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User-Initiated Extensions in Government-built estates in Ghana and Zimbabwe: unconventional but effective housing supply¹

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Many countries in Sub-Saharan Africa have large stocks of government-built housing which, for various reasons, are in poor physical conditions and/or do not conform to the expectations of occupants in the third millennium. In many countries, occupants of such housing make unauthorised but quite considerable changes and extensions to their dwellings for their own use and for renting out. This phenomenon is generally known as "transformation" and may contain useful models for future policy concerning existing housing estates and policy on new developments.

This paper examines user-initiated transformations to government-built housing in Ghana and Zimbabwe. Both cases were surveyed in a DFID-sponsored research programme. The 733 dwellings (398 in Ghana and 335 in Zimbabwe) surveyed show how relatively low-income households are capable of supplying new rooms and services both to improve their own housing conditions and to supply rental rooms or accommodation for family members living rent-free. In addition, the new construction is often of at least as good quality as the original structures and sometimes envelops the original in a new skin. Thus, transformation can be seen to be a means of renewing the housing stock at the same time as adding accommodation and services.

The research demonstrates that conventional views of housing design should be rethought with the long term users' involvement allowed for and encouraged. It also demonstrates that

extensions tend to turn 'modern' bungalows into traditional compounds. Through workshops, it has had some success in changing official attitudes in Ghana and Zimbabwe. Suggested policies to encourage transformations include the provision of loan finance and the planned colonisation of open space next to the dwellings where plots are not provided. For new housing, transformations demonstrate that designs should take account of the likely increase in housing on site over decades. This, in turn, indicates larger plots rather than smaller ones and wider ones rather than narrower.

Introduction to Housing Extensions (Transformations)

As we all know, there is a huge housing shortfall in towns and cities in Sub-Saharan Africa. For example, in five African countries² studied in UNCHS and ICA, (UNCHS and ICA, 2001) 1.3 million new dwellings are needed per year for the next decade. The shortage manifests itself in extreme crowding within dwellings and large numbers of households occupying single rooms and/or low quality housing in unserviced areas. Using the rubric of 'slums' for such housing, the recent Global Report estimates that 72 per cent of the urban population of Sub-Saharan Africa lives in slums (UN-Habitat, 2003). Furthermore, data from the World Bank demonstrates that urban growth in Africa has been occurring (at 5.2 per cent per annum, 1970-95) in a context of declining GDPs (by 0.66 per cent per annum). Thus, even with the best will in the world, there is likely to be a shortage of investment in new housing and infrastructure. (Hicks, 1998).

Recent expansion of cities in sub-Saharan Africa has tended to be either in the form of squatter invasions and informal subdivisions or as sprawling suburbs of medium to high cost housing. In each case, they spread outwards and fill in spaces between villages subsumed within the cities' built-up area. While the squatter settlements may be quite dense (e.g., Epworth outside Harare), the suburban development is often extremely inefficient, in terms of density and servicing, the length of time from land allocation to occupation (Halla and Mang'waru, 2003), and its effect on the urban form (Yeboah, 2000). In the suburban development, it is common for relatively large tracts of land to be occupied by relatively few middle- and high-income households (or their poorer relatives acting as caretakers) for many years before servicing takes place, and for this form of development to occur in Anglophone West Africa (including in Ghana) instead of the squatter invasions or informal subdivisions activity found in comparable areas of many East and Southern African (including Zimbabwean) and Francophone West African cities (Konadu-Agyemang, 1991).

Most governments have stopped supplying housing for low-income households in the face of international advice, Structural Adjustment Programmes (Riddell, 1997) and the weight of the reality that they could neither keep pace with demand nor be assured that their products would reach the target groups. Though they have adopted enabling strategies in line with the Global Strategy for Shelter (UNCHS, 1990)³, there is little evidence of improved efficiency of formal housing supply. In these circumstances, any new housing at affordable prices is welcomed by low-income households and its suppliers should be officially acknowledged as assisting in the housing supply system.

However, many policy makers have a very differentiated attitude to housing supplied according to whether it is developed by people close to the power base, whether it is in the places planned for it, and whether it comes up to standards that often date from colonial times. If it is outside any of these, it is regarded as invalid, unauthorised, and not to be accepted. Owners and occupants, however, often have the opposite view; that it is very welcome.

Many observers of African cities will have noticed how many occupants of low income housing extend their dwellings over the years. Some projects have been built with this in mind, notably as core housing, and have witnessed varying degrees of extension activity as occupants improve their housing quality without moving (Napier, 1998). In informal settlements, outside any planning control, or in privately-built housing in the formal city, extension activity can be an important source of new housing stock, as rented rooms or improvements to existing dwellings (Nguluma, 2003; Tipple et al., 1997). Even in government-built areas, where occupants would be expected to be passive consumers of housing, many invest in extensions to supply more housing for themselves, their relatives and tenants. The (mostly small) single household dwellings provided by the government to the fortunate few, supposedly low income, households are being extensively altered and extended by their occupants. Such extensions, in an environment that was designed to be neat and controlled, tend to be highly controversial. Most planning authorities seem at best only tolerant of, and at worst totally opposed to, the extensions, regarding them as building slums. This charge has been raised in many conversations with planners and was one of the main motivations of this study.

The DFID-sponsored study, from which this paper is written, has examined transformations in an international comparative study, in Bangladesh, Egypt, Ghana and Zimbabwe, with a view to showing whether such extensions are effective in housing supply and whether, on balance, governments and citizens have more to gain by encouraging transformations or not. The results are published in book form as Tipple (2000).

Increases in, or improvements to, the housing stock of sub-Saharan Africa's rapidly growing cities are becoming increasingly important as local and central government housing departments lose ground in their efforts to supply or enable the supply of housing (Tipple, 1994). This is particularly the case when they come at no direct cost to the public exchequer. In this paper, I take the opportunity to concentrate on, and compare, the two sub-Saharan case studies in our transformations study, Ghana and Zimbabwe. Although the empirical data are now quite dated

(1993) and further development has taken place in the case study areas, the principles discussed still appear to be as relevant as when the surveys were conducted and the opportunities offered for housing supply are even more urgently needing to be grasped. In addition, we have had the opportunity to hold workshops in both countries in 1999 to expose our findings to local informed comment and to assess the likelihood of transformation activity becoming subject to assistance and report briefly on this.

The Ghana and Zimbabwe case studies

In both case studies, the estates were originally built as subsidised rental housing for local workers but dwellings have been sold to the sitting tenants. Almost all the transformer households are owners of their dwellings, or representatives of the owners, and had bought before transformation began. Renting and living rent-free in family accommodation are more common among non-transformers. However, although ownership is desirable for potential transformers, our Bangladesh sample demonstrates that renters can transform given a confidence that they will be able to stay in the long term (Tipple and Ameen, 1999).

The Ghana case study is divided between two government-built estates in Kumasi; Asawasi and Suntreso. There are two original dwelling types which present contrasting potential for extensions. Many of the original dwellings are single rooms with verandas set in terraces so the narrow frontages severely constrain the potential for extension activity. They were provided with detached kitchens in blocks a little apart from the terraces of dwellings. The remainder are semi-detached dwellings standing in their own plots, many of which are very substantial. They were built in the late 1940s and early 1950s by the State Housing Corporation.⁴ Though many have households renting rooms from them, the main motive for extending in the Ghana sample has been the need to accommodate the growing household.

On the other hand, in our Zimbabwe sample, about half the transformers are motivated mainly by the possibility of rental income. Our Harare sample is taken from two local authority-built low income housing areas, Mbare and Highfield. The estates consist of semi-detached and detached bungalows, mainly with three habitable rooms and a kitchen, set in relatively generous plots (250 sq.m. at the median). Transformations began when occupants completely paid off their housing loans. Some of the rented space is in the form of sectional wooden structures (known as shacks),

but the remainder is, as in the other country studies, at least as high standard as the original structures.

Two important differences are immediately evident in the original provision:

1. There are universally large (about 200-250 square metres) demarcated plots in the Zimbabwe sample, even though the areas are called 'high density' areas locally. This provides adequate private open space for extensions around all the original dwellings.
2. Many of the Ghana dwellings were never adequate for a nuclear family household while those in Zimbabwe were.

In the next section, I will examine the transformation activity in these estates in the context of the issues which are raised when housing is extended in an *ad hoc* manner. Along the way, I will address the various lessons we can learn from the study which could be of assistance in addressing the future of existing estates and the planning of new housing layouts by public or private developers.

Insert Figure 1:

Caption: Kumasi: A twelve dwelling terrace in Asawasi built in about 1950 has now been extended into a complex block. The wrapping of rooms round the rear of the neighbour's original dwelling allows greater flexibility of form than would otherwise be possible. The rooms on the south side of b, d and j belong to a, c and i, while the north side extensions there belong to b, d and j. Houses e, g and k appear to have extended in both directions, with g wrapping round f rather than h.

Insert Figure 2:

Caption: Kumasi: This is one of a pair of 59 sq.m. semi-detached cottages that have both been extensively converted into compound houses. This house has 180 sq.m. of accommodation, with 22 rooms occupied by 26 people. There are 5 tenant households. The owner, whose household of three adults and four children occupies the extended original dwelling and a further room, has lived there since 1955. The extension was built in one phase in 1978 at a cost of C12,000 (about £2,400 at the time). This house demonstrates the tendency to build rooms that open off open space or corridors and are, therefore, easy to use for tenants or family members living independently. It is very well designed for inheritance in common by a large number of relatives.

Insert Figure 3:

Caption: Harare: The fifteen person main household in this house occupy only three rooms even though there are others available. They obviously prefer to rent the others for the income. There are 42 people in the house in ten households. This is a perfect example of a house in which the main household have accommodation at the front and other rooms are ranged along a central corridor accessible only from the rear. It gives a high level of flexibility in who occupies the rooms. There is also the option of opening any of these rooms to the side of the house, as for household 4. The two rear rooms (phase 3) are shacks located outside the building lines. The house is worth about five times the owning household's annual income.

Insert Figure 4:

Caption: Harare: This completely altered house is owned by a five person household whose head is 40 and has lived here for 22 years. There are eight tenants (all single person households), a total of 13 people in the house. The plan is a short version of the corridor villa with additional external rooms facing inward as in a local compound. All rooms except one are accessible directly from circulation spaces. The three timber rooms are outside the building lines.

Plan forms

The dwellings as constructed were considered suitable for single nuclear-family households. They were small, well-built but inflexible, requiring occupants to move on if they needed different amounts of space and services.⁵ However, the occupants have not moved on though their needs have changed radically, not only requiring accommodation for more household members than were originally envisaged, but also for extended family members, renters, commercial activities and a host of other less obvious space users. In addition, the dynamics of household growth, attrition and dissolution, suggest that flexibility is a desirable characteristic of their housing. The changes described here are valuable for their own sake but, in addition, they tend to create flexibility in the structure that contributes to the long-term suitability of the housing; to its sustainability as the context for domestic life.

Writers on extensions activity in industrialised countries have found that house improvements can be influenced by the physical characteristics of the property (Kirwan and Martin, 1972; Seek, 1983), especially because of the physical constraints which they impose on extensions. The most significant of these for us is that many terraced dwellings do not permit significant extension opportunities (Gosling et al., 1993). This is particularly relevant to our Ghana sample as many are in very narrow terraced dwellings. Gosling et al (1993) also suggest that, as development continues in a town, the density of previous styles of housing will begin to look intrinsically low, resulting in pressure to

intensify use of this land by means of extensions. We could expect this to be increased in its effect in rapidly developing cities, such as those in our study, because the estates, which were peripheral when they were developed, are now quite central to the built-up areas. While low density may have been appropriate in the past, higher densities are more normal now; while paternalistic authorities valued verdant open space for public use, local realities favour goats over foliage and swept space for a tyre repairer over grass for children's play.⁶ Furthermore, residents tend to favour maximising private and covered space for their own use rather than leaving them available to others.

It might be expected that a household would start the extension at the veranda and continue out from there without a break. Indeed Beinart (1971) suggests that this is the inevitable starting point in the search for extra space in the South African context. However, this study shows that, while it is not uncommon for householders to alter and extend their verandas with a lean-to structure, most are necessarily small as the roof slope does not allow long extension. Thus, in Ghana, few householders extend straight onto the original structure. Most leave a courtyard outside the veranda and then add a free-standing addition beyond. Where single roomed units interlock, with alternate verandas and rear walls on a facade, it is common for a householder to wrap an extension around the rear of the next-door dwelling, by negotiation, usually leaving a narrow space for air and light to reach the neighbour's rear window. In some cases, however, this space has been reduced to only the width of the eaves or missed out altogether. This wrapping round allows the extensions to be 6.5 to eight metres wide (instead of the 4.5 m. width available where it has not been done) and capable of containing two rows of two metres wide rooms either side of a narrow corridor. Very few terraced dwellings appear to be extended in both front and rear although the practice of wrapping round the neighbouring dwelling's rear gives the impression that most are extended both ways.

In the end of terrace dwellings, owners have the opportunity to use the land flanking the terrace on which it is a simple matter to reproduce the wall and roof lines of the existing terrace to contain rooms several metres wide. In addition, the land to the front and rear of the terrace, along the whole new width, is also available and easily accessible from the original rooms by careful planning. Thus, end terraces are similar to the semi-detached dwellings in scope for extension except that they do not have firm boundaries within which to work.

As in the end of terraces, and semi-detached dwellings have been extended in a wide variety of designs and proportions from the simple widening of a front veranda to the conversion of a small dwelling into a 28 roomed, two-storey compound.

Where space permits, there is a tendency to create inward-looking houses with many of the features of the traditional compound (Figures 1 and 2). External space within, and often slightly beyond, site boundaries is enclosed in such a way as to render it private and, therefore, usable for household functions (cooking, washing, relaxing and drying of clothes). In some cases, this is simply achieved by erecting a boundary wall or fence with an entrance off the street. In most cases, however, the dwelling is extended through adding single or rows of rooms built along plot boundaries, facing towards the original dwelling, each with access to a corridor or outside space. Where space permits, there is often a roughly rectangular central open space off which rooms open. About 45 per cent of the sampled houses in Ghana have assumed the compound form, with a courtyard as an internal space and the focus of circulation, despite many dwellings being very constricted before extension. Where the space is more constrained, a corridor or an irregular narrow space allows access to the new rooms. About 24 per cent of the sampled houses in Ghana have this narrow corridor. Very few extended houses in Ghana are simply larger rectangles.

In Zimbabwe, there appear to be two distinct forms of transformations. As the dwellings have ample space in front, behind and to at least one side, owners can extend the dwelling itself or they can add free-standing structures. The former is made simple by the presence of extension space at the gable ends. Thus roofs can be extended without the problem of altering the slope. Such structures tends to conform to planning and building regulations, particularly with respect to avoiding contravening the set-backs and building lines. About 36 per cent of the sample have extended the original structure itself, 34 per cent have built both extensions and free-standing buildings, and about 30 per cent have built only free-standing buildings.⁷

The form of house created appears to follow four patterns which may be used in combination:

1. There is a living room, kitchen, etc., as in a self-contained bungalow, but other rooms are accessible by a corridor from the rear of the house.
2. The original dwelling is extended with free-standing rooms facing towards the main building.

3. A separate suite of rooms is added which can be rented out as a single dwelling or as individual rented rooms.
4. The original dwelling is simply extended into a large self-contained single-household bungalow.

If the extensions had generally kept to the plan form implied in the villas originally provided, rooms would open off or be accessible through an internal living room. However, in Zimbabwe as in Ghana, we find a preference for increasing the number of rooms opening off a corridor or open space rather than off another room (Figures 3 and 4). This implies that flexibility of use is valued by transformers. Such new rooms can be occupied by a household member with freedom to come and go as they please, or rented out to a household living independently and using the outdoor space for cooking and other activities as it would in a traditional compound house. Furthermore, the opening of a door to the outside air, even deep within a plot, slightly reduces the problems of ventilation in the hot climates. Unlike in Ghana where several transformers have constructed two storey edifices of completely different scale and massing from the original structures, Zimbabwean extension activity is single storeyed and tends only slightly to augment the original scale and massing. Both country studies imply that development by transformers reflects the features of the multi-habited compound house rather than the single household western bungalow favoured by their government housing agencies. This reflects the reality on multi-habitation becoming the main form of urban living in much of Africa (Schlyter, 2003)

Quite low income people extend

We collected data through both income and expenditure and used the latter as a proxy for income in each country. In all our discussions of money, I have converted local currency into £ Sterling at Purchasing Power Parity (PPP) using data from UNDP (1993, table 1).

We might expect transformers to be better off than non-transformers because they would require higher incomes to carry out the prodigious building work that their activity represents. In both our countries transformers' household incomes are higher than non-transformers' but per capita incomes are lower. The two samples have remarkably similar median household incomes.

Taking the £240 per year per capita absolute poverty threshold adopted by Ravallion et al (1991), we can see from table 1. that our median transformers have incomes of twice the threshold in Ghana

and 2.6 times in Zimbabwe. Only four and seven per cent of our households respectively have incomes below the absolute poverty threshold. In both countries, we are clearly dealing with people who are not rich by any standards but neither are most of them numbered among the very poor.

TABLE 1 HERE

Transformations increase housing space

We might expect that large households would be more likely to transform than small ones because they would be more likely to suffer crowding and feel the need for more space. We find that this is the case; transformers in each sample tend to feature more than just a nuclear family household of one or two adults and their juvenile children. With medians of seven members including four adults, both show signs of transformers' having large households and being in a relatively advanced stage of family life. The presence of four adults at the medians indicates a greater need for privacy than might have been expected when the original dwellings were designed for nuclear family households of parents and children. In most cultures, a married couple with a grown up (over 16) son and daughter would require three rooms. Thus, most of the original dwellings are incapable of providing adequate space for all the occupants or sufficient privacy in their unaltered state. Non-transformers tend to have smaller households (5 persons at the medians for both countries), fewer adults, and marginally fewer children than transformers, indicating fewer points of housing stress.

It is obvious that one of the main factors contributing to transformation is likely to be the shortage of accommodation in a city; the main need in housing in the countries studied appears to be for larger dwellings, especially for more rooms.⁸ As we will see from the data, the effectiveness of transformation in providing more space is quite impressive.

There is a two stage process of capturing extra habitable space. First, the original space is redivided into more rooms (albeit some are very small, e.g., original verandas in Ghana). Second, new rooms are added which are generally smaller than the originals. The habitable space has increased by about half in Zimbabwe and more than doubled in Ghana. The numbers of rooms, on the other hand, have doubled in both.

TABLE 2 HERE

The houses as transformed in the two countries have quite similar median areas of 79 and 87 sq.m. Although some transformers have undoubtedly made prodigious increases in space, the medians for our samples show increases of 48 to 75 per cent. This is only a snapshot in an on-going process, however, and there is no reason to expect the 1993 stage to be the end of extensions. In Zimbabwe (where the floor space index is 30 per cent for transformers), there is still plenty of potential to extend within the plots. However, there is less room in Ghana where the floor space index is about 60 per cent for transformers at the median.⁹ In both countries, therefore, transformers are clearly creating more accommodation, both for their own households' use and for others, and cannot yet be condemned for imposing intolerably high densities or floor space indexes.

Transformations improve accommodation for main households

TABLE 3 HERE

In government-built housing, it is common for there to be not enough room for the resident household especially when there are more than just the small nuclear-family household for which it was designed. However, even though many other households are now accommodated in extensions, both our samples have achieved more habitable space at the median for the current main household than was originally available in the dwelling.

We can see that main households have considerably more space in transformed houses than in non-transformed. In table 3., the most marked difference in occupancy rate is in Ghana where the main households in transformed houses have only 1.8 persons per room compared to three in non-transformed houses. Two rooms have been added for the household at the median. In Zimbabwe, where dwellings were more adequate to start with, main households have gained only half a room each at the median but have similar space per household and per person to those in Ghana.

Transformations accommodate more people without extending the city

Transformations allow more people to live within the currently built area of the city and so reduce the demand for peripheral development. In this way, they make more efficient use of existing urban space instead of adding to the inefficient sprawl evident in cities as widely differing as Accra and Dar

es Salaam (Yeboah, 2003; Halla and Mang'waru, 2003). As we have seen, they achieve this while improving the accommodation for the main households in the houses.

There are about 50 per cent more people in transformers' houses than in non-transformers' and probably about double the originally planned population. The medians of 10 in each country fall between the expectation for single household dwellings and multihabited rooming accommodation.

TABLE 4 HERE

The difference between types of renting of rooms can be seen quite clearly in table 4. In Zimbabwe, renting of rooms in the dwelling is a business venture for at least some profit. Seventy per cent of transformed houses have tenants and there are a total of three households per house at the medians. In Ghana, however, where rents are very low and renting rooms to tenants is not normally a business venture (Korboe, 1993) only 27 per cent of transformed houses have renters while 33 per cent of them have rent-free (family) tenants. The latter demonstrate housing's role as a social safety net for the poorer members of families [see Amole et al, (1993) and Korboe (1992)]. In both countries, even non-transformed houses may have a tenant in residence as well as the main household.¹⁰ In Ghana, where many of these houses are very small, the detached kitchen has been brought into use as a rented room despite its small size and even extended from the narrow (approximately 2 m.) frontage.

Tenants in our study have only between one quarter and one third as much space as main households (with about 8 sq.m. in Zimbabwe, and 14 sq.m. in Ghana) but their smaller households reduce the crowding effect of having much smaller spaces than the main households.

In both countries, we can see that occupancy rates improve with transformation. Main households fare well in gaining considerably more space and rooms, and the transformation process can be seen as a way in which households improve their own space use and that of other residents in their houses. This is one of the most cogent arguments in favour of transformations as a valid housing adjustment mechanism and as effective housing supply which should, therefore, be encouraged in countries where there is a great need for housing. As a corollary, it argues against the "building slums" accusation of local planners.

Levels of investment can be quite high

TABLE 5 HERE

Transformers are making substantial investments in new accommodation. Indeed, they are spending between 90 and 120 per cent of a year's income on their transformations at the medians. For the upper 25 per cent in Ghana and Zimbabwe respectively, spending on extensions exceeds 5.7 and 4.2 times annual income. In each country, phase one is the largest and most expensive, but phase 2 is also substantial. The majority of transformers have only carried out one phase up to the date of the survey but there are more in later phases in Ghana where the process has been occurring longer.

Variety out of uniformity

One of the most obvious features of the original housing in the study areas is its relative uniformity. There are only a few standard types used and they recur even up to hundreds of times together. An important feature of the households in this study is that transformers are producing housing variety out of uniformity. The variety is expressed in the following features.

Variety of house size

Transformers have superimposed a variety of house sizes upon the more or less uniform canvas of the existing housing stock. In both countries, the difference between the 25th and 75th percentiles is at least as large as the original dwelling size and reaches a massive 72 sq.m. in Ghana. In the terraces of Asawasi, originally identical 25 sq.m. dwellings have now been converted into houses with 30 sq.m. difference between the 25th and 75th percentiles.

Variety of accommodation for the main household

Main households can enjoy a greater variety of space than the original dwellings provided. They have the option of occupying more space (and most do) in either the original or new structures (which may be of different quality), or occupying less space by allowing tenant or rent-free (family) households to occupy part of their original space or by moving into a new smaller portion of the transformed house. They can choose to have their own bathroom, toilet and kitchen, or share with others.

Variety of house value and housing cost

While the original dwellings tend to be of very similar value and cost (especially if measured per square metre), the new housing is very varied in value and cost. In the Ghana sample, there is now a perceived difference in rebuilding cost from the first to the third quartile of PPP£19,000, in Zimbabwe it is PPP£10,000. In addition, the net housing cost can be adjusted by choosing to use some space to raise rental income or for commercial activity.

Variety of use

Even though, in 1993, the dominant use was still residential, the original residential dwellings did have a variety of uses within them. Of course, people carry out business activities from the home even if no alterations or extensions are possible. Through transformation, however, opportunities arise for doctors' surgeries, shops, manufacturing activities, and many other space consuming non-residential activities. Transformers have home-based enterprises in 25 per cent of cases in Ghana and 11 per cent in Zimbabwe. There are examples in our surveys of mosques, churches, nursery schools, and night clubs.

All these provide not only employment and income generating opportunities¹¹ in otherwise economically barren areas but also serve the local people for their social, cultural, and religious needs and provide opportunities to obtain goods and services without leaving the neighbourhood. Although specially designated plots are provided for such activities, and are undoubtedly used as such, converted and extended dwellings provide cheaper opportunities for these activities and may deal with a lower income clientele than use the formal shopping areas and social facilities.

In the years since the study, home-based enterprises have increased in importance within the informal sector and this has been reflected in the study areas. A revisit to Asawasi in 1999 showed how transformations have played an important part in enabling such businesses by providing the space for their operation and increasing the local population.¹² Even though the rooms originally may not have been meant for non-residential uses, many are now used for business, especially on main routes, or jointly for business and domestic uses.

Variety of tenure

The recent trend towards a much more complex tenural split than just owning or renting [as described in Gilbert (1993) for example] is clearly reflected in the opportunities for variety in tenure arising in transformations. Out of a uniform renting-from-government tenure regime which turned into ownership for the majority, transformations create opportunities for tenancies and sub-tenancies in the private sector, rent-free (family) tenancies, sharing, and other tenural forms (see table 4.). In line with Gilbert's findings, dwellings may contain an owner household, renters of rooms, sharers with the owners or renters, family members occupying separate rooms or sharing the owner household's space, and even lodgers with any of the above. In both case studies, occupation of parts of the house by relative strangers as rent-paying and other forms of tenants is facilitated by the ability to gain independent access to rooms from outdoor spaces directly or via verandas or corridors. This contrasts with the more compact layout of the original bungalows in which bedrooms tend to open off the living room.

Transformed houses tend to have one renter household (i.e., with tenure other than ownership) in Ghana and two in Zimbabwe at the medians. Renters and other households tend to occupy much less space than owners. Typically they occupy a single room, with those in Ghana having about 14 square metres and those in Zimbabwe occupying 8 square metres (at the medians).

Variety of occupants

When they are first completed, dwellings in government-built estates tend to be allocated to homogeneous groups of people (young middle-ranking factory and government workers with children) who, having won the lottery of obtaining a highly rationed and subsidised good, are loath to leave. Thus, there is a tendency that all the households are in a similar phase of life, growing older together. This may lead to a boom in demand for schooling followed by a dearth of children and, later, a concentration of retired people for whom the dwellings are unsuited.

Transformers tend to create space for new households who are in different stages of their lives and who move in as tenants or rent-free (family) tenants. In addition, new rooms can be created for the next generation. The availability of single rooms allows relatively poor households to find accommodation in the area. The extension and renovation of the original small dwellings

encourages original allottees who prosper to stay and to express their new higher income and gain status without moving away.

High quality construction can be expected

The original estates are very soundly built as it is in the interests of government agencies to save on running costs by high initial standards of strength and durability. However, many other features of the estates are causing them to appear to be at the end of their economic lives. A lack of maintenance tends to create the impression of poor quality construction. Leaking water pipes and drains, badly maintained roofs, unrepaired and unpainted woodwork, unkempt and damaged grounds and access ways, all lead to accelerated decline and the poor appearance which is symptomatic of housing at the end of its economic life or in need of more than ordinary levels of maintenance. In addition, changing lifestyles mean that the space and services in the dwellings no longer conform to the needs of the occupants.

In both our case studies, transformation is leading to the upgrading of the estates. The original dwellings, with all their poor physical appearance, cracks, blemishes and leaks, are being enveloped in new development or, in other cases, subjected to major renovations as part of the transformations process. This repair and renovation is occurring through professional activity in relatively high quality construction, but with no cost to the government or its agencies as the occupants are bearing the full burden.

The change to ownership as a likely signal for transformation

In the past, writers such as Carmon and Oxman (1984) pointed out that ownership was probably a prerequisite for transformation while Andrew and Japha (1978) held that, with ownership, all dwellings could be regarded as core houses, liable to be extended. Our experience in this work, which included a sample of renters in Bangladesh, shows that ownership is not absolutely necessary. As a corollary, housing maintained in government rental accommodation in Kenyan estates are almost exclusively untouched while those which have been sold to tenants display many transformations (e.g., Buruburu and Umoja 1 in Nairobi). In our case studies, ownership appears to be a powerful catalyst in the process. The extensions in Zimbabwe date back to the time of converting from tenant to owner occupation. Similarly, all the transformers in our Ghana sample are

owners and their accommodation now differs markedly from the adjacent railway company housing in Asawasi which is still rented (from the occupants' employer) and completely unchanged.

In many countries in which government housing is being sold to tenants, home ownership is a new and uncertain phenomenon for low income households used to a subsidised rented stock. It is likely that many of the new owners will extend in order to make their property more suitable for their way of life and that of their children (especially after the children marry and need a home), or as part of an essential renovation process. As money is likely to be in short supply, the efficiency of transformation in adding low cost floor space to the cities' housing stocks should be very attractive to housing policy makers. The issue for the authorities will be mainly keeping a balance between their inclination to control, within the context of minimising nuisance, and enabling households to extend in order to gain from the additional low cost accommodation.

Enabling transformations through the planning process

We have seen that transformations mean that consumers of housing become producers. The people who would not be expected to supply housing (those who have been allocated ready-made dwellings against subsidised payments) have produced more housing and show every sign that they will continue to do so. Furthermore, they appear to be doing it very efficiently in terms of cost and their ability to afford. Transformation represents an investment opportunity for home-owners who would not have the confidence or ability to start a new building project on peripheral land. In times of Structural Adjustment and its aftermath, the extension of the home into a multi-occupied house, capable of accommodating newly-migrating family members, generating rents, or providing for the current and future needs of grown children, is in line with the behaviour observed in Dar es Salaam by Briggs and Mwamfupe (2000). In a context where accommodation was allocated because of formal sector (often government) employment, such behaviour is entirely logical as income security declines but the use-value of the housing asset increases. However, instead of occurring in the periphery, the relatively low-density development of government-built estates allows such spatial expansion to take place in relatively centrally-located land. As the housing supplied is contained within the existing built-up area and on serviced sites, additional costs of city expansion are minimised.

Although we expected otherwise, most of the transformers had sought permission to build. In Kumasi, the State Housing Corporation retains some control over the estate. Occupants who want

to extend apply to the SHC officers who then submit applications to the Ashanti Regional Planning Office for official permission. Whether what is built matches the application is another matter, but there has been official involvement in most transformations. In Harare, so universal was official involvement that we used the estates' planning registers to build our sample. However, where timber shacks have been built around the original dwelling, no permission has been given.

Against measures of housing quality, the extensions demonstrate that they represent housing improvement. Most appear to be built as well as the original structures and have a higher level of finish. They provide more space (in both case studies) and have improved levels of occupancy and services (at least in Ghana).

Furthermore, they have not reduced the attraction of the area as far as we can tell from available prices in Zimbabwe. If we aggregate up the mean spending to the 13,113 township houses in Mbare and Highfield, Harare, transformations represent PPP£167 million of investment (1993 prices). In Ghana, where there are no market prices,¹³ if we aggregate the mean spending up to the 4,400 or so government-built houses in Kumasi, we could estimate a massive investment of PPP£176 million by 1993.

In our national workshops in 1999, we presented our findings to policy makers, planners, housing officials, academics and other interested parties. We found that most are hospitable to the idea of transformations and willing to improve their efficiency through modifying regulations. The main opposition to transformation activity came from planners responsible for development control who see such *ad hoc* development as a great challenge to their function and an invitation for slum conditions to spread.

There is a need to absorb the lessons from transformations into planning school curricula in order to eradicate the obstinate resistance to household sector involvement in housing supply which deems extensions as encroachments and guards regulatory shibboleths such as set-backs as if they are written on tablets of stone from Mount Sinai. Instead, development control should take housing supply seriously and encourage initiatives to provide more accommodation within the current urban footprint. This is in line with UN-Habitat initiatives towards sustainable cities and increasing the role of the household sector in urban development (UNCHS, 1996). The current level of control (in which many breaches of normal practice have occurred informally) has resulted in many improvements to conditions within the dwellings (especially with respect to space available) and case

studies elsewhere where planning officers were not involved have not resulted in worse quality of development. To formalise current practice is unlikely to generate slums but to maintain the *status quo* of turning blind eyes to breaches of regulations. It must be remembered that regulations need not be fully upheld for their presence to inhibit development. There are costs to circumventing regulations; the timid will be put off and may not add the housing they would in the absence of regulations. For the less timid, bribes add up against the price of construction but the regulation avoided in that way has had no positive effect on the environment.

There is a need for a balance between control which enables and control which inhibits. On housing supply grounds alone, African cities have much to gain from encouraging transformations. Tiplle (1994) suggests that many households in urban Africa will only ever be able to afford rooms with shared facilities rather than whole self-contained dwellings. The findings of this study suggest that local authorities and governments should adopt an essentially permissive attitude to transformers with light control to prevent the worst excesses. These excesses could be characterised (in a spirit of hyperbole) as a dominant neighbour sweeping all local objections before him (or her) to erect a giant edifice of tiny rented rooms for personal profit. They are rare and can be controlled without spoiling the general initiatives to increase housing supply through transformations.

On the other hand, governments have much to lose through heavy-handed, unhelpful policies which freeze out the potential extensions through introducing bureaucratic delays and interference. It is more important that neighbours are satisfied with the level of development in transformed estates than to maintain some notion of ordered development close to the heart of a few policy makers. Thus, neighbourly co-operation should be a goal of policy, perhaps enabled through appointing people trained to be involved in assisting negotiation and in dispute settlement.

Turner (1972 and 1976) long ago argued that prescriptive standards (those which prescribe action in specific ways) inhibit the ingenuity of potential house-builders, and proposed that standards should merely proscribe activities which are unacceptable and allowing a wide range of actions within the field of acceptability. With the onset of transformations, it could be argued that development control must be proscriptive towards the totally unacceptable but lenient within the bounds of acceptability. In that context, the potentials of transformation as housing supply could be realised.

As a result of the study and workshops, the staff of the Kwame Nkrumah University of Science and Technology's Department of Housing and Planning Research set up a neighbourhood advisory

service for transformers in Kumasi and the draughters of the Housing Policy in Zimbabwe accepted a paragraph on encouraging transformation activity into its proposals.

The privatisation of public open space next to dwellings is an almost universal phenomenon and may be essential to the orderly and effective extension of government-built housing. If transformations were enabled, such land could be sold to prospective extenders rather than their just taking it out of the public realm at no charge. The income and spending potential of transformers would not require heavy subsidies in its sale, indeed reasonable profits made from the sale of such land could be ploughed back into upgrading the services in the area.

The fear that transformations create slums seems to be unfounded. I argue elsewhere, from the Bangladesh sample, that most of the characteristics of slums (deteriorating physical conditions, reducing values, crowding, poor servicing, etc.) are not intensified by transformations; indeed, most are improved upon (Tipple and Ameen, 1999). This is also the case in our Sub-Saharan Africa case studies where there are few indications that slum conditions are created.

The main threat to 'creating slums' is the increased population and the space it occupies. However, as occupancy rates and housing space per person have been improved by transformation (table 3.), the main problems of increased density are avoided. There is evidence, however, that servicing has worsened in Zimbabwe where there are many more people per toilet and bathroom than when the estate was planned. Without a doubt, major improvements in servicing are needed to cope with the larger population and greater ground coverage than was planned for. While some has been provided by transformers, e.g., water and sanitation in Ghana, others are overloaded or lacking, particularly surface water drainage in Ghana.

Although the scale of activity demonstrates that transformers can afford extensions, finance is overwhelmingly the most difficult problem facing them in their incremental improvements. Almost all transformations are built with cash saved up by the household as no loan finance is available for extending dwellings. This phasing represents the most effective way for low income households, who depend on cash, to invest. They build as much as can be afforded for cash at any one time. It would make a great deal of sense for policy on housing finance to take account of the scale of borrowing required to fund an extension and to make sure that suitable loans are available in the formal finance system. With market repayment rates, such loans would impose no unreasonable

demands upon the public purse. In addition, property taxes should be collected as a matter of course on all accommodation¹⁴ but could be increased on extended property.

Implications for the planning of new housing estates

A housing estate is not like a Jumbo Jet. Its designer is not drawing a blueprint for a manufactured object which must stay constant for it to function. Unlike a jet aeroplane, a housing estate will not look the same twenty years on as when it was first unveiled. Understanding transformation activities encourages a physical planner to regard the residential area as a constantly changing place where plot ratios and floor space indexes on initial completion are likely to increase through time. Thus the design represents the beginning of a long process of growth and modification, not the last word on what the estate should look like and be capable of delivering. Whatever household characteristics are taken into account in the design, the occupants will live through changes and need to cater for them. If households are to extend efficiently and with the minimum of disturbance to their neighbours and the layout of the area as a whole, plot shapes and sizes should take account of the pressure to extend houses.

Opportunities for extensions appear to be strongly influenced by the availability of space around the original dwellings as, within the same case study, dwellings within tight sites have smaller transformations than those on generous plots (Tipple, 2000; Tipple and Salim, 1999). Thus, though planning school may have taught us that plots should be narrow and small for economical land coverage and servicing, transformations show that they should be wider and larger in order to conveniently cope with the increases in population over time. Despite early short term losses in density from the larger plots, the long term densities may be very similar to those resulting from smaller plots. However, the variety of housing provided in size, price and tenure is likely to be greater. More importantly, more of the housing would have been financed privately and incrementally by the occupants and this is highly desirable for African government strapped for cash but with great needs for new housing (Tipple, 1994).

In Ghana, government agencies and private estate developers are supplying very little housing but what there is tends to be on quite narrow plots. The State Housing Company's Airport Estate in Kumasi is a case in point, where terraced dwellings allow only for limited forward and backward extension. In private development, single dwellings are located in the centre of narrow plots leaving few useful spaces for extension around the original structure. In the majority of cases, however,

housing is developed informally and plots are large (c.1,000 sq.m.) and wide (usually more than 20m.and nearly square) giving plenty of scope for extensions. In Zimbabwe, the government sector was still active in house-building before the current economic crisis, ostensibly, though rarely in reality, for low income households. Any pressure towards reducing plot sizes should, perhaps, be re-thought in response to the evidence from the transformations.

In both countries, and elsewhere in Africa, increased space on the plot provides more opportunity to extend and increase the use value (and market value where appropriate) of the property. Therefore, it makes sense to price plots at least in proportion to their size to recover some of the potential for the public purse. It may even be desirable to charge higher prices per square metre for larger (or wider) plots as their usefulness for extensions increases with size. On main roads and other favourable sites for commercial activity, land prices can be still higher per square metre in anticipation of extensions for commercial purposes.

The extended houses in both case studies are reviving many of the features of the traditional compound; more rooms than are needed for a single household, most rooms opening off a circulation space, few rooms leading to other rooms, most new rooms being of similar size. This indicates that the traditional housing forms have an important place in current and future housing supply that tends to be neglected by governments intent on modernising and adopting single household dwellings. Housing policy should give renewed emphasis to traditional forms of housing.

It is evident from our two case studies, and our anecdotal evidence and observations in other countries, that user-initiated transformations to government-built houses are a valid and important resource for housing supply both currently and in the future. The governments of Ghana and Zimbabwe, and other African countries, should reinforce the initiatives taken following our workshops and institute a holistic enabling strategy towards them, including suitable loan financing, so that their potential can be utilised in an efficient way.

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Notes

¹ This paper is based on one presented at the African Studies Association of the UK Biennial Conference, Bristol, 1996. It contains material previously presented in a paper at the 24th IAHS International Congress, Ankara, Turkey, 27-31 May, 1996.

² Kenya, South Africa, Tanzania, Uganda and Zimbabwe.

³ Also see various national reports for Istanbul + 5 in 2001 on <http://www.unhabitat.org/istanbul+5/africa.htm>)

⁴ Now the State Housing Company Ltd.

⁵ In this, they resemble the dwellings built by all actors in the formal housing supply process, now increasingly private sector rather than public. Our findings are relevant to both.

⁶ The author has often wondered whether incidental public open spaces would be so popular among planners if they were not coloured bright green on the plans. If the reality of dusty grey or muddy red-brown were translated into plan colouring, maybe there would be fewer incidental and unmaintainable open spaces in our cities.

⁷ This is heavily influenced by the purposeful sampling of about 100 who had only added wooden shacks (28 per cent of the sample) and who are, I think, considerably over-represented. However, there appears to be about a 50-50 split between the previous two extension types.

⁸ There is also a need in Ghana for more toilets and bathrooms expressed by the frequency with which these are added.

⁹ It appears to be greater than this when one walks round the area but this is because many of the open spaces are now internal to the extended houses and, therefore, hidden from view.

¹⁰ Some houses have both rent-paying and rent-free tenants.

¹¹ On plots in the samples where employment occurs, there are 4.2 workers in Ghana and 1.9 in Zimbabwe.

¹² According to S. V Sethuraman of the ILO, the amount of income per unit land area is a very important determinant of the success of retail enterprises (personal communication, Geneva, 1994).

¹³ As housing is not for sale except under very particular circumstances, there is no price attached to it. When asked questions about values, especially in the context of rents charged for rooms, there appeared to be little knowledge of the likely value of property had there been an inclination or opportunity to sell it.

¹⁴ But very often either is not collected at all or is very small in relation to the value of the property.

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Table 1. Incomes and wealth in PPP Pounds (Medians)

	Ghana	Zimbabwe
Annual Household Income		
Transformers	3,430	3,770
Non-transformers	3,160	3,150
Annual Per Capita Income		
Transformers	479.3	625.6
Non-transformers	622.6	723.7

PPP functions inflate the currency values by the following: Ghana = 2.6051; Zimbabwe = 2.2831 (UNDP 1993: Table 1). Thus, for example, instead of C1,000 per £ Sterling, there would only be C384 per PPP£.

All costs and prices use a 1993 base.

Table 2. Increase in floor area through transformation (Medians)

	Ghana	Zimbabwe
Floor area of original dwellings (sq.m.)	37	50*
Floor area of transformed houses (sq.m.)	87	79
Estimated increase in floor area achieved by transformers (%)	75	48

* For comparative reasons, these figures reflect the original dwelling type without being influenced by whether any of the original has been demolished.

Table 3. Measures of occupancy for main household (Medians)

	Ghana	Zimbabwe
Habitable Space occupied by main household (sq.m.)		
Transformers	39.7	34.4
Non-Transformers	24.1	27.5
Habitable space occupied per person in main household (sq.m.)		
Transformers	5.8	5.2
Non-Transformers	4.9	4.5
Occupancy rate of main household (persons per room)		
Transformers	1.8	1.8
Non-Transformers	3.0	2.2
Habitable rooms occupied by main household		
Transformers	4	3
Non-Transformers	2	2.5

Table 4. People accommodated

	Ghana	Zimbabwe
Persons per house (Medians)		
Transformed	10	10
Non Transformed	6	7
Households per house (Medians)		
Transformed	2	3
Non Transformed	1	1
Percentage of houses with tenant households		
Transformed	27	70
Non Transformed	13	38
Percentage of houses with rent free (family) tenants		
Transformed	33	13
Non Transformed	2	5

Table 5. Cost of phases in the extension process, PPP Pounds (Medians)

	Ghana	Zimbabwe
Phase 1	3260 (<i>N</i> =237)	2620 (<i>N</i> =293)
Phase 2	1780 (<i>N</i> =68)	1000 (<i>N</i> =64)
Phase 3	2360 (<i>N</i> =14)	430 (<i>N</i> =12)
Phase 4	920 (<i>N</i> =4)	-
Total cost of Transformations	4790	3660

All costs are adjusted to 1993 values.

Captions

Figure 1. Kumasi: A twelve dwelling terrace in Asawasi built in about 1950 has now been extended into a complex block. The wrapping of rooms round the rear of the neighbour's original dwelling allows greater flexibility of form than would otherwise be possible. The rooms on the south side of b, d and j belong to a, c and i, while the north side extensions there belong to b, d and j. E, g and k appear to have extended in both directions, with g wrapping round f rather than h.

Figure 2. Kumasi: This is one of a pair of 59 sq.m. semi-detached cottages that have both been extensively converted into compound houses. This house has 180 sq.m. of accommodation, with 22 rooms occupied by 26 people. There are 5 tenant households. The owner, whose household of three adults and four children occupies the extended original dwelling and a further room, has lived there since 1955. The extension was built in one phase in 1978 at a cost of C12,000 (about £2,400 at the time). This house demonstrates the tendency to build rooms that open off open space or corridors and are, therefore, easy to use for tenants or family members living independently. It is very well designed for inheritance in common by a large number of relatives.

Figure 3. Harare: The fifteen person main household in this house occupy only three rooms even though there are others available. They obviously prefer to rent the others for the income. There are 42 people in the house in ten households. This is a perfect example of a house in which the main household have accommodation at the front and other rooms are ranged along a central corridor accessible only from the rear. It gives a high level of flexibility in who occupies the rooms. There is also the option of opening any of these rooms to the side of the house, as for household 4. The two rear rooms (phase 3) are shacks located outside the building lines. The house is worth about five times the owning household's annual income.

Figure 4. Harare: This completely altered house is owned by a five person household whose head is 40 and has lived here for 22 years. There are eight tenants (all single person households), a total of 13 people in the house. The plan is a short version of the corridor villa with additional external rooms facing inward as in a local compound. All rooms except one are accessible directly from circulation spaces. The three timber rooms are outside the building lines.

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