Annual per capita incomes show non-transformers as better off in Ghana and Zimbabwe, because of their smaller households. Thus, it is unlikely to be income that stops them transforming. Our samples have more than twice absolute poverty threshold incomes at the medians.

Annual Income of subsequent households



The subsequent households interviewed had annual household incomes just over half those of the main households, at the medians. Thus they show a lower income group finding accommodation through transformation activity.

Occupant participation

Inevitability of alterations

It seems that, whoever occupies the dwellings and whatever their design, the chance is that they will be altered over time.

Taking possession, home-making

It is argued that people express their ownership by making changes, stamping their personality, saying "this is ours". "I change my environment, therefore I am."

Need for flexibility in design

A dwelling is not a jumbo jet or a car - never altered during its life. Its design is not, therefore, an end product. It is the start of a long process of change. Thus, important issues like orientation, density, space around the buildings, etc., should not be suitable only for the newly finished state. Perhaps all housing is core housing.

Importance of inheritance and the next generation

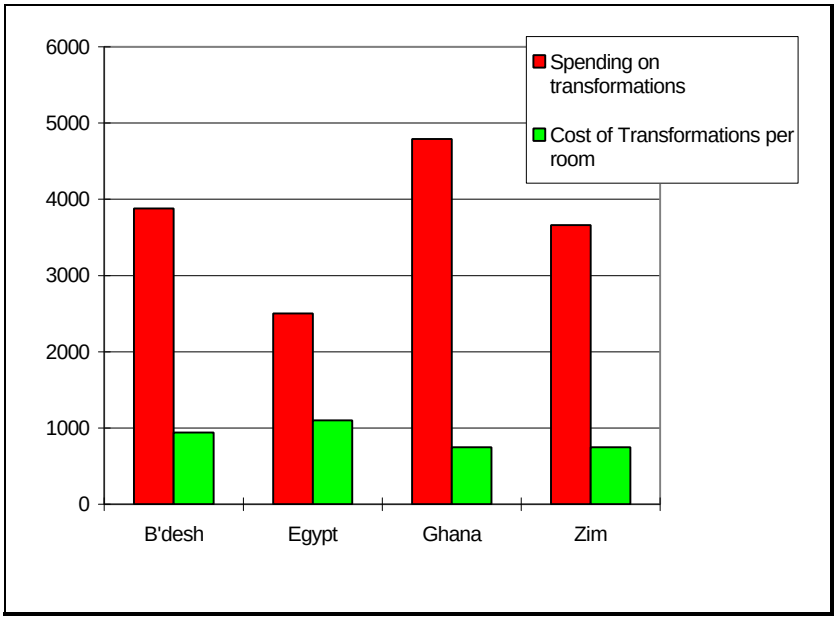
Policy makers tend not to take account of the next generation, but house-owners are often very concerned about it. In many cultures, it is the parents' obligation to leave housing to their children to occupy. Old people value being able to live close to their children for status, support, company, etc. Thus, extension activities go on even well into old age.

Home based enterprises

Many households need to work in the dwelling in order to pay for it and for other household needs. Precise zoning which prevents people from working in their homes is neither appropriate for developing countries nor likely to be successfully achieved.

Spending on transformations

Spending on transformations in PPP£s

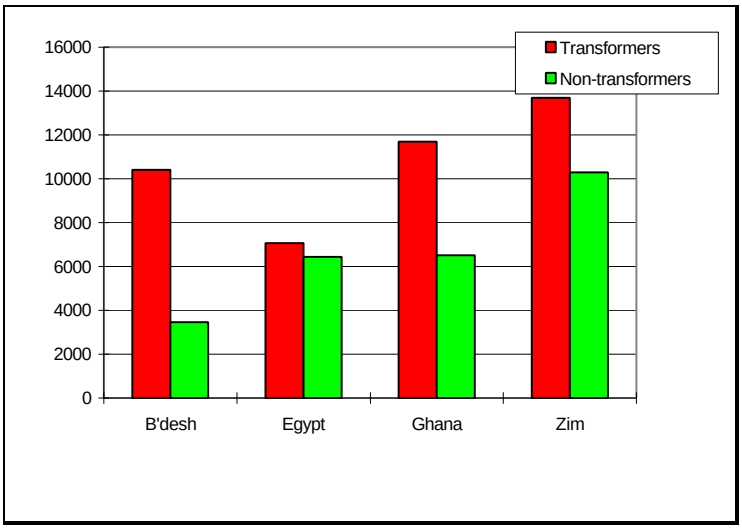


Transformers tend to spend about a year's income on their extensions - in cash. They tend to cost less than £1,000 per room. Not surprisingly, Egypt's multi-storey extensions are the most expensive per room.

Value and cost

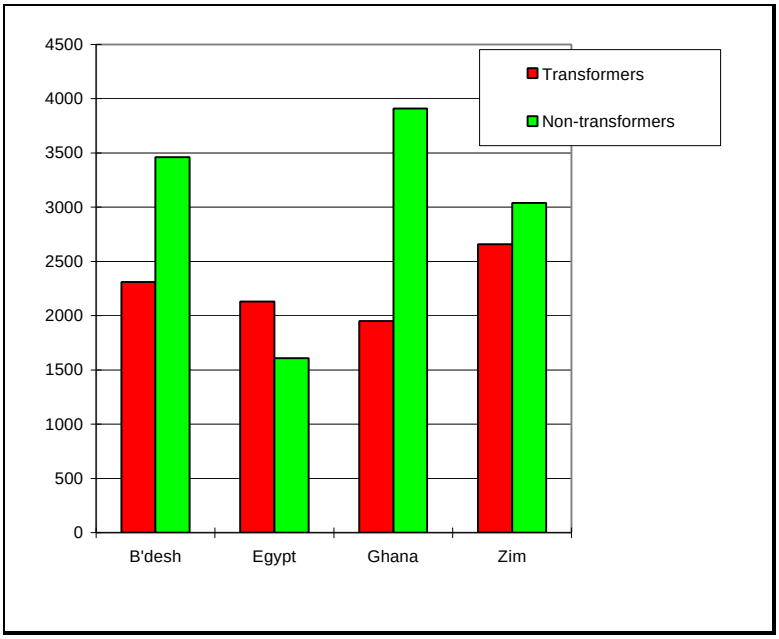
One of the greatest positive features of transformations activity is that it adds value to the housing stock. It is difficult to calculate how much it is worth, expecially in countries where there are few house sales and, therefore, people don't know what they are worth. We collected information on rebuilding costs and value, using the former where sales were rare. It seems to represent a huge investment overall. Non-transformed houses in Bangladesh are reckoned to be like the least-transformed houses.

House value in PPP £



Transformed houses are perceived to be significantly more valuable than non-transformed. Ghana data shows considerable unver-valuation as there is no market to show owners what their house might be worth.

House value per room in PPP£

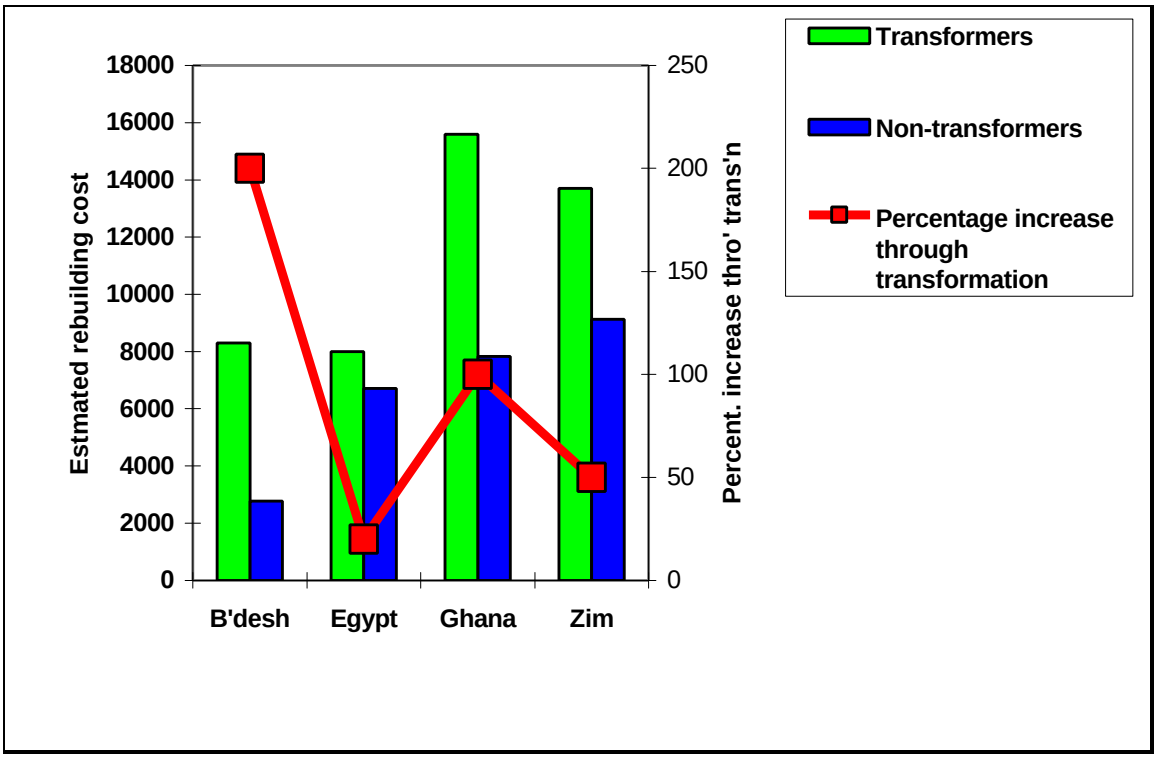


Values per room show Transformed houses are perceived to be less valuable per room than non-transformed. They tend to be smaller. Thus, poorer people can afford rooms in transformed areas

House cost in PPP £

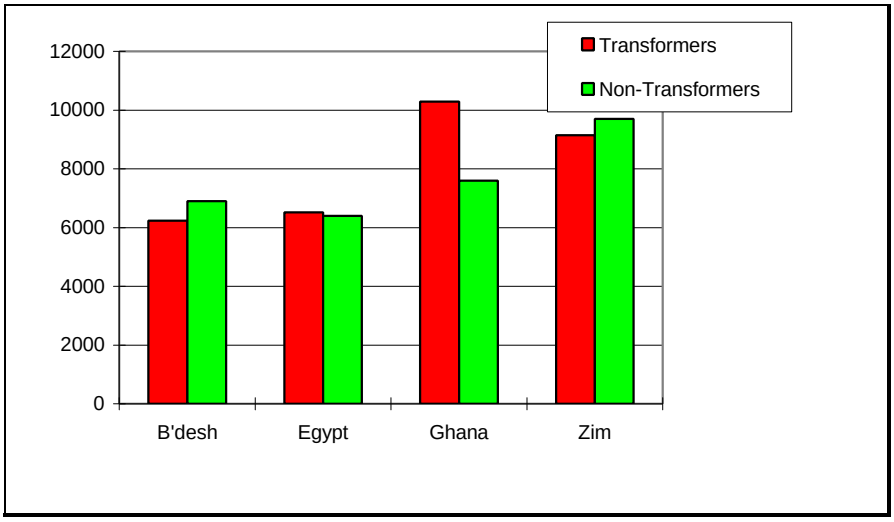
We felt rebuilding cost was a more accurate reflection of value than perceived values, in most cases.

Rebuilding cost of house/flat in PPP£s



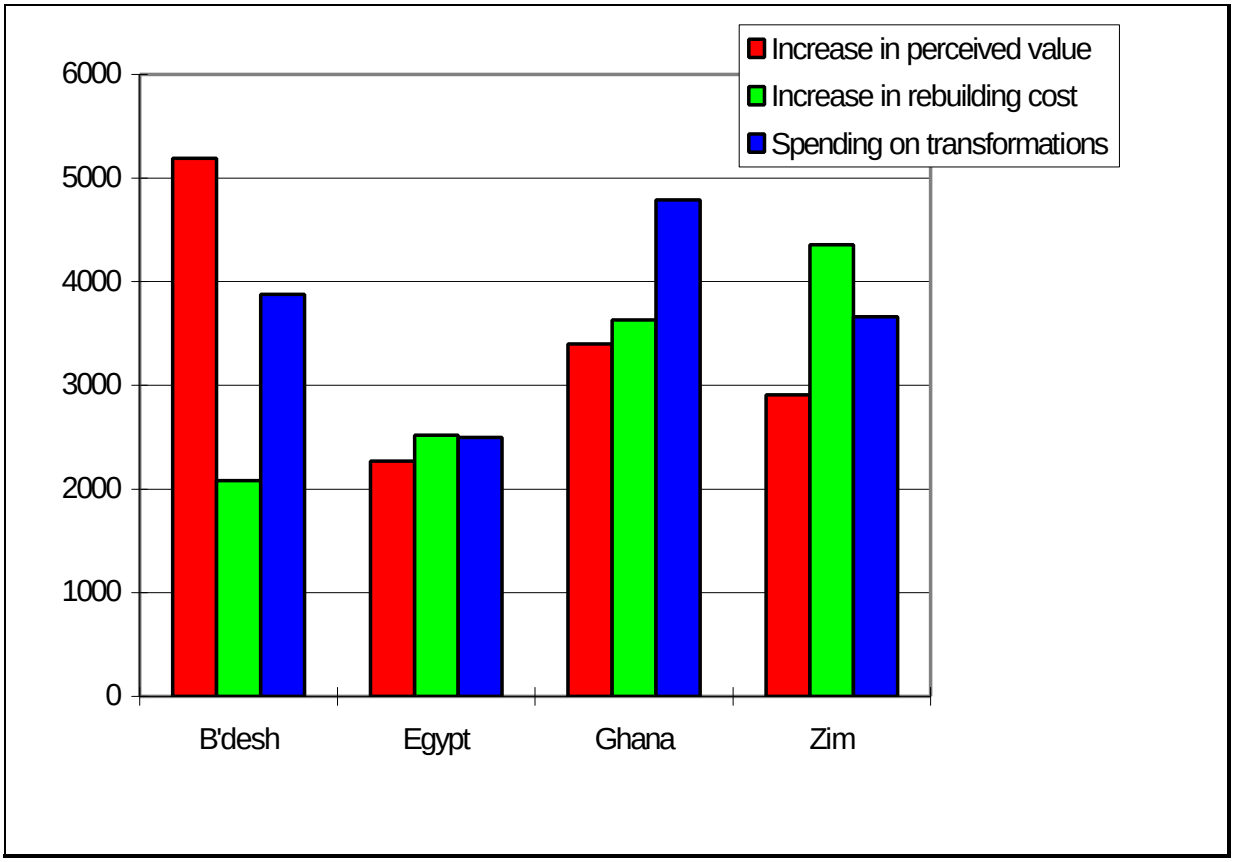
The houses/flats are represent impressive investments after transformation. Even in Egypt, where extension is most difficult, the transformed flats cost more than the larger, non- transformed ones. Percentage increases (the right hand axis) are very high in Bangladesh and Ghana

Value of the portion occupied by the main household



The portion of the house/flat of the part of the house/flat occupied by the main household is valued at more than £6,000 at the medians in each case study.

Increases in value and cost in comparison to spending on transformations in PPP£s



There are considerable differences in the perceived value and cost of rebuilding the additions (which gives a crude measure of value for money). Only in Ghana, where there is no tradition of houses having sale value) does the cost of doing the work exceed both perceived value and rebuilding cost.

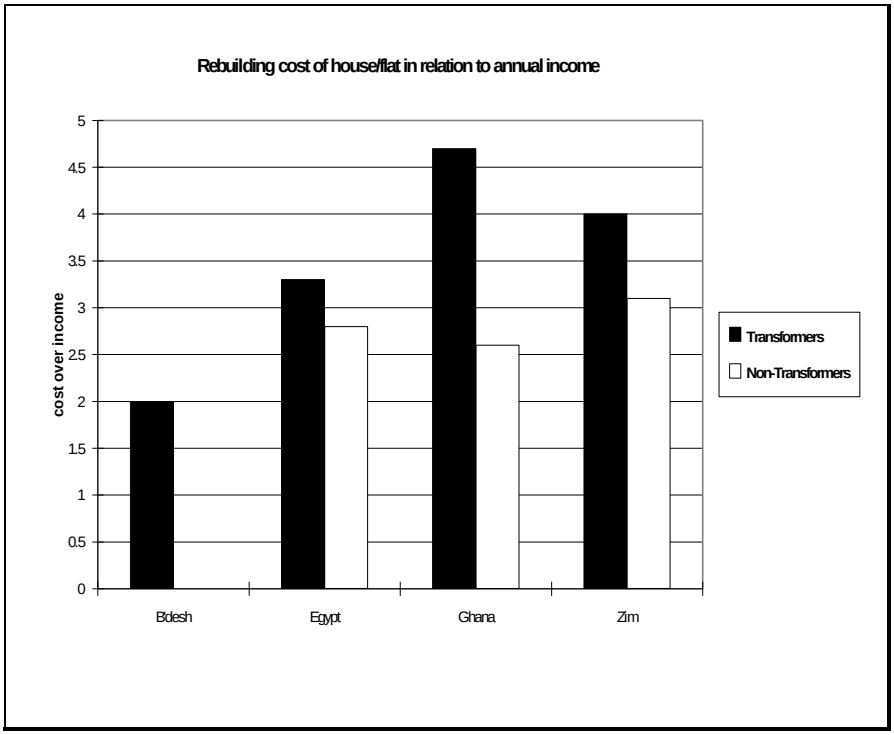
Market effects

House cost to income ratios

House cost to income ratio is an important measure of how costly housing is for people in a country. It is argued that, where it is above five or so, the housing stock is expensive and people will have difficulty housing themselves. Where it is less than three, housing is cheap and easy to obtain. However, we argue that, where residents purposefully increase house cost to income ratio to five and above, it shows that they are prepared to spend more than usual on housing and it shows that housing is being

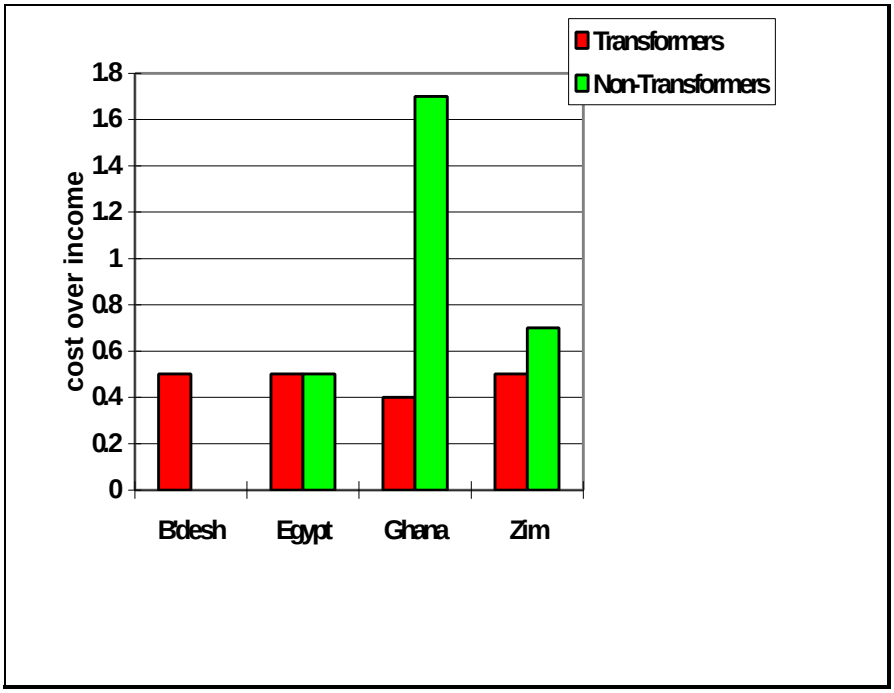
improved more than we could expect. Transformers have quite high house cost to income ratios.

House/flat cost in relation to annual income



There is quite a variation between our samples. The medians of more than four for Ghana and Zimbabwe are high for Sub-Saharan Africa. The lower figures for non-transformers suggest that they may be under-consuming housing.

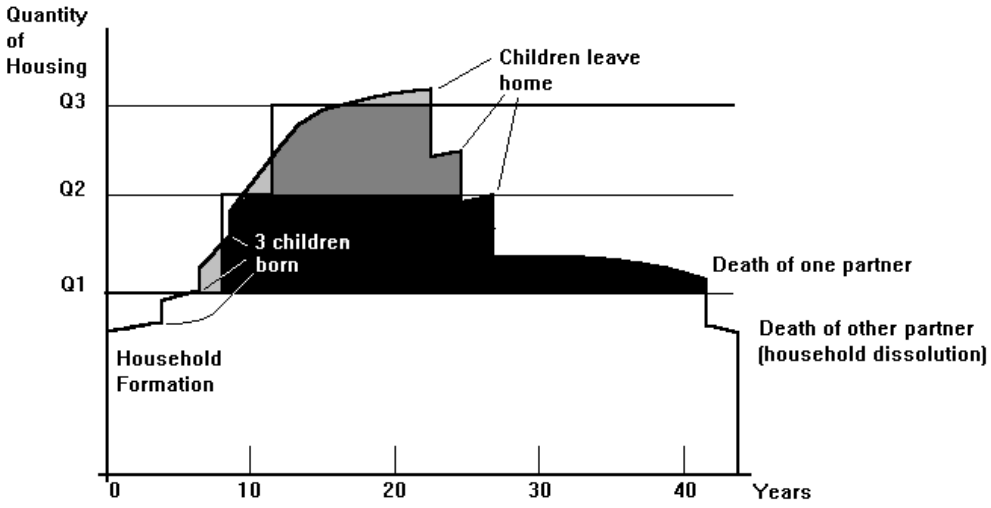
Room cost in relation to annual income



This graph is dominated by the high cost per room of the single- and two-roomed dwellings in Ghana with very large rooms. The smaller rooms in both Ghana and Zimbabwe significantly reduce the cost per room. Transformers' cost per room are remarkably consistent around 40 per

cent of annual household income across the case studies

Housing consumption effects



In this diagram, the housing stress is represented by shading; the lighter shade shows the relatively small and short-lived amounts which are relieved by the two stages of transformation activity. If the original government provision had been occupied for the whole of the household's career, there would have been substantially more acute and long-lasting housing stress shown by adding the darker shade to the lighter shading above Q1.

If the second extension had not been possible, the medium shading between lines Q2 and Q3 would be added to the small amount of stress shown by the light shading between Q2 and Q3. It would remain until the second child leaves.

Once the house is transformed to size Q3, the spare housing space in the later stages of the couples' life together is clearly evident. This provides clear potential for one of the children (especially the younger or later-married ones) to stay at home either sharing with the parents or forming a second household by dividing up the house into two dwellings, still within Q3. If this does not occur, the couple have the option to rent out the space instead, providing at least some income as physical strength declines. The elderly couple would have the choice to maintain as much space as they felt appropriate, probably consuming somewhere between Q1 and Q2 to be comfortable or reverting close to Q1 if the housing stress was compensated for by rental income or by the peace of mind of having the next generation of family close at hand.

Filtering

The theory says that low income people obtain housing partly through filtering. As dwellings grow old, the richer people move out leaving them available for poorer households and at a price they can afford. Conversely, as a household gets richer, it moves into more expensive housing.

If transformation reduces the value of the housing in the neighbourhood, it might be said to encourage downward filtering of dwellings: the syndrome epitomised by the American phrase, “There goes the neighbourhood.” This does not seem to happen. Most transformed dwellings are worth more than they were and there are more utilities in some of the areas.

Some would argue that, because this older housing is not filtering down, there is a problem for poorer households who would otherwise get the housing. Our study found, however, that there is a solution. Most transformed houses (except, the flats in Egypt) have some rooms for rent. Transformed houses are less valuable per room than non-transformed houses. Thus, there are cheap rooms coming into the market through the transformation activity.

Upgrading

House physical conditions

Most of the original buildings are quite old or poorly maintained, or both. The extensions are in better conditioin than the original buildings and some even completely envelope the old building. There are more services in two of the case studies than were provided originally. Thus, we argue, the areas are being upgraded by the transformations activity.

Service levels

Transformers typically desire private access to toilets, bathrooms and kitchens. This is often the first thing they add. If they already have them, they are unlikely to add more. Even when more households are accommodated, few transformers have more than one set of services. Thus, at the lowest servicing level, transformation increases services and reduces the number of people per service. At the level of one service per house, transformation increases people per service.

Reducing urban sprawl

Reduced need for green-field developments

The density of development on prime sites is being upgraded to be more appropriate to their central locations. The land is more efficiently used. As a corollary, as there can be more people living on such centrally located land than before, fewer would require to use new urban land which would have to be carved out of economically and ecologically valuable agricultural land or forests. For every new room added on existing area, one fewer needs to be developed on green field sites.

Increasing intensity of development

Plot areas, ratios and floor space indeces

Transformed housing is undoubtedly denser than the original development was intended to be. However, many of the areas are so spread out, that the extensions

have not created over-development. Such problems are most likely where the original plots are very small and, especially, where they are narrow.

Implementers

The implementers of the extension process

Most transformations are done by small scale contractors and single artisans. In some countries, self-help is common but it is unlikely to be the most common method.

Main source of finance

Except in Israel, where loans have been available through Project renewal, everyone extends using cash. There is considerable potential for increasing the efficiency of transformation through relatively small loans.

Permissions

Unexpectedly, many extenders had permission from the planning authorities. Few had received any actual threats or harassment.

APPENDIX 2.

DRAFT CODE OF PRACTICE AND DISCUSSION THEREON

A draft code of practice for transformations was drawn up, from the findings of the study, for consideration by delegates to the Workshops. Those discussing responses to transformations where they currently occur and ways forward for transforming non-transformed housing were asked to concentrate on the first part. Those concentrating on enabling or planning housing to be extended by occupants were asked to concentrate on the second part.

Part 1. Guidelines for controlling and enabling transformations in existing areas

The suggested articles for the code were as follows. They have been subject to change of order as recommended by the Bangalore Workshop.

"Think positive". Recognise the contribution extenders could make in housing supply.

It is surprisingly common for development controllers to be less concerned about housing supply than about fulfilling every clause of the building regulations. Thinking positively about transformations as new contributions to housing supply helps to alter that mind-set. There is a need to balance requirements with the ability of people to fulfil regulations without seriously damaging the vitality of the process.

The supply of housing should be encouraged even if it is not of the highest quality. Governments can hardly expect respect for their housing rules when they usually fail to supply the housing they promise.

Discussion

This contextual issue, addressing basic mind-sets about the role of planners in the development process, has proved to be particularly difficult. The transformations work challenges development control planners to slacken their hold on building activity and housing supply processes. In the workshops, this was the most contentious issue. Those involved in development control seem to adopt the ways of thinking congruent with the regulations to such an extent that they regard them almost as laws of nature or passed down from God on tablets of stone. The idea that they are human artefacts that might be changed was not easily assimilated. Nor was the concept that, even though they are not followed to the letter, the presence of regulations imposes a development cost.[1] The delegates tended to divide into two camps. The development control planners stuck generally to the opinion that any “encroachments” or illegal developments were to be

[1] In that flouting regulations may require bribes to be given and certainly takes the development out of the formal financing system.

resisted. The remainder of the delegates took the more positive attitude encouraged in this recommendation.

In Ghana, the main group of delegates embraced the phenomenon of owner-initiated transformation and recommended that the practice should be encouraged and guided in all government-built housing estates. The Indian delegates accepted the idea of simple and easy-to-understand building regulations to assist the maximum participation of community members.

South African delegates voiced concerns reflected in all the other workshops that safety and health measures should also be watched but accepted that we cannot expect government to provide houses for people. In countries where government-related bodies have traditionally provided great quantities of housing (particularly India), the argument for enablement rather than direct involvement is still not won.

Be mindful of the need for more housing, more variety etc. in formulating policies for control and new housing.

The sameness of mass housing is one of its most serious flaws. It leads to dissatisfaction and alienation. People will change such environments if they can and should be allowed and, better, encouraged to do so. New housing must provide variety, or at least allow for it to be added by users.

Discussion

This was generally agreed with as non-contentious. In South Africa, the issue of two- and more-storeyed housing was raised as a manifestation of variety. There was concern in Zimbabwe about the issue of two dwellings on a plot.

Recognise that housing is a productive good and extension can make it more productive.

Housing is a very productive sector. The construction of houses and their maintenance and occupation generate large amounts of employment especially locally and at the lower end of the income scale. this is highly beneficial to an economy. More housing, locally produced with labour intensive methods (as is transformation) is very good for a local economy.

Discussion

This did not prove contentious.

Encourage safer and more efficient extension activity instead of preventing less efficient current activity.

Assisting extensions is likely to ensure that standards of safety, daylighting, ventilation, and neighbour co-operation can be maintained.

Discussion

In South Africa, it was important that health and safety standards should be fulfilled so that residents can be proud of their area.

Set areas around buildings in which extensions will be encouraged.

As in Project Renewal in Israel, lines can be drawn on a large scale map of the area to dictate the extent of extensions and to guard utility lines, access ways.

Discussion

There was general agreement with this. The India delegates, who work in a context in which transformations may extend two- or more-storeyed housing by more than 100 per cent, expressed the view that the structural stability of extensions is a paramount concern. Their extent around the building should be appropriate to the surrounding environment - a view which endorses the idea of a limiting line. In Zimbabwe, where plot boundaries form the delimiting line for extensions, building lines are being revised downwards in Harare and need to be so elsewhere.

Consider making planning control a local community issue.

Does the Planning Department have to be involved in every development, no matter how unstrategic? If the majority of neighbours agree to an extension, could it not be permitted?

Discussion

This and the next item tended to elicit strongly linked responses and are dealt with together below.

Forbid (and implement control of) "problem" development:
that which blocks neighbours' access, light, ventilation to specified extents.
that which impinges on service lines unless they can be diverted by the developer.
that which is unsafe owing to inadequate foundations, etc.
that which breaches local norms of privacy.

This would prevent the worst problems addresses by planning control without having to be involved in every design detail.

Discussion

There was general agreement that there should be some local participation in decision-making about extension activities at individual dwelling level. In India, the users, resident's associations, CBOs, and local authorities should be involved, probably through ward level committees. Delegates suggested the establishment of "Neighbourhood Level Transformation Committees" (NLTCs) with representatives of resident associations, CBOs, the Local Planning and Development Authority, and the Municipality. They could deal with all issues relating to transformation including planning and building permissions.

The role of the local authority will be to safeguard utility lines, access ways and other infrastructure at a neighbourhood level. Transparency was considered to be important in this process. Amendments in the planning and development standards should be made to encourage the extension activity in line with the need.

In Ghana, South Africa and Zimbabwe, there were quite strongly bifurcated reactions to increased local control. In each, there was a strong lobby in favour of maintaining central prescription and control but also one advocating a user-friendly approach based on proscription of the worst excesses. There was agreement that there should be some centrally-led control and restriction, especially where health and safety are concerned. If control is surrendered to the neighbourhood, there is a need for awareness-raising, so that local decision-makers can assess the implications of their decisions. An advisor on health implications should be available.

In South Africa and Zimbabwe, delegates agreed that there should be a dialogue about planning submissions between the local planning authorities and the local community. In Zimbabwe, delegates felt that there was a gap between consumers and planners that

should be addressed. People do not understand the bylaws. Civic associations may be the best institutions to inform people about planning working through their representatives.

Do not expect government built areas to continue as non-typical in the city.

People are bound to want to develop their areas so that they look like surrounding areas. Colonial and outmoded concepts of dwellings cannot be expected to remain unchanged in a dynamic housing system. Small dwellings with lots of open space around are untypical of most cities and are unlikely to survive long like that.

Discussion

In most of the workshops this was not a contentious issue. However, in India, delegates were quite strongly committed to the idea that government-built areas should remain untypical. While their current appearance is very untypical and needs to be changed in the dynamic housing system, the delegates cautioned that sanctioned changes should take into account the conventional parameters of urban design, such as skyline, horizontal or vertical development, the relationship between work place and residence, and preservation of the communication network. All suggestions of attitudes close to *laissez-faire* in enabling extensions were met with a strong instinct to control them so that they present an ordered, homogeneous appearance.

Allow levels of development, plot coverage etc. that are common in the city.

If most development around covers 60 per cent of a plot, you can't expect someone to be content with only 20 per cent covered space and people crowding into the small spaces inside. Surrounding areas can provide useful guidelines for setting maximum coverage ratios.

Discussion

In India, the delegates endorsed this view but were very reluctant to reduce the remit of zonal sub-division regulations. These set regulations about land uses that are permissible and they vary within zone sub-divisions. The building bye-laws (set-backs, heights, Floor Area Ratio, etc.) are more or less the same across each zonal sub-division. They recognised the need to simplify the administration of Floor Area Ratio determination. Currently, FAR varied within neighbourhoods but simplification is

desirable. In addition, regulations on ground coverage, parking and set backs should be more locally relevant.

The concept of a level playing field for standards was approved of in South Africa. In Zimbabwe, 80 per cent coverage is already allowed on 300sqm plots and there should be no difference in government-built areas.

Remember, moving is probably very difficult, so extending is the only way households can change their housing circumstances.

Most housing policies reflect those developed in the West which assume that households who want more housing can move to get it. This is simply not the case for most cities in developing countries.

Discussion

In South Africa and Zimbabwe, moving house is quite common and those who can afford to move to a different house can do so. In Ghana, moving is very difficult as it is unlikely that one owner property would be sold to pay for another. In India, delegates saw extensions as rational responses to the housing shortages and the difficulty in moving. It was generally agreed that, even where moving is easy, extension can be accepted as part of the arsenal of housing strategies open to people.

Be willing to increase property tax levels for extended property (this assumes an efficient existing system).

It seems entirely fair to increase property taxes when people extend their housing. It is essential to sustainable urban development that taxes are reasonable and conscientiously collected.

Discussion

In Ghana, delegates thought that an increase in property tax levels for extended property might be a disincentive to potential owner transformers. Elsewhere, it was accepted as reasonable that larger houses should attract higher property tax payments. Some authorities in Zimbabwe already collect more tax for larger houses. In South Africa, there is a staged tax system. No additional tax is charged for small extensions

but taxes do gradually increase with size. Home-based enterprises in extension would be charged for through licensing rather than through taxes.

Indian delegates recommended that the proposed NLTCs should play a crucial role in financing and revenue generation through a participatory approach to the mobilisation of community-based resources; property tax reporting, recording and collecting; levying building licence fees; and collecting development charges and impact fees. They recommended some form of betterment levy in addition to property tax so that the community as a whole could benefit from the individual's increased investment.

Consider appointing enablers to act for potential extenders in a way similar to Israel's Project Renewal.

A locally-based professional with a duty to enable extensions can have a significant impact on their frequency, value and design.

Discussion

In Ghana, delegates were keen to set up a project to increase the efficiency of transformations. Delegates recommended that a professional NGO should be set up within the University of Science and Technology (UST), to operate in the various neighbourhood in collaboration with the Town & Country Planning Department, the respective development control authorities, and the Ministry of Works and Housing.

It should have offices located in the neighbourhoods where the potential transformers reside and operate. In South Africa, I was noted that professional inputs are needed to ensure safety. In Zimbabwe, the reluctance of development controllers to give up any powers was reflected in their rejection of enablers but wish to train and involve housing officers who could explain what is not permitted and why.

Part 2. Guidelines for new housing following from transformations.

Plots for low income households should be larger and wider than current small, narrow plots. The space for two rooms and a corridor is recommended as a minimum width.

Early losses from lower densities resulting from larger plot sizes are likely to be reversed later as more efficient extensions can be made in the useful spaces left initially compared with the narrow strips currently available in most cases. This also increases the proportion of the housing development not financed from the public purse.

Discussion

There were two reactions to this depending on current average plot sizes. In Ghana, South Africa and Zimbabwe, where plots are already large, and usually 12 metres or more wide, there was little need felt to endorse this. In Ghana, low income plots tend to be 26m x 26m or 26m x 30m. These are large enough and there is no need for any increases in the current plot. They would unnecessarily increase the cost of development, especially for initial infrastructure. However, delegates there identified two issues that need resolving to win the hearts of the policy makers:

1. The "entry point cost" of these large plots tends to raise them out of reach of the low income group. This could be alleviated by imaginative finance, e.g., a lower price at first, and a move away from expecting the full plot costs to be paid in cash.
2. The argument that we should provide small plots so that all may be housed hinges on the idea that owner-occupation in a dwelling on a plot is the "solution of choice" for all households. Our work suggests that many are more than willing to rent rooms of the sort provided through transformations. Thus, a more realistic way of ensuring that all people are housed is through the enablement of the

provision of rented rooms in large, multi-habited houses and the private rental market.

In South Africa, delegates felt that it would be useful to make some recommendations about what particular reduced plot widths would mean for the possibility to extend. In Zimbabwe, smaller plots are being adopted at 8 x 25 metres giving 200 square metres. It was agreed that it would be better to make these 10 x 20 metres to give opportunity for extension in two directions. The current 300 square metre plot should be 15 x 20 metres rather than 12.5 x 24 metres. It was recognised that the increase in cost would be offset by development in future.

In India, low income households are allocated small 19-25 square metre plots, 100 per cent plot coverage is quite common, and extensions occur upwards. Delegates at the two workshops expressed two different attitudes. At the Delhi workshop, it was agreed that early losses from lower densities resulting from larger plot sizes are likely to be reversed later. The space for two rooms and a corridor was recommended as a minimum width. Delegates in Bangalore expressed the need to economise on cost by using small plots and could not envisage a time when their budgets would allow the "luxury" of larger ones. Their "bottom line" requirement was for a plot to be wide enough to accommodate a room and staircase. Whether the staircase space should be to international standards or remain very narrow space in which a steep staircase is constructed is open to discussion.

There is likely to be resistance to something as radical as allocating poor households more space than they initially need or, perhaps, can afford to pay for at unsubsidised prices. Our contention that this may provide increased leverage of household funds into fixed capital formation stands, however. We could increase the chance that this idea will be adopted generally through studying the process of growth in low income neighbourhoods undergoing transformations.

Designers of buildings should remember that they are setting the context for a process of development rather than completing a product.
Thus: dwellings should be situated towards the edge or corner of the plot.
A long, rectangular shape may be more efficient in the long run than a nearly square rectangle for the initial dwelling.
A mono-pitched roof with room to extend at the higher side may be more efficient

than a pitched roof.

Where a pitched roof is used, it is often easier to extend the house at the gable end. Therefore, account should be taken of this when placing the house on the plot.

These recommendations take into account:

The need for flexible spaces for extensions;

The fact that savings from efficient initial structure shapes may be lost when extensions occur;

The need to help the extender with structural support, easy roof lines, etc., all of which will encourage transformations to fit into the design and massing of the original designs.

Discussion

Delegates generally agreed with the spirit of these recommendations but sometimes differed from the detail. In Ghana, delegates agreed that designs of dwelling units should take into account that they were the starting point of a continuous process of transformation rather than an end product. There was some resistance to the idea of locating rectangular buildings at the edge or corner of the plot.

In India, delegates remained wedded to the concept of core housing as a way forward. They conceded that the core should be sited at the edge of the plot but recognised that there was only room for vertical extension in most circumstances, so cores tended to fill the ground level of plots from day one. Roofs should, however, be consistent with extension. In the Indian case, this generally means flat, RCC, roofing rather than sloping corrugated sheet roofing.

In Zimbabwe, delegates suggested that housing should be designed to have extension potential in at least two directions. In South Africa, delegates recommended less prescriptive words on the siting of the original dwellings such as, "the placing of the original building should offer maximum opportunity for extension". Delegates agreed with the general implication of the research that there is a need to train designers in the issues around transformations so that they know what to expect and take transformations into account. Layout plans should give examples of extensions, subdivisions, etc. at the start of the project.

Building lines were the subject of lively dsicussions in most workshops. There tended to be a division between policy-makers and development controllers. The former were usually amenable to relaxing building lines and replacing them with some form of performance-based standards. For example, the fire-prevention purpose of building lines may be achieved by requiring that the rear of a plot be accessible to a vehicle three metres wide. In Ghana, where traditional dwellings are inward-facing, the design of the outdoor spaces must give consideration to children playing around the house, outdoor cooking (pounding of "fufu") and the drying of clothes. It was felt, therefore, that building lines should be maintained but with slight modification. The front setback should be about 3 metres and the offset at the sides and back should be 2 metres. Where side setbacks affect the siting of a septic tank, 3 metres would be ideal. The Groups, however, emphasized that lanes between buildings should be protected to ease accessibility.

Service levels should allow for increases in density following from transformation over time. This is likely to involve using larger pipes than the planned population would call for, and selecting technologies suitable for higher densities rather than the lower initial density.

Transformations increase, or allow for increase in, population on site. Thus, servicing should take this into account from the beginning.

Discussion

In Ghana, delegates agreed but felt that service levels should be augmented later to further extend the full capacity of the services. In the case of water, laying larger pipes to make room for future increases in population is a laudable idea but the initial cost may be high. In a country where funding for service levels is always borrowed, progress could be stalled. This can be solved by augmenting the pipeborn system with overheads tanks to squeeze the last iota of capacity out of the system. This also involves household money as well as public resources. Electricity can be upgraded by the installation of larger transformers when the old ones become over stretched. However, some infrastructure cannot be enhanced in anticipation of transformations. For example, if larger than necessary sewerage pipes are used, low initial flows may lead to settling of

solid matter. Again, making surface water drains large in anticipation of transformation may be costly and dangerous.

South African delegates agreed about the need to limit over-design. Instead, they believed that alternatives to upgrading should be sought. It is also important to be realistic about lifespans of service lines. In Zimbabwe, there was concern that churches, clinics, schools, etc, should be included in services designed for more than the originally planned population.

Orientation of buildings should take account of the likely final shape of the building rather than the first shape.

It is tempting to align the original dwelling to minimise surface area exposed to the heat of the sun. Unfortunately, transformed houses often result in an orientation at 90 degrees to the original, thus maximising surface area exposed to the heat of the sun. This can be avoided by thinking ahead.

Discussion

This was generally accepted as common sense. Some delegates felt that it illuminated the importance of design and the general lack of architect involvement at this level of development.

Building lines that limit the position of a building on its plot should be revised to allow for extension activities.

The purpose of building lines is often shrouded in mystery or may be based on circumstances no longer relevant. Their protection is impossible but their presence is a hindrance. Consider doing away with building lines and replacing them with a performance standard to do with access to the rear, prevention of fire spread, preserving sight lines down roads, or whatever.

Discussion

Building lines have a number of very loyal defenders in local and central government planning departments. There was a reluctance, also, to consider performance-based regulations rather than prescriptive ones. Thus, building lines and side and rear offsets are preferred to statements about the separation of buildings; the amount of open space

available for children's play, cooking or drying clothes; or the ability to access the rear in case of fire. Even though building lines are regularly breached in reality, they seem to be very tenacious in efforts for reform. The Ghana delegates suggested a front setback of 3 metres (that would take up about 40 per cent of the average plot) and the offset at the sides and back should be 2 metres. In the design of the outdoor spaces, consideration should be given to the issue of children playing around the confines of the dwelling unit, outdoor cooking and the drying of clothes.

In Zimbabwe, 3 metres was required at the front, 1 metre at the side and rear. Also, one side could be built up to the boundary. However, building lines were still seen as essential to orderly development.

The South African delegates were willing to abandon the front building line in favour of other activities, including shops (like the ubiquitous spazas), etc. Side and back lines should be determined through a process of negotiation between neighbours.