

**Towards A Rationalisation of the Construction of Refugee Camps**

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## INTRODUCTION

It has often been said that refugee camps should be planned and built as if they were towns. However, refugee camps will always fundamentally differ from towns, in that they have to be built with extraordinary speed, for a population of extraordinary vulnerability. Refugee camps are like towns in that their evolving existences have great impact upon the inhabitant refugees, and upon a complex, long-reaching network of other towns, provinces and countries. But the humanitarian emergencies which propel the camps' existence mean that the pattern of impact must be decided within a minute fraction of the time usually allotted for town planning decisions. In all instances, the maximum amount of efficiency must be combined with the maximum amount of concern for the refugees' well-being, in order that these two aims run in tandem with each other, and do not become oppositional. In best practise, they should be two sides of the same coin, as strategies for humane response should provide the aims for efficient action, and as models for rationalisation of works can be harnessed to the long-term needs of refugees living in camps.

It is the contention of this thesis, that if the principles of rationalisation previously applied to the urban low-income housing sector can be sufficiently adapted to the construction of refugee camps, then this may provide a framework for reconciling short-term calculations, perhaps of a more material nature, with long-term calculations, with a greater weighting towards what might be described in short-hand as being socio-economic, as defined throughout this thesis.

This adaptation of methodological framework will extend the event horizon for the study of a subject matter which in the past has been limited by assumptions of temporariness, and will expand the socio-geographic scale of a subject matter which in the past has tended to be treated in isolation. Through a combination of analysis of the existing literature, and a set of case studies, this thesis will argue that there are still areas in the state of the art of refugee camp planning where further rationalisation can be achieved at the 'construction' phase of the camp, but that what will ultimately take the greater weight and the greater cost-benefit, will be the adaptation of the camp environment towards promoting long-term, durable solutions with the refugees and their own livelihoods as the central features.

In doing so, this thesis will further the argument made by an increasing number of commentators but most recently and persuasively by Corsellis and Vitale<sup>1</sup> that planned camps and camp planning can be part of a complex, integrated response to refugee situations, that even though the camps must be planned for the long-term, they are ultimately transitional, and that the best insurance for durable solutions to a refugee situation is in giving support to the refugees' own livelihoods.

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<sup>1</sup> *Transitional Settlement Displaced Populations.*

## Scope and Terms

The scope of this thesis will be limited to the examination through a framework of theory of rational construction, of planned camps built as a response to forced migration caused by armed conflict. On the whole, shelter strategies for those who have been displaced by natural disaster will not be examined here, if for no other reason than the number of different voices<sup>2</sup> demonstrating that in these cases it is usually best to have the people remain in situ for on-site rebuilding accompanied by disaster mitigation programmes. This is not only because survivors of natural disaster are of a different category because they continue to benefit from established land rights and local community support, by remaining in situ: the obverse side of the same definition is that refugees from armed conflict are above all landless, and forced to interfere with the land of another community or another country<sup>3</sup>.

The thesis will be divided into five parts.

The **first part** will use an analysis of pre-existing, low-income housing rational construction model analogues as a way of defining and expanding a methodology for the subsequent examination of refugee camp construction according to rational construction principles.

The **second part** will use the methodology and principles from the first part, to examine major examples of written guidelines for refugee camp construction (published, for example, by the United Nations High Commissioner for Refugees, and others), in order to discover to what extent they embody those principles, and the relationships between those principles and the wider aims of each set of guidelines.

The **third part** will, in a similar manner, apply the same method of analysis to other major examples of reference literature in the field, conscious of the fact that for the most part this body of texts has been written in response to, and as interpretations of, the guidelines described in the second part.

The **fourth part** will comprise case studies of two planned camps for Liberian refugees, currently in existence in Sierra Leone, in order to discover whether and to what extent they employ the principles of rationalisation as well, and how a vocabulary could be adapted or created on the ground to describe the camps' stance towards such principles.

The **Conclusion** that follows, will also incorporate recommendations for how the study of the design and construction of refugee camps itself can be developed, with particular recommendations for creating an ongoing database of studies.

There are a number of key terms to be used in this thesis, which will be explicated here, as giving definition to these terms will also do much to define the scope of the rest of the thesis as well.

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<sup>2</sup> Davis, I. *Shelter After Disaster*, and many other texts subsequently which have echoes the same findings.

<sup>3</sup> Goovaerts *personal communication*

The term ‘*refugee*’ as used in the title and in the remainder of the thesis, is admittedly somewhat problematic. There is currently a debate of intensity continuing over choosing appropriate terminology for those who UNHCR now describes as its ‘persons of concern’. The term ‘refugee’, or rather the definition of that term according to the UNHCR Charter of 1951, is coming under increasing criticism because it relies upon people actually crossing national borders in order to fit the definition, and thereby has been accused of contributing to the gaps in protection and support for the growing numbers of IDPs (Internally Displaced Persons) in the world. Nevertheless, I have chosen to use the term ‘refugee’ because the other blanket term in popular use, ‘displaced person’, can also include those who have been displaced by natural disaster – who are obviously persons of concern in the broader sense, but whose plight goes beyond the scope of this thesis, for the reasons given above. Nevertheless, most of the analyses, and most of the proposals given in this thesis would also be applicable for planned camps for IDPs.

Although some parts of the thesis will be about designing refugee camps, and other parts will be about the construction, that is, the physical making of the camps, I have shortened the term that I occasionally use to refer to the entire process, to ‘*rational construction*’. Apart from trivial concerns over streamlining more cumbersome phrases like ‘rational design and construction’, I have chosen this term because I see the physical construction of a camp as an ongoing process, and as having the greater long-term concern with the evolution of the camp as a whole, even if it is initially the embodiment of, and dependent upon, a theoretical design. Although this thesis will contain many written and graphic examples of camp design, and will make design proposals, I have also chosen to emphasise ‘construction’ over ‘design’ in the catch-all phrase, because after all there are many parts of a refugee camp, from individual shelter to informal market, which are important parts of the physical fabric of the camp, but which usually are not, and usually should not be ‘designed’ in the sense of being imposed by a hardline on a blueprint.

The terms ‘*rational*’ and ‘*rationalisation*’ are more amorphous. The first part of this thesis will give, through example, a more detailed idea of how these terms are to be applied, at least within the limits of the thesis itself. But in general, ‘rationalisation’ will mean the marshalling of important resources – (capital in the wider sense, whether that means money, materials, space, land, time, labour or other) in the most efficient and least wasteful way towards a specific goal. Of course this immediately begs the question of what the specific goal should be, and this thesis is about the choice of goals as much as it is about the means to achieve them, although it will also explore to what extent methodology can produce goals, or tactics can create overall strategies.

There are two other terms that should also be explicated here, which will appear frequently in the body of the thesis, but which do not appear in the title. I use the phrase ‘*long-term*’ to refer to actions or consequences which are not just instantaneous, but which are processes with a time dimension, and particularly a significant extension of time. I also at points adopt the UNHCR terminology of ‘durable solutions’ but in many cases this is too end-goal orientated a phrase, hence my use of the more flexible ‘long-term’. How long is ‘long’? The emphasis of this thesis is that decisions about camp construction can have impacts which extend for a lot longer into the lives of the refugees, the host communities, the countries of origin and the countries of settlement, than the lifetime of the camp itself. Even if it is only the lifespan of the camp which is under consideration, the average lifespan of a camp is now seven years, and

there are many places (e.g. Pakistan, Cyprus, Tanzania, etc) where camps have been in existence for more than a decade, and in Palestine there are camps which have been in existence for almost half a century and with no signs of closing. Therefore, as a corollary to this definition of ‘long-term’, the following old-saw arguments for the planning of camps as long-term entities should be observed:

- The worst thing you can do is build a camp which outgrows itself, causing overcrowding, or the costs of rebuilding or relocation to avoid the overcrowding.
- No-one can confidently predict how long a camp will exist.
- But it will probably last for longer than you think.

The last term of importance to be explicated before the first part of the thesis, is ‘*livelihoods*’, which I largely borrow from Corsellis & Vitale’s *Transitional Settlement Displaced Populations*. This will be referred to at greater length in the Second Part of the thesis, but here I would like to emphasise a part of ‘livelihoods’ that remains implicit rather than explicit in the *Transitional Settlement* definition, as not only formal and informal activities to access physical resources, but also the skein of social interaction, community networking and information gathering which form the framework for many of those activities.

## PART ONE

The principles of rational design and rational construction, as defined for this thesis, are a personal interpretation based upon the principles expounded in the courses on Rationalisation of Construction and Construction Economics and Cost Control, as taught by Professor Frank De Troyer at the Post-graduate Centre for Human Settlements, Katholieke Universiteit Leuven, and based upon the body of literature which informs those courses. These principles aim to provide for how buildings (and by extension, close groups of buildings) can be constructed and then subsequently lived in, for the most cost-efficient manner. The principles are therefore at once both analytical and prescriptive. Using a variety of tools, existing buildings, groups of buildings, and construction methods can be analysed on the bases of construction-cost and lifetime-use efficiency. The results of these analyses can then form the starting points for design adaptations for future projects in similar situations, which can then be analysed upon completion of construction, as part of a continual cycle of processes.

There is no published ‘ten commandments’ of rationalisation to quote, but any set of key indicators for any model of rationalisation might include, at the very least:

- The reduction of material costs through intelligent design
- The reduction of material waste through efficient construction techniques
- The reduction of time and manpower waste through efficient construction scheduling, with attention to use of ‘critical path’ schedules
- The reduction of cost in the use of the building over its entire lifetime, through the implementation of energy-conserving materials and design features
- The reduction of cost in the use of the building over its entire lifetime, through the use of durable, long-lasting materials.

This is not an exhaustive list, but the main point is to demonstrate the one overriding principle, which is to find ways to maximise the ultimate benefits (whether sale profits, usage length or other), for the minimum of ultimate cost. It is this overriding principle which allows the user to choose between two or more of the above principles, if they come into apparent conflict with each other. For instance, if lower lifetime inhabitation costs could only be achieved with higher construction costs, then a comparison of the total costs involved would still allow the user to decide which option would cost more by the end of the lifetime of the building.

However, it is my aim through the following analysis of rationalisation models for low-income neighbourhood developments, to expand the scope of the principles of rational construction in three directions which are of utmost importance in tallying the ultimate costs and ultimate benefits that a refugee camp can have. In short, ultimate costs and ultimate benefits can not be fully calculated until they include the following:

- The costs and benefits not only to the inhabitants of the building/neighbourhood/refugee camp, but to those of any other locations with any connection to that place
- The extension of the calculus in time, so that in the case of the refugee camp, it also includes the costs and benefits to all the stakeholders mentioned in the point above, for as long as can be calculated after the closure of the camp as well

- The extension of the concept of costs and benefits itself, so that it covers not only the costs and benefits of merely inhabiting a place, but also takes into account the possible support and enablement that a place can offer to the livelihoods of the inhabitants, so that it moves from questions of existence, to questions of thriving.

In general, the literature concerning the rational design and construction of individual buildings is fuller and far greater than that which concerns large numbers of buildings grouped together. The tools for analysis, whether graphic or involving computer programmes, are also far more numerous when it comes to the analysis of single buildings rather than large groups of buildings. The same holds true for analyses of the construction of edifices for refugees. There is a body of studies which concerns the construction costs, replacement costs, environmental impacts, ventilation and heat loss of various individual shelters and building materials<sup>4</sup>, *but it would appear that no such analysis yet exists for a refugee camp as a whole.*

The closest analogues come from models put forth for the construction of low-income housing neighbourhoods in developing countries, particularly those which advocate a site-and-services approach, with its correlations to the ethos of self-reliance for refugees and self-building of shelters by refugees prevalent in most camp management plans today. The most notable of these have been books like the *Urbanisation Primer* by Caminos & Goethert, as well as books and articles by other notable planners and architects who have worked in the same field, such as *The New Landscape* by Charles Correa. However, these are of only partial use because although these works also aim to alleviate the shelter needs of those who are dispossessed, economically disadvantaged, and who have often migrated from their places of origin, ultimately the starting points, and the goals, expressed as a series of functions, of an urban neighbourhood design, are often very different from those of refugee camps.

Furthermore, perhaps most tellingly, these models for the rational design of urban neighbourhoods often put the greater emphasis upon the initial construction costs rather than long-term habitation and social costs, to the detriment of their potential for adaptation for use in refugee camp design. Their ultimate rationale, that of using rationalisation of design and construction to provide affordable shelter and services, remains as the prism through which the analyses of refugee camp design models in Parts Two and Three of this thesis will be regarded, and the emphasis that these urban planners put on space analysis is entirely relevant to a number of areas of discussion that will follow throughout this thesis. However, in other respects what books like the *Urbanisation Primer* are willing to concern themselves with is too limited in considering the time-scale of the settlement areas, and the geographical area under effect, and the wider social dimensions of their layout models. The brief but more detailed analysis of the *Urbanisation Primer* and *The New Landscape* which follows here, may give an explication of these shortcomings, as well as indications of where they can be used as bases for creating a more comprehensive set of parameters which can take into account all the factors present in the building, habitation, and wider influence of a refugee camp.

The *Urbanisation Primer*, by Horacio Caminos and Reinhard Goethert, takes as its philosophy the belief in the maximisation of the private users' responsibility<sup>5</sup>, and the minimisation of costs to the state, so that a new neighbourhood will be socially successful, and

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<sup>4</sup> See the digital library at [www.shelterproject.org](http://www.shelterproject.org), which contains a partial sampling of such studies

<sup>5</sup> *Urbanisation Primer*, p. 52

financially achievable. The proposed model for doing so proposes to achieve these goals through a sites-and-services provision, with grid layouts which minimise the lengths of roads and utilities delivery (the most expensive element of the neighbourhood development) and at the same time remove “left-over spaces”<sup>6</sup>. The dimensions of the blocks are based upon human dimensions, with the sizes limited by observations of human comfort for walking and community communication. Whilst this set of aims seems at first glance to be pragmatic and modest, it does not incidentally, escape from its own ideological cant. Apart from its general view of what the livelihoods of the urban poor should actually comprise, which will be analysed immediately below, its insistence upon maximum responsibility for the individual is couched in such terms as to set up in opposition to many forms of more communal responsibility. Questions of what sort of ‘responsibility’ is appropriate responsibility will continue to infuse the case studies of the two refugee camps later in this thesis.

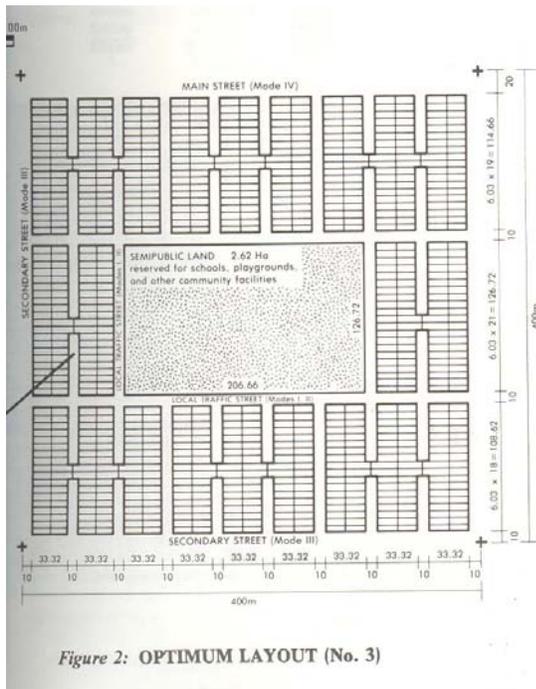


Figure 2: OPTIMUM LAYOUT (No. 3)

Image: Caminos & Goethert.

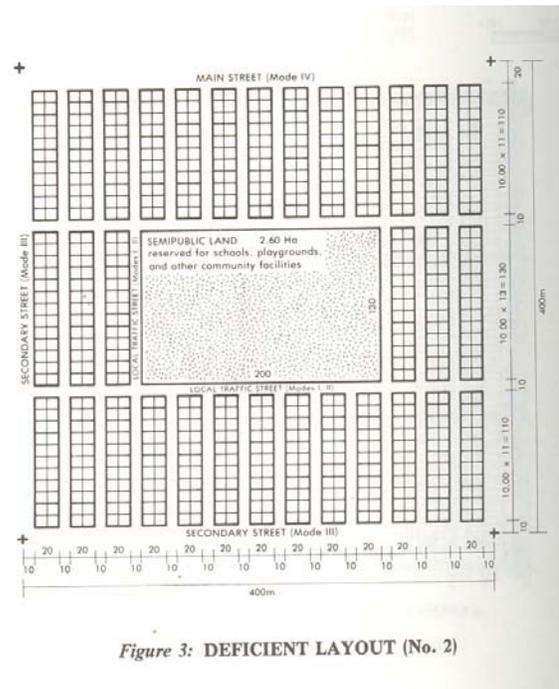
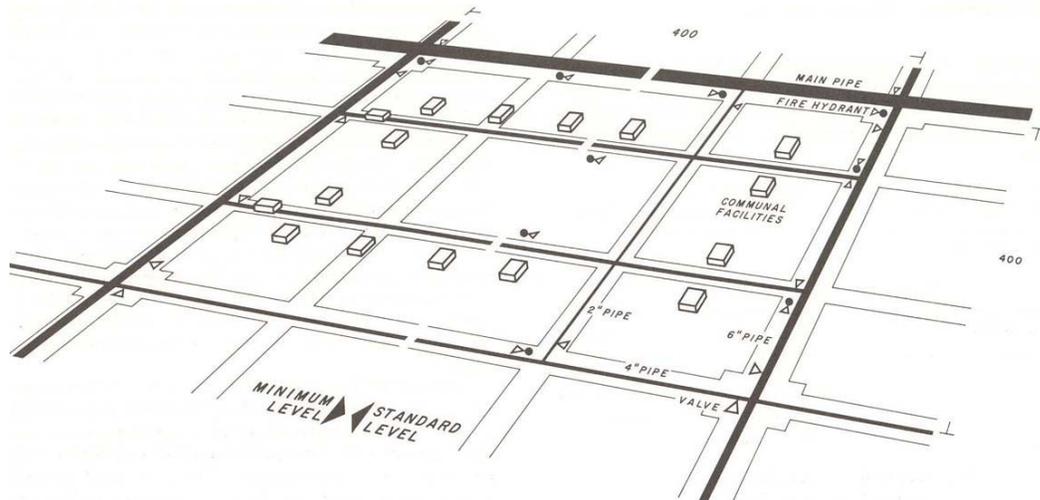


Figure 3: DEFICIENT LAYOUT (No. 2)

This sort of model has proved popular in many urban areas in developing countries, and has been used to some extent in refugee camp planning as well, with many camp planners adapting in particular the modular approach to planning in the hope that this will also solve problems of camp expansion if future influxes of refugees are unpredictable. But whilst the written part of the book does take into consideration such factors as location, access and transportation routes<sup>7</sup>, these concerns are not included in any of the graphic images for the layout designs proposed. As can be seen above and below, the plans are for neighbourhoods on a flat plane, set out as a 16-hectare square.

<sup>6</sup> *ibid* p. 96

<sup>7</sup> *ibid* p. 12-13



*Image: Caminos & Goethert*

The edges of the plans suggest that the 16 ha square would lie adjacent to other parts of the city, and indeed this would be necessary for the plot to have the connections to the utilities grids that Caminos & Goethert propose. But the only indication that the edge of one 16 ha square has been reached is a slight widening of the roadway. Although that wider roadway running between plots, and connecting them to the wider city, would be a likely candidate for some sort of commercial activity, no acknowledgement is made of that through any differentiation of individual plot size or housing type, and there are no additional small open spaces which would enable promotion of small-scale commercial activity.

In fact, this is the crux of the matter – there are no accommodations within the plan for anything else but a uniform, monofunctional dormitory existence. There is a central public open space within each 16 ha square, but this is one left there merely by skipping a block or two of housing, and the consideration is one by omission or absence, rather than by positively *creating* a public space. There is no attempt to create a mediating hierarchy of spaces between the individual plots and the public area, or between the individual plots and the different levels of roadway. Furthermore, with the emphasis upon avoiding “left-over” space above all else, there is nowhere for the neighbourhood to ‘grow’ into. There are no places to put small shops or food stalls, the mainstays of local community and trade; there are no places to build general community centres at a level lower than that of the entire 16 ha neighbourhood; there are no areas to build places of religious worship, unless these are of the size and shape that could be fitted into one of the house plots; and there are no small outdoor areas for children to play except for the central public space, which is too wide, and too far away and invisible from most of the housing plots for easy parental supervision: in short, there is very little in the plan which changes it from an abstract geometric design, into a living neighbourhood, which might develop and evolve and enrich the livelihoods of its inhabitants culturally and economically over time.

These problems of lack of space to ‘grow’ into, and lack of hierarchy of spaces would only be exacerbated if this model was applied to refugee camps. At least in an urban context of the sort proposed by Caminos & Goethert, over time the families in the neighbourhood could build their houses upwards into two storeys to accommodate extra children or extra generations of family. But with the few exceptions of the camps of longest duration, built within urban settings, such as those in Palestine or Pakistan, the building materials available in most camps,

the laws of the camps, and often the cultural backgrounds of the refugees themselves, conspire to remove this option of extending vertically. Increases of family size then result in overcrowding or relocation, and the attendant problems therein. Furthermore, because the relationship between a camp and its surroundings is more problematic than that between an urban neighbourhood and its surroundings, a camp needs to be thought of as much more than a piece of tiling that can be inserted into a grid, and needs to have if anything a greater consideration for the development of special hierarchies which would give the camp an identity as a separate entity, or which would provide a positive relationship between the camp and its surroundings. The model according to the *Urbanisation Primer* hobbles any such developments through its own claims to rationality. General goals of handing over responsibility to the inhabitants, and the provision of cost-efficient infrastructure frameworks are still valid building blocks to work from, but the strategies for achieving them instruct more by their gaps than by their coverage.

A more nuanced approach to much the same problem comes in a second example of planning for low-income housing in a developing country, that described by Charles Correa in *The New Landscape* and elsewhere. Even before the chapters which present the planning models, Correa already makes a case for an urban fabric which includes a hierarchy of varied spaces, with complexity as one of the goals of successful urban development, along with reduction of construction costs and economic sustainability. He counters the argument for the grid layout by rightly pointing out that by giving each neighbourhood a true centre, and then calculating distances on a circular, or radial basis, lower densities of population can be achieved with relatively minimal increases in land area uses, or distances to the centre<sup>8</sup>.

Correa then goes on to describe modular designs for his neighbourhoods, which are based on open-ended courtyards of seven units, which are then put together with two other sets, to form a larger, interconnected courtyard of 21 units, whereby the smaller courtyard for the 7-unit clusters, opens into the larger, more public court shared by the 21 units.

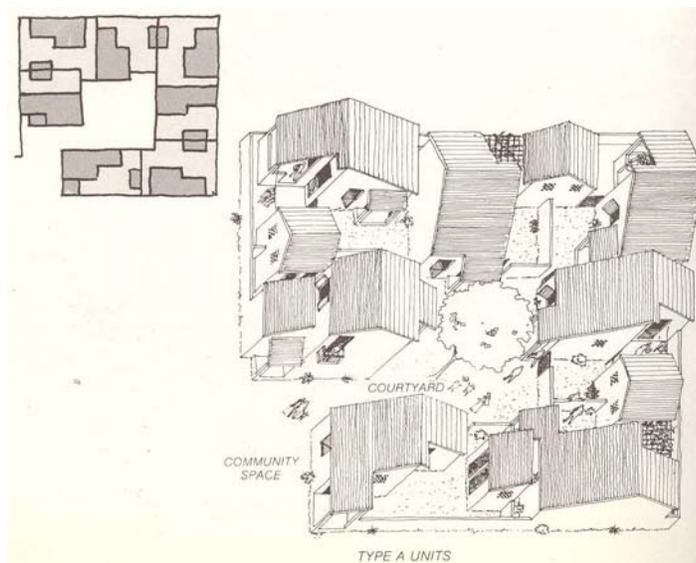


Image: Correa

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<sup>8</sup> *The New Landscape* p. 41

The 21-unit groupings are then put back to back with three other 21-unit groupings in order to define the next level of community spaces.

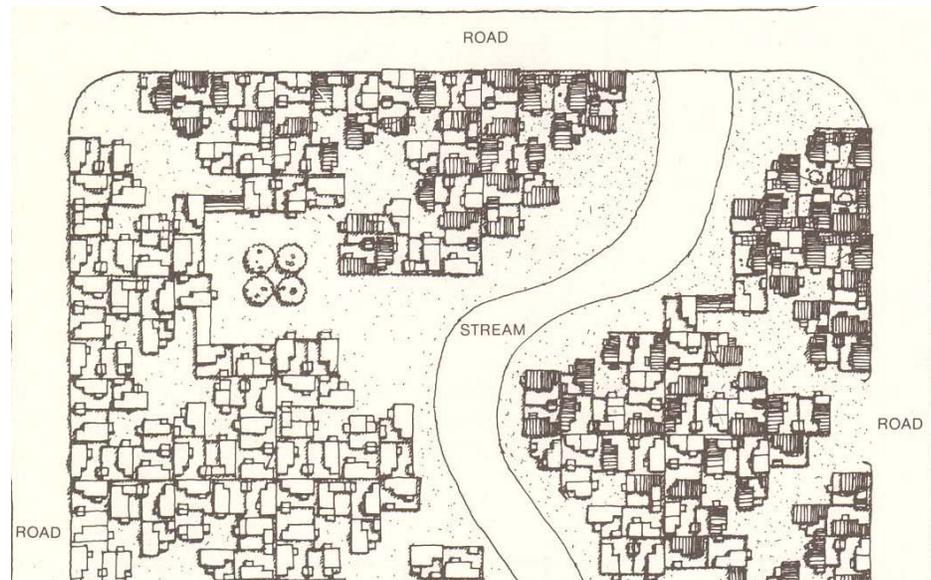


Image: Correa

The advantages of this design are that the openings at the corners and the irregularity of the side lengths permit the construction of a hierarchy of open spaces, and a break-up of rigid sight lines. A transition from private to public can be done in a series of steps, security can be enhanced accordingly through community cohesion and 'neighbourhood watch' attitudes, and the differing sizes of larger community spaces can be easily allocated for different activities.

However, the model is still essentially one which is only residential, or dormitory in style. It is true that the smallest (single-unit and then seven-unit) courts could be used as outdoor workshops if so desired, but there is nothing inherent in the designs of any of them which would seem to actively encourage such use. The fact that for each 21-unit group, only four units would have doors facing away from the courtyards, might be too few for common models in developing countries which combine houses with shopfronts or sales stands. In any case, the wider critique remains that although there is a hierarchy of spaces between the units and the blocks, there is no accompanying hierarchy of plot sizes, or gradation of plot orientation, to accommodate the home-based commercial aspirations of any of the inhabitants. The density of ground use would also preclude expansion of shelter in situations which did not permit the addition of extra storeys. When applying this model to refugee camps specifically, there are the added problems that the layout would only seem achievable if all water supply, drainage, and sewage pipes were already installed underground, because short surface routes would be impossible.

As should be apparent from the analysis of the *Urbanisation Primer*, and to a lesser extent *The New Landscape* above, the strength but also the weakness of rational design theory hitherto has been its emphasis upon numeric, quantitative elements. This approach allows the analysis to be rigorous and concrete, and to provide exact benchmarks with which to measure the effectiveness of the design and the construction. However, the purely numeric approach to

indicators becomes more problematic once a move is made away from the purely material aspects towards the wider social costs and benefits, even though these may have the greater and wider impact over the long-term. Efficient land-use, as expounded in the *Urbanisation Primer*, may indeed be the way of finding the cheapest way of constructing a new neighbourhood, but sets these goals as the sole priority for the design of the streets and the apportioning of the plots. No matter how well intentioned, this overriding concern can work against the longer-term life of the neighbourhood (or refugee camp) and those who live in it.

Having said that, it is easy to suspect that little has been done to use the methods of quantitative analysis of rational design theory when it comes to assessing the impact of architecture or urban planning upon the wider and longer-term social scales – for low-income urban housing or for refugee camps. In a single-building context, the thermal properties of a certain roofing material can be measured with the exactitude of physics, and at the neighbourhood scale, the same accuracy can be expected when using certain models to predict the costs of sewage pipe installation. But once the actual lives of human beings are added into the equation, the calculus becomes infinite in its complexity. The difficulties, perhaps the ultimate impossibility, of trying to come up with statistical demonstrations which are concrete enough to be satisfyingly predictive when it comes to saying what sort of refugee camp design will provide exactly how many neighbourhood small businesses, are daunting. This sense of daunt only increases if an attempt is made to go further, and use quantitative observations to predict what sort of refugee camp design will definitely promote a reduction in crime in the camp, or an increase in school attendance.

Nevertheless, if attempts towards an analysis that is rigorous and predictive with a goal of finding optimum cost-benefits, are not made, then the alternatives are sets of observations that are unsubstantiable – possibly interesting or provocative, but ultimately unsustainable regardless of their potential for being correct. This is where the word “towards” from the title of this thesis “Towards A Rationalisation Of The Construction Of Refugee Camps” may be said to come in. There are obviously a number of different factors in the long-term cost of a refugee camp which are not fully quantifiable, but which are nevertheless crucial to an overall tally of costs and benefits: there are at the same time factors which arise from the more well-established, bricks-and-mortar rational design concerns, which are quantifiable to a quite exact degree, but whose weight may be greatly diminished when considered over the long-term.

Given the ultimate insolvability of this equation, a *continuum* of categories of variables should instead be set in place. This continuum when applied to a case study of a specific refugee camp, would then produce a range of *indicators*, which would be more or less “concrete”, but which would all be contributory to a much more comprehensive and holistic description of the costs and benefits of a certain camp design. The final results would be much more ‘rational’ than those from the previous analytical models, despite the admission of individual elements which are too complex to be fully rationalised in and of themselves. By co-opting the seeming paradox of greater rationalisation through the inclusion of irrational elements, the framework of rational design theory is expanded in order to adequately account for all the influences upon the costs and benefits of a camp design, and all the influences that such a design may have on its inhabitants and its surroundings, for a period which should extend beyond its own lifetime.

Of course, this does not mean that for the analyses contained in the remainder of this thesis will be conducted by discounting information about the initial construction process.

Broadly speaking, each analysis will start with an exploration of the initial construction costs and the options available according to such considerations. This will then be followed by a further set of explorations of what can be broadly termed the costs of inhabitation, or the costs of continued existence for a camp built following that particular set of guidelines, or that particular model. All stages will operate under the initial assumption that all things being equal, land-use and construction costs should continue to be analysed for efficiency following the parameters of the site-and-services model above. However, if the succeeding analyses of lifetime costs demonstrate that other elements also need to be considered during the construction phase, then these long-term considerations will bear the greater weight.

## PART TWO

The first set of texts to be analysed using the above framework, are those which continue to have the greatest influence upon the design and construction of refugee camps, even though they are in the main just that – written texts – for the most part without illustrations, layouts or plans. These are the different sets of guidelines for refugee aid published by various NGOs for use in the field. The pre-eminent of these is the UNHCR *Handbook for Emergencies*, and the preponderance of the following analysis will concentrate upon the *Handbook*. However, where significant differences of aims, methodology or standards exist, reference will also be made to two other texts which are gaining widespread influence in the field, and which refer in significant part to the construction of refugee camps: the *Humanitarian Charter and Minimum Standards in Disaster Response* by the Sphere Project, and the most recent draft version of Shelterproject's *Transitional Settlement Displaced Populations* by Corsellis & Vitale. Most other agencies with major presences in refugee situations, for example Medecins Sans Frontieres or the ICRC, also have their own sets of published guidelines, but these tend to concentrate upon their own areas of expertise (e.g. medical response), and otherwise take their standards for camp design and construction from the UNHCR *Handbook*.

Although the UNHCR *Handbook* is written primarily for UNHCR staff and the staff of their implementing partners in the field, the primacy of UNHCR in the field of refugee camp construction and management in practical terms any proposal for camp construction must take into account the values contained within the *Handbook*, even if it does so merely to critique or explore alternatives. The other reason why the *Handbook* has to be taken into account, is the scope of its guidelines in providing a broader purpose or role for refugee assistance, and refugee camp construction, rather than just providing a methodology: the why to do becomes just as clearly stated as the how to do.

The Sphere *Minimum Standards*, and *Transitional Settlement* are both newer sets of guidelines, but have gained wide-ranging recognition and respect in the field by being written either under the aegis of a consortium of aid agencies (the *Minimum Standards*), or with extensive peer review from a wide number of concerned agencies (*Transitional Settlement*). The *Standards* does not make much in the way of statements on the wider rationales or geopolitical goals for aiding refugees, and admits in passing that aiding refugees may be in some circumstances problematic or may prolong armed conflict<sup>9</sup>, but neglects to make any conclusions or wider mission statements about these possibilities. Instead, the Sphere *Minimum Standards* quickly turns its attention to a what-to approach, rather than a why-to, assuming that the immediate provision of the maximum possible amount of alleviation of suffering is itself the ultimate goal. Perhaps because of these narrower aims, the Sphere *Minimum Standards* has less to say than the UNHCR *Handbook* on questions of the camp's position with regards to the local host communities, or the ultimate fates of the refugees vis-à-vis repatriation, integration or resettlement. Nevertheless, the number of different parties who have contributed to the creation of the *Minimum Standards* and who have expressed an interest in adopting it as a universal set of minimum standards, means that the *Minimum Standards* must still form part of any comprehensive analysis of existing written guidelines. Any implicit set of values for the wider role of refugee camps may also emerge during the subsequent analysis of the technical values of the *Minimum Standards*, as for the other texts examined.

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<sup>9</sup> *Humanitarian Charter and Minimum Standards in Disaster Response* Introduction, p. 6

*Transitional Settlement Displaced Populations* is also included in this section of the thesis, despite the fact that it still exists only in trial edition, and will not be published in its final form until 2005. The inclusion of *Transitional Settlement*, as the third basic set of guidelines for refugee camps, is for two reasons. Firstly, because it has involved major organisations to such a large degree in its peer review and drafting process, and secondly because it offers a significantly different philosophy and rationale from the *Handbook* and the *Minimum Standards* for the strategies which it proposes, to the extent of having created new sets of terminology, and new hierarchies of concern reflected in the subjects and ordering of the chapters and headings in the book. It also goes further than the *Handbook* and the *Minimum Standards* in considering the lives of the refugees and host communities after the transition through the camp, and in this case is also of great significance.

The following analysis of the three texts, will be divided into three main sections:

- An initial, brief textural analysis separately of each text, to illuminate the wider goals or philosophy of the text, whether explicit (as a form of mission statement), or implicit (revealed through word choice, organisation of text, emphasis of subject matter, etc).
- A rational construction-based analysis of the text, reading it as a series of prescriptions of construction methodology. As both the Sphere *Minimum Standards* and the Shelterproject *Transitional Settlement* in the main adopt the technical specifications outlined in the UNHCR *Handbook* regarding minimum requirements for shelter space, circulation, infrastructure and facilities, this part will contain only a single reading of the technical specifications, and only make note of those outlined by the *Minimum Standards* and by *Transitional Settlement* at the few points where they significantly differ from those of the *Handbook*. However, the single reading of the technical specifications will then lead to a discussion of how well the technical specifications and their consequences also support the previously outlined explicit and implicit philosophies of each of the three texts in turn.
- A rational design analysis of the lifetime of a camp, and beyond, as envisaged by the technical specifications contained in the texts, and informed by their various differing philosophies and goals.

#### *UNHCR Handbook textural overview*

Despite the centrality of the UNHCR *Handbook* to the work of those who design and construct refugee camps, the layout and construction of the camps does not feature all that centrally in the *Handbook* itself. In the *Handbook*, the main section upon camp construction does not appear until Chapter 12, “Site selection, Planning and Shelter” on page 132, out of a total of more than 400 pages. However, as is the case with the other two texts as well, the sections of the *Handbook* which come prior, do almost as much to define the layout of camps, as the specific land-use calculation tables. The most concise statements of purpose in the *Handbook* come in the

mission statement by former High Commissioner Sadako Ogata<sup>10</sup>, and then in the list of Principles of Response given as the sub-headings to the Table of Contents on Chapter 1, page 1. The relevant aims in the Mission Statement are best extracted from two short quotes: “By assisting refugees to return to their own country or settle in a new country, UNHCR also seeks lasting solutions to their plight.” “UNHCR actively seeks to consolidate the reintegration of returning refugees in their country of origin, thereby averting the recurrence of refugee-producing situations.” The headings for the Principles of Response, are as follows:

- Get the Right People, to the Right Place, at the Right Time
- Ensure the Measures are Appropriate
- Involve the Refugees and Promote Self-Reliance
- Do Not Treat Issues in Isolation
- Work for Durable Solutions
- Monitor and Evaluate the Effectiveness of Response

Based upon these declarations, a unified set of aims start to emerge, of a response which is appropriate to the situation and to the refugees involved, and which has a long-term goal of “Durable Solutions”, a phrase that gets repeated frequently throughout the *Handbook*, in recognition of the fact that the most damaging and costly outcome would be one which did not avoid the restarting of a cycle of catastrophe and refugee flight.

Without wishing to divert the discussion too far from the scope of this thesis, it should be noted firstly that ‘durable solutions’ are entirely compatible with the expanded principles of rational construction outlined above. The question of whether refugees themselves would choose repatriation over the other options outlined (settlement in the country of asylum, or resettlement in a third country) is a vexed one, compounded by the fact that a review of the available literature has not revealed a single opinion poll taken amongst refugees on the subject, and the by the questions of representativeness and reliability that attach to the individual refugee voices that have been quoted on the subject. In order to cut the Gordian knot over the question of repatriation versus resettlement, three things will be assumed for the remainder of the thesis:

- In general, refugees do feel a great emotional connection with their place of origin, and all other things being equal, they would want to return there;
- Refoulement is not a rational durable solution, whereas timely repatriation can be.
- Following the principles of rational design theory and the UNHCR *Handbook*<sup>11</sup>, it should be assumed that the potentially most costly and most resource-wasting decisions are those which close other options off, and are difficult or impossible to reverse. As a close corollary to this, for the remaining analyses of all the guidelines, the related literature and the case studies, there will be an initial assumption made that, *any design or construction strategy which can simultaneously promote a variety of permanent solutions, and which ensures that a number of forward options remain in play, will be the strongest, and the most cost-effective.*

Following these three assumptions, it then remains to be seen whether (a) the guidelines and technical specifications described in the *Handbook* are actually consistent with the general

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<sup>10</sup> *Handbook* p. XII

<sup>11</sup> see the Principle of Response mentioned above, also Introduction to Chapter 12, p.134

goals they are purported to achieve, and (b) whether the general goals interpreted through the different guidelines are actually the best, as determined by the expanded rational design scale of criteria described in the previous section of this thesis. As will be seen further on, these are not entirely empty considerations, as the *Handbook* is something which has evolved and has been re-edited since its first publication in 1982. In particular, the various technical and numerical benchmarks in Chapter 12, “Site selection, Planning and Shelter”, were more or less in place from the time of the first edition, which pre-dates the more detailed exposition of the mission statement by former Commissioner Ogata by a number of years.

Once the *Handbook* moves beyond these statements of purpose though, a major flaw appears, one which paradoxically is due to the *Handbook*'s emphasis upon trying to be thorough, and universally applicable. The general aims of the *Handbook*, as outlined in the Principles of Response above, are impeccable – long-term solutions, appropriateness of response, and inclusion of all parties, not least the refugees themselves. However, the *Handbook* still uses an assumption of universal applicability even when it is no longer talking about universal human rights, or principles of humanitarian aid, and moves on to the level of specific prescriptions for the different components of emergency response. There are of course caveats or disclaimers at the start of some of the sections or chapters, to the effect that not all refugee situations are the same, and in Section 2, Emergency Management, the directness of the language is tempered by the insertions of words indicating conditionality, like ‘probably’, ‘may’, and ‘should’, but in each case only one option is offered.

This strategy of uniformity of response under all circumstances becomes more inappropriate as the actions of response become smaller in scope. Whilst it is correct to make a universal claim for refugees to have the right to shelter, as a broad, general principle, it is much less tenable to imply the same sort of universal applicability when basing housing calculations upon an assumption that every single refugee household will contain 4-6 people<sup>12</sup>. The assumption that one size fits all becomes even more untenable when is further coupled with a tendency to micro-manage and over-prescribe standards at even the most minute level. The closer the *Handbook* gets to describing what activities and what items and materials are actually present in an emergency situation, the further away it gets from its own Principle of Response about ensuring that measures are appropriate. And it is then the lists of item standards which brook the least discussion, or admit the least possibility of alternatives, because they are presented quite simply as just that – lists of numerical standards not even put into full sentences which might explain how the numbers were arrived at. Nevertheless, the *Handbook* proceeds to list with this one-word assurance, exactly how many pieces of chalk a teacher in a camp should be supplied with (6 boxes, totalling exactly 144 pieces<sup>13</sup>), or the exact ratio of people to footballs (2 footballs per 1000 people<sup>14</sup>).

Unfortunately, the greater part of the *Handbook* which deals with camp design and construction, falls into this last category of list-prescription. As will be seen in the subsequent section of this thesis, it is this insistence upon one size fits all, and the insistence upon a bald numerical approach, which does much to compromise the *Handbook*'s programme for achieving its own principle aims, and for being judged successful according to expanded rational design principles.

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<sup>12</sup> *Handbook* p.141

<sup>13</sup> *ibid* p.117

<sup>14</sup> *ibid* p.116

## *Sphere's Minimum Standards textural overview*

The full title of the Sphere Project's *Humanitarian Charter and Minimum Standards in Disaster Response*, gives away the fact that the book is in essence not one, but two separate documents: the Humanitarian Charter, and then the list and exposition of Minimum Standards. The question then presents itself whether these two parts are truly complimentary or whether they exist in some form of full or partial opposition.

The book is prefaced by a brief, two-page introduction. There is a pre-amble for the Introduction to the book, which claims that the principle of the Humanitarian Charter and Minimum Standards in Disaster Response is that, 'meeting essential needs and restoring life with dignity are the core principles that should inform all humanitarian action.' There are then two paragraphs on the Humanitarian Charter, the first stating that the Charter is based upon international humanitarian law, international law and refugee law, as well as an ICRC Code of Conduct. The second paragraph also defines the actions of the Charter in terms of 'legal responsibilities', and lists the two rights of refugees that will come under the Charter's definition: assistance and protection. There is then a one-paragraph statement about the Minimum Standards as being consensus-produced, and aimed at ensuring that humanitarian principles (presumably, but not explicitly, those of assistance and protection), are realised.

What comes next, carrying on for the next five paragraphs and taking up the rest of the introduction, is a third part, on scope and limitations, which amounts to a lengthy disclaimer, and a considerable retreat from the unambiguous assertions of positive rights at the beginning of the Introduction, mentioned above. In this last part, it is quickly admitted that agencies may not achieve the minimum standards set out, and that whilst the 'Charter is a general statement of humanitarian principles, the Minimum Standards do not attempt to deal with the whole spectrum of humanitarian concerns or actions.' Lastly, this part concludes with the warning that, 'the Humanitarian Charter and Minimum Standards will not solve all the problems of humanitarian response, nor can they prevent all human suffering.'

It may be disappointing but not surprising, that a Charter and Standards arrived at by consensus, and based on sets of international law that are also consensus-driven and apt to reach for the lowest common denominator, should concentrate only upon the achievement of the bare minimum. However, at the same time, the first of the three principles of fundamental importance listed and elaborated in the Humanitarian Charter, is the 'right to life with dignity'<sup>15</sup> (the other two principles are the distinction between combatants and non-combatants, and the principle of non-refoulement), which is described as including the right to, 'an adequate standard of living.' But it must be obvious to many people, at least outside the editing committees of the *Minimum Standards*, that true life with dignity is not really achievable when all that is being provided is the bare minimum for existence. The unwillingness of the *Minimum Standards* to treat the concept of life with dignity as something that is expandable, positive and enhancing, is evinced by the fact that for all the minimum standards and indicators of minimum standards given, there are no parallel sets of indicators for what might be comfortably above minimum, or even in which direction the indicators should point if a life beyond mere minimum levels were to be aimed for.

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<sup>15</sup> *Minimum Standards* part I, p. 2

With an absence of positive directions for any progression or development, the *Minimum Standards* would consign all refugees to a perpetual limbo of emergency phase care, with excuses already in place for not even achieving the minimum standards necessary for that. This obviously does not fulfill the requirements of any expanded, long-term version of rational construction, but what remains to be seen is why then the *Minimum Standards* adopts standards for camp layout and construction which are so close to those in the UNHCR *Handbook*, and does so as minimum standards, even though the aims that the two texts seek to achieve through the standards are so divergent.

### *Transitional Settlement textural overview*

*Transitional Settlement Displaced Populations* has by far the shortest introductory statement of purpose of all the three guidelines examined here – a mere four paragraphs or 223 words, compared with the pages devoted to statements of purpose in the *Handbook* or the *Minimum Standards*. In this spirit, the first sentence of the Introduction to the book is unassuming, and merely describes itself as a, ‘tool to develop and implement settlement strategies for the 20 million refugees and 25 million Internally Displaced Persons (IDPs) estimated worldwide.’<sup>16</sup> In fact, it is the word ‘tool’, along with the word ‘use’, peppered throughout the entire book, which do much to define *Transitional Settlement* as a text with a practical, problem-solving approach. Indeed, the style owes much to standard engineering manuals in the field, such as Lambert & Davis’ *Engineering in Emergencies*. Even those pages which do give an overview of the general legal context of transitional settlement do so because, ‘the legal context of transitional settlement is important because [i] rights law can be used as an advocacy tool...’<sup>17</sup> Even here, the theoretical framework has been harnessed as a tool, as something which is merely there to get the job done. This rather begs the question of why *Transitional Settlement* should be included in this overview of guidelines, rather than just being considered as an engineering manual beyond the scope of this thesis, whose primary concerns are different kinds of roofing joints or concrete mixes.

The reason is that the authors of *Transitional Settlement* are in many respects long-term development strategists in engineers’ clothing. The first and clearest testament to this is in the title itself, ‘Transitional Settlement’, which is explained as arising from the Shelterproject.org peer review process, as meaning ‘settlement and shelter resulting from conflict and natural disasters, from emergency response to durable solutions.’<sup>18</sup> This in itself differs little from the general approach to emergency response put forward by UNHCR, except that it puts an even greater centrality upon seeing emergency response as part of a continuity and a refugee-centred process that will last far beyond the emergency itself, and it allows the user to refer to solutions for both refugees and IDPs together under the same umbrella term. However, prior to the formal definition, the phrase ‘transitional settlements’ is used to give an outline of how transitional settlement can impact the local and displaced populations, and this indirect definition is much more telling. Of the six categories (security, survival and health, social needs, such as privacy and dignity, livelihoods, natural resource management, communal service infrastructure<sup>19</sup>), the third, fourth and sixth are all what can be described as social, or non-physical needs.

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<sup>16</sup> *Transitional Settlement* p. 4

<sup>17</sup> *ibid* p. 15

<sup>18</sup> *ibid* p. 11

<sup>19</sup> *ibid* p. 5

This paramount concern for the way displaced persons actually ‘live’ rather than merely ‘exist’, is further emphasised by the fact that within the Introduction Section, the only part which does not concern a general framework of contexts (definition of terms, the legal context, etc), is a part entitled ‘livelihoods’. It is this part which reveals, even more than the book’s title, the ultimate rationale to which the book’s authors would put their ‘tools’ to ‘use’: ‘Any support offered by governments and the aid community to transitional settlement must recognise that their interventions are only a phase in the ongoing decisions and actions made by the displaced and by local hosts.’<sup>20</sup> ‘Livelihoods are the ways in which people manage their lives in order to access the resources they need... Livelihoods are not simply forms of wage employment, but are both formal and informal activities undertaken to access resources.’<sup>21</sup>

### *Rational analysis of standards for refugee camp construction*

The following section of the thesis will be divided into a number of sub-sections. The standards for camp construction will be analysed firstly to see if they are consistent with the different aims of the three sets of guidelines above, which carry them or variants of them, and at the same time will be analysed to see how far the standards promote rationality according to the expanded principles already described in Part One of this thesis. Secondly, the standards will be analysed to see if they are as a whole, self-consistent, and if they do add up to a coherent camp design (or even if not), what implications do the larger pictures have towards goals of rationality. A following sub-section will then examine whether any of the variants in the UNHCR *Handbook* standards offered by either the Sphere *Minimum Standards* or *Transitional Settlement* make any significant difference to construction options and rationality. There will then be a sub-section which will attempt to explore what types of design and construction strategies are possible within the standards, and then finally a sub-section to offer potential for making the standards more rational, according to the expanded principles.

It should be noted at this point that not all possible elements of camp design and construction are included in the written guidelines of the UNHCR *Handbook*. One glaring omission is any mention of a construction process or construction schedule. However, rather than just falling back on Wittgenstein and saying ‘what can not be said, thereof we must remain silent,’ I prefer to tackle such issues where possible with practical examples instead, as part of Part Four of this thesis, containing the case studies of the refugee camps in Sierra Leone.

#### **A. How rational are the different standards?**

As mentioned above, the majority of the relevant standards for construction in the *Handbook* are contained within a small number of numerical lists. These will be tackled largely as a group below, but there are also a number of other standards, often in longer written form, which come from other sections of Chapter 12 (‘Site Selection, Planning and Shelter’) of the *Handbook* than the lists, but which also have some impact upon the process. The first of which is a general set of principles of response for the chapter:

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<sup>20</sup> *ibid* p. 21

<sup>21</sup> *ibid* p. 21

- ‘ \_ Use longer term planning principles, even when the refugee situation is expected to be only temporary;
- \_ Decisions on site selection and camp planning are very difficult to reverse, therefore when in doubt seek technical support;
- \_ Avoid high population density in settlements and in shelters;
- \_ Avoid very large emergency settlements; refugee camps should normally be considered as a last resort;
- \_ Involve refugees in all phases of settlement and shelter planning and construction;
- \_ Use a bottom-up planning approach, beginning with the smallest social units, preserving traditional social arrangements and structures as far as possible;
- \_ Develop a comprehensive master plan, with the settlement layout developed around sanitation and other services, providing room for expansion.’<sup>22</sup>

Are these consistent with the guidelines’ aims? For the most part, the principles of response are general enough to be in-line with the general, long-term aims of both the *Handbook* and *Transitional Settlement*. The only exception would be the last clause of the fourth principle. It is obvious that planned refugee camps (which seem to be the only sort under discussion in these principles) do have their advantages<sup>23</sup>, but more to the point, in most refugee situations, there will be a number of different settlement strategies undertaken by the refugees, of which planned camps are an integrated part. The option of building a camp should not be seen as an option of last resort, if only because it might encourage that option to be neglected during contingency planning and during administration, leaving the inhabitants and their livelihoods at a disadvantage. As far as the Sphere *Minimum Standards* are concerned, the principles do not go counter to their aim of ensuring minimum standards, but largely because these principles lie beyond the self-defined scope of the *Minimum Standards* as being concerned only with minimum standards during the emergency phase: all of the principles except perhaps for the fourth one, are more concerned with long-term planning.

Do they promote rationality? Again, by extending views towards the long-term, all the principles apart from the fourth one are consistent with the expanded principles of rationalisation. This and their generality and lack of specifics make them difficult to argue with.

What follows in the first section of Chapter 12 is a brief exposition on different shelter options (dispersed shelter, mass settlements, camps), and then there begins the section on site selection. This starts with a couple of general warnings that are unarguable: find out why a piece of land has remained unused before appropriating it, always make sure that there are enough water sources. But then there comes a section on size of camp sites, which becomes suddenly more specific, and more numerical. The main standards contained in the section are as follows:

‘A rule of thumb when calculating entire camp size is to allocate 30m<sup>2</sup> per person. This includes, ‘the area necessary for roads, foot paths, educational facilities, sanitation, security, firebreaks, administration, water storage, distribution, markets, relief item storage and distribution and, of course, plots for shelter.’ If the refugees are also to have some small space for a vegetable garden, this should be calculated at 15m<sup>2</sup> per person, or 45m<sup>2</sup> total.’<sup>24</sup>

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<sup>22</sup> *Handbook* p. 135

<sup>23</sup> The *Handbook* then proceeds to list four of them on p. 137.

<sup>24</sup> *Ibid* p. 138

The guidelines cover themselves by prefacing the numbers by saying that they should be used with caution, and as a rule of thumb, rather than a precise standard. Nevertheless, no other sets of numbers are offered, or ranges of numbers between which a sliding scale could be reached. The one-size-fits-all approach, both within one refugee camp and the world at large, even if it is for the time being only there for rough calculations, is the biggest problem with the numbers, although this will recur with almost all of the standards. Whether the figure of 30m<sup>2</sup> is adequate for providing space for all the facilities mentioned to a degree whereby they can contribute to long-term development of the camp will be tackled in the subsequent sub-section on the self-consistency of the standards overall. As for the figure of 15m<sup>2</sup> for the vegetable garden, it all depends upon what sort of vegetables were to be planted, and how much was necessary (again a question of universality). Given the right climatic conditions, 15m<sup>2</sup> is probably enough to grow enough herbs and spices for year-round use, but with staples like potatoes only growing three to five plants per square metre, or maize only growing two to four plants per square metre, this area would obviously not grow nearly enough for the refugee's dependency upon aid agency food distribution to be reduced. The 15m<sup>2</sup> plot is consistent with the aims of the guidelines' in as much as it might provide a small buffer of space for extra privacy, or promote some communal activities, or in as much as it might be used as eventual space for shelter expansion, but it does not provide the refugees with any aid in for their long-term livelihoods at that size. Considerations about whether this promotes rationality should be seen in the context of all of the standards as a whole, which will be examined in the next sub-section. It will be mentioned again in following parts of this thesis, but if the goal really is to provide enough arable land for agricultural self-sufficiency, then an entirely different model of settlement, more akin to rural settlement programmes, with a plurality of acres per person, would be the main alternative.

'Large camps of over 20,000 people should generally be avoided. The size of a site for 20,000 people should be calculated as follows assuming space for vegetable gardens is included: 20,000 people x 45 m<sup>2</sup> = 900,000 m<sup>2</sup> = 90 ha (for example a site measuring 948 m x 948 m).'<sup>25</sup>

There is much evidence to support the claim that smaller camps work much better as long-term sustainable communities, albeit of a village-style, and probably rural-agrarian in nature. In fact, this is the first point where there is a significant difference of standards between the *Handbook* and *Transitional Settlement*, with *Transitional Settlement* arguing for an even lower number (see below). On the other hand, there are certain sorts of livelihoods which would be dependent upon having larger, urban-style communities. Again, the consistency with the aims would depend upon whether it was adaptable to the livelihoods of different refugees from different urban or rural backgrounds, a point not acknowledged in the *Handbook*. There is also the question of suggestibility through exemplary calculations in the second part of the standard, whereby the figure of 20 000 people elides from being a rough limit, to being an absolute assumed, and where the extrapolation of metres-per-person allocation to overall site area, instantly assumes a square, uniformly divisible camp.

In and of its own, this part of the standard does not contribute nor detract significantly to equations of rationality, except in the suspicion that it might by sleight of hand promote

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<sup>25</sup> *ibid* p. 138

assumptions of a grid-pattern layout, which has some short-term benefits during the construction process, but more disadvantages in the long-term to do with social costs, which will be referred to at various points in the rest of the thesis. But this measurement does raise questions of rationality, when paired with the next part of the standard, which is:

‘Refugee settlements should have potential for expansion to accommodate increase in the population due to natural increases or new arrivals. The excess of births over deaths means that the population could grow as fast as 3 to 4% per year.’<sup>26</sup>

This figure is certainly borne out with the statistics for the refugee camps in Sierra Leone which will form the subject matter for the case studies in Part Four of this thesis. The warning is a good one, but its implications for the rest of the standards will be better explained in the sub-section below which deals with overall self-consistency, as a growth rate of 4% a year would equal one new baby per five-person family by the fifth year, and another by the ninth year.

There then follows a short section about security, which makes an unarguable but general observation that for the security of refugees, camps should be located away from borders and military observations. After that, comes a section on topography and drainage, which states that camps should not be situated on land which could become waterlogged or which might be prone to flooding, and which ideally should be on a 2-4% gradient. All of which is sterling advice, but connected with the section on vegetation discussed immediately below, there is the implication that a site can be of a uniform featureless plane, with no assumption that there could be any features that could be taken advantage of, or used creatively: there is no instigation to look for features whose use could create benefits for the camp (for instance, the inclusion of a river or stream). Whilst this seems more a missing of an opportunity rather than something which is defiantly irrational, it has had implications for the models which refer to the guidelines which will be discussed in Part Three of the thesis.

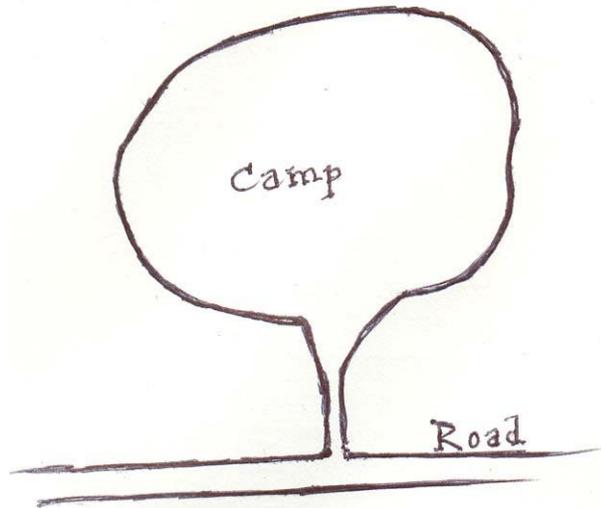
The next section is on accessibility. For the most part, the standards here are also uncontestable, with one glaring exception, which even though it is only one sentence long, can have profound effects upon the shape of the camp, the sustainability of camp life, and the livelihoods of the refugees in the camp. The uncontestable parts of the section are statements that the camp should be close to necessary supplies, that the roads should be good, and that, ‘There may be advantages in choosing a site near a town, subject to consideration of possible friction between local inhabitants and refugees.’<sup>27</sup> In fact, economic integration through physical proximity to a local host community is probably one of the best insurances against possible friction, which makes the one sentence of contention in the section so important. That sentence reads, ‘Short access roads to connect the main road with the site can be constructed as part of the camp development.’<sup>28</sup> This is in fact the way every refugee camp that I have seen images of has been situated, and it is the way any camp is situated in any of the models for camp designs that take into account exterior features which will be examined in Part Three. In all of these cases, the camp is isolated, situated away from the road, connected only by the umbilical cord of that access road.

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<sup>26</sup> *ibid* p. 138

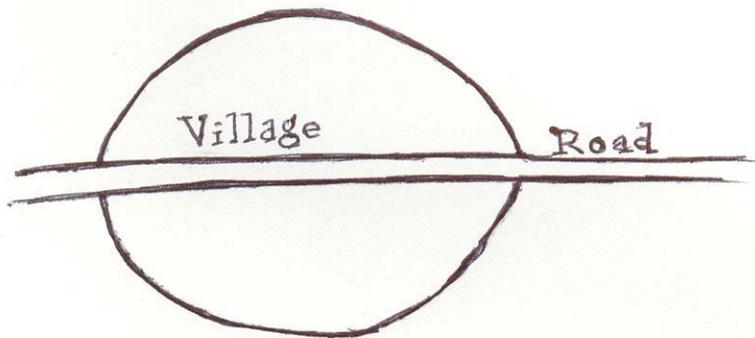
<sup>27</sup> *ibid* p. 139

<sup>28</sup> *ibid* p. 139



*Image: Kennedy*

In reality, such a set-up is counter to a large number of rational construction principles, both of the more traditional short-term construction process variety, and of the expanded socio-economic sort. If the layout of naturally-occurring villages or towns are examined, it will be quickly noted that very few indeed are set away from the road in the manner of refugee camps. In fact, the vast majority of them are placed along the main road, either on one side, or on both sides, so that their shape is generally circular, with the main road bisecting at a diameter.



*Image: Kennedy*

This is because for a normal town, the main road is its lifeblood, and its connection to the rest of the world. A place along the main road ensures economic connections, a chance to sell one's own products and to buy things from other places, to get information, and to meet other people. Traditionally, land close to the main road has been prime property. Even if the analogy could not be drawn between town and camp, there would still be a number of compelling reasons to relocate refugee camps by abolishing the short access road, and instead having the pre-existing road run right through the camp.

- Whilst a camp situated away from the road (and the access road to it) may have rugged terrain or thick undergrowth before the site clearance, the areas closer to the road are more likely to be already clear, and to have easier access along a longer distance.
- Either the main road is already adequate for use in all weathers, or else will be upgraded as part of the preparations for the camp, and possibly as part of a parallel upgrading of services for the host community. In either case, by situating the camp around the main road, there will be a savings in road-paving materials for the entire length that the road goes through the camp (948m length x 30m width, if the numbers in the *Handbook* are to be taken at face value), plus the length saved by just not having to build a short access road at all. Not only will there be a savings of building materials, but there will also be a savings of manpower hours, for the laying of that distance of road. This savings of time then snowball when one considers the savings in both monetary and social terms, to be had by being able to finish preparing the camp some days early, and move the refugees that much quicker out of temporary transit centres.
- Beyond the construction phase, the road running through the camp will give the refugees increased locations for trade, especially after their livelihoods have been set up to a sufficient degree so that some of them are producing items for export out of the camp as well as importing items for sale within the camp. This will then increase the likelihood of creating economic emollients to any friction between the camp and host communities mentioned above.
- The road will give the refugees more direct access to not only trade, but also informal information networks that may come along the road.
- The location of the camp along the road may help in removing from the refugees any impression that they are being kept isolated and apart, as pariahs from the rest of the world.
- The fact that the road is central but linear, will allow the various larger non-residential buildings to spread out and decentralise, bringing a greater proportion of the shelters closer to the 'centre', whilst still retaining a high degree of accessibility:

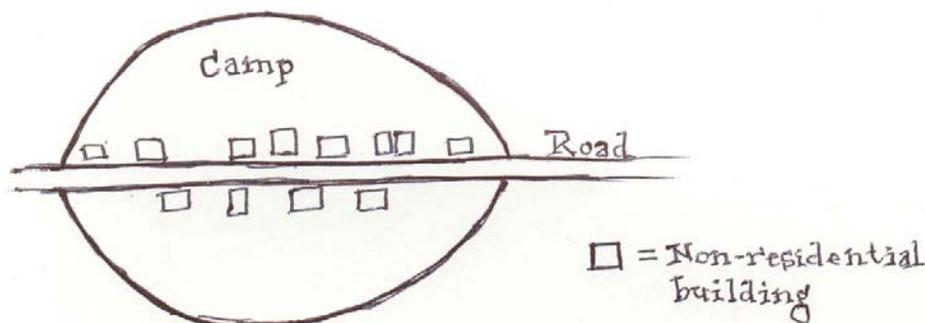


Image: Kennedy

The last section under the heading Site Selection, is one on vegetation, and here, the tone closely echoes that for the previous section on topography. Vegetation is seen as something to be guarded or (reluctantly) removed, but not as something to be used, and adapted to. Most of the section is given over to admonitions to try and limit deforestation due to fuel gathering. Of course trying to limit the environmental impact of the presence of the camp is of great importance, both in the short-term and in the long-term after the closure of the camp, and

measures for environmental protection and regeneration should be part of any durable solution. But the raw figures for wood fuel use are daunting in the extreme. The average wood fuel use per day in a refugee camp, just for cooking, is 1-2 kilograms per person<sup>29</sup>. The amount is so great, that if a camp is having both food supplies and wood fuel supplies delivered, a multiple of truckloads of wood are necessary for each truckload of food<sup>30</sup>. The amount of land that is needed to provide 1-2 kilograms of fuel wood will vary greatly depending upon the terrain. In arid terrain, or terrain which is mainly grassland or low brush, many square metres may be needed. In woodland or forest, the amount of land needed may be much less. Because the question is so dependent upon terrain, climate and season, there is no clear rule of thumb, but assuming for the sake of argument that it takes one square metre of ground to provide the 1-2 kilograms of fuel per person, then each day a camp of 20 000 people will deforest the surrounding area by 20 000m<sup>2</sup>, or two hectares. By the end of the first week, the area deforested would be 14 hectares. After six and a half days, the area of deforestation would be equivalent to the entire area of the 90 ha camp, and if the area of deforestation was done in a uniform manner adjacent to the camp boundaries, then the distance from the centre of the camp to the nearest edge of fuel-providing land would have increased from by 185m. If it is assumed that the fuel-providing land was originally contiguous with the camp boundaries, at the same rate by the end of the year the distance from the centre of the camp to the edge would have increased from less than half a kilometre, to more than three kilometres.

In other words, the real solution to deforestation will probably lie in some form of fuel-based solution. In the meantime, vegetation within the camp site should be looked upon as something to be used to create spaces within the camp – both by its removal, and by its remaining. As far as rational husbandry of the vegetation on site the following points should be made:

- Even if smaller plants or brush undergrowth needs to be removed, to give space for shelters, other buildings and roadways, care should be taken to leave as many trees as possible, because they will take the longest time to grow back after the camp has been closed, because they have the widest systems of roots to act as soil binders and anti-erosion devices, and because they offer so much natural shade and shelter (see next point).
- If some trees do need to be removed, then this should be done as a form of considered ‘triage’, with the trees which are within the communities of shelters being the first to go, and the ones which are lining or close to roadways as the last to go. The reason for this is that apart from the most extreme, tent-based shelter solutions, the refugee shelters provide adequate shade for close-by outdoor activities, and if not, then the refugees will find a way of creating that shade to suit their own comfort. But one thing that camps often lack is forms of public shade, or shade at the edges of public areas. Shade from trees at the edges of major roadways in the camp, or at the edge of public squares, may do much to foster smaller, informal community gathering points, market stalls, and a space of transition between small, individual shelters and large public spaces.
- Consider having the refugees involved in the clearing of the vegetation in their own plots. Obviously the roadways and the public spaces will all have to be fully cleared before the refugees arrive at the camp, but if the refugees are able to take the responsibility for

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<sup>29</sup> *Transitional Settlement* p. 315

<sup>30</sup> personal communication, Dr. Tom Corsellis.

clearing their own plots, it may save on manpower hours during the overall camp construction phase, and may also encourage the refugees to take an active role in deciding which vegetation to have remaining in their plots, if any.

Then commences the next section, Site Planning: General Considerations, which contains most of the parts central to the definition of camp layout according to the guidelines. The first part of note is the one which describes and advocates modular, ‘bottoms up’ planning, saying that, ‘Thus planning and physical organization of the site should start from the smallest module, the family, and then building up larger units.’ The section then goes on to recommend the clustering of shelters, in order to promote security and economic and environmental gains through the sharing of resources.<sup>31</sup>

Despite the fact that there still remain camps in the world where the shelters are not clustered, since the writing of the article “Refugee Camps and Camp Planning: The State of the Art”, in *Disasters Magazine* by Fred Cuny in 1977<sup>32</sup>, it has become an article of faith that the clustering of shelters into ‘communities’ can have various short-term and long-term benefits, to the point where nowadays in many manuals, the clustering is seen as an a priori good. Of course, it would be difficult to imagine the circumstances where one could argue against putting the refugees, their families and their communities at the centre of all layout decisions, just from a general ethical and humane perspective, and in this sense, the *Handbook’s* heart and instincts are in the right place. However, if one was to be obstinately rigorous about the standards of evidence to support these contentions, one would be forced to admit that the claims for clustering, whilst attractive, are still largely unsubstantiated.

Cuny, and those who follow his ideas have been quick to point to what they see as the benefits of shelter clustering according to their own experience and observations in the field, and again, probably few would wish to doubt them. But at the same time, a review of the available literature has not revealed a single instance where a study to verify these claims was made according to rigorous scientific methodology. There has never been an instance where two parts of the same camp, or two camps with similar populations and circumstances, have been divided into experimental and control groups, with one group being housed in clustered shelters and the other in equidistant grid-lined shelters, where a number of indicators were proposed (for example, a reduction in the crime rate, or an increase in co-operative micro-finance ventures), and then monitored over the long term. There has been one study of a camp for displaced persons after a natural disaster, in the Coyotepe camp in Managua, Nicaragua, in 1972, which, ‘exhibited a greater sense of community, had far fewer social problems (as indicated by crime, vandalism, etc) and cost 37% less to operate than other camps in the same area at the same time.’<sup>33</sup> This number has then become somewhat of a mantra, and is used as a benchmark in other texts which advocate the use of clustering<sup>34</sup>. Nevertheless, this is one isolated case, in camps which were built for people displaced by natural disaster rather than armed conflict, and apart from the summaries of conclusions like the one above, it is difficult to access information about the data and methodologies of that study.

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<sup>31</sup> *Handbook* p. 140

<sup>32</sup> Cuny, 1977, pp. 125-143

<sup>33</sup> Hardin 1985, p. 6

<sup>34</sup> Setchell 2002, p. 2

Whilst belief must therefore continue to be suspended on a scientific basis however, the rationales for clustering seem so common-sense in their aims, the evidence from other urban-planning texts about community-building<sup>35</sup> provides enough correlatory testimony, and the evidence of problems caused by the alternative, military-grid style of shelter layout are demonstrable enough, that for the rest of this thesis it will still be assumed that the clustering of shelters is in fact the optimum community layout in camps. The lack of hard evidence will just mean that this part of the rational construction equation must fall to that end of the spectrum where standards of quantification are low, but importance is high. But, all of this assumption should be done with caveats, concerning other parts of the assertion which have hitherto gone largely unquestioned.

The main caveat to agreement that clustering supports communities, lies in the definitions of the words ‘clustering’ and ‘community’ themselves. A community is not a universal, objective quantity, of uniform size, number and actions. Firstly, the size of any community, and decisions about who belongs to a community, will be entirely dependent upon the specific refugee population for each specific situation, and this is something which the *Handbook* recognises in the written start to the section, but seems to put to one side by the time numbers are produced. Secondly, although it is often the case that refugees arrive in camps as village or extended family groups, it is by no means always the case that the social communities that were in existence in the country of origin will be represented intact in the camps. Aid workers usually do try to be flexible enough in the allotment of shelter plots to allow extended family members to live side by side, but it is quite possible, if not likely, that the refugees will end up sharing their physical ‘communities’ with people who they would not necessarily choose to share their social communities.

‘Clustering’ is also something that needs to be examined intelligently, if it is to be well implemented. Even the general act of clustering itself may be culturally specific, and I was told during conversation with one senior UNHCR officer<sup>36</sup>, that according to his own experience, the inward-facing clustering of shelters around a de facto ‘courtyard’ (a popular style where clustering is enacted), would not be culturally appropriate in camps for Afghani refugees, or at the least would be difficult to graft onto their own cultural value systems. Above and beyond these concerns of universal applicability, there must be a further examination of exactly what should be achieved through clustering, beyond mere generalities about ‘community building’, and towards much more specific goals concerning the use of space. Whilst the utmost consideration must be given to balancing the basic needs of vulnerable members of the community with cultural norms for layout and divisions of space, it would also be wise to set a series of specific goals for the clustering tactics, and ones which importantly take into account the space outside and surrounding the community as well as the space within. Goals of this sort could include, but not be limited to the following alternatives:

- Closing off as many entry points into the community as possible, so that it has the added protection of truly enclosed space
- Creating a hierarchy of openings and closings, to allow the community to choose a public face, and one which might promote small trade or other activities, whilst still allowing a quick return to privacy

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<sup>35</sup> Newman 1972, et al.

<sup>36</sup> UNHCR Freetown senior staff *personal communication*

- Creating clusters which essentially have not one, but two faces, so that the community can simultaneously have public connections with the rest of the camp, but still have ‘defensible space’-eyes on their own internal private areas as well
- Opening up the community as much as possible, so that it takes on added social and political status of becoming an informal gathering area for a wider sector of the camp.

The term ‘modular planning’ is one which should also receive separate attention, because even though it too is central to the *Handbook’s* approach to camp layout, it too is often glossed over, or assumed to mean exactly the same as clustering, joined together in one catch-all phrase, ‘shelterclusteringmodularplanning’. However, the two terms are not interchangeable: clustering is about the formation of a community, whilst modular planning is about then using that community as a building block for planning purposes. Modular planning of refugee camps has proved very popular, because it is relatively easy to plot out and organise, and the assumption is that it can be eternally replicated, and therefore can adapt easily to circumstances where the final number of arriving refugees can not be known in advance. However, the problems that occur with modular planning for low-income urban neighbourhoods outlined in Part One of this thesis, also attach themselves to modular planning for refugee camps. However well constructed the communities which occupy the space of each module, there will always be problems to do with the binary nature of modular planning, and to do with the fact that eternal replication can not be thought of as happening in a vacuum, but happens very much in relation to the other communities in the camp, and to the pre-existing centres of that camp.

As mentioned in Part One, if the only significant building block of a neighbourhood is a module of set dimensions, then the choices for layout are limited to strictly binary ones: to install a module in a certain place, or not to install a module in that place. There is no category of tools which are neither module nor absence-of-module. There are no neighbourhood building blocks which offer an interface between the modules and the areas where the modules are placed: there is no physical entity which acts as the metaphorical concrete to hold the modular building blocks together. The other facet of this problem is with the temptation towards eternal extension of a camp through more module building. This strategy essentially treats both the module and the camp as separate, isolated entities, with no necessary connection. But if extra modules are added at the periphery of a camp, then of course this will alter the nature of the centre(s) of the camp as well, and the relationships between all of the other modules, and between the modules and the centres. The abstract, geometric tiling effect of the eternal replication of modules, means that spaces are created for living, but not for livelihoods. Shelter modules are valid tools for constructing the layout of the camp, but they should not be the only tool in the toolbox. There should be recognition of the fact that the greater variety of livelihoods take place not within the modules, but within the dimensions between the modules, and that this should be negotiated accordingly.

What then follows for the rest of the section on Site Planning: General Considerations, is the most sustained list of numerical standards, for quantifying and multiplying the modules:

- ‘1 water tap per 1 community (80-100 persons)
- 1 latrine per 1 family (6 - 10 persons)
- 1 health centre per 1 site (20,000 persons)
- 1 referral hospital per 10 sites (200,000 persons)
- 1 school block per 1 sector (5,000 persons)

4 distribution points per 1 site (20,000 persons)  
 1 market per 1 site (20,000 persons)  
 1 feeding centre per 1 site (20,000 persons)  
 2 refuse drums per 1 community (80 - 100 persons)  
 Family 1 family 4 - 6 persons  
 1 community 16 families 80 persons  
 1 block 16 communities 1,250 persons  
 1 sector 4 blocks 5,000 persons  
 1 camp 4 sectors 20,000<sup>37</sup>

This is then followed closely in the next section, Site Planning: Specific Infrastructure, by further numerical indicators for the other features which the *Handbook* lists as necessary for a camp:

- Water sources not more than 100m away from the shelters, and water distribution to groups of 80-100 people
- Firebreaks 30m wide for every 300m of built-up area
- A distance between structures of at least twice the height of the structures, or 3-4 times the height if the use of highly flammable materials and prevailing wind patterns make it necessary
- The inclusion of non-residential buildings other than those in the list above, which might include, but which are not limited to: i. Site administrative office; ii. Services coordination offices for health care, feeding programmes, water supply, education, etc.; iii. Warehousing and storage; iv. Initial registration/health screening area; v. Tracing service; vi. Therapeutic feeding centre (if required). vii. Bathing and washing areas; viii. Supplementary feeding centres (if required); ix. Education facilities; x. Institutional centres (e.g. for the disabled and unaccompanied children, if required); xi. Recreation areas; xii. Commodity distribution centres.<sup>38</sup>

Then there is one last figure on the following page, which really does define the smallest building block unit for the layout of camps, that of the minimum shelter space required per person, which is listed as 3.5m<sup>2</sup> per person, or 4.5m<sup>2</sup> to 5.5m<sup>2</sup> per person in cold climates.

Whether these lists of features follow the aims of the guidelines, and how well they contribute to a rational construction of refugee camps will only fully come to light in the next section of this part of the thesis, on the overall self-consistency of the standards. But prior to that, a few general points can be made. Firstly, as has been seen throughout the guidelines, despite the desire for adaptability expressed in the general written parts of the guidelines, the numbers themselves are of a distinctly one-size-fits-all variety. Secondly, that the non-residential buildings are all formal, and tend towards the monofunctional, although in all fairness it is not a complete list, and it would be difficult to create a list of the same clarity for informal, multi-functional non-residential buildings. Thirdly, that although the minimum shelter space of 3.5m<sup>2</sup> means that almost 90% of the camp would be allocated to non-shelter space (30m<sup>2</sup> - 3.5m<sup>2</sup>, and then extrapolated to the total population of the camp), and therefore having in theory a great potential for the fostering of a variety of community group activities and livelihoods, the downside is that 3.5m<sup>2</sup> shelter space per person really is a bare minimum amount, not greatly

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<sup>37</sup> *Handbook* p. 141

<sup>38</sup> *ibid* p. 143

conducive to an individual's long-term well-being, and very close to the 3m<sup>2</sup> amount of space suggested later on in the *Handbook* as being the minimum shelter space requirement in transit camps, which are seen as temporarily (3-5 days) endurable, but not sustainable<sup>39</sup>. Lastly, a minor point about the firebreaks. Whilst the firebreaks are undoubtedly necessary, the language that is used to describe them in the *Handbook*, is one which is essentially one of void, or omission. It is implied that the firebreak is a firebreak merely by being a gap, or by being a non-module. In reality, the firebreak areas in most camps are actually the spines of the widest level of roads through the camp, which at the same time happen to provide an effective space as a fire-prevention measure. But as such, they should be described as roads, with some intimation perhaps that they are connectors, not just gaps, and that they have complex edges as well as clear middles.

## **B. Are the standards self-consistent?**

Seen in isolation, it is difficult to tell to what extent many of the standards listed above, especially those which are of a bald numerical sort, contribute to or detract from any equations of rationality for the camp and for all whom it influences. However, by examining how the different standards interact, a more complete picture of the standards as a unified overview may emerge, or alternatively points may emerge which demonstrate that within the general picture, some considerations are held as being more important than others. However, the first task is to see whether the collection of different standards do in fact hold up as a coherent whole.

As mentioned above, the *Handbook* insists that planning be done from the bottom up, starting with the smallest units (families and communities), and then expanding those into the bigger picture. However, in the order of presentation in the *Handbook*, it is the largest elements (size of camp site), which comes first, and the smallest element (individual shelter space), which comes last. Therefore, I will firstly attempt to build up a picture of a whole camp from the largest elements to the smallest, and then do it the other way around, to see if different conclusions, if any, can be drawn.

According to the *Handbook*, the camp should have (not more than) 20 000 people, and a model is given based upon a minimum of 45m<sup>2</sup> per person (30m<sup>2</sup> per person for shelter, public spaces and facilities, plus 15m<sup>2</sup> per person for vegetable gardens) of a camp of 90 hectares (900 000m<sup>2</sup>) with dimensions of 948m x 948m.

The next level of element, the firebreaks, are defined a little inconsistently, but not so much that a rule of thumb for their size and placement can not be achieved. Depending upon whether the numbers come from page 143, or a subsequent summary 'Toolbox' annex on page 374, the firebreaks should either be 30m wide for every 300m of built up area, or between every block (defined as 16 communities, each with 16 family shelters, with an average of 5 people per family) for camps of modular design; or else 50m wide for every 300m of built up area. For the present, I will take the modular option, as that is the general principle of greater importance for the camp layout according to the *Handbook*.

In the 20 000 person camp, there are 4 sectors each of 4 blocks. Therefore, the firebreaks should divide the camp into 16 blocks total. Assuming that the blocks are regular in size, and that

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<sup>39</sup> *ibid* p. 146

the firebreaks are equidistant, there should then be 6 firebreaks. There are a number of ways that the firebreaks can be laid out, but my strategy at this point of the exercise, is to conserve as much space as possible, to make sure that all the subsequent elements of the camp can fit in. The layout which achieves this is one of a lattice of three firebreaks going horizontally, and three going vertically (or, on the real Earth's surface, three going north to south, and three going east to west), thus allowing for a 'doubling up' of space at the 9 crossroads. Therefore, the total area to be assigned from the 90 ha camp for firebreaks can be calculated as follows:

$$(948\text{m} \times 30\text{m} \times 6) - (30\text{m} \times 30\text{m} \times 9) = 162\,540\text{m}^2$$

This also means that if all of the blocks are uniform in size, then the length of their sides can be calculated as follows:

$$948\text{m} - (30\text{m} \times 3) \div 4 = 214.5\text{m}$$

And the area of each block will then become the square of that side length, namely 46 010m<sup>2</sup>.

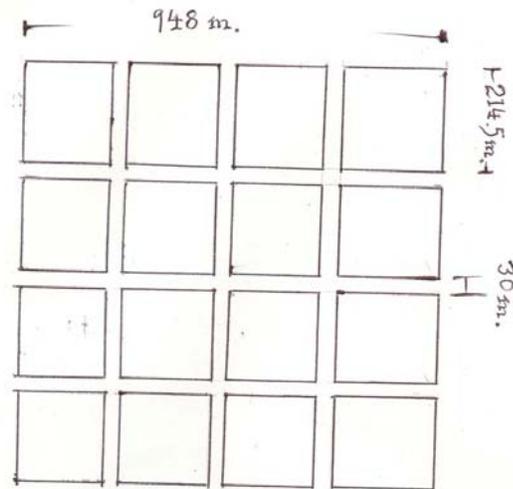


Image: Kennedy

The next lower element in the guidelines, are communities of 16 shelters, and 16 communities make a block. There is no guideline in the *Handbook* for the distance between communities, but there must be some sort of distance, in order to give the community physical definition, and that distance or pathway, should therefore be less than a firebreak, but should be at least as much, if not more than the distance needed between individual shelters. I will use here the number offered instead by the Sphere *Minimum Standards* and repeated in *Transitional Settlement*, of 6m distance between communities. As each of the blocks mentioned above are made of 16 communities, then there will be according to the model implicit in these guidelines, 6 pathways between the communities, in a reduced mirror image of the structure of the blocks. In each block, the space needed for the pathways between the communities is calculated as follows:

$$(214.5\text{m} \times 6\text{m} \times 6) - (6\text{m} \times 6\text{m} \times 9) = 7398\text{m}^2$$

But this is only for one block of 16 communities, and the camp as a whole has 16 blocks, so for the whole camp, the amount of space that must be assigned for all the pathways together is

$$7398\text{m}^2 \times 16 = 118\,368\text{m}^2$$

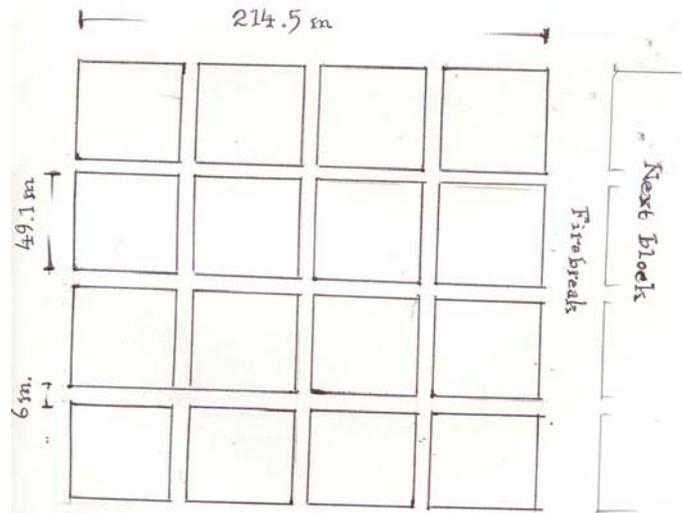


Image: Kennedy

So far, the total area of the camp assigned to roadways and pathways is 280 908m<sup>2</sup>, which equals 31.2% of the total camp area, and in excess of the 20-25% of the total recommended in the ‘Toolbox’ annex at the end of the *Handbook*<sup>40</sup>.

There is another calculation that can be derived at this stage, and that is of the side lengths and areas of each community, assuming as always that they are of uniform dimensions. The calculation for the community side length is as follows:

$$214.5\text{m} - (6\text{m} \times 3) \div 4 = 49.1\text{m}$$

And the area of each block will then become the square of that side length, namely 2410.8m<sup>2</sup>.

Each community is made of 16 family shelters. There is a little ambiguity again about the exact numbers of people in a community, because it is either defined straight off as 80 people exactly (i.e. 16 x 5), or else as 16 x 4-6 persons<sup>41</sup>. Ignoring the fact that a total of 256 communities of 80 people would actually put the total population above 20 000, at 20 480, I will here assume that each shelter does indeed have 5 people living inside, however improbable that may be. I am also going to assume three more things before resuming with the calculations: (i) that each person gets 4.5m<sup>2</sup> of shelter space, just because 3.5m<sup>2</sup> is hardly enough space to contain some belongings and then still have room enough to roll over whilst sleeping, (ii) that the shelters will be built so that there is adequate head room within the whole shelter, meaning walls of 2m height, and that there is roofing pitched to keep out the rain, so that the height of the roof and the side gables is actually 3m, (iii) that the minimum shelter space per person can be practically used by everyone, so that the floor dimensions are not calculated as ‘equivalent

<sup>40</sup> *ibid* p. 374

<sup>41</sup> Both numbers from *Handbook* p. 141

spaces', but as a shelter which actually measures 5m in pathway-side width and 4.5m in depth going backwards into the community land. Though 50cm in shelter length hardly seems a difference, I am placing the shorter side of the shelter as its 'depth' going back into the interior of the camp, so that the adjacent vegetable gardens protrude less backwards into the interior of the community, so they are all easier to tessellate against each other (see below). However, if the shelters were rotated through 90°, so that the shorter sides were parallel to the pathways, it still would not make a difference to the calculations at this point, because the length of the sides in this model are calculated by dividing the blocks, and so the community sides would remain 49.1m, regardless of whether the shelters and buffer areas occupied 40m or 44m of that total.

The height of 3m per shelter means that the shelters should be a minimum of 6m apart (twice the shelter height), and so each shelter should have a firebreak buffer area in all directions of at least 3m (so that if the shelters are adjacent, then the 2 x 3m will still give the minimum firebreak distance between shelters of 6m). The buffer between each shelter is described in the guidelines as a firebreak, but in reality its presence is necessary to fulfill a number of important functions, such as disease vector barrier, and simple inter-household noise reducer.

The buffer area at the front of the shelter is incorporated into the pathway, and the buffer at the back is incorporated into the vegetable garden in the rear, so the only parts of the buffer which need their own calculations are those at the sides of the shelter, closest to the other shelters. This will mean that each shelter will take up a total of:

$$(5\text{m} \times 4.5\text{m}) [\text{shelter}] + (4.5\text{m} \times 3\text{m} \times 2) [\text{buffer space}] = 49.5\text{m}^2$$

Each shelter will have a combined shelter-and-buffer pathway frontage of  $5\text{m} + (3\text{m} \times 2) = 11\text{m}$ .

As these calculations are working in the assumption that the original 90 ha camp area is derived from multiplying the total population of 20 000 people by 45m<sup>2</sup> per person, of which 15m<sup>2</sup> per person is set aside for a vegetable garden, then each shelter should also have adjacent to it 5 x 15m<sup>2</sup> worth of vegetable garden. Therefore, the combined area per shelter within the community for each family is 49.5m<sup>2</sup> [shelter plus firebreak buffer] + (15m<sup>2</sup> x 5) = 124.5m<sup>2</sup>. There are 16 of these in each community, and so the total area for the shelters within each community is 124.5m<sup>2</sup> x 16 = 1992m<sup>2</sup>.

If this shelter and garden area is then calculated for the camp as a whole, then it will come out as follows:

$$1992\text{m}^2 \times 16 [\text{community}] \times 16 [\text{block}] = 509\,952\text{m}^2$$

Thus, the total area for the camp which would need to be assigned to roads, pathways, shelters and gardens, in essence all the features that the guidelines give exact measurement standards for, is 790 860m<sup>2</sup>, which leaves 109 140m<sup>2</sup>.

But is this enough to squeeze in all the non-residential buildings that are listed in the guidelines but which have not been placed into this camp plan yet? The *Handbook* gives exact dimensions for very few of them, but some general guesswork may help. The *Handbook* does give a space estimation for the amount of warehouse space needed for storage of adequate food supplies for 30 000 refugees at 50m x 15m, or 750m<sup>2</sup> total. For 20 000 refugees, the floor space

should be 500m<sup>2</sup>, and if this was turned into a 22.3m x 22.3m square building so that the length of outdoor buffer area was minimised, then with a minimal 15m-wide buffer zone on four sides to allow delivery and distribution, the total area needed would be 1391.3m<sup>2</sup>.

Some sort of rough calculation can also be made for the school. There should be one school per sector of 5000 refugees. Because refugee populations tend to have a disproportionate number of children<sup>42</sup>, it would not be entirely unreasonable to assume that 25% of the 5000 refugees might be children of school-age. (The *Handbook* suggests a rule of thumb of 240 students per 1000 refugees<sup>43</sup>.) If the school is taught in two shifts, then at any one time, there would need to be space for 625 children, as well as their teachers. Each child should probably have 1m<sup>2</sup> of desk or work space, and then another 1m<sup>2</sup> to sit comfortably at the desk. If the school is designed so that all the circulation space outside the classroom is actually located outside the school building, then the only extra space needed would be circulation space within the classroom, and teaching space, which might be a minimum further 3m<sup>2</sup> per child. Therefore, each school would need to have classroom space totalling 625 x 5m<sup>2</sup> = 3125m<sup>2</sup>. If this building was square (56m x 56m), and the buffer zone around the building was a minimum 15m, then total area needed would be 7379m<sup>2</sup>. For the four schools needed for the whole camp, the total would be 29 516m<sup>2</sup>.

How much space would be needed by all of the other facilities listed in the *Handbook* (see above -- plus some which aren't, but do exist in refugee camps in reality, such as offices for Implementing Partners, Gender-Based Violence centres, physical therapy centres, care centres for child war trauma victims, police office, skills training centre, sports/recreational grounds, community centre/palaver house, or places of religious worship)? For none of these are there suggested dimensions given in the guidelines, but the largest, a football field, at 120m x 90m = 10 800m<sup>2</sup>, would take up a tenth of the remaining space already. Skills training centres, places of religious worship and markets might all possibly take up as much space as the schools, and so on.

It is already becoming apparent that the other non-residential buildings mentioned in the guidelines would need to be very compact in order not to exceed the remaining space. But maybe compactness is all for the good, because now another question raises itself -- where should all those extra areas be placed? The uniformity of the roads, pathways, blocks and communities have not allowed for any plazas or other major central open spaces, but following the directions of the guidelines, non-residential buildings should be decentralised, and so perhaps they could be put inside individual communities. At first glance, there does seem to be some extra space in the communities, judging by the perimeter calculations: each shelter will be 5m wide, with an added 3m buffer space on each side, giving a total frontage of 11m, and if each side of the community has an equal amount of shelters, then the four shelters on each side will have a combined frontage of 44m, which is less than the 49.1m given above for each complete side of a community, leaving 5.1m of frontage left over on each side.

But if the calculations move from just considering one side to trying to tessellate the 16 shelters into the whole, things become a little more difficult. If the vegetable gardens go back for

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<sup>42</sup> According to UNHCR statistics, more than half the 21 million people 'of concern' to UNHCR are children. See UNHCR, *Refugee Children: Escape from Persecution and War*.

<sup>43</sup> *Handbook* p. 108

15m along the width of the shelters for one side, then there is not enough room to fit in the shelters along the next side, because the vegetable garden protrudes backwards too much.

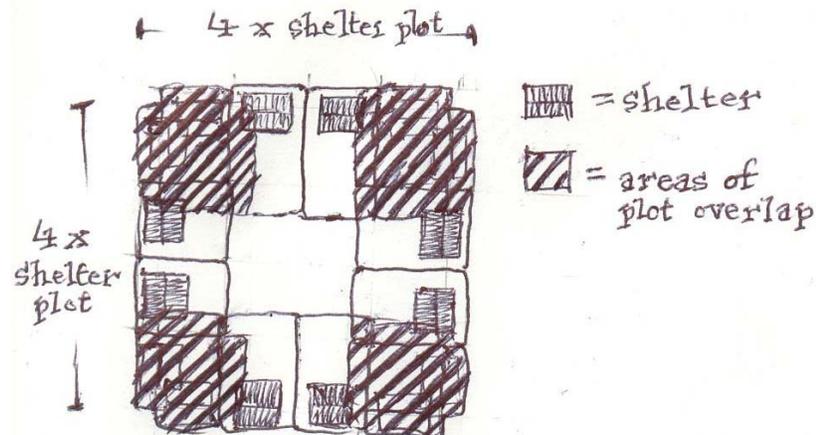


Image: Kennedy

The shelters alone can be squeezed in along the perimeter of the community, but only by shifting them, and then the vegetable gardens will have to be squeezed in the interior by having them form more or less triangles radiating from the centre of the community to the rear edges of the shelters. Even then, the shelters would have difficulties not overlapping.

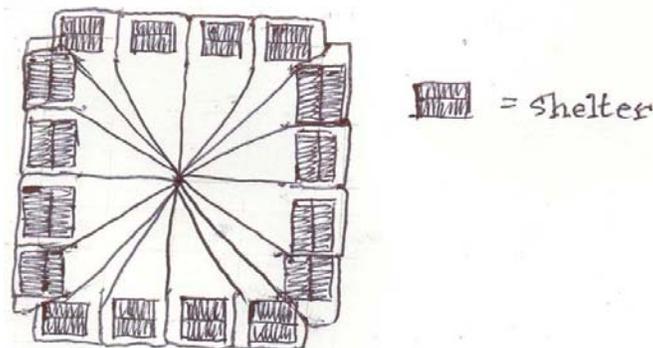


Image: Kennedy

This will then leave a little space in the middle. If the 109 140m<sup>2</sup> extra space mentioned above is apportioned uniformly to each of the 256 communities in the camp, it totals about 426m<sup>2</sup> per community, or an area which would accommodate buildings of 21m x 21m or less, without any buffer zone.

In reality, that extra 21m x 21m area would most likely be quickly taken up by refuse pits, latrines, showers and access footpaths. The whole point is that if the exercise is reduced to haggling over buffer zones in order to squeeze in the non-residential buildings, then obviously they are not going to squeeze in really anyway. But then there is also another problem with this form of accounting, which is potentially bigger than any of the other ones covered so far in this attempt to use the guidelines to create a layout. Until this point, the assumption has been that once all the elements have been put into the layout, then it would be complete once and for all: there has been no consideration for the dimension of time. However, as the *Handbook* rightly points out, many camps can expect a population growth rate of up to 4% per year. As mentioned

above, this averages at a new addition to each refugee family after five years, and two new children for each refugee family after nine years. This means that after one year, the camp of 20 000 people would increase to 20 800, and after five years the increase would be up to 24 333, or an increase of more than 20%. If the rule of thumb figure of 45m<sup>2</sup> per person is still being applied, then the camp area would have to expand to 1 094 985m<sup>2</sup>.

But it is not just a matter of expanding the edges of the camp, although often that is no easy feat of itself. The increases will be random and non-uniform, and there will be no easy way of shuffling the refugees around, or reapportioning each single shelter plot equally between 20 000 refugees as some move their enlarged families to the periphery. However, the alternative is overcrowding within individual shelters and communities, and if there were no moves to bigger plots, then within each shelter, each refugee's own shelter space would be reduced to 2.9m<sup>2</sup> after 5 years, or 2.5m<sup>2</sup> after 9 years. There would also be other problems of overcrowding as well. Once the school-attendance figures are recalculated for this birth-rate for only the first five years, then the number would expand from 5000 school-age children to 6083 – enough to justify a whole new school. Similar expansions of space would be needed for most of the non-residential buildings, from warehouses onwards.

And if that was not enough, a potentially equally huge problem also exists, which is not acknowledged at all in any of the guidelines. And that is, baldly speaking, that the camp may never get all the land that it is given. It is never the case that 100% of a plot can be positively used for housing, infrastructure or non-residential buildings, i.e. the built environment. But in most refugee camp situations, the percentage of land that can not be built on in any way, due to geology, gradient or topology, may be closer to 40%, and that in some cases in Rwanda in the 1990s, the amount of unbuildable land in the camps was closer to 50%<sup>44</sup>.

The point of the exercise so far has not been to expose the guidelines as being hopelessly flawed: after all, there was some unfairness involved in not following the cardinal principle of layout planning contained in the guideline, which is to plan from the bottom upwards, something which will be rectified immediately below. But, from doing the exercise from a 'top-down' approach, a number of provisional conclusions can be made:

- A rule of thumb of 45m<sup>2</sup> per refugee is much closer to promoting the minimal aims in the Sphere *Minimum Standards* than the durable solutions aims in the *Handbook* or the livelihoods aims in *Transitional Shelter*. An allocation of this sort would only work in an emergency situation of suspended animation, with minimal support services, and under the assumption that the population would remain completely static in number.
- Any space which is set aside for expansion should be planned for and contained within the existing boundaries of the camp, and most importantly within the boundaries of each community, so that each community includes space to expand within itself.
- Under these calculations, 31% of the camp space is taken by firebreaks (not including the smaller buffer zones between each shelter). If these spaces continue to be defined by their negativity, and function only as firebreaks and nothing more, then this is quite a considerable waste of space.

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<sup>44</sup> Piet Goovaerts *personal communication*

If a truly bottoms-up approach to calculating the layout was endeavoured, then this may not only provide very different tessellation results from the top-down version above, but may also give some wider indicators as to the relationships between the different elements. In order to do these calculations, I assume that each refugee has a minimum of 4.5m<sup>2</sup> personal shelter space once again, and that the camp is built in the same hierarchy of module communities, blocks, etc, but that there is not yet any rule of thumb for how many total square metres per person there should be.

The first part of the calculation will be to expand the area needed for each community. Although it has already been stated earlier in this thesis that the lifespan of a camp can not be predicted from the outset, for the sake of easy and demonstrable calculations, I am assuming that the camp will not last more than ten years, or that at least after ten years the eldest children in the family might be old enough to move out to their own separate shelters. Therefore, the family plot area in total, should be enough to accommodate seven people, rather than just five. Therefore, each shelter, or space given over to shelter, should now be 7m x 4.5m, or 31.5m<sup>2</sup>. I am also assuming again that each shelter will be adjacent to other shelters along the periphery of the community (or if not, that a similar amount of extra amount of space would be necessary for setbacks and access), so for each shelter there would also be 2 x 3m x 4.5m = 27m<sup>2</sup> buffer zone. Then there will be vegetable plots of 7 x 15m<sup>2</sup> = 105m<sup>2</sup>. I am also assuming that each family will have an outdoor shower area of 2m<sup>2</sup> per shelter. The spaces for latrines should be larger, because although a single latrine hole might only be 1.5m x 1.5m, in most cases these are dug pit latrines, which fill up over time, and which need to be replaced by new pits, even though the area above the old pit can not be immediately re-used for other purposes. Therefore, I assume space for one active pit, and three filled ones per shelter (4 x 2.25m<sup>2</sup>) as well as a buffer zone to bring the whole latrine area to 60m<sup>2</sup>. Lastly, because of the fire hazards and health risks involved from cooking indoors<sup>45</sup>, I will assume that the cooking fire will be outdoors, a safe 3m away from the shelter, but not inside the firebreak buffers at the sides of the shelters, or taking up any of the space needed for the vegetable plots or latrine and shower areas. This should then add 2m<sup>2</sup> for the fire itself, 2m in all directions as a square-shaped buffer, and an extra 6m<sup>2</sup> access from the shelter to the fire (minus the part of the access which doubles up with the buffer), giving an approximate total space for the fire of 30m<sup>2</sup>.

For the time being I assume that with this expanded space, it will be possible to fit all the shelters together into a more or less regular square or rectangular community without any extra space, so therefore, the full area needed for each shelter and outdoor surroundings, is 255.5m<sup>2</sup>.

The next item to be included on the bottom-up approach, is one which did not get mentioned in the previous calculation, but which is absolutely necessary, and whose locations in reality actually dictate much of the rest of the layout of the camp, and that is the water source for each community. Therefore, the tap stand or well for each community will be placed in its own area, which is inside the community, and which will have its own hardened floor and buffer area of a circle radius 3m, with an area of about 28m<sup>2</sup>.

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<sup>45</sup> *Transitional Settlement* pp. 203-205

But, if each community is to follow community population guidelines, and remain at 80 people, then each community can only hold 11 or 12 shelters of 7 people (11.43 shelters, to be exact). Therefore, the total space for each community is:

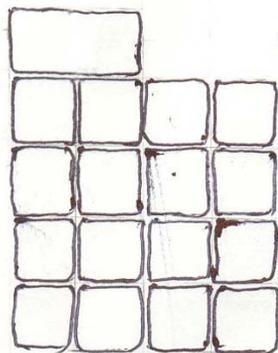
$(255.5\text{m}^2 \times 11) + 28\text{m}^2 = 2838.5\text{m}^2$  (compared with the  $2410\text{m}^2$  per community in the original calculation).

Therefore, the size of the individual communities have not changed all that considerably, but the total number of communities needed for a camp of 29 605 refugees ( $20\ 000 \times 1.04^{10}$ ) is now  $29\ 605 \div 80 = 370$ .

This means that the total area needed for the communities in the camp is  $1\ 050\ 245\text{m}^2$ , which is already considerably more than the entire camp area suggested for the previous set of calculations.

Before trying to calculate how much pathway area is needed for each block of 16 communities, it must be remembered that each block will have at least some non-residential buildings. According to the guidelines, there should be one school for every four blocks, one health post or clinic for every four blocks, and one distribution point per four blocks. This might equal about the area of one extra community per block if proportions were kept modest, and then each block should also have another area the size of one community, for general contingency purposes, but which could be used otherwise as the refugees saw fit, for a sports area, market, meeting place, or even a gesture towards the issue of land which is unusable, or other.

This means that each block will have non-road areas equivalent to 18 communities (16 residential areas, plus 2 non-residential areas). This means that the calculations for pathway area can no longer be made by simply dividing a square block into 16 equidistant communities. Instead, the extra two communities will have to be added on to the edge of the block, and then later tessellated as best as possible against the irregular boundaries of the other blocks, or of the centralised non-residential buildings which lay outside the blocks.



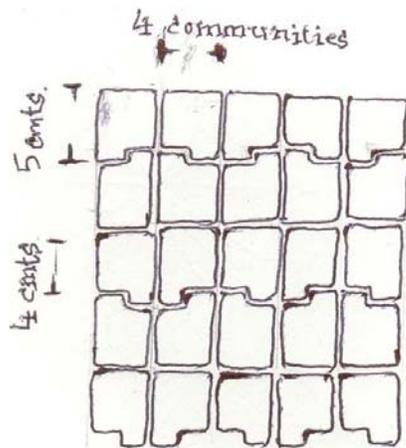
*Image: Kennedy*

If the communities are more or less regular squares, then their lengths will be about 53m on each side. Between the first 16 communities of each block, there will need to be pathways of 6m width. Therefore, each pathway will be  $(53\text{m} \times 4) + (6\text{m} \times 3) = 230\text{m}$  long, and  $1380\text{m}^2$  in area, as I am assuming that the combined two blocks for non-residential buildings will be in the form of some open, plaza area. For each block of 16 communities, excluding the extra two non-

residential areas, the total area of the pathways will be  $(1380\text{m}^2 \times 6) - (36\text{m}^2 \times 9)$  [for the ‘doubling up’ of area at the crossroads] =  $7956\text{m}^2$ . Assuming that the remaining two non-residential areas will indeed tessellate with adjoining blocks, then only half the pathway area for three of their sides needs to be taken into consideration,  $53\text{m} \times 3\text{m} \times 3 \times 2 = 954\text{m}^2$ . Therefore, the entire area for each block is:

$$(18 \times 2838.5\text{m}^2) + 7956^2 + 954\text{m}^2 = 60\,003\text{m}^2.$$

There are more than 16 blocks in this version of the calculations ( $370 \text{ communities} \div 18 = 20.6$ ), but to make the calculations for the area for the roads between the blocks simple, I will treat the last 0.6 block as an entire block, and then for the time being assume that all the other non-residential buildings, along with a market and some recreation areas, will equal the area of 4 more blocks, so that the total area of the camp will be 25 blocks, plus the area for the roads inbetween the blocks. But then the residential blocks are not uniform square sets of 16 communities, but 18 instead. These can be partially tiled as such:



*Image: Kennedy*

but this leaves a rather irregular edge along the ‘north’ and ‘south’ sides, and means that the some of the main roads running inbetween the blocks on an ‘east-west’ axis would be lengthened (as would any water pipes and drainage accompanying them), and people would probably end up using one of the inner-block pathways as roads instead. So, rather than doing that, it will be assumed instead that some blocks have 20 communities and some have 16, and so the roads will be straight, although not entirely equidistant:

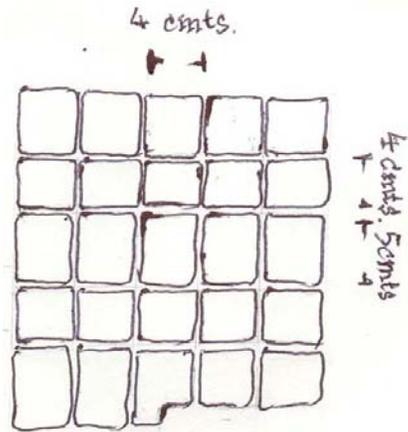


Image: Kennedy

This then means that there are 8 roads, each 30m wide. Four of them, running horizontally, or from east to west, will have uniform block lengths of four communities, 230m long, giving areas for each of them as

$$((230\text{m} \times 4[\text{lengths of the blocks}] + (30\text{m} \times 4) [\text{widths of the roads}]) \times 30\text{m} [\text{width of the road}] = 31\,200\text{m}^2$$

Two of the roads, the two left-side ones running from top to bottom, north to south, will have lengths of  $((2 \times 230\text{m} [\text{length of the shorter, four-community block sides}] + (3 \times 289\text{m} [\text{length of the longer, five community block sides}]) + (30\text{m} \times 4)) \times 30\text{m} = 43\,410\text{m}^2$ .

Two of the roads, the two right-side ones running from top to bottom, will have lengths of  $((3 \times 230\text{m} [\text{length of the shorter, four-community block sides}] + (2 \times 289\text{m} [\text{length of the longer, five community block sides}]) + (30\text{m} \times 4)) \times 30\text{m} = 41\,640\text{m}^2$ .

Because the roads cross, the total area for all 8 is

$$((31\,200\text{m}^2 \times 4) + (43\,410\text{m}^2 \times 2) + (41\,640\text{m}^2 \times 2)) - (30\text{m} \times 30\text{m} \times 16) = 280\,960\text{m}^2.$$

Therefore, the grand total for the area of the whole camp is

$$(60\,003\text{m}^2 \times 25) + 280\,600\text{m}^2 = 1\,780\,675\text{m}^2.$$

There are some immediate spatial points to be made:

- Even though the length and area of the roads are overall greater, (as would be expected for a camp with space for an eventual extra 9 605 people), the ratio of the area of roads and pathways to the area of the total has dropped, from 31% to 27%.
- The ratio of area of the major 30m-wide firebreak-roads has dropped by similar degrees – from 18% to 16%. The larger proportional reduction is in the area necessary for the pathways inside the blocks, from 13% to 11%.
- However, the decrease in pathway area has not been done at the expense of raising population density inside the blocks. The ratio of square metres within the blocks for

the first calculation comes to 36m<sup>2</sup> per person, whilst for the second calculation, the ratio is close to 50m<sup>2</sup> per person.

- The question that I delayed answering at the beginning of this second exercise, about the final ratio of square metres per person as an expression for the whole camp, can now be answered:  $1\,797\,675\text{m}^2 \div 29\,605 = 60.7\text{m}^2$  per person, although at the beginning of the 10 years, the ratio would be closer to 89m<sup>2</sup> per person.

From these initial points, a more general conclusion might tentatively be put forward. The figure of 29 605 people is too large for the recommended size of camp, but even if the camp size was halved, or even better reduced to a quarter, the general ratios of land-use would not significantly alter. Therefore, using this set of calculations, a camp that would grow over ten years from 10 000 people to 14 802 people, would also have a smaller proportion of underused firebreak space per person, and a larger proportion of the whole camp turned over to use by the refugees, even though in absolute terms the total space would be approximately the same (898 481m<sup>2</sup>) as that imagined for 20 000 people under the first set of calculations.

Therefore, if it is acknowledged that the picture of the camp under the first set of calculations was unsustainable anyway, at least it can also be acknowledged that the second version produces a much better ratio of land use, if one is to reasonably assume, as the *Handbook* and *Transitional Shelter* do, that the way to help refugees take control of their own livelihoods is to give them as much responsibility and control as possible. And therefore, an answer can be posited to the original question of how ‘rational’ the guidelines were.

The guidelines, as read from the bottom up, and ignoring the initial 45m<sup>2</sup> per person figure, facilitate expanded rationalisation to the following extents:

- They allow the space for the expanding population to be accommodated at the lowest levels of shelter and community, which then minimises disruption caused by internal relocation, and provides the means for a sustainable living space. In my second set of calculations, I arbitrarily drew a line of expansion at 10 years/2 extra people, but in theory a projection of much greater expansion could also be accommodated.
- They provide for a modicum of personal outdoor space for each shelter, which is not enough to provide significant agricultural support to the family, but which may still generate some small income or at least variety in diet, from being used as a vegetable garden. Equally important, although less quantifiable than considerations about income levels or calorific intake, is that this extra space provides extra ‘room to breathe’ and circulation space for the refugee family, and is essential for allowing the family to place, orientate and design its shelter to best suit its own aspirations and needs. Without this ability on the part of the refugees, the strengthening of community supports and networks which is the rationale for shelter clustering in the first place, would probably be seriously impaired or undermined.
- They provide a hierarchy of physical organisation for the different levels of the camp, which allows negotiation between those levels to occur at least at a basic level.
- They give the refugee families and communities direct, private control over 58% of the total camp area.

On the other hand, the guidelines neglect to facilitate expanded rationalisation (or at least bear an omission of silence), to the following extents:

- They fail to mention the extra space needed to accommodate the latrines, showers, water sources, outdoor fires, etc. This may be partially because there is still no consensus about where some of those facilities should be located, either within the communities or in more public areas, but in any case the amount of ground necessary for all these things should be included in the final overall calculations. The necessary space for most of the facilities can not be taken out of the space for the roads or pathways, as placement of the facilities in the middle of the roads or pathways would impede circulation, and reduce the roads' efficiency in their functions as firebreaks. And the space for these facilities is too great to be taken out of the refugees' own allotted vegetable garden space. My placing space for these extra facilities within the communities in the second set of calculations was the main reason for the improvement in overall person:space ratios, and in the improvement in community:pathway space ratios.
- The size calculated for shelter is still rather minimal. 4.5m<sup>2</sup> per person is probably enough to sleep and engage in basic household activities with a degree of comfort. But it is not enough if the aim is to also encourage long-term development of the refugees' livelihoods. For this, there would need to be extra space calculated for things like (i) the storage of tools, (ii) the storage of seeds for farming, or harvested crops for preparation and selling, (iii) space for workshops and household industry (iv) storage for any other sorts of capital, taking the meaning of 'capital' in its wider sense of all physical resources which could be directed towards gaining a living.
- Although there is a hierarchy of levels of organisation in the camp as a whole which allows for some amount of negotiation between 'lower' and 'higher' or more private and more public areas, this needs to be extended to an even more close-up level as well. There should be extra space provided on each plot to allow each shelter to be set back a little way from the pathway, without taking space away from the vegetable gardens. Even a set-back of one or two metres would allow the shelters to have added verandas or other shade according to cultural and climatic norms, would allow refugees the opportunity to use their shelter fronts as small trading stalls, and would also give the families more flexibility about how they wanted to present the public face of their shelter to the rest of the world.
- As mentioned previously, there is as of yet, no guidance about the fact that some shelters on some community perimeters, will be facing narrower pathways, and some will be facing onto wider roads. But the roles, needs and opportunities for those facing a major road and those facing a small pathway may well be quite different, depending upon the specific history and cultural context of the camp. Although these specific concerns can not be predicted, there should be at least an indication that the main roads should have a width of edge area and/or periodic placements of smaller, local public areas, perhaps at the crossroads between blocks, to accommodate the complex of informal localised public activities which gravitate to such places.<sup>46</sup>
- There are a general set of statements in the guidelines, that refer to the possibility that the refugees might also engage in agriculture but perhaps because the allocation of land for agriculture is just too dependent upon the specific case, no more detailed points are made. Nevertheless, there is an opportunity to give general guidelines

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<sup>46</sup> Indeed, there are examples of this accommodation being provided for at least in some camps in Peshawar. *E-mail* Thakuri UNHCR.

about for instance the pros and cons of having all agricultural land outside the camp, or having agricultural land included as bands of land within the camp, especially in light of the emphasis in *Transitional Settlement* given to using agricultural activities as an integral part of a Natural Resource Management programme<sup>47</sup>. If these alternatives were discussed as serious attempts to have the refugees become self-sufficient for food though, then completely different models would be needed. Even in warm, fertile climates, aid agencies have used arrangements which range from 8475m<sup>2</sup> per person total land<sup>48</sup>, to 10 000-20 000m<sup>2</sup> arable land per family<sup>49</sup> for rural resettlement programmes, a ratio which would permit only 4-9 families to occupy the 900 000m<sup>2</sup> under discussion above.

- As a corollary to the above point about agricultural land, it is equally possible that part or all of the camp population may have come from an urban manufacturing background, and in these cases it would be more than useful for the guidelines to provide suggestions for the including in the modules of spaces for small workshops and manufacturing areas, external to the shelters.
- There is no provision for unusable land, or land whose use is limited because it can not be built upon.

### C. Are there significant differences in the standards, between the three main texts?

It was stated previously above, that the differences in standards for camp layout between the UNHCR *Handbook*, the Sphere *Minimum Standards* and *Transitional Settlement*, were minor. That is, that in most instances, the standards suggested by the two are the same, or if they are ranges in numbers then they overlap, or in any case the differences are of small numbers of metres, so that added up together, they would not appear to be a systematic re-ordering of the camp layout priorities. However, a closer examination of some of those differences reveals that when extrapolated onto a camp-wide scale, there are significant differences, which whilst not proposing a totally different kind of camp, do offer a substantially different view on space-use.

The general direction in which the standards in the *Minimum Standards* differs from those in the *Handbook* is unsurprisingly, for the *Minimum Standards* to be more minimal. Water points can be fewer (a maximum of 250 people per tap, as opposed to one community or 80-100 people per tap), and further between (a maximum of 500m walk away, as opposed to 100m or a few minutes walk away)<sup>50</sup>. This would mean the situating of the water points outside of individual communities, but there would be far less of them (80, rather than 256), and even if there was only one water point per 3.2 communities, it would still be less than 200m walk away, although possibly more than the 100m walk away prescribed by the UNHCR *Handbook*.

But the standards which make the biggest differences are those for the widths of the firebreak-roads, and the widths of firebreak-buffer between the individual shelters. In the *Minimum Standards*, the standard for the width of the widest set of roads, is only 15m, rather than 30m. And the minimum standard for the distance between the shelters is only 2m, rather

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<sup>47</sup> *Transitional Settlement* pp. 55, 340.

<sup>48</sup> van der Graag "Field of Dreams"

<sup>49</sup> Loescher *The UNHCR and World Politics* p. 282

<sup>50</sup> *Standards* Chapter 1, p. 15

than twice the height of the shelter<sup>51</sup>. These may seem like slightly quibbling amounts, until they are multiplied up to the scale of the whole camp.

If the roads are halved in width, then in the 90 ha camp for 20 000 refugees, the total area for the roads becomes 81 270m<sup>2</sup> (rather than the 162 540m<sup>2</sup> in the first set of calculations following the *Handbook*).

This means that the proportion of camp space taken over by roads is reduced to 8.25% (as opposed to the first calculation of 16.5%). Because these number also affect the lengths of the pathways, the total area of the pathways then becomes 81 504m<sup>2</sup> (9% of the total camp), and the two combined become 162 774m<sup>2</sup> (18% of the total camp, compared with 31% from the first set of calculations).

This also affects the total size of the remainder of the camp, which becomes bigger, at 737 226m<sup>2</sup> (or an equivalent of 2880m<sup>2</sup> per community, before any area has been subtracted for the non-residential buildings in the camp).

But the individual plot areas are now also smaller, because of the reduction of the buffer zones on the sides from 27m<sup>2</sup> to 9m<sup>2</sup>. Therefore, the elements of the individual plots, listed with numerical standards in the *Handbook* and the *Minimum Standards* (i.e. not including the secondary additions of space for latrines, showers, fires, etc), results in a plot of 106.5m<sup>2</sup>. This then totals 426 000m<sup>2</sup>, or 47% of the camp area, for the whole camp (i.e. 4 000 plots, for five people each), or 1704m<sup>2</sup> per community.

If the space for the latrines, etc. are not included, as they weren't in the first calculation, then there remains a total area of 1176m<sup>2</sup> per community, or 301 056m<sup>2</sup> for the whole camp, equivalent to 33% of the whole area. However, there is now a choice to be made. There still remains both the non-residential buildings, and the latrine, shower and fire areas for each shelter. 33% of the total area is the equivalent of 5.3 blocks, which is more or less the equivalent of the space needed for the combined centralised and de-centralised non-residential buildings, and the small contingency spaces described in the second set of calculations, as long as no-one was too ambitious. Or, the latrine, shower and fire spaces together would equal 92m<sup>2</sup> x 16 = 1472m<sup>2</sup> per community, which might be reduced by making the buffer zone around the fire a circular one rather than a squared one, and by assuming fewer filled latrines, and so forth, until a figure closer to 1176m<sup>2</sup> could be arrived at. But still, a choice must be made, and one vital element of the camp must still be left out, despite the large reductions in space through the narrowing of the roads and buffer zones. The conclusion is that even halving the space taken by the roads, and making some other reductions in plot size, a camp predicated upon 45m<sup>2</sup> still can not be made sustainable.

If the calculations are done the other way round, from bottom up, the following will be apparent. For each five-person family, there is 106.5m<sup>2</sup> for the shelter, narrower buffer zone, and vegetable garden, plus 92m<sup>2</sup> for the latrines, etc, making a total area requirement within the community for each family of 198.5m<sup>2</sup> (oddly, almost the equivalent of the 200m<sup>2</sup> proposed by *Transitional Settlement*<sup>52</sup>). The area for each community would then be as follows:

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<sup>51</sup> *ibid* Chapter 4, p. 25

<sup>52</sup> *Transitional Settlement* p. 357

$$16 \times 198.5\text{m}^2 = 3176\text{m}^2$$

and the sides of the communities would be about 56m long.

Therefore, the side of one block would be  $(4 \times 56\text{m}) + (3 \times 6\text{m})$  [pathway widths] = 242m

And the area of each block would be 58 564m<sup>2</sup>.

Each pathway would be  $242\text{m} \times 6\text{m} = 1452\text{m}^2$  in area, and so the total area for the pathways in each block would be  $(1452\text{m}^2 \times 6) - (6\text{m} \times 6\text{m} \times 9)$  [for the crossroads 'doubling'] = 8388m<sup>2</sup>.

For ease of calculation, I assume that there would be space equivalent to three blocks for all the non-residential buildings, which do not have any pathways (this is the equivalent of fewer blocks than in the second set of calculations, but the second set of calculations was also for a larger number of refugees. The actual proportional number of blocks for the non-residential buildings would be 2.7). So the camp dimensions will be 19 blocks. Therefore, there will be two roads which will be  $(242\text{m} \times 5) + (4 \times 15\text{m}) = 1270\text{m}$  long, and each of them will have an area of 19 050m<sup>2</sup>. Then there will be five roads which will be  $(242\text{m} \times 4) + (3 \times 15\text{m}) = 1013\text{m}$  long, each of which are 15 195m<sup>2</sup> in area.

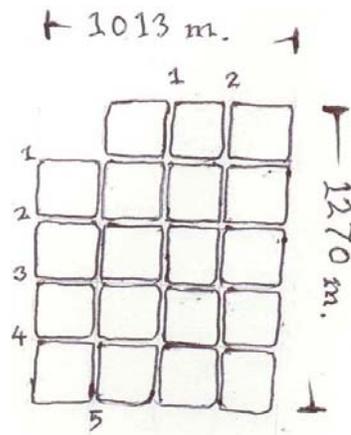


Image: Kennedy

Therefore, the total area for the roads is:

$$(19\ 050\text{m} \times 2) + (15\ 195\text{m} \times 5) - (15\text{m} \times 15\text{m} \times 12) = 111\ 375\text{m}^2.$$

The area of the whole camp would then be 1 224 091m<sup>2</sup>.

The total equivalent of square metres per person would be 61.2m<sup>2</sup> -- which would certainly be more than the 45m<sup>2</sup> which was the figure started out with, and even a little bit more than the 60.7m<sup>2</sup> per person which was the final, 10<sup>th</sup> year total in the second set of calculations based upon the UNHCR *Handbook*.

The proportion of the total area that is taken by communities is 67%, the proportion taken by the roads and pathways is 19%, the remaining 14% by the areas for the non-residential buildings, markets, etc.

Does this mean that after all, the minimal standards are the ones better suited to rationalisation? After all, it is the version which gives the largest proportion to the refugees themselves, and even has the most square metres per person, at first glance. However, the 60.7m<sup>2</sup> for the second set of calculations based upon the *Handbook* standards, were for the tenth year of population expansion, whilst the calculations here were just for the first year, for the baseline starting population numbers. The second set of calculations from the *Handbook* guidelines actually posits 89m<sup>2</sup> per person for the first year of the camp, which would only decrease to the 60.7m<sup>2</sup> per person in the tenth year, after the initial average 5-person family had expanded to 7 people. If the same growth projections were placed upon the *Minimum Standards* calculations hearer, then by the tenth year the equivalent would be 43.7m<sup>2</sup> per person, which is actually back below the recommended minimum of 45m<sup>2</sup> once again.

The same insurmountable problems that were levelled at the *Handbook* guidelines, concerning the lack of concern for expansion, are made more acute by the fact that the *Minimum Standards* makes less of the issue in general, and only mentions it once, in one of the guidance notes. There are also the same problems mentioned above, of not including in the numerical standards, any suggestion for space to facilitate livelihoods. Above and beyond that, the camp designed bottom-up according to the *Minimum Standards* does give a greater proportion of the camp area to the refugees, but the absolute area is much less, at least compared with the other bottom-up calculations based upon the *Handbook*. The difference in space on a camp-wide strict per person basis, may only be 17m<sup>2</sup> per person by the tenth year, but by the time that is factored up to a per-shelter basis, the difference is 272m<sup>2</sup>. Not only is that more than the space of the total space given for the family plot, it is also more than enough space to contain a couple of weaving looms, a carpenter's shop, some farming implements or 272m<sup>2</sup> x 2m<sup>2</sup> = 544 cubic metres of seed rice or seed corn. Again, the difference is one of positive support, which regardless of proportions of responsibility or ownership, can only be done if there is a basic sufficiency of space, and it is that sufficiency of space which should be judged to be the true minimum standard, by the principles of extended rationalisation.

As for *Transitional Settlement*, it gives a table which compares side by side the list of numerical standards given by the *Handbook* and the *Minimum Standards*<sup>53</sup>, but covers itself in the Introduction section, by stating that its guidelines are consistent with both the Sphere *Minimum Standards* and the UNHCR *Handbook*. Elsewhere in *Transitional Settlement* though, there are a number of instances where the standards are interpreted generously as being only minimum, *with the potential to expand* and in order to demonstrate that and emphasise it effectively, a further set of higher figures are also provided. A reinterpretation of the minimum standards for the components of individual plot size comes up with a figure of 200m<sup>2</sup> per plot<sup>54</sup> (as opposed to the 124.5m<sup>2</sup> derived above from the first set of calculations above, and very close to the 198.5m<sup>2</sup> derived from the *Minimum Standards* calculations, although less than the 255.5m<sup>2</sup> assigned under the second, more expansive set of calculations). There are also included, three 'fictitious' plans for a community module, and one 'fictitious' plan for an entire camp, in order

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<sup>53</sup> *Ibid* pp. 347-8

<sup>54</sup> *ibid* p. 357

to give a graphic demonstration of the hierarchy of levels (community, block, sector) in the camp. These will be dealt with in greater length in Part Three of this thesis. Otherwise, there are some general written guidelines within Chapter 8, Camps<sup>55</sup>, which elaborate strategies for the overall promotion of livelihoods, which includes a preference, all other considerations being equal, for smaller camps, ones of low population density, and ones where unused spaces or gaps were deliberately built into the camp plan as areas for contingency actions, right from the initial emergency planning stage. However, there are no other new numbers which differ from the standards in the *Handbook*.

#### **D. What other strategies are there for making camp layouts more rational, within the guidelines?**

Up until this point, the analyses of the different variants of guidelines has spent more space considering ways in which camp designs can embody the long-term view of rationalisation, and there have been some very general suggestions for how camps might include the space, and the networks, for a variety of livelihoods. But these considerations have for the most part concerned themselves with percentages of land use, and space proportions. There has been relatively little consideration thus far, for the actual positioning of the physical elements, or for the initial construction phase which would produce the first layout of those physical elements, vis-à-vis the layout's effect upon material costs.

Once at the level of the individual shelter, or the individual community, it should be the refugees themselves who take the majority of the layout decisions, although the planners can apportion plots in ways which might promote certain usage strategies of the sort briefly outlined above on page 23, in the section of Part Two concerning the meaning of clustering. Far greater leeway is given to the camp planner in the positioning of the roads, and the non-residential features in general, and it is also in these sectors where moves towards rationalisation can be made which adhere much more closely to the more traditional view of the theory, concerning cost-control of materials through intelligent layout strategies.

The discussion which follows here, of layout strategies to minimise materials costs during the phases of camp preparation and construction, and during maintenance of camp infrastructure, will be very schematic, and relying upon a number of abstractions to make its points. In reality, there are few if any refugee camps in the world which are truly square in shape: most are best described as irregular polygons. The layout models which I will use to make my proposals for reductions in usage of infrastructure materials through rationalisation, are fictitious and stylized, but still meant to be illustrative of various general strategies which might still be adaptable to practical field situations.

In many refugee camps around the world, the roads and pathways are made of earth, without any tarmac or other hard covering. Therefore, lengthening or shortening road proportions within the camps will have little impact upon construction costs as far as the materials for building the roads are concerned. The only considerations would be the manpower costs for the clearing of the roads during the preparation of the camp, and subsequent maintenance of any accompanying drainage running parallel to the sides of the roads. However, this is in all

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<sup>55</sup> *ibid* pp. 325-375

likelihood probably a minor consideration, when compared with other infrastructure costs during and after the preparation and construction phases.

A much larger question concerns the placement of the water points within the camp, and the impact which that can have on the material building costs. In reality, it is access to water sources which determines the layout and the shape of refugee camps. Water supply is the primary concern for refugee camps, even beyond the need for shelter and food. If there is no water supply, a refugee camp can quite simply not exist on that spot. The UNHCR *Handbook* standards recommend one water point for each community. If all the water points take the form of wells, and if the refugee camp is lucky enough to be on a site where underground water sources are easily available across the entire camp, then the exigencies of the positioning of the water points will have little effect upon the overall layout of the camp, and the layout of the camp will have little effect upon the overall budget for water supply: each water point is independent of the others, and independent of the terrain. But if that is not the case, then water points, and the routing for the pipes that supply them, may well dictate the entire structure of the layout.

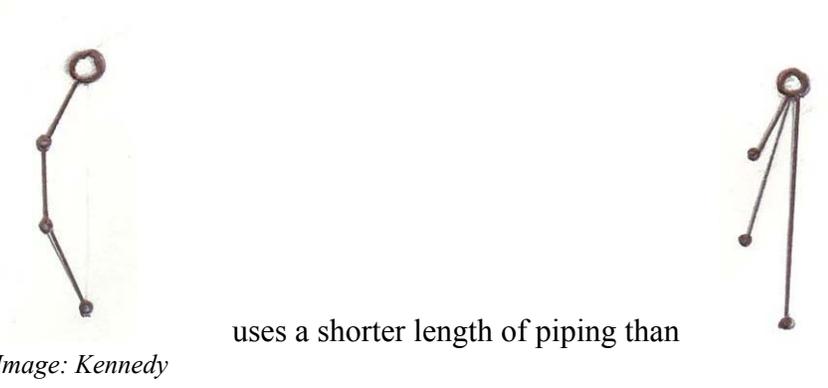
If the water points are to be supplied through piping, from some centralised source, then there are some important decisions to be made about the route and the length of these pipes. This is not only because the pipes and the water points themselves come at no little cost, and the manpower hours, skilled and unskilled, but also because of ongoing maintenance costs throughout the lifespan of the camp. In crude terms, the shortest lines of water piping will not only cost the least in materials, but will also cost the least in installation labour costs, and importantly the least maintenance costs: a shorter system will have fewer metres length needing checking and repair. Furthermore, an effective, rationalised layout for water piping may also form the basis for subsequent layout strategies for possible electric power provision as well.

In order to employ a number of simplified diagrams to support the following discussion, I will assume once again, for the sake of argument, that a refugee camp really is in the shape of a square, formed by a hierarchy of other squares. However, the proposals at the end of the discussion will be generally applicable to camps with more realistic, irregular shapes. The geometric qualities of the diagrams below are intended to demonstrate some general observations about calculations for relative lengths and distances. It would be assumed that these would then be adaptable in the field as they would need to be.

The UNHCR *Handbook* standard is one water point per community, and this is the one which I will be adhering to. I will also assume that each community is no more than 200m long from one diagonal corner to another, so that if a water point is situated towards the centre of the community, then it will also be within 100m walking distance of everybody in the community, which is the other relevant standards stipulated by the *Handbook*. Because this section is chiefly concerned with rationalisation strategies to be achieved through layout design modification, I will also assume that all pipes and water points have the constant capacity to deliver 20 litres of water per person per day, at the prescribed speed of delivery.

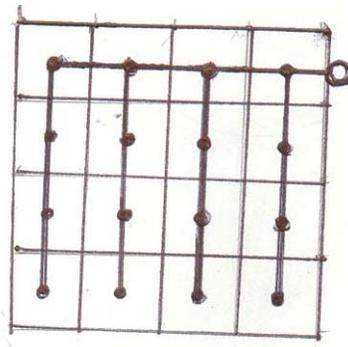
If the camp is laid out on a square grid, then it would be obvious to start exploring layout designs which follow the grid, and then change from there depending upon the initial results. Two points of elementary Euclidian geometry should also be noted at the outset:

- The shortest distance between two water points is a straight line.
- If a number of water points in the same area are being supplied from the same central source, then the shortest route for the piping to supply all of them will be for as many of the water points as possible to share the same one water pipe in progression, rather than each having their own separate pipes. This will remain true unless the difference in radial angle between two points from the central water source significantly exceeds 60°. In the diagrams below, if the hollow circle indicates the central water source, the solid dots represent the water points and the lines represent the water pipes, then



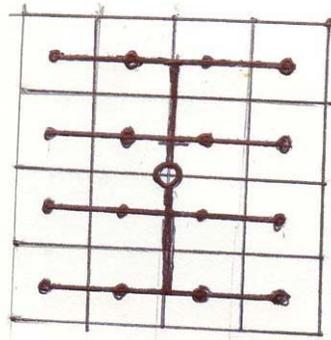
*Image: Kennedy*

Therefore, if indeed the water pipes do run parallel to the grid boundaries, but through the centres of the communities, then for a 16-community grid, the shortest set of lines from a water source to cover all 16 water points, would be an equivalent of this:



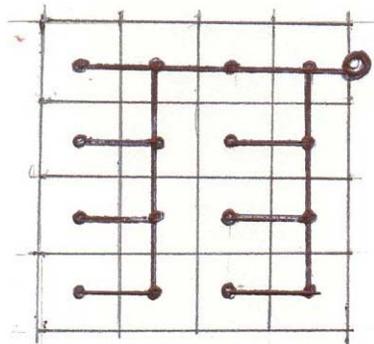
*Image: Kennedy*

Under this scheme, the total length of the pipes would be equivalent to the length of  $5 \times 3 = 15$  community sides (hereafter referred to as ‘units’) length connecting with the water source at the top right side. This length would still hold largely true, with only minimal reductions, if that water source was placed in the centre of the grid:



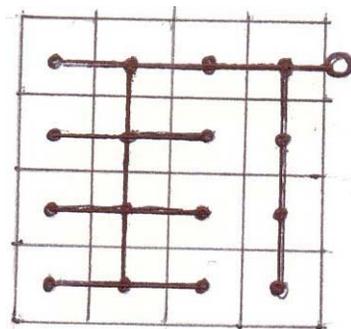
*Image: Kennedy*

Under this formulation, there would be no reduction in total length if a 'fishbone' or 'tree' layout was adopted. For instance,



*Image: Kennedy*

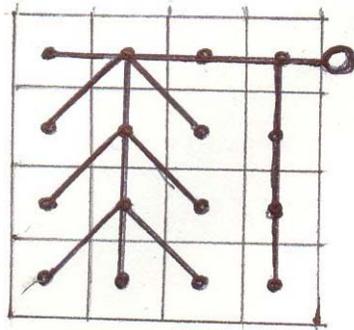
and



*Image: Kennedy*

still yield a total length of 15 units.

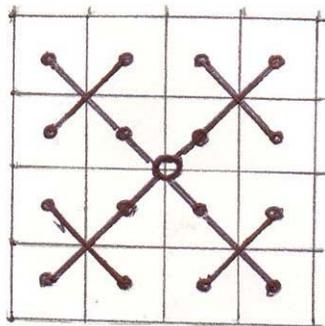
Because of the second statement of Euclidian geometry outlined above, making the 'tree' partially out of diagonal sub-branches, like this



*Image: Kennedy*

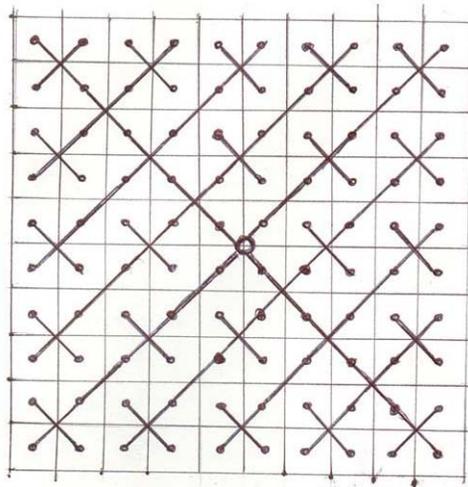
only serves to lengthen the entire total, because each diagonal line is approximately 1.4 units (square root of 2) long, whilst the overall number of branches has not been reduced.

However, there is one way forward to shortening the overall length of the piping, and that is by abandoning the need to have the pipes run parallel to the gridlines, and have them run not partially, but wholly diagonal to the community edges. If this was done over an idealised block, with a central water source, then the layout might look like this:



*Image: Kennedy*

Although the lines from water point to water point are now diagonal, and have been effectively extended from one unit to 1.4 units each, the number of lines has been reduced, so that the grand total length of piping for the block is 14 units, rather than the previous 15 units. Neither the pattern or the length would change significantly if the water source was placed at the edge, in one of the corners of the block. This difference may not seem great, but if it is expanded to a grid of 10 x 10 units, such as this:



*Image: Kennedy*

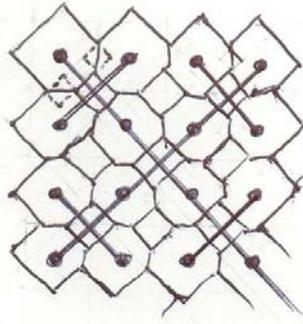
then the reduction in total length is about 14.4%, or close to one sixth of the total.

The advantages of adopting this general strategy to the field are:

- It is shorter in overall length
- It is theoretically infinitely extendable at its edges, and therefore is adaptable to further extensions of the camp boundaries
- It is theoretically 'stretchable' so that it is adaptable to a plan that would include breaks between the blocks of communities within the interior of the camp, for bands of agricultural land or other
- The branching pattern can easily change its axis, and it is adaptable to the great majority of camps in the world which are irregular in perimeter shape
- The pattern can be 'irregularised' in order to accommodate modes of entering or crossing the camp, if some or all of the roads and pathways were also made to follow the lines of the water pipes
- The pattern of branching and sub-branching, can offer a framework for developing a complex but easily navigable framework of major and minor roads and pathways, if they did follow the lines of the water pipes
- Running the pipes through the communities means that a smaller proportion of the pipes would be vulnerable to damage from vehicular traffic on the roads

The disadvantages of this scheme are as follows:

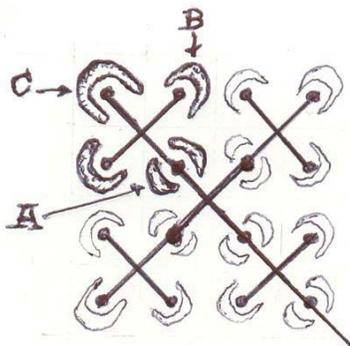
- It is best done on a diagonal axis. If the orientation of the communities are rotated by 45° so that their sides are once again parallel with the pipes, then this results in a tiling of communities which is dislocated and more difficult to plot on the ground, as shown here:



*Image: Kennedy*

- Unless the pipes are located under the surface of the ground, then they would have to run openly through the middles of the communities, rather than on public ground at the edges of the roads and pathways (open drainage gullies running in parallel would have no option but to do so). The pipes might also be susceptible to damage from agricultural tools if they ran through vegetable plots, and would also face the possibility of running close by to latrines or refuse pits. Repairs to these parts of the pipes would have to negotiate through these private areas.

There is one more point which is pertinent to this layout, which is neither necessarily an advantage or a disadvantage, but which connects heavily with the question of hierarchies of spaces which have been woven into this thesis so far. That is, if the roads and pathways do follow the water pipes' layout, then this will necessitate the creation of a limited variety of different community layouts:

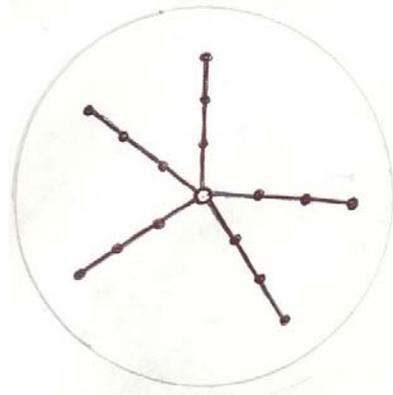


*Image: Kennedy*

Some, like version (a), would be split, or opened up by the pathway. Some, like version (b), would be of a more semi-circular nature, whilst others, like (c), would be more U-shaped, or even further enclosed. All of the versions would have to greater or lesser degrees open and closed, or public and private spaces, with the obvious attendant advantages and disadvantages, but all with potentials for different roles to play, and for greater variety within the camp.

Finally within this section, two other potential models for the rationalisation of infrastructure within a camp can be examined, both of which fail to provide reductions in infrastructure length, but which do so in ways that may illuminate further directions for consideration.

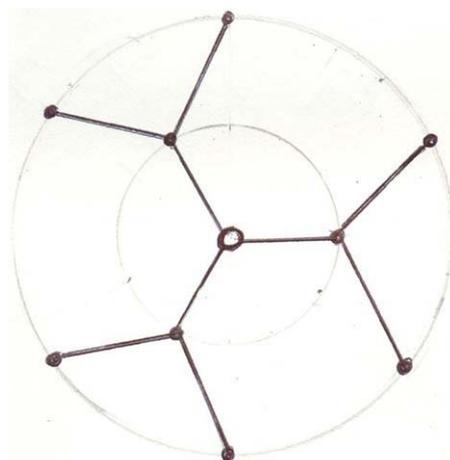
As has been mentioned in Part One of this thesis, Charles Correa has pointed out that if a neighbourhood is designed on a circular- rather than a grid-basis, this will result in shorter lengths of periphery, and also shorter aggregate distances from the centre, thus allowing greater numbers of people to be 'connected' with the rest of the camp. It is therefore legitimate to see if any rational models for water pipe layout can be found based upon circular or radial designs. There is one main problem with basing a layout on a radial pattern:



*Image: Kennedy*

The water points are only placed efficiently if they are the full width of one community (again, one 'unit') apart from each other, so that the lateral range of area that they are supposed to serve does not overlap. However, if the five water points at the ends of the water pipes closest to the circumference of the above diagram are the optimum one unit apart, then it follows that all those other water points closer to the centre of the circle are situated less than one unit apart, the ranges are overlapping, and the use is less than efficient, and in fact becomes less and less efficient as the water points approach the centre.

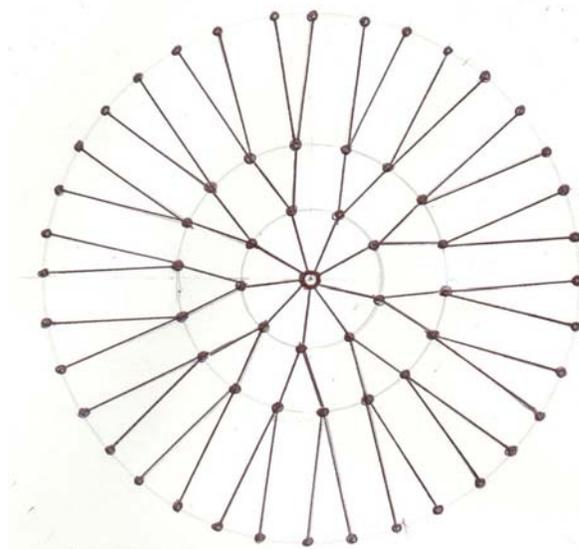
Another attempt can be made by initially calculating the routes of the water pipes from the edge, rather than from the centre, and rationalising their routing by joining two pipes together as an inverse branching effect.



*Image: Kennedy*

But if the fictitious 10 unit x 10 unit camp from the diagram above is turned into a circle with equivalent area, and the outermost water points are placed one unit apart, then there will be about

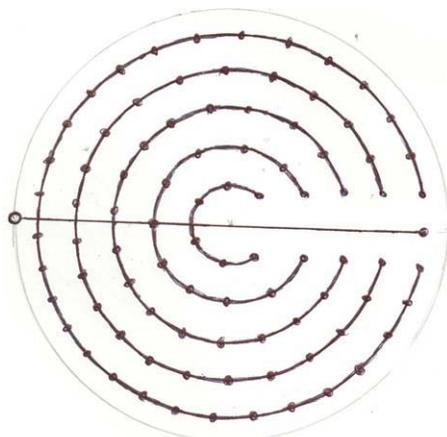
36 water points around the circumference. In order that the pipes can be combined and reduced in number, a second circle with the same centre should be drawn but with a circumference of 18 units/water points. Then further in, a third circle with a circumference of 9 units, and forth until the centre. Each successive interior circle line is the first possible point where two water pipes can be branched back to one, therefore halving the number of water pipes wherever possible, and thus doing as much as possible to reduce the length of pipe following this radial branching model.



*Image: Kennedy*

However, the sum total for this layout, is a length of piping which is far greater than the simple parallel grid model. This is because this layout still contravenes the second Euclidian geometric rule of having the water points strung along one line wherever possible.

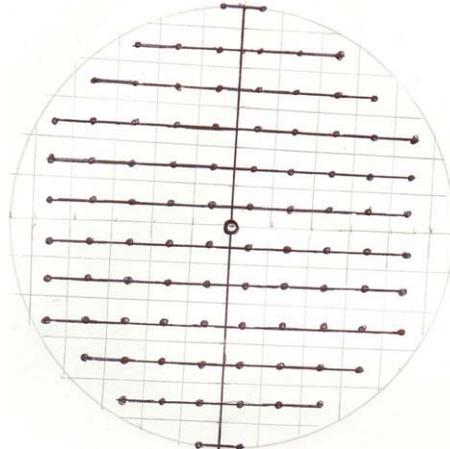
A similar attempt to rationalise the water pipe layout on a circular basis by having the pipes form a series of concentric rings also fails.



*Image: Kennedy*

Although the concentric rings are all consistently one unit apart from each other along the radial axis, this layout involves a comparatively longer length of pipe because it contravenes the first Euclidian geometric point made above, that the shortest distance between two points is a straight line, not a curved one.

The second type of model that fails is also one of a circular camp, but one whereby a set of straight grid water pipe layouts is imposed:



*Image: Kennedy*

Ignoring the anomalies of all the partial community units created by imposing a grid onto a circle, it should be obvious that there is no significant reduction in the length of the 'main' lateral pipes until the third one away from the longest two 'prime pipes'. In essence, this design still does not make any reduction in pipe length through diagonalisation. When the partial units at the edge are treated as each needing a water point, then in fact the number of water points increases in comparison to the square model, because of all the extra partial communities. If a diagonal branching pattern is imposed upon the circle, then that is just a de facto acceptance of the previous diagonal branching model, albeit with a more irregular perimeter.

## PART THREE

A number of commentators have written texts over the years concerning models for refugee camp construction. These can be roughly divided into texts which are truly that – just writing with no graphics – and those which contain some sort of visual illustration of the author’s ideas. Those which are merely text-based, with no graphic element, tend to concentrate upon a number of factors which have already been referred to in this thesis: refugee participation, long-term strategies, materials choice. Whilst there may be some minor differences in opinion, the general consensus which emerges is one which supports the overall aims put forth in the *Handbook* and *Transitional Settlement*, and to a lesser extent in *Minimum Standards*.

The smaller number of graphic alternative models for refugee camp design which have been put forward by commentators in the field all acknowledge the standards in the UNHCR *Handbook* (and in some of the earliest examples, influenced the writing of the first editions of the *Handbook*<sup>56</sup>). But they then apply a number of different interpretative approaches. It is these alternatives that this part of the thesis will concentrate upon. The number of different graphic designs is relatively small, but where possible these will be supplemented by photos (satellite or aerial) of refugee camps, which illustrate particular designs, or which stand as examples of designs for which there is no publicly published drawn representation. A detailed reading of the photographic images can also serve to illuminate advantages or disadvantages of the real use of designs built to various models. The graphic models can be roughly divided into two categories: those which concentrate upon the camp as a whole entity, and those which concentrate upon designs for single modules, and it is in this order that they will be analysed here.

There is of course one model which has been prevalent, although it has not been put forward as an acceptable alternative by any of the commentators listed here, and has been widely criticised, and has even been described as a layout to avoid in the *Handbook*<sup>57</sup>: and that is the ‘military’-style grid, of shelters in long lines of equidistance. However, there still have been enough recent examples of these to have a number of photographic images become available of them. Indeed, some of these photos have been used without comment, in various of UNHCR’s own recent publications.

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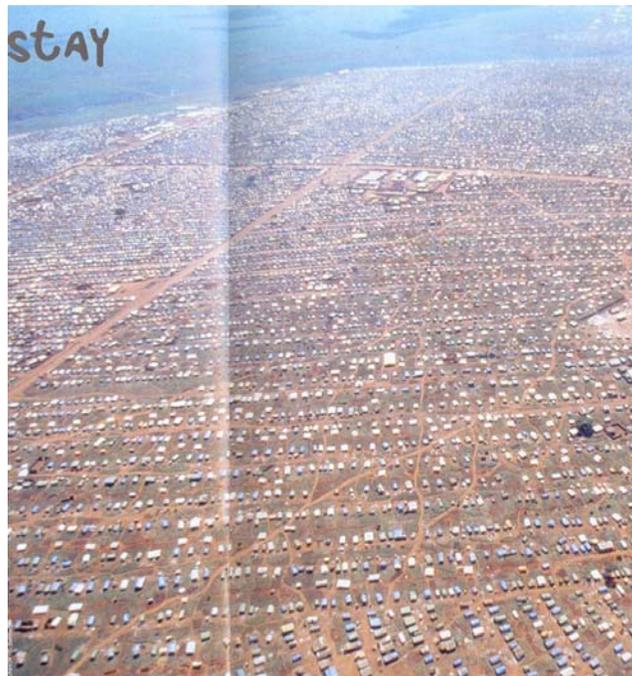
<sup>56</sup> See Haines, *From Refugee Camp To City* on the relationship between Cuny’s writing and the *Handbook*

<sup>57</sup> *Handbook* p. 142



*Image: ESRI, Inc.*

This is a satellite image of sections of Lukole camps A and B in Tanzania<sup>58</sup>, taken in September 2000.



*Image: UNHCR/ C. Sattleburger*

This is an image of an un-named refugee camp (although judging from context, probably taken somewhere in the Great Lakes region of Africa, sometime since the mid-1990s), and included

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<sup>58</sup> <http://dma.jrc.it/website/lukole/viewer.htm>

without direct commentary in a UNHCR-published pamphlet for children, entitled *Refugee Children: Escape From Persecution And War*<sup>59</sup>.

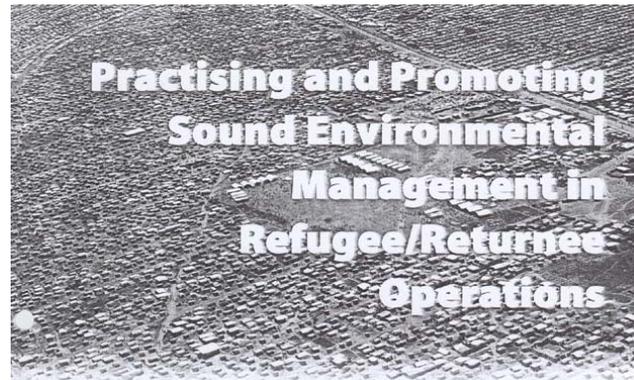


Image: UNHCR

This is an image from the cover of a UNHCR collection of papers given at an international workshop in 2001, entitled *Practising and Promoting Sound Environmental Management in Refugee/Returnee Operations*<sup>60</sup>. The camp in this image is also un-named, but the geometric tiling of the shelter layout has been adapted to an almost abstract graphic design background.

Apart from the sheer endlessness of the layout, there are one or two other features which are worth noting. Firstly, in the satellite image of the Lukole camps in Tanzania, the rows of latrines (the rows of smaller light spots running in between the rows of larger light spots) are situated in the no-man's land of the unoccupied firebreaks, making the approach to them a potential security risk, especially for women. Secondly, in the aerial photos of the camp depicted in *Refugee Children*, there are any number of footpaths which have been worn into the topography, and which refuse to obey the linearity of the shelter layout, and follow their own logic of contour and direction. Related to this, is the fact that in this layout, even though the latrines are much closer to the shelters (in what might be termed the 'backyards' of the shelters, if the layout had any true differentiation between the fronts and backs of the shelters), for the most part, the local, narrow pathways do not run on the opposite side of the shelters from the 'private' latrines. In fact, in almost every instance, there is a well-defined footpath which runs close-up, between the latrines and the shelters, even though that gap might only be two or three metres wide. The 'fronts' of the shelters meanwhile, may have narrower footpaths running more or less down the middle of them, but are more likely to be occupied by vegetation – in all likelihood vegetable plots. Both the irregularly shaped roads and the existence of the footpaths in the shelters' 'backyards' will be returned to below, with reference to at least one of the designs for community modules, and then again with reference to one of the case studies of the camps in Sierra Leone in Part Four of this thesis.

The models which do exist for entire camps tend to be the least in number, and in different ways the less complete or less detailed. One of the first documents in the available literature to give a plan for a camp is that which is contained as an annex to Hardin's "Summary Sheet to Physical Planning"<sup>61</sup>. This gives examples of two camp layouts, both working upwards

<sup>59</sup> UNHCR *Refugee Children* p. 18-19

<sup>60</sup> UNHCR *Environmental Management*, cover

<sup>61</sup> Hardin *Physical Planning* p. 12-13

from different modules. The first uses communities of 12 shelters around the periphery of a square, the second uses long rows with a minimal gathering of shelters into pairs.

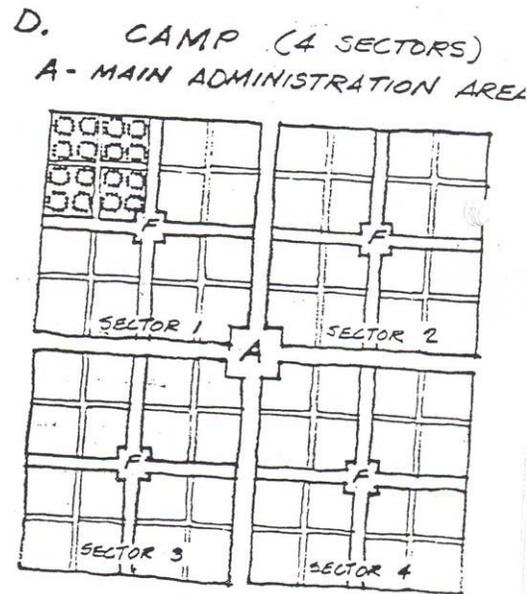


Image: Hardin

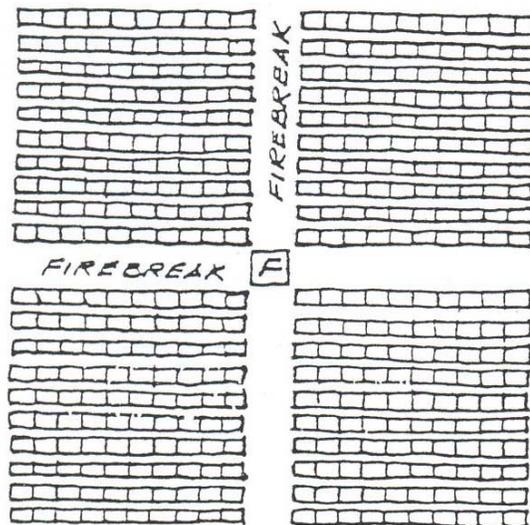


Image: Hardin

This is accompanied by elaborations of the possible positions of the latrines within the modules. The community modules themselves will be dealt with in more detail below, along with the analysis of modules from other texts. As for the full camp layouts, they appear very much like the visualisation of the 948m x 948m, 20 000-person camp which proved unsustainable in Part Two of this thesis. There would appear to be no open space for contingency planning, population expansion or the promotion of livelihoods, or reference to the outside world, and the area given over to the central Main Administration Area is probably too small.

Another model, albeit one of the least detailed, from about the same time, is contained in an article by Immers & Malipaard<sup>62</sup> which actually addresses in the main the problem of transportation, but also offers a rough design for the layout, showing the general location (but not the road connection relationships between) the main non-residential buildings of a camp.

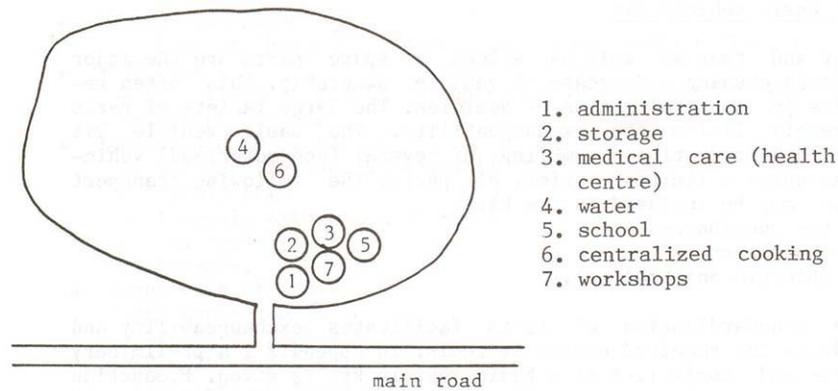


Figure 2: Outline of a settlement scheme.

Image: Immers & Malipaard

There is a tacit admission here that camps are much more likely to be blob-like in shape than a regular square. There is the problem aforementioned in Part Two, of having the camp needlessly disconnected from the main road. The other main problem is the existence of only centralised supplies for food and water. Currently, this would only be seen as an appropriate solution in direst emergency, or else for a short-term transit camp, although this would seem not to be the case in the Immer & Malipaard design, as it includes such non-emergency facilities as a school and workshops. On the plus side, these last two items do demonstrate a concern for longer-term livelihoods, and those of a mechanical as well as an agricultural nature.

Over the last few years, there have also been a small number of mappings of existing camps, which have been made available, usually over the internet. The example of one here is of Maimu 3 camp in Liberia, from some time in the last ten years<sup>63</sup>. It is designated as an IDP (Internally Displaced Person) camp, but is structured much the same as a designated refugee camp:

<sup>62</sup> Immers & Malipaard “Transportation in Emergency Settlements” p. 128-129

<sup>63</sup> <http://www.humanitarianinfo.org/liberia/mapcentre/satellite/index.asp>

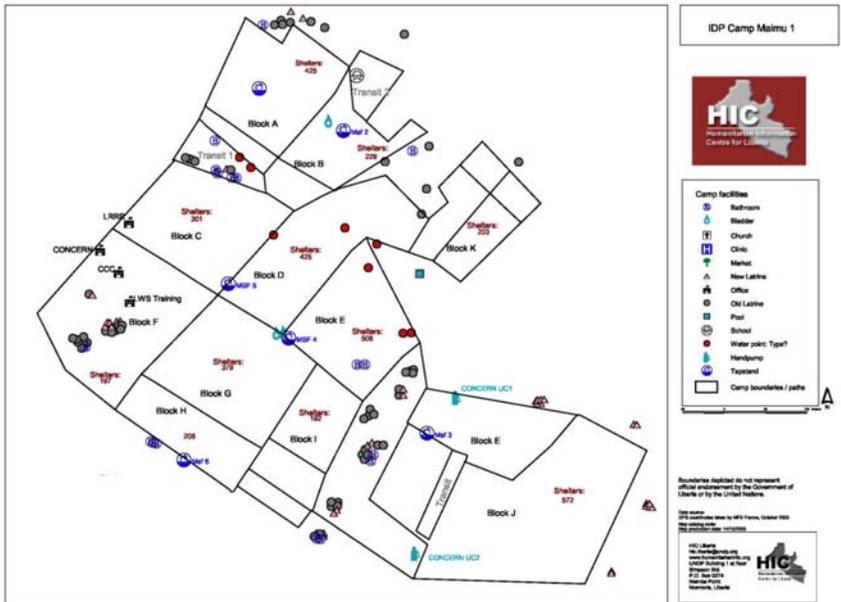


Image: HIC Liberia

This example is supplemented here with a mapping in a similar style of Kotki 1 & 2 camp for Afghani refugees in Peshawar, supplied by Bikram Chand Thakuri, water and sanitation engineer for UNHCR Peshawar.

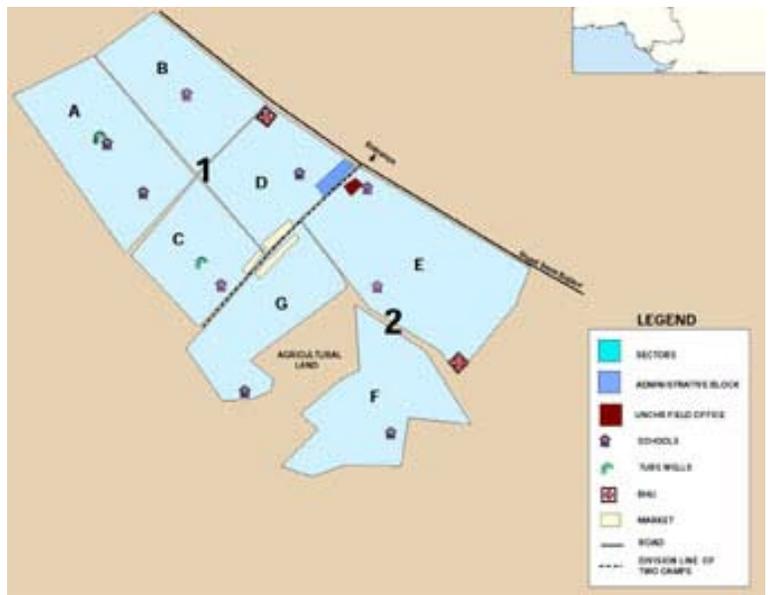


Image: UNHCR

These are not designs *per se*, but the manifestations of the adaptations of designs, as executed in the field. For the most part, these do not include any detail of the blocks or communities, but stop at the sector level.

With both of the maps, the following point can be observed. The camps are completely irregular in shape. The earlier sectors of the camp (marked 'Block A' and 'Block B' on the Maimu 3 map, and just 'A' and 'B' on the Kotki map) tend to be more regularly shaped than the other, later sectors, but this is more obvious in the Kotki camp. With this level of detail on the maps, it is difficult to posit a reason for that irregularity. In both cases, the markings for 'agricultural land' (on the Kotki map) and the presence of latrines and bathrooms outside the sectors (on the Maimu map) would imply that it is not political boundaries which are imposing these perimeter shapes. Other possibilities may have included topography, particularly the slope of the land and the height of the water table, and also just how much land could be quickly cleared for a new sector within a given period of time.

In the map of Maimu 3 specifically, the first thing which is conspicuous is the fact that all of the latrines and bathrooms are located exterior to the sectors of shelters, some at least 40m away from the nearest shelter, and therefore a potential personal security risk because of their isolation. But this potentially hazardous location is most likely explained by reference to the scale of measurement for the map. According to the scale placed at the right of the map, the camp is less than 250m across at its widest point. Block B, which is the most regularly shaped, has sides of less than 120m, but it contains 664 shelters, which would give a maximum of 21.7m<sup>2</sup> per shelter. This would be just enough to squeeze in a family of five at the lowest minimum levels of 3.5m<sup>2</sup> per person, without even space for the minimum firebreak buffer zone between shelters. According to this map, there simply just isn't room to squeeze the latrines and bathrooms inside the shelter sectors. Obviously, this is a very high-density camp, and unsustainable, but the lack of other marked facilities, the space given to the hospital at the top right of the map, and the area marked for 'Transit' may indicate that this camp was originally intended as a more temporary transit camp. In any case, it remains a map, that is, a documentation of an existing situation, with no implication whatsoever that this is something to be considered prescriptive, or to be taken as a model for further use in any way.

The map of Kotki 1 & 2 camps has fewer details in the map, but this information has been supplemented through an e-mail correspondence with Bikram Chand Thakuri, who has been one of the UNHCR officers responsible for the camp, in the area of water and sanitation<sup>64</sup>. Despite the fact that they do not appear on the map, each family plot has been allocated a toilet and washroom. Each plot is 12m x 10m, for a family of 6 people. One block has 20 plots, and one sector has 40 blocks, depending upon the shape.

There are a number of facilities which exist in the camps but which do not appear on the map, and these include playgrounds, mosques and community centres within each sector. Around 50-60% of the land is taken up for residential areas. It is also worth noting that within the remaining 40-50% of the land, there has been space set aside specifically at the edges of roads, so that the road can expand and widen to accommodate the growing market area. In fact, according to the selection of which facilities actually do appear on the map, it is the market place, and by extension the livelihoods that it supports, which gets as much prominence as the administrative block or the schools, and more prominence than the (unincluded) mosques and community centres.

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<sup>64</sup> Thakuri *e-mail* 16-06-04, 17-06-04

The camp is placed along the road from Bajaur, rather than away from the road ( a feature which is difficult to judge with the previous map of the Maimu 3 camp). The division between camps Kotki 1 and Kotki 2 along which runs the market, is described as ‘the main road’ by Bikram Chand Thakuri, so in this way the camp design also supports connections with the rest of the world. There is also another major source of livelihoods marked on the map, which is the agricultural land exterior to Kotki 2. However, this might also be needed to compensate for the fact that with 20m<sup>2</sup> per person within the family plots, there may not be enough room to contain the recommended 15m<sup>2</sup> per person set aside there for vegetable plots. However, even if the design of this camp may be assumed to adhere closer to the principles of expanded rational construction, again it must be added that this mapping was intended to be documentation after the event, and not intended to be a model for future use.

There is one more readily available graphic model of a refugee camp, in *Transitional Settlement*, although it comes with a disclaimer by the authors that it comprises ‘fictitious examples to illustrate sub-divisions<sup>65</sup>’ (i.e. the theoretical divisions of a camp into sectors, blocks and communities discussed in Part Two). Nevertheless, assuming that it remains in the final edition of the book, it is in the public domain, and can still be seen as a graphic description of an alternative model.

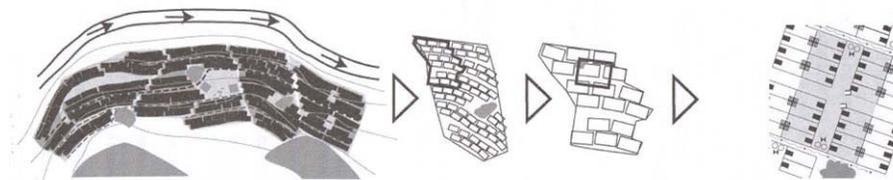


Image: Shelterproject.org

The advantages to this model, are that the shape of the camp and the roads within, are governed by the contours of the land, and the line of the pre-existing main road. The camp runs along the main road, and is not separated from it by an access road. There are also break-ups of the built features through the placement of facilities and contour-adapting firebreaks, although the firebreaks are still only referred to as ‘firebreaks’ and not as the de fact roads that they would become in most real camp situations.

The linearity of the camp prevents the firebreak-roads between the sectors from crossing over, and so there would be less possibility of reducing the proportion of land taken by firebreaks in this way, although this is inevitable once an ideal model approaches a real situation. On the other hand, the camp is presumably sufficiently small in size and sufficiently decentralised so that no-one would feel any great amount of isolation from the centre, at the furthest edges of the linear conglomeration. The plan misses the opportunity to include any large areas of open space within the camp for agriculture or for pure contingency, but that lies beyond the authors’ stated purpose for the map. A similar defense might be made for the apparent lack of inclusion of much in the way of extra open space where the firebreak-roads touch the main road external to the camp.

<sup>65</sup> *Transitional Settlement* p. 349

Lastly, for better or for worse, there is one aerial photo of Osier camp in Namibia, taken in August 2002<sup>66</sup>, which seems to combine phases of high-density unplanned camp near the administrative block and then phases of square modules with external latrines, and then another phase with a more linear layout. This differentiation gives the impression from the air at least of a progression of styles much more akin to real cities, with a historic centre and then a more modern set of suburbs, although it is unknown whether the inhabitants of Osire camp preferred the central but overcrowded locations or the more spacious but less central later additions.



Image: UNHCR

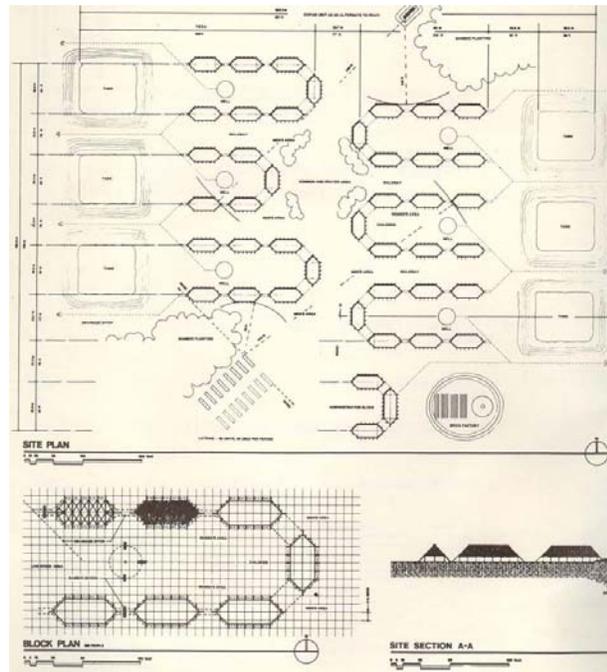
There is a slightly greater number of graphic models for individual community modules, and a greater proportion of them have been published explicitly as models, for possible use in the field. Furthermore, because they are for the most part more detailed than the models for the full camps, they offer easier analysis in terms of both construction rationalisation and long-term rationalisation, even when the exact dimensions or proportions are not supplied. However, a question hangs over them, and that is whether they actually depict ‘communities’ or not. They all depict modules, that is, small areas of residential land which can be replicated and then used as building blocks to define a large area of the camp. But this does not mean that the layouts of the individual plots within the modules do anything to foster a sense of ‘community’, which after all, despite the usage of the word in the UNHCR *Handbook*, is a social construct, not a physical structure. The accusation is particularly apposite for those modules where the shelters are to be positioned more or less equidistant from each other around the periphery of the module.

There are of course many commentators, including the authors of the *Handbook*, the *Minimum Standards* and *Transitional Settlement*, as well as many of the other authors whose texts are cited in this thesis, who argue that the design and layout of the plots and the shelters should be left as much as possible to the refugees themselves, so that the plots and shelters can best reflect the refugees’ own needs and cultural values. However, this admirable aim must be tempered with two concerns, both of which argue for an overriding role for the camp planner in deciding the boundaries of the plots and the modules at least. Firstly, there is the need to prevent the physical layout of the camp from descending into the disorganisation of the ‘un-planned’ camp. Secondly, there is the need to make sure that every refugee starts with his or her fair share

<sup>66</sup> UNHCR ‘Refworld 2003’ CD-ROM brochure

of allocated land. This means that in practise, the boundaries of the plots must be decided by the camp management agencies, but this is best done in ways which can subsequently accommodate the refugees' own aims concerning the positioning and orientation of the shelters.

The earliest modular design in the available literature is also one of the best community designs. This is a design for a community module which was actually deployed in camps for those displaced by cyclones in Bangladesh in 1975, but had been developed previously in a competition for emergency habitats held by the Carnegie Mellon University in 1973-4<sup>67</sup>.



*Image: Carnegie Mellon University*

The greatest virtue of this design is that it was created to meet a very specific context, rather than just being a one-size-fits-all boiler-plate, and does so using a simple but effective design. The design uses a genuine 'clustering' of the shelters, bringing the shelters closer together to create an inner space which is private and protected. This design was created in response to the cultural needs of the Bangladeshi refugees, who needed physical demarcations of spaces for women and for men. The intelligence of this design rests on the fact that it reinterprets the concept of 'clustering' in bringing the social community together by dividing it physically. This also allows the refugee groups to negotiate a hierarchy of spaces between public pathways and private women's areas, by not treating all refugees as equal, and by creating different spaces for different sub-groups within the community. It also achieves this with no apparent great imbalance of apportioning of plot sizes between the different families. The cultural demands necessitated a community that included a large fully-enclosed area, but the curves of the line of shelters if imposed upon a square grid of module areas, would still leave space at the corners for small-scale trading activities or other.

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<sup>67</sup> Carnegie Mellon University *Emergency Habitat* p. 3

The aforementioned text by Hardin on physical planning<sup>68</sup> also offers some examples of module layouts, and at least has the virtue of demonstrating exactly how these modules would fit into an overall camp plan. However, it would be hard to describe either of the two examples provided as real clusters. The less convincing of the two is for sets of four shelters around a single latrine, then replicated to make long rows.

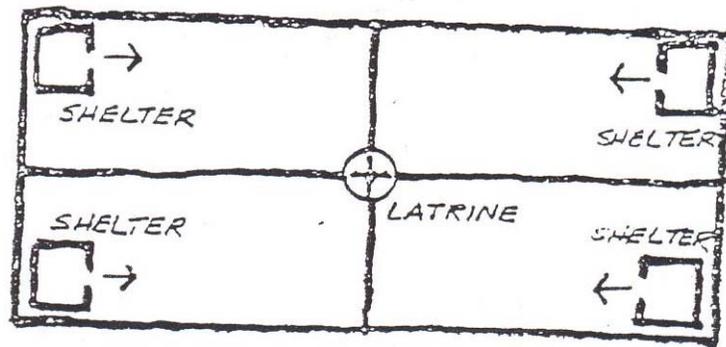


Image: Hardin

In reality, the shelters are not 'clustered' (which implies a sort of gathering together), so much as pushed away from the central latrine. The result has now three large drawbacks. Firstly, the backs of the shelters are pushed against the backs of shelters from the adjacent quadrangle, this removing privacy, and a firebreak buffer. Secondly, the second-widest level of pathways in the whole camp would then effectively be the area that goes through the middle of each supposed 'quadrangle', and around the sides of the latrine. This puts the latrine in an effective no-man's land, and reduces the possibility for creating vegetable gardens in that space. Thirdly, the putting of the quadrangles into long rows does nothing to alleviate the featurelessness of the grid pattern.

The second example is of modules of 8, 12, 14 or 16 shelters, set equidistantly around the periphery of a square. This at least has the advantage over the previous design, of shortening the overall ratio of plot area to roadway length (and possible attendant water pipes and drainage, correspondingly).

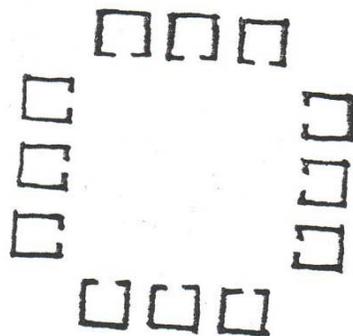


Image: Hardin

However, the design fails to acknowledge the fact that if each shelter did have a 15m<sup>2</sup> per person vegetable plot to the immediate rear of each shelter, then the lengths of the vegetable plots would mean that the plots would not be able to fit in against each other, or would overlap. With the

<sup>68</sup> Hardin *Physical Planning* pp. 16-19

peripheral, equidistant placing of the shelters, it is also doubtful whether a true social community would create its first links across the interior of each module, particularly as in most cases the nearest set of shelters would actually be ‘outside’ the modular community, on the opposite side of the pathway. Furthermore, the uniformity of the alignment of the plots along the module edge would also do little to alleviate the aforementioned featurelessness of the roadsides. There is a description of a similar set-up described in a draft training manual for aid workers written by Fred Cuny<sup>69</sup> which involves having the shelters turned to face the interior of the module square, but that would mean that the front entrances of the shelters were facing directly onto their own latrines, whilst the backs of the shelters would be the faces which the shelters presented to the pathways and the rest of the world. Ultimately, the short-term rationalisations of cost provided by the shortening of roadway/infrastructure lengths, would not cancel out the longer term shortcomings of the design in terms of its potential negative effects upon its inhabitants.

*Transitional Settlement*, in its aim to be a useful tool, actually contains three different graphic examples of plans for community modules, although like the plan for the entire camp discussed above, the plans for modules come with a disclaimer that they are ‘fictitious’<sup>70</sup>. *Transitional Settlement*, to its credit, also lists a number of advantages and disadvantages for each different example.

The first example is basically a modification of the perimeter square described above in the Hardin text, albeit with the shelters shifted off a symmetrical axis, so that all the vegetable plots can be accommodated.

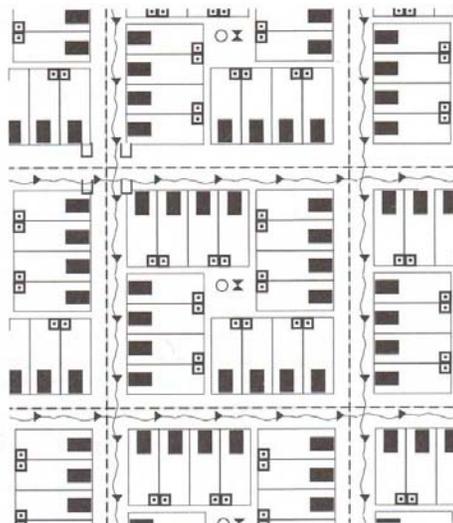


Image: Shelterproject.org

This shift of alignment not only provides contiguous space for all the vegetable plots, but also does much to block off the potential creation of informal pathway routes which might invade or bisect the inner community. Therefore, there is still the potential for reduced construction costs through shortened infrastructure lengths, whilst the changes in the design attempt to alleviate the social disadvantages from the Hardin version.

The other advantages and disadvantages are listed in the book as follows:

<sup>69</sup> Cuny *Physical Planning for Emergency-Affected Communities* pp. 46-48

<sup>70</sup> *Transitional Settlement* pp. 350, 354-356

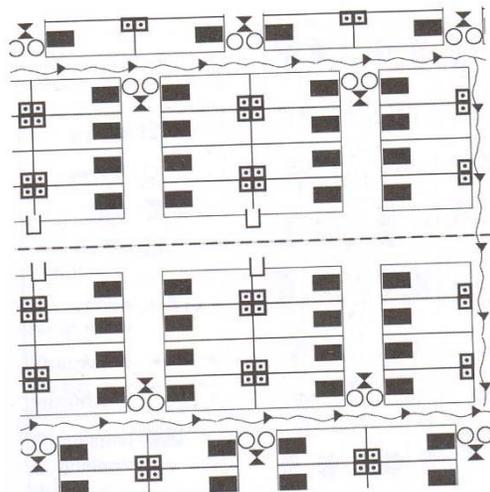
### ‘Advantages

- There is a public side to of each community, facing the street, and a more private side, internal to the square, reinforcing the community through increasing interaction.
- The size of the internal area inside the square can be increased by increasing the number of family plots in each community, or by changing their proportion.
- Tapstands and latrines are situated away from the road, and are more likely to be used just by the community, and so they are more likely to be maintained.

### Disadvantages

- The fronts of each family shelter face roads in a grid plan, limiting privacy.’

The second example is the one which seems favoured by the authors. This example, and the third one which follows, both make the importantly acknowledge the reality that perimeter groupings are more likely to form social communities across the pathways, and these examples then try to make a virtue of the fact.



*Image: Shelterproject.org*

This model, and the one following, recognises the centrality of pathways and roads not as dividers but as connectors, and as means of networking and communication: the pathway in this model is a centre, not an edge. However, the viability of the drain for forming a true end to the cul-de-sac depends upon its own practical construction. It is entirely possible for a drain gully to act as an effective demarcator, even if it is not a full physical barrier, but at least some of its effectiveness depends upon the refugees’ own usage of the space close to the drains, and whether through choice of crop planting for instance, they can also define the vertical dimension to the end of the cul-de-sac. This model may also allow a gradation of space, from public to private, as the shelters move away from the road and towards the cul-de-sac. If the area between the two facing groups of four shelters is not provided with the same level of infrastructure as the

designated path/road, i.e. the space between the fronts of the houses is also seen as part of the private garden areas, then there may be cost-reductions from that, although this would not be extendable to reductions in water pipe length, as the water points are situated all the way within the communities. The other advantages and disadvantages listed in the book are as follows:

#### ‘Advantages

- The front of each plot faces a secondary or cul-de-sac road that can be used by the community residents only, improving social controls by supporting ‘neighbourhood watch’, and reinforcing the community through increasing interaction.
- The rear of the family plots face each other, also improving privacy and security. Family latrines can be introduced gradually, starting with one shared between four families. Building four latrines together is simpler than building separate latrines.
- Staggering the communities prevents long straight roads. Long straight roads reduce privacy and flexibility, and increases the funneling of wind, which increases wind velocities, dust, and the spread of fires.
- Tapstands and latrines are situated away from the road, and are more likely to be used just by the community, and so they are more likely to be maintained.

#### Disadvantage

- Marking out the plan is more complicated than using a grid, although a grid can be marked and then the plots staggered within it.’

The third example from *Transitional Settlement*, is the only other example in the available literature apart from the Carnegie Mellon University example, which acknowledges the potential to use differentiation of plot size as a tool.

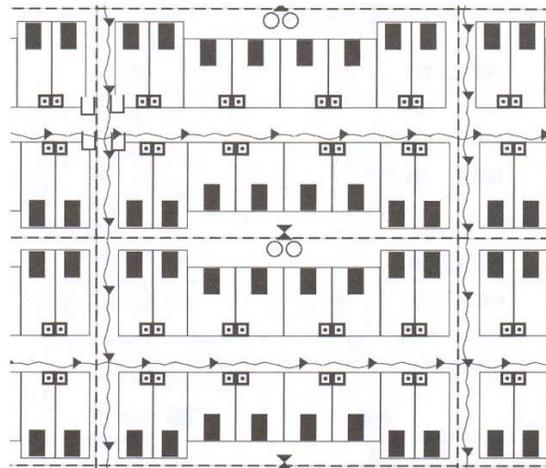


Image: Shelterproject.org

However, as the results are plots of different sizes, then great care would have to be taken to ensure that this sort of design did not disadvantage some refugees. If this model was to be employed, it would probably be best done if adjacent differently-sized plots could be occupied by members of the same extended family. There would also need to be attention given to the

width of the rear ‘alleys’ along which the drains flow, and to which the latrines abut. If the alleys are too wide, then they risk becoming secondary pathways, which would compromise the integrity of the community rear areas. If the alleys are too narrow, then they risk becoming erosion-prone water canyons during any rainy season. The other advantages and disadvantages listed in the book are as follows:

‘Advantages

- The front of each family plot faces a road which widens and narrows along its length, creating small communal open squares linked by roads. Although the roads are used by all, the communal squares reinforce the community through increasing interaction.
- The rear of the family plots face each other, also improving privacy and security. Family latrines can be introduced gradually, starting with one shared between four families. Family latrines can then be built in pairs.

Disadvantages

- Tapstands are situated in the road, and likely to be used by people other than the community they serve, and so they are less likely to be maintained.
- Marking out the plan is more complicated than using a grid, as some family plots are different sizes to others.’

There is one other model, which is in essence a strengthening of the cul-de-sac benefits from the second model in *Transitional Settlement*, which has been published by Fardanesh & Walker<sup>71</sup> as having been implemented in Sri Lanka and Cote d’Ivoire.

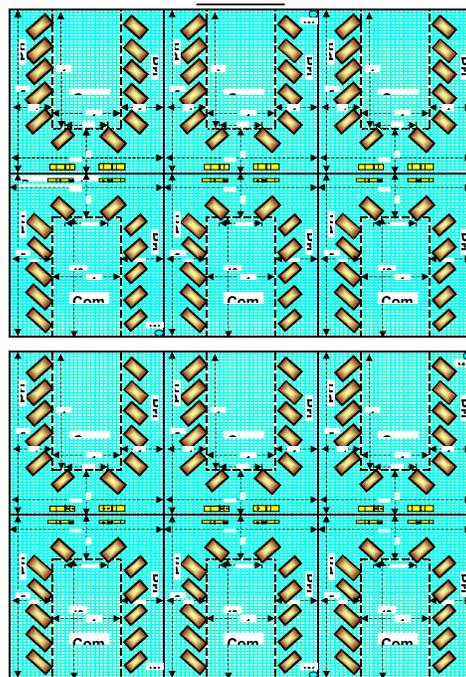


Image: Fardanesh & Walker

<sup>71</sup> Variously, Fardanesh & Walker “Dignified village life for the displaced”, and Fardanesh “Boubele, Tabou County”

Here, the U-shape creates a more formal closure for the cul-de-sac. The design was originally site-specific (for the Sri Lankan context), although now being offered as a universally applicable design. The community in the original version described in the *Forced Migration Review* article is large (20 shelters), although this has been reduced to 12 communities in the later published version. Regardless, they are what Fardanesh & Walker refer to as a ‘herring bone formation’<sup>72</sup>, so that entrances do not face each other across the community, but are turned away by 45°. This design removes all vehicular traffic from inside the community, whilst still allowing it to open out to the rest of the camp. It is also the only model which explicitly includes trees and fencing in its site plan. Whilst the actual plot sizes have a small degree of variation, the positions of the shelters vis-à-vis the road are obviously very different, and allocation may be negotiated accordingly, so that for instance vulnerable members of the community live in shelters away from the road front. Like the second model from *Transitional Settlement* above, there is potential to reduce road length per shelter area, if the area between the shelters does not receive the same level of infrastructure as the outer road. There are two main disadvantages to this model. Firstly, in this version, the latrines are small in number, and are communal rather than attached to any one shelter, and therefore may become prone to maintenance and upkeep problems. They would also be somewhat of a distance from those shelters to the road, particularly in the larger, 20-shelter version. Secondly, this sort of layout is more difficult to plot than any of the others examined so far.

From the examination of the examples of the modular layout models, a number of conclusions can be drawn, concerning both the examples themselves, and the state-of-the-art of their study as well.

- There are still a number of fairly mundane spatial issues which have not been satisfactorily addressed by any of the models. Foremost of these would probably be the problem of the placement of latrines. The latrines can not be too far away from the shelters because that would raise issues of personal security, but they can not be too close to the shelters because that would raise issues of public health and odour discomfort. If they are placed at the exterior of the communities, they risk becoming ‘public’ and therefore poorly maintained, but if they are placed in the interior of the communities, they risk turning the community interiors into empty spaces. All of the models above plump for one or the other of the imperfect options listed here.
- It is the gaps between the shelters, rather than the position of the shelters themselves which in many instances may have the most profound impact upon the viability of the module as a true ‘community’.
- Three of the models (the Carnegie Mellon University one, the third one from *Transitional Settlement* and the Fardanesh and Walker one), take advantage of the potential for differentiation of plot size or significant change in plot location or orientation, even though this distribution would be more akin to situations found in real towns.
- All of the models consist of only one module, which presumably would be judged adequate for all locations in the camp. Whilst most of the designs apart from the four-shelter ‘quadrangle’ proposed by Hardin have their merits, they do not acknowledge the fact that the position of a U-shaped community facing out onto a small pathway,

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<sup>72</sup> Fardanesh & Walker “Dignified life for the displaced” p. 24

will be vastly different from the position of a U-shaped community facing out onto a main road, which is different again from a U-shaped community facing out onto a market or an administrative block. There is a need for module designs which produce a small number of different but potentially interlocking designs, or else ways in which one single module can adapt to a variety of locations.

- Generally, as long as modules remain the basic building block of refugee camps, then much more study needs to be conducted. The field could benefit in particular from a greater and more detailed number of case studies of the different ways in which different refugee populations have adapted the module layouts to their own needs. One possible starting point might be to take the general principles of Christopher Alexander's 'patternlanguage', and examine all the informal, irregular pathways which sprout up in a camp (see the aerial photos of the camps above), and consider their implications for how people live through the camps.

## PART FOUR – CASE STUDIES OF LARGO AND JIMMI BAGBO CAMPS

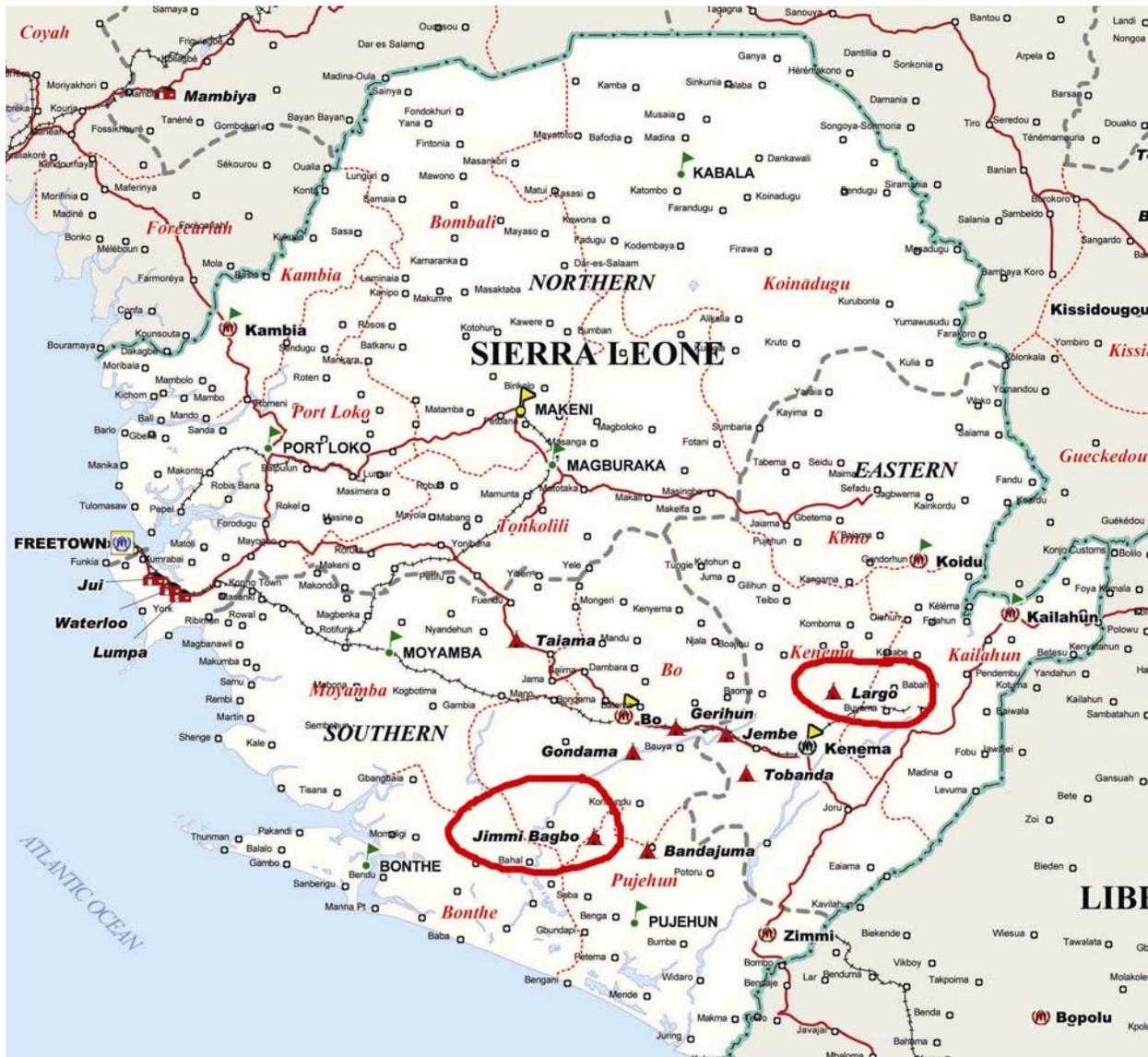


Image: UNHCR<sup>73</sup>

Given the grave difficulties in attempting any form of universal design for refugee camp construction, the analysis of individual camps, and the designs and design adaptations that they embody, becomes all the more important. However, because of the lack of prior studies, any such analysis done at this point must also bear the responsibility for being somewhat of an assertion of its own techniques at the same time. What follows in this section is not only a demonstration of how the principles of expanded rationalization might be applied to the analysis of existing camps, but also a claim for its own centrality at the same time.

<sup>73</sup> www.unhcr.ch

### ***Site selection for the case studies***

At the onset of preparation for this thesis, I had decided to include practical case studies of a refugee camp(s) if possible, with the following general parameters:

- Built in response to forced migration caused by armed conflict
- Sufficiently new that the original plan of design would not be obscured by the refugee inhabitants' own appropriations and adaptations of the space. At the same time, the camp should not have been so new that there would have been no evidence at all of living patterns, or no general indication of a direction of adaptation.

The second of these two conditions in particular meant that camps with the greatest longevity would be the least likely to fit the scope of the research. At the same time, during my subsequent approaches to various staff members at UNHCR for possible facilitation of the research, it became obvious that they would be (rather sensibly) reluctant to facilitate any fieldwork in most of the newer refugee camps in the world, because they are also often the most dangerous. The final offer by UNHCR of facilitation to visit camps in Sierra Leone, was not made as a result of a systematic evaluation along a sliding scale of relevance versus danger, and to a certain extent the choice was made according to preferences or suggestions made at various points in the informal contact network inside and outside UNHCR. However, the two camps visited did fit the prerequisites for the thesis research, with some elaboration.

As will be described in further detail below, the two camps which I visited in Sierra Leone were undoubtedly safe. In fact, the general impression given was that they were safer than most of the normal towns and cities in the rest of the country. They were camps which had been created for refugees fleeing across a border from armed conflict (in this case, from Liberia). The older of the two, Jimmi Bagbo, had been established in 2001, with subsequent phases added on by 'fill-in' later. The younger of the two camps, Largo, was approximately 15-months old at the time of the visit in late May 2004. There is a provisional timetable for mass voluntary repatriations from the camps, starting in October or November 2004. This is known as a rumour to most of the refugees in the camps<sup>74</sup>, but it has not yet resulted in any great reduction in camp population through early spontaneous voluntary repatriation. The population of Largo camp, closer to the Liberian border, has experienced a slight decrease in population due to early voluntary repatriation, but not enough to make any of its original functions non-viable. Given the fragility of the peace in Liberia, and the recent delays in the disarmament process there, the scheduled start of the mass voluntary repatriations may not start by November 2004, and therefore UNHCR, its implementing partners and for the most part the refugees themselves are still committed to the continuation of the camps as they are, and the various programmes that take place within them. Therefore, with some consideration, Jimmi Bagbo and Largo camps were both living, progressing camps, rather than camps which were already being decommissioned.

### ***Methodology***

I was invited by the UNHCR field office in Freetown, to visit the camps for about a week, from the 21<sup>st</sup> until the 28<sup>th</sup> of May, 2004. This period of time was eventually reduced by

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<sup>74</sup> UNHCR Ameratunga *personal communication*

one day, due to travel restrictions caused by consideration of security risks during local elections which occurred at the start of the visit period. I was able to supplement the visits to the camps with an additional week in Sierra Leone (primarily in Freetown) conducting briefings and interviews with a number of the staff from UNHCR Freetown, staff from the two UNHCR sub-offices in Kenema and Bo, and staff from various of the UNHCR implementing partners in the camps in Sierra Leone, including the Lutheran World Federation (LWF), the American Refugee Committee International (ARC International), the International Rescue Committee (IRC), Peace Winds Japan, and Mentor. This has since been supplemented by a number of e-mail correspondences with some of these staff members and their colleagues, and by various sources of written and graphic documentation from all of the above agencies.

There are currently eight refugee camps for Liberian refugees in Sierra Leone. Because the shortness of time allotted to my fieldwork did not allow me the possibility to observe how one single camp evolved over time and ‘grew into’ and adapted the camp layout, I decided instead to visit two different camps. Largo was one of the younger camps in Sierra Leone. The other, Jimmi Bagbo, was one of the oldest camps in Sierra Leone purpose-built for Liberian refugees. This distinction has to be made because there are one or two camps in Sierra Leone which are older than Jimmi Bagbo, but which inherited their sites and some of their structure and facilities from previous camps built for Sierra Leonean returnees, prior to 2001.

The difficulty with these exercises in comparison is always to find two things to compare which are sufficiently similar so that the comparison is not rendered null, and so that the true contrasts gain some sort of significance. There were some differences between Jimmi Bagbo and Largo, apart from the one of age:

- There was a difference in module layout. In Largo, the module layout had been designed by staff from the UNHCR Technical Unit. In Jimmi Bagbo, the module layout had been designed by the Japanese engineer Hiroshi Imai, although significantly adapted subsequently.
- Largo had been expanded in a linear manner, extending steadily southwards and westwards from its earliest boundaries. Jimmi Bagbo had been expanded in great part through infilling new phases in gaps between previous phases.
- The populations of the two camps varied somewhat in local origin, with those in Jimmi Bagbo containing a higher proportion of people who came from rural/agricultural backgrounds.
- Camp management in Largo was undertaken by Catholic Relief Services (CRS), whilst in Jimmi Bagbo it was undertaken by Peace Winds Japan.

However, there were significant similarities between the two camps, which made the exercise in comparison justifiable. These included:

- The nationality and general ethnic origin of the refugees in both camps were the same.
- The reasons for their leaving Liberia and becoming refugees were the same.
- Both camp populations had a generally similar set of populations ratios for men:women and for different age groups.
- The camps were of similar population numbers, and similar metres-per-person population densities.

- Both camps were situated in provincial rural areas, a distance from the relative provincial town and most of a day's journey from the capital, Freetown, but close by to local host community villages.
- Despite the fact that the two camps were managed by different implementing partners, both camps were operating under the same guidelines and by-laws, and with the same general structures of refugee committees as participatory governance.
- Both had broadly the same array of social welfare and public health concerns.

Because of the extreme shortness of time available for the fieldwork, choices had to be made about what sort of site analysis exercises to undertake, on the basis of feasibility and likelihood of significance in results. The exercises were broadly divided into ones concerning physical mapping, and ones which concerned living use of the camps and social interaction.

For the physical mapping part of the camps, I was provided with base maps of each camp (shown below, at the start of the analysis section devoted to the two separate camps). These maps included features at the block level and above. That is, they showed the placement of all the non-residential buildings, of the different variety of water points, the major roads, the one formal market per camp, and the outlines of each of the communities and Phases (equivalent to a block or sector). The maps did not show the locations of the individual shelters, of the latrines and showers, of any of the other informal structures, or of the exact locations of the vegetable plots or other areas given over to cultivation. Therefore, the initial mapping exercises consisted of placing all of the following onto the whole maps for each of the two camps:

- Individual shelters
- Latrines and showers
- Unofficial, or refugee self-built places of religious worship
- Unofficial, or refugee self-built community centres, palaver houses or meeting places
- Shops, trade stalls and informal markets
- Bars and video houses
- Outdoor fires and hearths
- Small outdoor structures for agriculture or animal husbandry, such as chicken coops, dog pens or drying racks
- Workshops, weaving looms
- Vegetable plots
- Washing lines or other major barriers placed across pathways, or across community interiors
- Cleared spaces, if their location was remarkable for some reason
- Informal pathways running through the middle of communities
- Areas of exceptionally high use, or high foot traffic, as observed during the period of the fieldwork
- Areas of exceptionally low use, or low foot traffic, as observed during the period of the fieldwork

I also made it a point of walking out of the camps, and observing all the roads which connected the camps with the host communities. I then walked through the host community towns and villages, visiting at the least major public areas, like market places and transit stops for buses and bush taxis.

Moving through the camp also gave me opportunity to overlap the mapping exercises with parts of the exercises devoted to gathering information through interaction with the inhabitants of the camps. The results of these sets of exercises must be taken as anecdotal and suggestive rather than conclusive. During the period of the fieldwork, it was not possible to have meaningful interaction with a large enough proportion of the refugees to have truly representative collections of information and opinions. However, I rejected the idea of trying to ask the camp management to somehow assemble groups of refugees for me to talk with. Even had it been possible, the selection process would have in all likelihood produced only one specific cross-section of the camp population, possibly centering upon those who were active in the various camp governance committees. Instead, I undertook a series of exercises which mixed:

- a. informal conversation with those who I met by chance whilst walking into their communities or down their roads, those who I myself approached because their outdoor activities seemed somehow significant to the types of livelihoods available in the camps (e.g. market stall holders), or those who approached me whilst I was deliberately standing in one place in one of the roads, or sitting in public places like a palaver house; with
- b. attendance at a formal regular meeting between UNHCR Technical Unit staff, and the camp management committee at Largo, and informal interviews and discussions with members of the camp management in Largo and Jimmi Bagbo, including UNHCR local staff, refugees, and liaison members from the local host communities.

Whilst slightly more scattered and random an approach than just talking to groups pre-selected by the camp management, it is also obvious that the method of interpersonal communication described here would also not produce a truly representative sampling, even if it had been done on a longer time frame, involving interaction with more people. In particular, this method probably creates an under-representation of at least the following groups: (i) those whose livelihoods meant that they were more likely to be indoors rather than outdoors during the daytime, (ii) those who could not speak English (as I was moving through the camps on my own, without any interpreter), (iii) those who for whatever reason felt reluctant to approach, or be approached by someone unrecognised, or who was not a resident of the camp, (iv) those who were out of the camp during the time of the visit. In Largo camp, this last group would be largely comprised of adolescent boys and adult men, who are recruited to work in diamond mines far away from the camps, for periods of time that can extend beyond one or two weeks.

For all the above reasons, any of the social observations must be taken with all the usual caveats and warnings. At best, they can be seen as a component which is vital in any site analysis of a camp devoted to considering the rationalisation of camp construction over the long term, but which must be done much more thoroughly to be truly effective. They can also be seen as anecdotally based suggestions for possible future avenues of research, or at first steps towards creating a more complex, nuanced and rigorous methodology of site analysis of refugee camps which attempts to view the built environment and its inhabitation of the camp as an indivisible whole.

At the very least, a fuller analysis of the camps would include observations of some of the occasional large-group activities which I was not able to observe first-hand due to the time and organisational constraints. I was able to observe ‘occasional’ activities which happen on a daily or weekly basis, including the start and finish of the schools, community meetings in

palaver houses, and daily shopping patterns in the markets, and was able to observe the effects that these short-lived but high volume occasions of foot traffic had on various places. However, ideally this would have been extended with observations of the following: (i) distribution of dry food items to households (only done on a monthly basis), (ii) the early entry of supplies into the market and the opening of the market (not undertaken, because management staff and by extension their visitors, only arrive in the refugee camps later in the morning, (iii) the camp during the evening and at night (not undertaken, because management staff leave the camp by 5pm) (iv) religious ceremonies, or worship in or around religious structures in the camps (not undertaken because I was away from the camps for both the Friday/Saturday observances at any of the mosques, and the Sunday observances at any of the churches). For a longer-term period of fieldwork, then the following activities should be included: (i) the building of a new phase of shelters and communities, (ii) the arrival of new groups of refugees, (iii) seasonal harvesting of crops.

### ***Largo and Jimmi Bagbo general overview of the context and shared history***

Largo and Jimmi Bagbo camps were created in response to the same ongoing civil war in Liberia, which caused refugee influxes into Sierra Leone in the early part of this decade, which have resulted in an estimated Liberian refugee population in Sierra Leone of about 62 000 people, of which approximately 7000 are from long-term case-loads, still resident in Sierra Leone since the 1990s, and 55 000 are from the newer, post-2000 influx<sup>75</sup>. The Sierra Leone government does not force refugees to live in the camps, and small numbers of them do live dispersed in towns in Sierra Leone, although UNHCR encourages residency in the camps, through making the provision of some services dependent upon being in the camps. The eight camps for Liberian refugees in Sierra Leone are all relatively small, ranging in population size from about 5000 people to 8500. This has been due to a deliberate policy agreed upon by UNHCR and the National Commission for Social Action (NaCSA), the part of the government of Sierra Leone responsible for administering the camps, so that the camp populations would not overshadow the local host communities, which range in size from 500 people to 18 000 people. The negotiation for the sites was done between UNHCR, NaCSA, and the chiefs of the local chiefdoms where the camps are located. According to its policy, UNHCR does not buy or rent land for refugee camps<sup>76</sup>, but there have been a series of agreements between all parties, to the effect that UNHCR will provide development and infrastructure programmes for the host communities in parallel to the services provided for the refugees. The host communities will also inherit the permanent, usually non-residential structures of the camps when they are eventually closed down (something which has had an influence over the layouts of the camps, see below in the separate analyses of Largo and Jimmi Bagbo). There has also been anecdotal evidence that some of the chiefs were not unhappy to see the arrival of the refugees, as it was (rightly) anticipated that they would clear land in the area for farming which was arable but which had previously still been covered in brush, and which the local communities would also stand to inherit at the closure of the camps<sup>77</sup>.

Despite widespread assumptions amongst the populace in Sierra Leone that it was refugee influxes from Liberia in the early 90s which politically destabilised Sierra Leone and was the trigger for Sierra Leone's own civil war, the government of Sierra Leone has permitted

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<sup>75</sup> UNHCR Ameratunga *personal communication*

<sup>76</sup> *Handbook* p. 72

<sup>77</sup> UNHCR Ameratunga *personal communication*

the eight current camps to be 'open'. That is, there are no physical barriers surrounding the camps, and the refugees do not need to obtain any permission to leave the camp. The government of Sierra Leone has further signalled its commitment to an open camp system, by preparing a law which will grant Liberian refugees the right to residency in Sierra Leone, even after the camps are closed. It is guessed that perhaps 5000 of the Liberian refugees may stay<sup>78</sup>. As part of the attempts at open integration, some refugee children from the camps attend school in the local host community, whilst some children from the host community attend school inside the camps.

Signs of the refugees' interaction with, and integration with the local host communities are numerous. Refugees hold stalls in the local markets in the host communities, and some small traders from the host communities also hold stalls in the designated markets inside the camps. Refugees have also negotiated the rental of arable land near the camps from the host communities for their own farming, something they have done in some instances by providing their own labour on the farms of the host communities. But this openness has also had its drawbacks. Camp managers find their tasks more difficult of keeping track of the camp population numbers, and of occupancy of the communities. The distribution of dry food supplies now takes place simultaneously each month across all eight camps, in order to prevent refugees from collecting supplies in one camp, and then travelling to another camp to collect more supplies there on a subsequent day of the month. This arrangement puts strain upon the delivery resources, and creates an uneconomical usage pattern for the trucks. Most worrying of all, the openness of the camps means that there continues to be widespread recruitment of men and boys to work in the diamond mines in Sierra Leone. This creates imbalances in the male:female ratio in the camps for extended periods of time, threatens to destabilise the camp economy and the social fabric of the camps when cash-rich men do return to the camps, and is one of the major sources of the exploitation of child labour in the country.

Both Largo and Jimmi Bagbo, along with the other six camps, are governed in large part by a series of refugee committees, with different responsibilities. At the higher levels, the committees are also attended by representatives of UNHCR and its implementing partners in the camps, by representatives of NaCSA, and by liaison officers from the host communities. At the more localised level, each community within each camp has a community leader. There are also security wardens chosen from amongst the refugees, who support the police officers who stay in the camp, and who report back to the camp management. All positions are chosen by election, and there are term limits imposed upon some of the posts. There are minimum percentages of posts which must be occupied by women. The committees are supposed to govern the camps according to the laws of Sierra Leone and the codes of conduct of UNHCR, but interpretation of these laws and codes has recently been regularised in some camps through the drawing up through consultation with the refugees, of written sets of by-laws of the camps.

The refugees each receive enough dry food once a month calculated to provide them with 2100 calories food intake a day. There is a proportion of the refugees who have considerably more to live on, and there are great differences in means of provision and livelihood amongst the refugees, even within the same camp. There are some refugees who have relatives abroad, who are able to receive money donations from their relatives. There are also a small number of refugees who have been able to use their status from their previous lives in Liberia (usually close family connection with one of the chiefs), for their own advancement in the camps. At the

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<sup>78</sup> UNHCR Ameratunga *personal communication*

extreme end of this, there are anecdotes about certain refugees in one or two of the camps, who have managed to rent farmland of 20 acres, oversee a workforce of tens of people, and make offers (declined) to UNHCR to sell it some of their surplus rice, as there was not a sufficient local market for it<sup>79</sup>. In four of the camps, including Largo, ARC International has also instituted a micro-finance programme giving loans of US\$25-50 to 1500 qualified recipients. This has created some forms of generation of cash income for some of the refugees. For the most part, the projects are modest, including small-trading from stalls, or setting up tailoring workshops. But there are also instances of more ambitious schemes, whereby a co-operative group has pooled its resources to rent truck transportation to import ground-nut oil from Guinea twice a month<sup>80</sup>. However, for the vast majority of refugees in the camp, it is assumed that there are few resources beyond the food and Non-Food Item (NFI) handouts, and the small amounts of produce to be grown on their own vegetable plots.

The majority of refugees in the camps have also sold the plastic sheeting which was provided to them for roofing for their shelters upon arrival in the camps. In fact, such is the protracted nature of the conflicts in the region, that there has arisen a form of ‘refugee industry’ so that on the day that plastic sheeting was distributed to the refugees, there were already trucks at the edge of the camp, with people waiting to buy the sheeting from the refugees and carry it back to the public markets in Freetown<sup>81</sup>. From the refugees’ point of view, the transaction has enormous economic attractiveness. I was quoted a price of 45 000 Leones (approximately US\$16) for a sheet of 4 x 5 metres, (the UNHCR standard size) in one of the markets in Kenema. For the refugees, the numbers are hard to argue with: a cup of bulgar weat, which is the standard one-meal portion of the standard starch staple in the camp, costs in comparison 300 Leones (US\$ 0.09)<sup>82</sup>, one of the variety of small mangoes at the market inside the camp costs 100 Leones, and a fresh coconut from a market in one of the host communities (a relative luxury) costs 700 Leones. Even if each refugee only received a small fraction of the 45 000 Leones for the sheeting, it would still represent many days food money, whilst the entire amount would be equivalent to more than three fifths of the basic micro-finance loan provided by ARC International, and the roofs of the shelters can be more cheaply made using local coconut palm thatch. The refugees sometimes also sell items when it is against their best interests too. Sealable food containers which were distributed to the refugees in late 2003 and early 2004 in order to help combat lassa fever in the camps, were also sold by the refugees, even though there were no other equally protective container equivalents at hand. On the other hand, most refugee families in the camps rarely sell the chickens that they raise despite the potential economic benefits from doing so, preferring to keep them in case a meat dish is needed to feed an honoured guest. In short, the refugees, just like people everywhere else in the world, sometimes act in an economically rational manner even though their actions are unexpected to outside observers; sometimes they act in an economically irrational manner; and sometimes they act in ways which only become rational once an explanation of prevailing social customs are given.

Upon arrival at the camps, the refugees are registered, and then, amongst other things, provided with a kit of building materials (including the aforementioned plastic sheeting). The refugees are expected to build their own shelters within assigned plots in community modules. In Largo and Jimmi Bagbo at least, there are also clear guidelines about where the refugees should

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<sup>79</sup> IRC Gatara *personal communication*

<sup>80</sup> ARC Sulla *personal communication*

<sup>81</sup> UNHCR Technical Unit Staff *personal communication*

<sup>82</sup> Largo host community Abdulani *personal communication*

put the shelters within the plot, in order to conform to the designs of the community as a whole. Initially, there is one ‘demonstration model’ double latrine dug and installed within each community, but the refugees are then encouraged to dig their own latrines, one per family, once their shelters have been built. Subsequently, the refugees are also responsible for building their own external shower stall, and for digging a communal refuse pit, one per community. The main materials used in making the shelters are wood pole frames, and then mud daub walls (although a small number of refugees have since remade their shelter walls using mud bricks). In the absence of the plastic sheeting, the roofs are made of thatch. There is also a small NFI kit distributed for household items.

The public health concerns in Largo and Jimmi Bagbo are generally the same. The two camps, and indeed the whole of Sierra Leone, is within the west-African malaria zone. This chronic health risk is seen as being more acute in Largo camp, because it borders onto swampland, but it is prevalent everywhere. Mentor are currently conducting field tests in Largo camp for the use of plastic sheeting impregnated with insecticide for use in the shelters and the latrine covers, but the tests are still ongoing. The other main health concern previous to and during my stay at the camps, was lassa fever, which had claimed nine fatalities across the camps by May 2004. Lassa fever is spread through bodily fluids, or by eating food that has also been partially eaten by infected rats, so in both camps there were ongoing public awareness campaigns, distribution of the sealable food containers mentioned above, and in Jimmi Bagbo there had been a programme of vegetation clearance from the pathways, in order to remove some areas of natural habitat from the rats. In general, there is no problem with malnutrition, although UNHCR and World Food Program (WFP) which is in charge of food distribution in the camps, do have extra food supplements if necessary. A more common problem is intestinal parasites, particularly amongst children.

There are a number of public safety issues common to Largo and Jimmi Bagbo camps. In general, both camps are extremely safe. Statistics of the actual number of incidents brought to the attention of the police office or the refugees’ own grievance committee were not made available to me, and so far there has not been any mapping done of the locations within the camps of each incident. However, the general impression given was that the camps were on the whole safer than many of the towns and cities in the rest of Sierra Leone. In passing, as a proposal for a new ‘indicator of safety’ in refugee camps, I would like to propose *the amount of chickens running free through any camp*. Both Largo and Jimmi Bagbo had thousands of chickens running through the camps (no-one was able to come up with a guess for how many), which surely would not be the case if the human inhabitants of the camp were suffering from malnutrition, security fears, or great vermin problems. Having said that, it was reported that the camps do experience moments of rowdiness, particularly at night, on the days following the monthly food distribution or when the men came back from the diamond mines<sup>83</sup>. Within the camps, there are concerns with security issues about the small number of bars and video houses which are located in some shelters, usually towards the edge of the camp. As the camp management leave the camp before the evening, and as the police officers in the camp rarely go on patrol unless called out, the camp management is largely reliant upon the refugees’ security wardens to report the locations of these establishments. Relations with the host communities are generally good, in part due to the similarity in ethnic origin between many of the refugees and those in the host communities, in part due to the UNHCR-led programme of parallel development programmes for the host

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<sup>83</sup> UNHCR Bo local staff *personal communication*

communities, in part due to the policy of limiting the size of the camps and dispersing their locations, and in part due to the informal economic integration mentioned above. There has been one small riot between students in the local town and students from the refugee camp at Jimmi Bagbo, caused by an act of harassment at one of the female students, but the riot is seen as an anomaly in host-community-camp relations. An internal questionnaire from UNHCR Freetown reveals that the most pervasive ‘justice issue’ in the whole eight camps is petty theft, followed by domestic violence, fraud (recycling of ration cards, etc), and physical assaults<sup>84</sup>

However, Gender-Based Violence (GBV) is still seen as a large problem in both camps, particularly attacks against under-age girls. Incidents go under-reported. This is in large part because the attacker is often known to the survivor, and because in many instances, the family of the survivor will wish to either arrange a marriage between the attacker and survivor, or else settle for some form of material compensation, often against the wishes of the survivor herself<sup>85</sup>. However, most of the attacks take place within the shelters, and so are hard to police against. There are ongoing education (‘sensitisation’ in UNHCR parlance) programmes throughout the camps, and the camps also have GBV centres amongst the non-residential buildings.

The effects of the war upon the psyches of the refugees are more difficult to gauge. Many of the women in the camps are war widows, and single heads of households, and many other refugees have also lost family members. Much of the attention from the aid agencies for those who have suffered from the war in ways which go beyond the physical escape as refugees, goes towards the children. There are approximately 200 separated children in the camps, and in Jimmi Bagbo, there is a special centre for the rehabilitation of children traumatised by the war. There is a screening process at registration to identify combatants, who must then be taken to a separate internment camp near Freetown. There were reports of there previously being one gang of young men active in the peripheral communities in Largo, but they have subsequently been removed from the camp.

The populations of Largo and Jimmi Bagbo are both very young. This is somewhat skewed by the low life-expectancy in Liberia (51.8 years<sup>86</sup>) and perceptions may be weighted even further in this direction by the absence of a portion of the men in the camp when they are working in the mines. But there is also a steady birth rate in the camps as well. There are no statistics for a rolling birth-rate, but as of May 2004, there were 259 pregnant women in Largo camp<sup>87</sup>. The birth rate in Jimmi Bagbo is smaller (possibly as a result of ongoing reproductive health sensitisation programmes and contraceptive distribution by Medecines Sans Frontieres Belgium in the camp<sup>88</sup>), but still significant. As of June 2004, there were 84 pregnant women. For the period of January to June 2004, there were 106 births, and for the period of October to December 2003, there were 92 births<sup>89</sup>. In Largo, there are 1495 children attending school<sup>90</sup> (out of a total population of about 7000), but this figure does not include either those children too young to attend school, or the smaller number of adolescent boys who do not attend school because they are working in the diamond mines. In Jimmi Bagbo, there are 2318 children

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<sup>84</sup> UNHCR Ameratunga *internal document*

<sup>85</sup> UNHCR Daubelcour *personal communication*

<sup>86</sup> <http://www.cfcausa.org/Countries/Liberia/liberia.htm>

<sup>87</sup> Mentor Beeche *personal communication*

<sup>88</sup> Peace Winds Japan Fukui *e-mail*

<sup>89</sup> Peace Winds Japan Fukui *e-mail*

<sup>90</sup> UNHCR *Largo Camp Profile* 1: 8: 9

attending school (out of a total population of 6500), although the greater proportion of those are primary rather than secondary school children<sup>91</sup>. Again, this does not include those children too young to go to school, or those who are of school-age, but who are already working. As far as the adult populations are concerned, there are more women than men, but exact numbers are more difficult to come by, because of the migratory mines work undertaken by some of the men.

The populations of the camp, as of Liberia and Sierra Leone, are a mixture of those of Christian and Moslem faiths. Many of those in the camps testify to their religious faith in both greetings and casual conversation. There are a number of houses of worship in the camps, although there are more mosques in Largo (albeit built without official permission), and more churches in Jimmi Bagbo. There are a number of international religious organisations which have been active in the camps, as well as faith-based local NGOs, and their presence is somewhat of a delicate question for some of those in the aid agencies. On the one hand, there is the worry that some religious groups may be unnecessarily enthusiastic in their proselytizing, and may also exacerbate any friction along religious lines (which is admittedly on the whole rare in the camps). On the other hand, there is a great demand for their presence amongst many of the refugees, and they provide social structure and support, education, some practical resources, and an occasional buttress against any excesses of nightlife in the camps.

The last feature which affects all camps alike, is the weather. Sierra Leone is by most standards, extremely hot and humid for most of the year, but it also has a rainy season from the end of May until sometime in October every year, during which time a yearly average of 3150mm of rain falls<sup>92</sup>. During some periods in July or August, it can at times rain continuously for seven days in a row, and the rain can be of great volume and violent.

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<sup>91</sup> UNHCR *Jimmi Bagbo Camp Profile* 1: 2: 7

<sup>92</sup> *Lonely Planet West Africa* p. 799

# Largo Camp

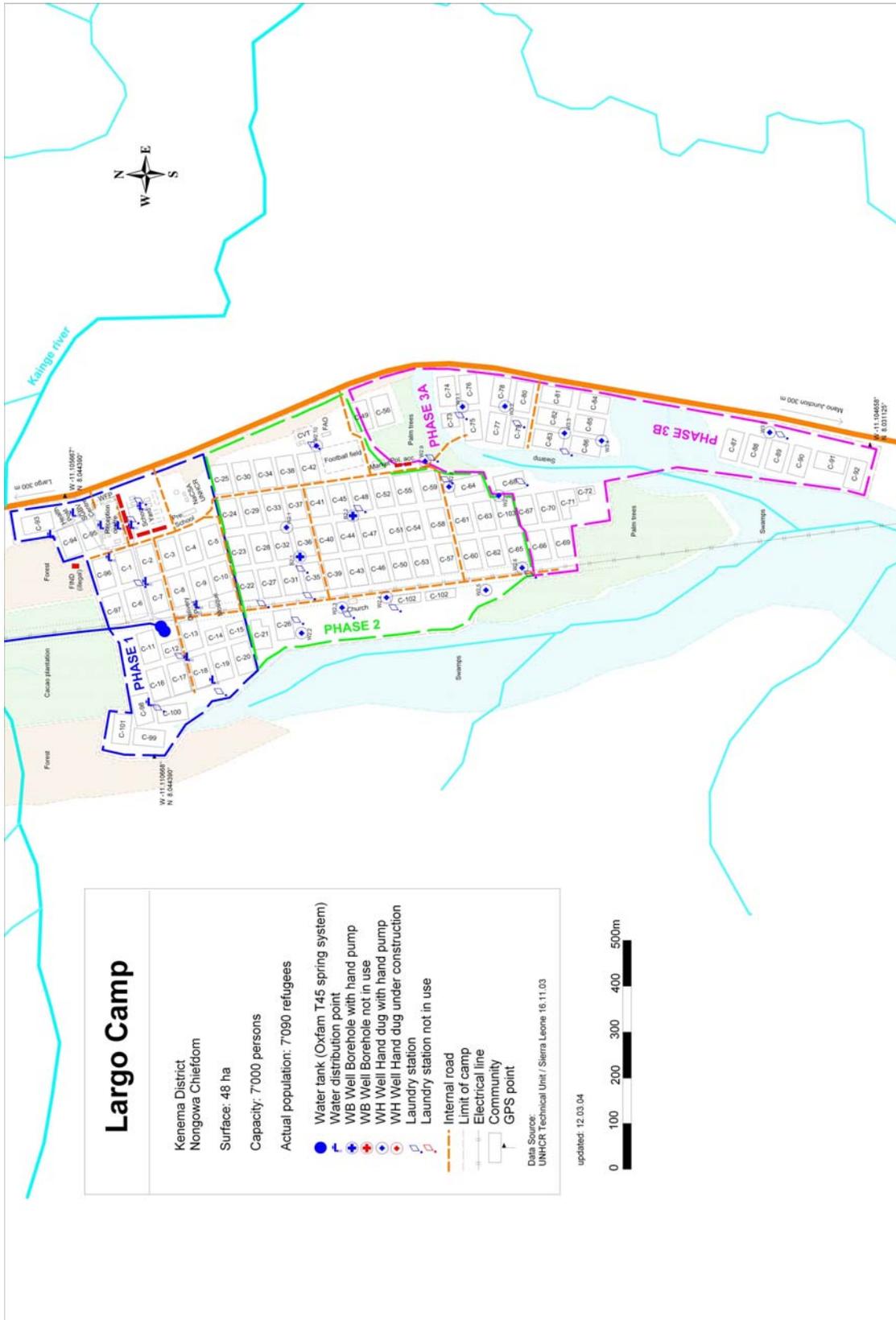


Image: UNHCR

### *General features*<sup>93</sup>

Largo Camp lies 300m from Largo village, and 21 km (45 minutes by car during the dry season) from the provincial centre of Kenema, where the UNHCR sub-field office is located. The camp has approximately 7000 inhabitants, and it covers 48 ha of surface. It is 500m wide at its widest point, and about 1.5km long at its longest point, but for much of the rest of the camp cross distances are much less. There are 1564 individual shelters in the camp, and 101 communities, which means that there is an average of 68.6m<sup>2</sup> per person as a camp-wide ratio, an average of 4.5 people per shelter, and an average of 16 shelters per community. However, at the edges, and in some of the most recently-built communities, there are fewer shelters, or shelters have been abandoned, and so the true average is closer to 16 shelters per community, and a full five people per shelter.

### *Primary structure*

The camp runs along the main road, which like most of the ‘highways’ in Sierra Leone is an earth road two lanes wide. The western edges of the camp are defined by extensive swampground, and beyond them is bush, and then a range of hills in the distance. The camp itself occupies a low ridge which runs north to south inbetween the road and the swamp. There are a number of major non-residential buildings spread out over a 300m distance from the main entrance to the camp at the northern-most point, closest to the nearest host community, Largo village. The positioning of the non-residential buildings has been largely determined by the policy of planning to turn over all permanent built structures to the host community upon the eventual closure of the camp. The placing of so many of the non-residential buildings together has created a rather centralised camp layout, although the official, concrete-structure market is further away from the northern entrance, near the boundary between Phase 2 and Phase 3A. There has also been recently built, a technical training centre, between Phase 2 and the swampland at the west of the camp. The other built feature which defines the primary structure of the camp, is the high-tension lines and support pylons, which cross the camp from north to south, going past the water tank, and then cutting through Phase 2. For the most part, the roads run along the contours of the ridge, although the pathways that run in the opposite direction, from east to west, are wide enough to carry significant amounts of water during the rainy season.

### *Construction process*<sup>94</sup>

There is a general schemata for the construction timeline for Largo camp, which is accompanied here by some photographic illustrations, but no detailed day-by-day construction timeline has been provided. Nevertheless, a clear enough picture has emerged of the general phases of the construction of the camp so that a rough idea of a critical path of activities might be envisaged. However, the process is one which is not universal to all camp construction situations, and should be seen as a single example of a site-specific solution rather than a widely applicable model.

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<sup>93</sup> UNHCR *Largo Refugee Camp Profile* 1: 8

<sup>94</sup> For this entire section, I am indebted to the information given as personal communication or e-mails by Laurent Nicole and Andrea Cippa of the UNHCR Kenema Technical Unit.

Largo camp was prepared whilst refugees were already waiting inside the Sierra Leone border from Liberia, in temporary transit camps. Once the site had been cleared and prepared, the refugees were carried to the site in convoy. Upon arrival at the site, and after registration, the refugees were housed in communal transit booths – large tents fabricated from plastic sheeting over a metal or wood frame – and were provided food from adjacent communal kitchens. Once this process was completed, they were assigned (as households) empty plots in the communities in the camp, and provided with a shelter materials NFI kit. The refugees were then moved again to other transit booths next to the communities to which they had been assigned, and where they could commence building their own shelters.

The construction phase for Largo had a number of stages. Some stages overlap, some to the extent where it will become apparent that the numbering of the stages is for quick reference purposes only, rather than indication of absolute sequential order on a timeline:

- 1) the initial site selection
- 2) the mapping of the site
- 3) the plotting of the layout
- 4) the preparation of the site surfaces (clearing)
- 5) the laying out of infrastructure, water points, internal roads and drainage
- 6) the arrival of the refugees into the transit booths
- 7) the allocation of the plots and the distribution of the building materials
- 8) the construction of the shelters

Stages (1) and (2) fall largely beyond the scope of this thesis, although it must be pointed out that these stages have the potential to create a greater impact than any other stage upon both the quality of life of the camp and its long-term running costs. A site which turns out to be somehow unsuitable for refugee life after the camp has been built and populated, is one of the most expensive problems to rectify, because in effect it involves building a whole new camp somewhere else, whilst the refugees suffer from whatever problems made the original site unsuitable in the first place. Because of this, in most cases Stage 2 begins during Stage 1, or even before Stage 1, if the camp planners have the opportunity to scout out likely sites before the site selection negotiations begin. The process of selection, and then negotiations for use of the selected site, are vastly different in each context, and the time frame is impossible to predict, dependent as it is upon the interaction of national authorities and international aid agencies (primarily UNHCR), and upon the perceived urgency of the situation by the authorities.

In the case of Largo, Stage 2 was initiated during Stage 1, but then Stage 4 was also initiated at the same time. This is because of the terrain, which is of small rises, swamps and rivers, often covered by dense bush. Without some level of clearance of the bush, streams and swamps will remain hidden, and even GPS activities may be difficult to undertake. Therefore, in this case, Stage 4 was initiated before Stage 3, even though Stage 3's main body of activities started and finished before Stage 4's main body of activities.

As for the mapping itself, an experienced camp planner can undertake the comprehensive mapping of a potential site for a refugee camp using GPS tools in only a couple of days, if the terrain is flat and open, as was the case in camps being built for Iraqi refugees in Iran in late

2003 and early 2004<sup>95</sup>. However, in the case of Largo, the mapping took significantly longer than one week. There should be a general acknowledgement of the necessity of GPS systems to be used in concord with technical teams on the ground, and the provision of integrated software systems which allow the mapping teams to build information on several layers, starting from the geological strata and then moving upwards. These systems may cost thousands of dollars, but recoup their costs even during their first use, in terms as assurance of site suitability, and the extra speed of preparation of the site, and the shortened delay for the refugees still waiting in transit centres.

Stages (3) to (8) above, all fall within the scope of the present thesis.

Stage (3), the plotting of the layout, should not be confused with the actual theoretical design of the layout, which will be discussed at length below, under the header ‘Major features and indicators’ and then again under the header ‘How much does Largo camp adhere to the principles of extended rationalisation?’. However, the plotting, and the layout often do have influence over the design, and warnings abound about the ease of plotting various designs<sup>96</sup>. Unfortunately, in many emergency situations, it is the short-term plotting considerations which have gained the upper hand over long-term living considerations, and layouts have been adopted for their speed and ease of plotting (e.g. the ‘military’ grid), rather than for their future social considerations<sup>97</sup>.

Stage (4), site clearing, may be initiated as part of Stage (2), where some clearing is necessary to give adequate visibility of the site to terrestrial and non-terrestrial mapping processes. If there is a significant amount of site clearing to be done following Stage (3), then this should commence with the clearing of the main roads through the camp, followed by the clearing of the areas which will be initially needed for the refugees’ transit booths and kitchens, the initial set of administrative buildings, and the initial structures for the storage of food, medical supplies, and shelter-building materials. There are arguments for and against having the community areas cleared subsequently by the refugees, once they arrive in the transit booths, in Stage (6). This arrangement may prolong their stay inside the transit booths, and may in any case be difficult to accomplish in areas of dense bush or undergrowth. Furthermore, if the camp layout is one where there must be significant water pipes, drains or other infrastructure coming through the community areas, then obviously the installation of such infrastructure would not be feasible without a complete clearing of the site beforehand. But, having the refugees clear the communities will allow the employment of a large workforce for what can be a large-scale but essentially low-skilled or unskilled labour. It may also, *inter alia*, encourage the refugees to become involved in deciding what sort of pre-existing vegetation they might want to keep or remove from their plots. This is particularly apposite in the cases of Largo and Jimmi Bagbo camps. Although UNHCR Technical Unit staff did mark out trees and other vegetation to be left standing during the clearing phase, the locally contracted workers employed the prevalent method of land clearance for agricultural use in rural Sierra Leone, that of slash and burn. The burning of the area did not respect the trees marked to be saved, and many trees were unnecessarily removed<sup>98</sup>.

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<sup>95</sup> UNHCR Nicole *personal communication*

<sup>96</sup> *Transitional Settlement* p. 355, 356

<sup>97</sup> Zetter “An Overview of Shelter Provision” p. 13

<sup>98</sup> Peace Winds Japan Fukui *personal communication*

The laying out of infrastructure (Stage 5), and the time needed for that process, depends entirely upon the levels of infrastructure envisaged, and the terrain involved. Rule of thumb calculations can be completely thrown by simple but essential elements like soil type and water table levels. Very few refugee camps will have roads with hardened surfaces, and so this is not a consideration, although the manual labour involved in digging drainage trenches along the sides of the roads often is. The other main consideration, indeed the one which is paramount for the whole camp, is that of water sources, and water points. Because of problems with water access, there have been a number of parallel strategies for water supply employed in Largo. There is a major water tank which then distributes water to tap distribution points within Phase 1 of the camp. The location of the water tank has been dictated by the relative heights of the land (it stands on the one small, partially man-made hill in the camp). This means that some of the water pipes radiate out in different directions, increasing the eventual length of piping, although the cluster of water points nearest to the administrative block may share some of the same pipe lines.

The placement of those water points in Phase 1 primarily near the administrative block, is somewhat of an example of short-term needs trumping long-term ones. It is most likely that the grouping of water points there was done during the first stages of the camp, and when the majority of the refugees were still living in, or transiting through, the transit booths which were situated on the current site of the administrative block. However, as the refugees dispersed to their communities across the camp, the water points did not disperse with them in quite the same proportion.

In Phases 2, 3A and 3B of the camp, water is supplied from borehole wells with handpumps, or hand-dug wells with handpumps. The usage of wells relieves some of the pressure concerning water-sharing with the host community, but the installation of wells has its own costs in terms of time and money<sup>99</sup>.

Bore hole wells, of which there are two in Phase 2 in Largo, are much quicker to dig, if the movement of the refugees into the camps is of absolute importance (e.g. if they are under direct threat from physical violence, or if their temporary living conditions are such that there is a high risk of an infectious disease epidemic). Bore hole wells in the Largo context, take less than one week to install, compared with at least one month for a hand-dug well (which constitute the remaining 15 water points in Phases 2, 3A and 3B in Largo). Bore hole wells can also reach a greater depth (beyond 50m depth, rather than a maximum of 20m for the hand dug well), and this may make it the only choice in situations where the water table is extremely deep. However, there are a number of disadvantages in choosing bore hole wells over hand dug ones.

In many ways, the least of these relative disadvantages is the initial construction cost. Bore hole drilling requires a greater level of specialised machinery, and is usually contracted out to a specialist, with the attendant increased salaries. As a rule of thumb, the construction of a bore hole well may cost the equivalent of 10 000 Euros. Hand-digging wells involve longer terms of work for the team doing so, but the salary levels are often lower, and there are fewer overheads for the specialised machinery, and so a comparative rule of thumb would cost the hand dug well at an equivalent of 2500 to 3500 Euros, or 4500 Euros if a better quality pump is chosen.

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<sup>99</sup> All the information on well installation comes from UNHCR Cippa *e-mail*

But the long-term maintenance costs can have a much greater impact upon the choice of well types. Put simply, the problem with bore hole wells is that if they are broken, then there is no more water available, and then the camp will quickly cease to function, whilst if a hand dug well is broken then in most cases water is still extractable. Given the lack of assurance of speedy well repair services in the Sierra Leonean context, most of the wells are of the hand dug variety.

As for Stages (6) and (7), the main issues are ones of (re)use of the transit booths, and the (re)use of the areas where the transit booths stood, during the subsequent occupancy phase of the camp. Refugee families can build their own shelter out of the kit of wood poles, sheeting and mud, in as little as five days, but for some, especially in small households, the process may take as long as two weeks. For that duration, their shelter is the transit booths (and attached communal kitchens), with literally minimum levels of space and protection. However, the alternative is to have no shelter at all, or to invest in the far greater expense of small family tents for that period of time.



Largo camp under construction in 2002. Note the larger groups of reception area transit booths to the left of the picture, and then the smaller groups of transit booths between the communities in progress to the right of the picture. Note also, the smoke from the slash and burn clearance of ground in preparation of Phase 2.  
*Image: Nicole*

Given the necessity of the transit booths in these operations, the larger questions of rationality are, what to do with their position, what to do with the space that they occupy, and what to do with their materials. One method of reducing costs by reducing the number of transit booths, would be to have the refugees only stay in transit booths at the arrival and registration area, near the entrance to the camp. This would mean that there would be no need for the extra booths to be constructed in the firebreaks or roadways adjacent to each of the communities under construction, and that the roadways would remain unblocked during the construction phase. However, the disadvantage would be a reduction of security for the refugees, in as much as they prefer to sleep close to their half-built shelters in order to protect their materials. Furthermore, this option would only be possible if the camp was small enough so that the distance that the refugees had to walk (and carry building materials) from the transit booth area to their own communities was not intolerable. This option would also only be possible if it could be ensured

that every single refugee from a first intake, had built shelters and vacated the transit booths before the next intake of refugees was due to arrive. Such assurance is unlikely in an emergency situation, and the option of two parallel sets of transit booths, permits overlapping intakes of refugees, and the reduction of time which the refugees have to spend in temporary transit centres closer to the border, which is where the greater reductions in costs are to be had.

There is of course a slight variant alternative, which would be again to have only one set of transit booths in the new camp, but to get rid of the initial ones near the reception area, and only have the ones adjacent to the individual communities. However, because the eventual number of transit booths adjacent to the communities would be larger than the number of those in the reception area, the reduction in total numbers would not be so great, and this would have to be offset against the greater costs for organising and administering a much more geographically dispersed camp population, and the possible costs of extra staff in order to do so.

The second opportunity for rationalisation with the transit booths then comes with the space that the booths occupy, particularly once the major construction phase is over, and the transit booths are removed. In Largo, the transit booths were placed either in the open ground subsequently occupied by the administrative block at the northern end of the camp, or else in the roads adjacent to the communities. Therefore, their placement did not occasion the need for any more initial ground clearance than would have otherwise been necessary for the construction of the camp. Upon removal of the transit booths, the spaces would have immediately been able to assume their other roles, either as firebreak-roads, or as the large 'plaza' space around the administrative block.

This arrangement provides a modicum of rationalisation in as much as the space used is not 'wasted' or cleared for no other reason. But it also misses opportunities to be positively employed to create another level of spaces for alternative uses within the camp. At present, the spaces that the transit booths leave behind take on their functions by being gaps in the built environment. These gaps may subsequently be filled by vegetable plots, or may be edged by small trade stalls, but in essence their presumed function is to be firebreaks and buffer zones: left open and unoccupied.

However, if another, more ambitious method of setting the layout of the camp were attempted, whereby there were smaller open squares to be scattered throughout the camp at the block level, then the placement of the transit booths in clusters of small numbers could help demarcate those local squares. After the removal of the transit booths, the new squares could be left to be occupied and built into by the refugees. Small markets, palaver houses, places of religious worship, mechanical workshops, or any of a number of different structures could all grow into those squares without disrupting the road plan or the traffic flow, and could do so without being confined to an absence-of-shelter-module space. This would provide the opportunity for a true decentralisation of the camp layout, and would give the physical anchors for the development of the inhabitants' livelihoods.

The last consideration relevant to the transit booths, is that of the materials. The transit booths are currently built as temporary structures, from sheeting and frames, and although these materials are heavily cannibalised afterwards for shelter construction or repairs<sup>100</sup>, there is still

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<sup>100</sup> UNHCR Largo camp manager *personal communication*

some wastage of materials involved. During the rolling phases of expansion and construction of the camp, the shells of the transit booths can be reused a number of times, but still the time comes when they must be dismantled. One way of making their use more rationalised, might be to consider strategies for lengthening the lifespans of the transit booths, and therefore reducing the ratio of the initial construction costs per days of use. Because the mapping, clearing, and preparation of the water sources was such a protracted process in Largo, there may have been time to build the transit booths closest to the entrance in a more permanent fashion, to be used for different functions during the occupancy of the camp, and after the camp had been closed down and the land and buildings turned back to the host communities.



Some of the transit booths, like the ones in the rear of this photo, do find uses after the construction phase, as temporary classrooms or storage areas. But their structures are not stable, and more of them are collapsing as the storms of the rainy season approach. *Image: Kennedy*

The last stage, Stage (8), construction of the shelters, is to a certain extent dependent upon the refugees themselves for the actual mechanics and the design. However, evaluations of rationalisation can still be made in other aspects, like the supply of materials, or the organisation of labour. In the case of Largo, with the exception of the aforementioned plastic sheeting, all of the other building materials were readily available, for minimal prices. There are an increasing number of voices both within and without UNHCR and other aid agencies, which propose the discontinuation of the distribution of plastic sheeting if other local materials are at hand, simply because of the tendency, as witnessed at Largo and Jimmi Bagbo, for the sheeting to become a de facto cash equivalent. There are some who say (sometimes unofficially<sup>101</sup>) that the sheeting should be replaced by a direct cash donation, which would at least remove the extra expense to UNHCR and its donors of having to pay for the manufacture, transportation and storage of the sheeting, if it was just going to be sold for cash by the majority of the refugees anyway. Others counter that it is not aid agency policy to give unilateral cash gifts to refugees, and that doing so can, amongst other things, have destabilising effects upon the local economy and market prices. The other argument for retaining the donation of plastic sheeting, is that there will always be a minority of the refugees, who might not be able to avail themselves of the opportunity of either selling the sheeting, or making their own roofing substitutes, and so for their sake the distribution must be continued for all.

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<sup>101</sup> UNHCR Sierra Leone staff *personal communication*

Another method, but one which lies somewhat at the fringes of the scope of this thesis, is to conduct greater research into the rationalisation of traditional construction practices (RATRAP). Although these studies would be relevant only for very specific instances, the general thrust would be to explore organisational methods, supported by the development of feasible production technology, to enhance local practises for building and for the preparation of building materials.

One possible example in the context of Largo and Jimmi Bagbo, would concern the standardisation of the coconut palm thatch roofing. At present, for the majority of individual shelters, the coconut palm branches are laid across the roof frame with minimal binding, and with little attempt to tailor their shapes or sizes. This means that a relatively thick layer of coconut palm thatch is used by the refugees in order to ensure sealing the shelter against rain. The thick layer of thatch over-uses resources, and also provides greater habitat to disease vectors, like insects or rodents.

However, during my visits to the camps, I was able to observe that some of the palaver houses are roofed with coconut palm branches which have been bent over into rectangular shapes, and then used as a form of flat tiling for the roofing. These ‘mats’ seal against rainwater to a large extent (provided that they are lain at a suitable slope), are easily laid out together, and take fewer layers to cover an area of roofing. But, the process of folding the palm branches is laborious, and damaging to the hands. However, there should be potential for developing the sort of simple tool akin to the tools currently used for framing and compressing mud bricks, constructible from local materials by local craftsmen or smiths, which could fold over and fix into mats, a number of palm branches at the same time, thus speeding up the process, and removing the physical hazard.

For the construction process as a whole, the critical path is heavily weighted towards the earliest stages. Stages (4) through (8) can all overlap, and are not dependent upon the absolute completion of one stage for the commencement of the next. The whole series of Stages (3) to (8) can also be done as a rolling series, as site clearance begins in later Phases of the camp, whilst construction is still ongoing in the earlier Phases. The temptation to be avoided, is in thinking that the designing of the layout (again, not to be confused with the mere physical plotting of the layout in Stage 3) can also be continued on a reactive, ad hoc basis.

### ***Major features and indicators in Largo***

The camp is by and large, a success story. The policies conducted by UNHCR to have a small, open camp have borne fruit. On a raw demonstration of economic integration, of the 56 stalls in the market in Largo town, ‘20 to 30’ are held by refugees<sup>102</sup>. At the same time, of the 41 stalls in the official covered market in the camp, ‘20%’ are from the host communities<sup>103</sup>. The swamplands contain a number of acres of land which have been rented from the host community by the farmers, and which is being cultivated for crops like swamp rice. As of May 2004, 235 refugee farming groups in Largo have received plots of land for farming<sup>104</sup>. There are also a small number of women who sell their tailored or tie-dyed clothes from the camp, through the

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<sup>102</sup> Largo host community Abdulani *personal communication*

<sup>103</sup> Largo host community Abdulani *personal communication*

<sup>104</sup> UNHCR “Largo Refugee Camp Profile” 1: 8: 2

host community<sup>105</sup>. The one major difficulty between the camp and the host community has been water distribution. Currently there is not enough water in the available pipelines for all the needs of the camp and the host community, and at times members of the host community have threatened to turn off the pipeline supply to the camp. There have been a number of borehole wells and handheld wells dug within the camp to alleviate the pressure for water, but the amount of water per person still stands at 15 l. per day, which is less than the 20 l. per day aim<sup>106</sup>.

Apart from the stalls in the official market, there are 30 other small stalls scattered in shelter fronts throughout the camp. 20 of these are situated close to the administrative block at the north of the camp. This is because this area is an area of high foot traffic, and because the communities themselves are some of the oldest in the camp, and so the residents stand more of a chance of having a little more financial stability and capital. This may also be the reason why the 20 stalls near the administrative block, and particularly the nine stalls in Communities 1 and 2 contain some which sell comparatively high-value items like clothing, whilst stalls further away from the administrative block are more likely to be smaller, and selling only foodstuffs. It is worth noting that for the stalls near the administrative block, comparatively few of them actually face directly towards the non-residential buildings in the block, and most of the stalls are situated on the roads heading away from the administrative block instead. One likely answer for this, is that the areas directly in front of the administrative block are lacking in shade, meaning that although there is some of the heaviest foot traffic in the camp there, people are unlikely to linger for very long. The side roads on the other hand, can borrow shade from some of the few trees growing inside the communities. This and the relative closeness of the stalls across from each other, much better mimics the typology of coastal west African markets than something opening out onto a wide space would.

In one area, the absence of physical locations for economic integration might need some explaining. Largo's longest side runs along a main road between Largo town and Mano Junction, which then leads away directly back to the provincial centre of Kenema. A lot of the traffic is motor vehicles, although these are few enough so that they are neither a hazard nor a nuisance for the most part. But there is also a large amount of foot traffic, which might have been expected to support a number of small stalls which would be situated at the edge of the camp, but which would face onto the road, much in the manner of stalls in almost every roadside village in the area. However, in the case of Largo camp, even though there are a number of communities where the shelters come within 4 metres of the road, without any barrier of bush (e.g. Community 81 in Phase 3A), there are hardly any stalls which face onto the road. There is one at the northern edge of the administrative block, between Community 93 and the Health Post, and another one which is actually outside the camp proper, on the other side of the road to the main entrance, and then a disused stall at the extreme north of the camp, close to the bridge at the edge of Largo town, but that is it. The problem is obviously not one of security either – the community leader of Community 49, 16 metres from the road, told me that his extended family quite safely hung washing for eleven members right next to the road, without any worries.

The answer is most likely to do with the specific ways in which the economies of the camp and the host communities have in fact integrated. The economic exchanges are complimentary rather than equal, with very different sets of commodities being imported and

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<sup>105</sup> ARC Sulla *personal communication*

<sup>106</sup> UNHCR Cippa *personal communication*

exported from the camp. Despite the areas of farmland cultivated by the refugees, and the small vegetable plots within some of the communities, the main export of the refugees remains at the moment their own labour, and occasional mass sales of aid agency NFI items like the plastic sheeting: the micro-finance schemes are still in the pilot stage, and the other ubiquitous product which the refugees have, live chickens, are not always on sale, for the cultural reasons stated above. In return, the main regular imports into the camp markets are foodstuffs. But because these have been brought in from outside, they have a slightly higher price than back in the market at Largo town. If they were sold at the edge of the camp, on the main road, then they would be sold in competition with the goods back in the town market, but at a higher price. Therefore, they are brought into the camps, where there are enough people who, whilst not quite captive shoppers, would be willing to pay the extra 100 or 200 Leones to avoid making the 20-25 minute return walk to the town.



A 16-shelter community in Phase 1, set around a rectangular module, with the latrines, showers and garbage pits inside. *Image: Kennedy*

In most parts of the camp, Largo is also an obvious success story as far as community cohesion is concerned. Each community has a sign at the front, identifying the community by number, and many refugees will also identify themselves in conversation as ‘X from Community number Y’. In many of the communities which I visited, the community leader was surrounded by other members of the community. Daily life in these parts of west Africa, is largely an outdoors existence (rainstorms excepted). In the great majority of the outdoor areas in the camps, there are continuous and complex levels of interpersonal interaction, involving groups of many different sizes and different age ranges. Daytime outdoor activities in front of the shelters included not only managing the small number of stalls, but also clothes-drying, vegetable growing, tool repair, babysitting and childminding, playing, and that entire panoply of nameless small activities which constitute being with friends and family and watching the world go by. These activities neither noticeably shrank away from the entry of a stranger, nor made any barrier to that entry, even when the stranger was someone who was obviously not a resident in the camp (the one exception being if there were any small children in the group, who when I passed by, would immediately break off what they were doing in order to gather round me and offer repeated shouted greetings of friendship).

The only caveats to this complex skein of social interaction and community building, is in the places where it doesn't happen. This dense set of outdoor activities die away, perhaps unsurprisingly, towards the periphery of the camp, where a small, low-level red-light district (for want of a better name) exists, often adjacent to half-abandoned communities. The other place where there is a marked decrease of 'community' activity, is in the interior of the physical communities themselves, which is perhaps initially more surprising, but ultimately just as explainable.

Peripheries will always exist. And the peripheral areas in Largo camp are neither large, pervasive, nor menacing. The gang of young men who reportedly used to live, or at least operate, in the area around Communities 66 to 72 on the south-western edge of the camp, are no longer there. I was approached by one woman in that area who offered me sexual services, but did not do so with any persistence or threat. I was able to identify less than six shelters as bars (although identification of all extant bars would be difficult to do, with the bars' wish to keep a low profile, at least during the daytime). However, there is always the worry amongst concerned aid workers at the camp, that it is difficult to get refugees to move in to the communities in those areas, that those who do live there become more vulnerable because of their isolation and because of the other activities going on around them, and that there is a high turnover of residents. All of which leads to a chronic instability in such communities, but which also threatens to destabilise adjacent, previously trouble-free communities as well. Senior staff in the UNHCR Technical Unit posited one contributory factor as being the physical isolation caused by the distances from the furthest communities to the centre of the camp and the administrative block<sup>107</sup>, and the fact that small reductions in camp population (due to some early voluntary repatriation) are now the occasion for people to move from the periphery to the central communities, would seem to support this idea. The Technical Unit is now considering using the movements as a justification for trying to get rid of the problem once and for all, by officially closing the affected half-abandoned communities, although at the same time this also commits them to a policy of densification of the rest of the camp, and makes other communities become peripheral in the old peripheral communities' stead..

The lack of human activity within the interiors of the communities, is a little more complex, although much more pervasive across the camp than the problems with the periphery. After all, if the modules really are to be 'communities', then the physical centres of the communities should also be the social centre as well. The communities are built on a rectangle of 36m x 63m, with a total 2268m<sup>2</sup>, divided by 16 shelters.

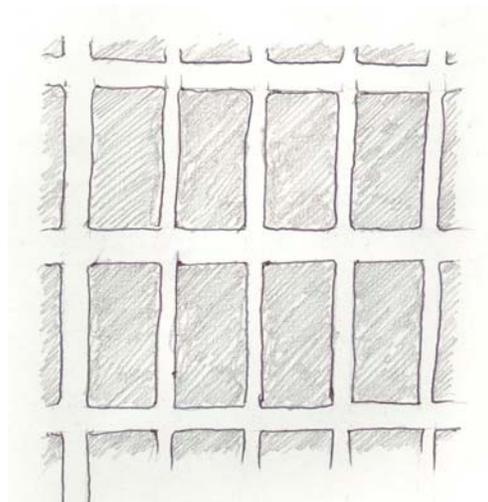
The initial calculation would seem to indicate that the communities are more densely populated than both the second set of calculations based upon the UNHCR *Handbook* for community spaces in Part Two (2838.5m<sup>2</sup>), and more dense even than the first set of calculations, which did not include space for latrines or other outdoor facilities (2410m<sup>2</sup>), and even more dense than the calculations based upon the Sphere *Minimum Standards* and the rule of thumb for plot sizes in *Transitional Settlement* (142m<sup>2</sup> versus 198.5m<sup>2</sup> and 200m<sup>2</sup>, respectively). However, the interior spaces of the communities do not appear to be squeezed or too narrow. This is for a number of reasons:

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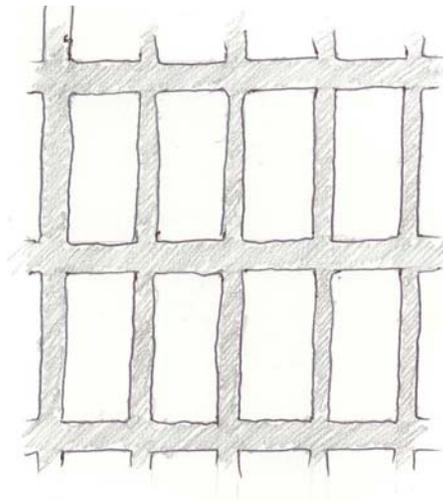
<sup>107</sup> UNHCR Nicole *personal communication*

- The shelters have their longest side running along the pathway and their shortest side going back into the community, and are in any case only 4m deep, so there is the semblance of more space, or greater distances across the community
- The buffer zones between the shelters are not 2 x the height of the shelter apart. The shelters are designed to be 3m high, but the buffer zone between the shelters is not 6m but 3m on the plans, and often less than that in reality
- The communities are rectangular in shape, rather than square, so all the vegetable plots can be squeezed in without overlapping
- The vegetable plots in the Largo plans are slightly smaller than the UNHCR *Handbook* standard – 14m<sup>2</sup> rather than 15m<sup>2</sup> per person
- There are no spaces for outdoor fires indicated on the plans for Largo. In actuality, most households have their cooking fires inside small verandas or hearths in the pathway-side front of the shelter, or actually in the middle of the pathway itself.

But the main reason for the sense of openness within the interiors of the communities, is that in contrast with the roadsides, very often they are completely empty of people, even in the middle of the day. In essence, the pattern of use for much of the residential areas in Largo is one where much of the daily activity happens outside, at the outer faces of the communities, and so the centres of the communities are turned inside out, from this

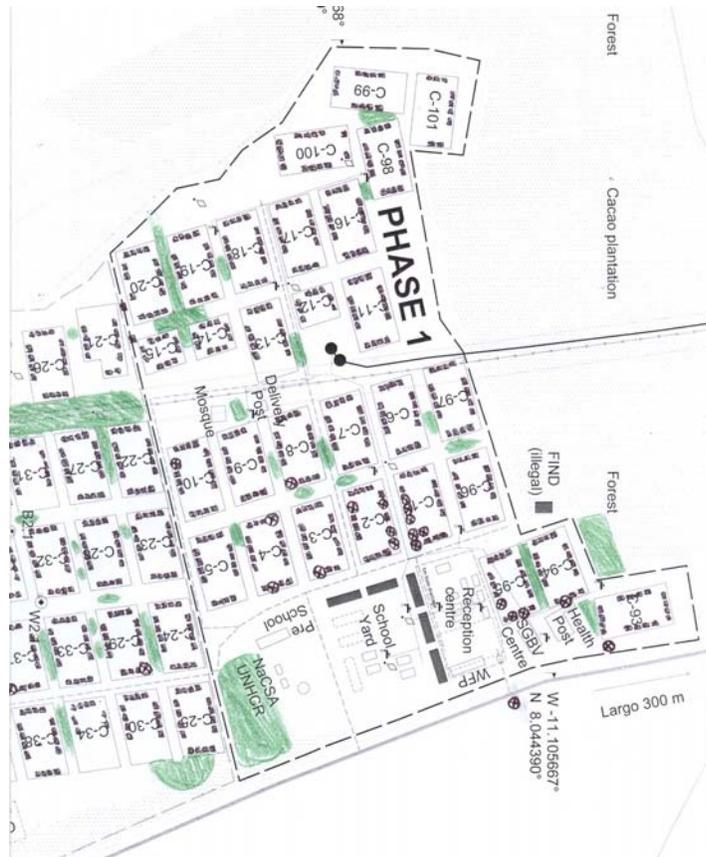


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This problem is exacerbated by the fact that not only do the shelters, and the activities that they contain, face outwards onto the pathways, but the shelters also turn their backs onto their own community centres. In a random sampling of 16 communities from different phases of the camp, it was found that in each community between one quarter and one third of the shelters had no window or door, in fact no opening whatsoever, in the wall facing to the inside of the community. Most of the shelters which did have some sort of opening in the wall facing the interior, only had some small window, which was in any case closed or covered up. Out of a total of 256 shelters in the sample, only 9 had open windows or doors facing onto the interior of the community. The main reason why the shelters turn their backs onto the communities, is that few people would want to have their front doors facing straight into a group of latrines, garbage pits and shower cubicles. The other possible reason is the same one given for the preferences for location for stall-holders near the administrative block, above. The layout of normal villages in the region is one where there might be a band of more opened-out buildings in front of the main road, but where the houses are otherwise built quite close together, and certainly to a greater density than that permitted by *Handbook* standards. The width of the pathways – about 10m to 12m on the long sides, and 15m on the shorter sides, is wide enough so that people are not falling into each others' shelters, but close enough that communication can be easily achieved. In contrast, the distance across the interiors of the communities are either 28m or 55m, depending from which side the measurement is taken.

What then happens is that the inhabitants try to place all the accoutrements of their lives into their 'living spaces' within the 10m-wide pathways in front of their houses. Into these areas go their clothes-drying lines, their outdoor fireplaces, their children, pets and chickens, their drying crops, their hammocks and furthermore their vegetable plots. In other words, all the physical manifestations and demonstrations of a complex lifestyle.



A mapping exercise, showing all the shelters in the eastern half of Phase 1. And all the major vegetable plots (drawn in pencil), found exterior to the communities, in the pathways or roads. *Base image: UNHCR. Mapping: Kennedy.*



This is actually a pathway in between two communities, but has been filled with vegetable plantings, including here, maize. *Image: Kennedy*



This is another busy area, with inhabitants walking around, clothes drying on lines, a small trade stall, vegetable patches, and drying crops, amongst other things. But this again is in a pathway, not in the middle of a community module. *Image: Kennedy.*

But the more the pathways become crowded, the more pedestrians traversing the area will look for alternative, less obstructed routes, and will start creating other pathways in the same manner as those shown in the aerial photographs of the camps in Part Three, above. And the most common location for that extra pathway is along the backs of the shelters on the short side of the rectangle, where the strategy for giving all the shelters a contiguous vegetable garden of full size has resulted in a gap between the shelters of 11m – equivalent to the width of the pathways on the opposite, front side of the shelters. In fact, in many of the communities in Largo, these secondary, parallel sets of pathways traversing the interiors of the communities were so clear and wide and well-established that they were even occasionally mistaken by staff of the UNHCR Technical Unit for being the legitimate paths.



The interior of a community in Largo, with relatively little in the way of vegetable plots, a wide unofficial footpath worn down the middle, and no-one in sight. *Image: Kennedy*

But the more that the interiors get used as pathways, the more the pathways get taken for the uses which were originally intended by the camp planners for the interiors of the communities, in a self-fulfilling cycle. At best, the community interiors remain as considerable areas of underused land, with few people occupying it, and little of the land given over to

vegetable gardens. At worst, the constant presence of strangers inside the community, coupled with a lack of ‘neighbourhood watch’ eyes, turns the interior into an ‘indefensible space’ and starts to make the approach to the latrines more of a security risk.

However, two more things will emphasise the refugees’ attachment to the areas in front of their shelters. The first is the location of the unofficial places of religious worship within the camp, and the second is the ways of appropriation of one of the other ‘spare’ strips of land in the camp, in order to turn it into the biggest ‘front pathway’ of them all.

Within Largo camp, there is only one officially sanctioned church, one officially sanctioned mosque, and one official palaver house. The palaver house is situated close to the UNHCR and the NaCSA camp offices in the administrative block, but the church and mosque are in more decentralised positions, towards the westward sides of Phase 1 and 2. However, many of the refugees are in favour of building more mosques and churches in the camp, and have in some cases gone ahead and done so without permission. There has then developed a running contest of wills between parts of the camp management and groups of the refugees. The camp authorities have demolished what they see as structures built without permission in places which compromise the firebreaks and the fire hazard safety codes. But the refugees who build the places of worship make things more difficult for compromise to be found, because they build the churches or mosques right in the middle of the roads, i.e. in the fronts and middles of their communities.

The second demonstration of the importance of the ‘fronts’, also shows that even with wider spaces, the front areas are paramount. As mentioned previously, there are high tension wires suspended by pylons running through the camp, through the western sides of Phase 1 and 2. To accommodate this, no communities have been installed underneath the wires, and there is a gap in the built up areas which is approximately 30m wide running underneath the wires for the entire length of the camp. This was left as a form of no-man’s land, but has since been taken over by the refugees to form one of the areas with the greatest amounts of foot traffic away from the administrative block. The area combines pedestrian through traffic with vegetable plots, as people walk along a maze of small pathways which thread through the raised soil beds of the cassava plants, but it also combines children’s play with errand-running. All of these activities are anchored by the shelters from Communities 22, 27, 31, 35 and 39, which face onto the higher, eastern side of the area, many of which have had extra verandas and seating areas added onto their fronts to better accommodate the groups of people who also congregate in the area for general social activities. Despite the unevenness of the terrain, and the wires above, this part of the camp has become another ‘front’, and one of the most complex in the whole camp.



The 'Broadway' of Largo camp, running under the high tension wires, and along a network of footpaths that thread through the vegetable patches, and by the small trade stalls at the edges. *Image: Kennedy*

### ***How much does Largo camp adhere to the principles of expanded rationalisation?***

The levels of rationality for Largo depend very heavily upon what segments of the camp and camp life are under examination. Following the general tenets already stated in this thesis, levels of rationalisation will contain both long-term considerations, and also the wider effects beyond the physical boundaries of the camp, to the host communities, and to the country of return. Below will be presented a number of different aspects of Largo camp in terms of rationalisation. Opportunities for the rationalisation of the initial construction phase has already been discussed in large in the section above, and therefore may only incidentally be addressed again here. For all other aspects, each element overlaps and interacts with almost every other element, but in general the considerations will move from the smaller to the large, expanding from the level of individual shelter to the entire provincial district of Kenema.

There are a number of ways in which the shelters themselves are rationalised to some extent:

- They are made out of cheap, local materials
- Their construction and their materials make them relatively easy to repair or expand
- Their size and materials means that they can be relatively easily adapted to seasonal changes in the weather, e.g. through the creation of more windows for ventilation during the hottest months, or the thickening of the walls for insulation during colder months
- Their fronts can be easily adapted to provide space for a small trade stall, giving livelihood opportunities in that direction
- Their construction materials mean that when the shelters are no longer occupied, the more durable elements, such as the wooden poles, can easily be taken and reused in other shelters, whilst other elements, such as the mud, literally melt back into the environment

The shelters are less rationalised to the following extents:

- They are susceptible to damage and erosion from the rain. This is particularly true at the exteriors of the bottoms of the walls, which can suffer erosion from surface run-off of the rain.

- Although the plan for the interior layout shown to the refugees by the UNHCR Technical Unit calls for the shelter to be divided internally into sleeping and ‘living’ rooms, the overall size does still not permit the inclusion of significant amounts of tools, seeds, or other livelihoods materials.

A discussion of to what extent the communities are rationalised though, must rest upon more complex definitions of rationality and community. The 101 communities, each of 2268m<sup>2</sup>, occupy together about 48% of the camp area. This is a comparatively low percentage of the camp compared with 58% from the ‘bottom up’ set of calculations done in Part Two according to the UNHCR *Handbook* guidelines, or compared with the 67% according to the bottom up calculations done according to the Sphere *Minimum Standards*. In this narrow sense then, it would appear that the refugees have much less control and responsibility in Largo than in the idealised worlds of the written guidelines.

But is that really the case? The answer is yes only if the interiors of the community modules are considered as being the refugees’ responsibility, and ‘under their control’. The analysis in the pages above describes a situation however, where the refugee communities have extended the effective areas ‘under their control’ or of intense daily use, to include most if not all of the outside pathways as well. Therefore, if one adds the areas of the pathways to the total, the percentages start to look rather different. The area of pathway proportioned to each community is

$(63\text{m} \times 5\text{m} [\text{half the width}] \times 2) [\text{two long sides}] + (36\text{m} \times 7.5\text{m} \times 2) [\text{short sides}] + (5\text{m} \times 7.5\text{m} \times 4) [\text{corners}] = 1320\text{m}^2 \text{ extra per community. } 1320\text{m}^2 \times 101 = 133\,320\text{m}^2 \text{ for the whole camp, or } 28\% \text{ of the total } 48 \text{ ha.}$

If this new amount is added to the previous 48% percent, then the total area under the refugees’ control is now 76%, which is bigger than the percentages for all the guidelines calculations which defined the pathways as gaps or negative spaces. Even if the informal pathways through the interiors of the communities are taken to be as wide as the formal pathways and taken to be on the inside of each of the short sides of each community, and therefore taking away 720m<sup>2</sup> controllable land per community, the percentage of the total camp land directly under the refugees’ control is still only reduced to 60%.

However, a more realistic question concerns not judgements of absolute ‘control’ but rather of full use or under-use. At present, the communities have up to 1320m<sup>2</sup> of area in full use at the exterior of the community modules, but then 1540m<sup>2</sup> in the interiors of the communities which tend to be under-used.

‘Full use’ and ‘under-use’ are of course less than absolute terms. They do not imply that every single square metre of pathway is teeming with vegetable, avian, animal and human life. Nor does it imply that the interiors of the communities are barren lunar wastelands: there are many of the community interiors which do contain vegetable gardens, and even if that was not the case, the absence of use would still be qualified by the presence of the latrines, showers and garbage pits, which do constitute some sort of use at least. But within these levels of general contrast, there is still a proportion of the community module interiors which have fall lower on the scale of rationalisation.

As for the infrastructure of the camp, the main impediment to rationalisation is the number and the location of the water points. There are a total of 29 marked on the Largo map, in a combination of tapstands (in Phase 1), and wells (in Phases 2, 3A and 3B). This leads to an average of about 241 people per water point, which is much closer to the *Minimum Standards* standard (maximum 250) rather than the *Handbook* standard (one water point per community). This figure is exacerbated by the fact that one of the hand-dug wells is located in the now underpopulated Phase 3B, and by the fact that five of the 12 water points in Phase 1 are actually located in non-residential areas, next to the Health Post, the Reception Centre and the School Yard.

By one rather cynical and short-term standard, this would actually imply a large degree of rationalisation: the camp only needed the expense of 29 varied water points to provide the minimum level of water supply to all the inhabitants. However, this disregards the long-term effects of the time that it must take in order to carry water, sometimes for a distance equivalent to the length of a number of blocks. This problem is particularly acute in the middle, and at the north-east corner of Phase 2.

The other concerns of infrastructure, that of lengths of road surface, lengths of drainage, and lengths of water pipes, are less relevant in the context of Largo. The roads and pathways do not have finished surfaces, so no extra cost is incurred by having the pathways wider than the 6m in the *Minimum Standards*. Apart from Phase 1, the water points are wells, and therefore their placement does not incur greater lengths of lateral piping. The total length of drainage along the sides of the pathways has been increased in proportion to the area of the land by the fact that the community modules are rectangular rather than square, but this layout was done in order that all plots in a community could have adjacent vegetable plots without the problem of overlapping. The same result could be achieved by expanding the sizes of the community modules into a simply bigger square, but in the context of Largo space for expansion has been constrained by the proximity of the swamps. In any case, the cost for initial ditch digging and maintenance would be minimal if it could be countered by demonstrations that the provision of full vegetable plots to all was effectively contributing to the long-term livelihoods of the community members.

The layout of the camp as a whole is proof of the prior contentions, that unlike guideline models, refugee camps tend to be irregular in shape, and that even within those boundaries not all the land is actually useable for camp purposes. The swamp area in the south-central part of the camp has meant that the area between the two halves of Phase 3A can not be used for anything but the cultivation of some wetland crops. The swamps to the west of the camp and the road running along the eastern edge has prevented an even expansion of the camp, and so the camp has a very long circumference in proportion to its land area. This has increased the number of communities which have been identified as peripheral, and at risk of suffering from the above-identified social problems associated with their peripheral location.

The UNHCR Technical Unit, as of May 2004, was considering using the slight population decreases due to early voluntary repatriation, and the anticipation of mass voluntary repatriations in the near future, in order to consider decommissioning some of the outlying communities. The areas under consideration were those in Phase 3B, which for the most part had already been abandoned, but had then become partially re-occupied again by local Sierra Leoneans, and Communities 67 to 72, also in Phase 3B. This would reduce the length of periphery in part, but the fuller implications will be taken up below, under the header 'Strategies

for the future'. However, if the large-scale repatriations did not occur, then the camp would quickly become overcrowded, and then be faced with the choice of expanding in a further linear fashion along the road to the south, or else breaking off across the swamps to the west, both of which options have infrastructure and land-use problems.

As far as the non-residential buildings are concerned, their placement and their construction was influenced in large part by the fact that they are destined to be turned over to the host community once the camp is closed down. The intention can not be faulted, and this promise has also certainly done much to smooth over relations between the camp and the host-community, but it remains to be seen how effectively the structures can be put into use by the host community.

In order to incorporate the new structures into the existing town, the town of Largo would have to expand by 1.5km over the bridge and southwards along the road, which would be a considerable expansion for a town of 9000 people. The health post could conceivably exist where it is now without any great complications, but location of the school, and in particular the primary school, might greatly increase the walking distance for small children coming from the town. The palaver house (the circular structure located next to the NaCSA and UNHCR offices on the map) is not easily adaptable to other functions, and the only possible use it might have would be if there were occasional meetings between representatives of the town of Largo and the town of Mano Junction to the south, between which the palaver house is more or less equidistant<sup>108</sup>. In any case, most of the permanent non-residential buildings of the camp are set back 50-100m away from the road, and so the maintenance of access routes will also pose potential challenges.

As for the level of rationalisation of the camp as a whole entity, and as a member of a network of towns in eastern Sierra Leone, the camp has contributed to the development of the region by supplying cash influxes, land clearance, a new market for goods, and a new labour pool. This is entirely apart from the parallel development programmes of road- and school-building that the aid agencies have undertaken in the town of Largo at the same time, and apart from any extra spending money that the considerably richer aid workers may have brought in. On the other hand, the presence of the camp has exacerbated water usage problems in the town of Largo.

Despite the economic activities within and without the camp, the camp has not progressed very far in the direction of self-sufficiency. This is partially to do with the short length of time that the camp has been in existence, and partially to do with the general type of camp, and the amount of land involved. The vegetable plots are too small to ever be intended for such purpose, and any camp which had the serious intention of economic self-sufficiency for the refugees, would have to be built on a completely different model, much more akin to the rural settlement types referred to in Part Two. The micro-finance programme run by ARC International is only ever meant to be for a maximum of 200 clients, or 230 if enough of them have significant sales outside the camps. The profits from the micro-finance projects are still too small to make the participating households economically self-sufficient. It would take a minimum of three or four loan cycles (i.e. 12-16 months), before the micro-finance projects had a significant impact upon the self-sufficiency of the clients. At present, ARC International

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<sup>108</sup> Largo host community Abdulani *personal communication*

regards the goals of the programme primarily as one of preparation in skills, experience and small capital for when the refugees return to Liberia<sup>109</sup>

However, on the whole, the primary question about Largo camp's role in the region, is how badly the immediate region, and in particular the town of Largo will go into 'withdrawal symptoms' once the camp is closed and the majority of the refugees go back to Liberia. The refugees constitute very little buying power, and many of the able-bodied men take their labour further afield, to the diamond mines. But all in all, it is a population equal to 77% of that of Largo town, and so the camp's closure will create some sort of reduction in customers, labourers, land-clearers, students, etc. In many refugee camps around the world, there are increasingly plans in place for the revitalisation of the natural environment after the closure of the camp, and these now form a part of the UNHCR *Environmental Guidelines*<sup>110</sup>. However, there is far less in the way of guidelines for the management of the local economy after the closure of a camp, although it must be assumed that in many cases the study must be analogous to that done of closures of major industries.

### ***Strategies for the future – Largo Camp***

This section will attempt to propose a small number of strategies for the future of Largo camp, using the expanded principles of rationalisation, but applied as they have for the thesis up to this point, with primary consideration for long-term livelihoods. The proposals will operate under one slightly unrealistic assumption, and then another set of assumptions which should be more pragmatic. The slightly unrealistic assumption that I will make, is that the camp is not necessarily going to close down within the next 12 months. That is, I am going to take at face value the warnings in Part One of this thesis, about the unpredictability of the lifespans of refugee camps, and assume that the camp will continue its existence until an undetermined time into the future. This means that the proposals will be for the camp's continuing *development*, rather than just a series of closure and exit strategies. On the other hand, the proposals will also assume that there will still be some small levels of early voluntary repatriation, as there is now, but counterbalanced by the birth rate so that there is no significant reduction in the size of the camp population.

The other set of more pragmatic assumptions are as follows:

- First, do no harm.
- The proposals should be feasible in terms of available money, which is assumed to be very little indeed.
- The proposals should be feasible in terms of bringing the various stakeholders together to undertake the necessary projects.
- The proposals should start from what Largo camp has become at this point in time, June 2004, rather than assuming an empty slate and a free hand to work with.
- A small number of key strategic proposals are better than trying to cover absolutely everything.

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<sup>109</sup> ARC International Sulla *personal communication*

<sup>110</sup> UNHCR *Environmental Guidelines* pp. 21-24

Proposal No. 1: Make a selective shortening of the periphery. Because there have been some small numbers of people who have voluntarily repatriated in some of the more central communities, there have been corresponding movements of people within the camp, from peripheral communities towards the centre. This has left a number of peripheral communities half-empty and with a high turn-over of remaining inhabitants. The UNHCR Kenema Technical Unit is already considering this as a reason to officially close down at least two sets of communities: nos. 67-92, and nos. 87-92, both in Phase 3.

Communities 87-92 are the more obvious candidates for closing down, because their level of population abandonment is the greatest, and because that part of the camp is separated from the rest of the camp by some distance, most of which is swampland. The only problem is that parts of these six communities have now become inhabited by squatter groups from the local towns, and there is the possibility that throwing them off the land and demolishing the shelters may put a strain upon camp-host community relations. Therefore it would be better to save the physical resources and the political worry, and not to touch the shelters themselves, but hand the entire area back over to Mano Junction, the nearest town to that part of the camp. This would be an undeniable gift for the town, and would also make the squatters effectively someone else's problem.

However, there is the possibility that the other section, Communities 67-92, is the wrong second candidate for closure. In the past it had been the base for a small gang, but these are reportedly gone now. Furthermore, those communities are near the top of the ridge that runs as a spine along the centre of the camp from north to south, and so the communities are connected into the main road grid of the camp. The communities are relatively far away from the central administrative block in the north, but they are close to the large skills training centre which is currently being set up between Community 102 and the swamp to the west of the camp, and it is close to the one official church, and to one currently standing unofficial mosque.

Instead, a similar reduction in periphery length and community module numbers could be made by phasing out Communities 98-101, located at the northwest corner of the camp in Phase 1, and isolated by being on a finger of land sticking into the swamp and brush. Even though these communities are closer to the administrative block as the crow flies, they are aligned off the main road grid, and hidden from most of the rest of the camp by being on the far side of the water tank hill. Therefore these communities have also suffered the same problems of rapid turnover and reduction of inhabitants.

Proposal No. 2 : Stabilise the new periphery with non-residential buildings. As long as the periphery is occupied solely by residential communities, then the outermost ones will always suffer the same problems outlined above. Simply adding new communities or taking away communities in itself will not solve the problem, merely redistribute it. However, the high turnover of the population, and the gaps caused by missing or abandoned shelters in these communities creates the chance to introduce other, non-residential buildings, to help decentralise the camp as a whole, and to act as anchors for the peripheral residential communities specifically.

The first types of non-residential building which could be used as an anchor this way are houses of religious worship. The refugees in Largo camp have currently expressed wishes for more mosques and churches, which manifests itself in the building of unofficial, 'illegal' ones,

most often right in the middle of the firebreak-roads. However, those houses of religious worship are some of the best-built, and best-kept buildings in the camp, and there is no little animosity when they are torn down. This would indicate that if the religious communities were provided space in, say, some of the half-abandoned Communities 67-72, the resulting houses of worship would be built quickly, and with a high level of quality. They would also bring in a large amount of pedestrian traffic, and lot of people who would feel a stake in the fate of the area. This would also create a social buttress against the illicit bars, or other forms of socially destabilising behaviour in the neighbourhood.

The second type of non-residential building to be used as an anchor would be skills training centres and workshops. There is currently one such building, built on a large scale at the very edges of the camp, close to the edge of the swamp at the western side. The programmes which are offered there are popular, but the buildings themselves are a little isolated. If extensions for the programme were built inside the peripheral communities, it would give greater security to both the workshop buildings during the night-time and the communities during the day at least. It is also entirely possible that religious communities with educational or vocational programmes could be encouraged to support the building of those extensions, through funding or in-kind provisions of labour and materials.

Proposal No. 3 : Diversify small open spaces towards the centre. The regular movements of members of the population either back to Liberia, or to other communities within the camp, means that even in communities which are quite central and closer to the administrative block there are occasionally shelters left, and gaps created. At the moment, these are filled quite quickly by those who want to move in from the more peripheral communities. But the camp management could slow the movement away from the peripheries by appropriating any vacant plots near the centre themselves.

In reality, these plots probably should be left vacant, as an insurance against inner-community expansions in family sizes. But at the same time, they could be put to a number of other informal uses as well. As the analysis above indicates, at the very least, smaller open spaces can be a fertile ground for small trade stalls. And those with the most established stalls, in Communities 1, 2 and 3, are not adverse to building stalls heading towards the interior of their communities as well, as long as the access and the economic advantage is there. But as the following analysis of Jimmi Bagbo camp will show, if refugee groups from this background are given a freer rein over a longer period of time, such spaces can also find themselves turned into local palaver houses (perhaps a secular counterbalance to the churches and mosques), open-air workshops, or any number of other functions conducive to a diversified set of livelihoods.

Proposal No. 4 : Legitimise and strengthen the real community centres. It is largely futile and counterproductive to attempt to force the refugees to turn their shelters to face inside the community modules, and even if the shelters were physically re-orientated, it would never guarantee that the refugees themselves would ever sit anywhere else but the pathway sides. Likewise, attempts to keep all the pathways completely cleared of vegetable plots, hanging washing, drying crops, fire hearths, etc, is ultimately a Sisyphean struggle. The same can be said of any attempt to block off pedestrian transit routes through the interiors of the community modules. The installation, repair and replacement of fences would be time-consuming, costly and never-ending, and fencing goes largely against the prevalent typologies of the regional housing, gardens and pathways.

Instead, the de facto centres of the communities, which are the pathway fronts, should be strengthened by giving full definition to the as yet informal pathways that have been created at the backs of the shelters, through the interiors of the communities. At the moment, few of the external pathways or community interiors in Largo camp have much in the way of dug drain trenches. At the very least, this is a contributory factor to the erosion from water run-off at the bases of shelter walls. But the drains can also serve another purpose as well. There are one or two roads in the camp, notably the one running from between Communities 24 and 25 until it reaches a point inbetween Communities 33 and 34, which has well-dug, clearly defined drainage trenches running alongside. Perhaps not coincidentally, this is also one of the few roads in the camp where there are few encroachments into the road. Quite possibly, this is in part because the local residents feel hesitant in some way about stepping over a marked boundary. Therefore, putting parallel sets of drain trenches along the 'new' roads going through the interiors of the 'old' community modules, would not only act as practical erosion protection for the shelters, but would also give some sort of visual cue which might prevent further encroachment into the vegetable plots which did remain in the module interiors.

# Jimmi Bagbo Camp

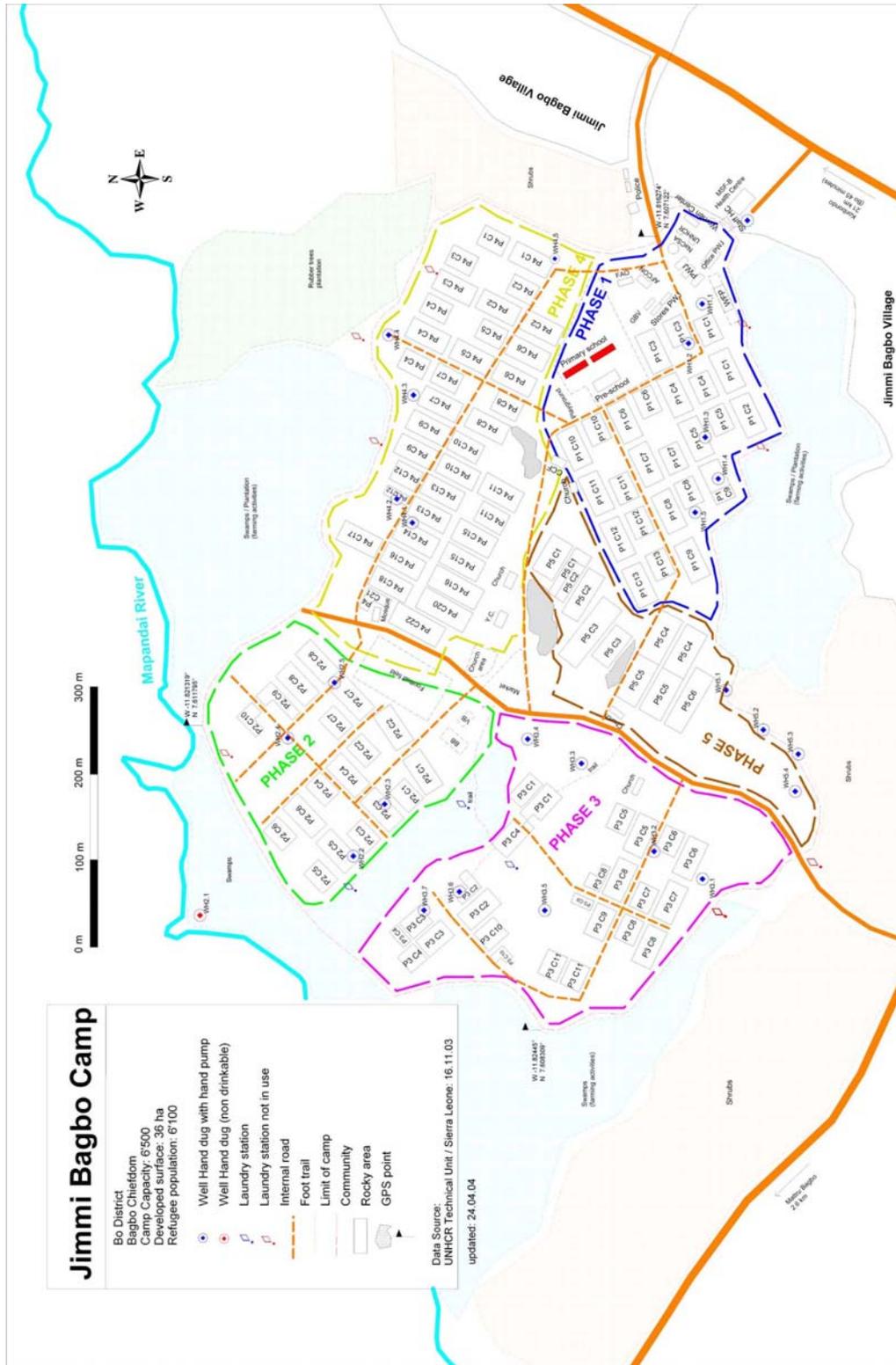


Image: UNHCR

The following sections of analysis of Jimmi Bagbo camp, will largely mirror the analysis done of Largo camp above. But the analysis will diverge in three respects. Firstly, there is no extra information on the construction process. For the most part, the construction phase of Jimmi Bagbo camp would have differed little from the construction phase of Largo, except that initially there were far fewer internal roads, and secondly the first three Phases were dispersed as quasi-separate entities, and so the camp expanded by filling Phases 4 and 5 inbetween Phases 1, 2 and 3. The second divergence in analysis is that there will be some areas where the experience of Jimmi Bagbo camp has been substantially the same, and then the topic will be covered in a much more summary fashion, than was done for the analysis of Largo, above. Thirdly, there will be areas of the analysis where conversely there will be larger contrasts with Largo. Some of these will be due to differences of layout, or differences in management choices, but many others will be due to differences in the relative longevity of the camps themselves, and it is to these differences that much of the attention will be paid.

### ***General features***

Jimmi Bagbo camp is adjacent to the village of Jimmi, which is 50km (1 hour by car during the dry season) from the UNHCR sub-field office in the provincial centre of Bo. The camp occupies approximately 36 hectares of land, and has a population of 6100 people, living in 1221 shelters across 115 communities. This gives an average of 59m<sup>2</sup> per person across the camp. There are an average of 11 shelters per community, and 5 people per shelter. The reason for the lower number of shelters per community is that one of the differences in layout between Jimmi Bagbo and Largo is that the communities in Jimmi Bagbo are made of 12 shelters each. The difference between the planned number and the real average can be explained by the smaller communities at the edges of Phases 2 and 3.

### ***Primary Structure***

Jimmi Bagbo camp lies near the inner corner of two small roads that enter in perpendicular fashion into the village of Jimmi. However, the camp is sufficiently set back, and the bush is sufficiently tall and dense that no external connection to the camp can be seen except from the area immediately near the front entrance. Jimmi Bagbo also has a very irregular circumference shape, partially dictated by the surrounding swampland, and partially by the initial plan on the part of the designer Hiroshi Imai, to have the camp as a number of largely separate small 'villages'. The land is rolling, with the highest point being the ridge that reaches its apex near the playground between Phase 1 and Phase 4. Until sometime in 2003, there were very few cleared roads in Jimmi Bagbo camp, again due to deliberate design. The physical gaps between the different Phases are still wider and more pronounced in Jimmi Bagbo camp than in Largo, and the demarcation is often large areas of scrubland, rather than just a conventional firebreak road.

### ***Major features and indicators in Jimmi Bagbo***

The officers for the Implementing Partner which is responsible for the camp management at Jimmi Bagbo joke that previously, the camp had so many problems that when UNHCR wished to tug the heartstrings of potential donors, it would immediately dispatch a photographer to

Jimmi Bagbo camp<sup>111</sup>. However, most if not all of the sources of such misery have now been alleviated, and Jimmi Bagbo camp is now also a camp which is safe, and with the densely-built physical evidence of almost three years of complex interaction and livelihood development amongst the inhabitants. There exist many different layers of community groupings, starting out from those in the community modules. The communities in the modules in Jimmi Bagbo appear to be more closely-knit than those in Largo, but that may be because the main sets of social networks and investments in Largo happen exterior to the formal modules, and in the pathways instead. The communities in Jimmi Bagbo showed the same social ability to accommodate a stranger in their midst, and engage in conversation and answer the questions of the stranger with friendliness and patience. The one exception was for those many members of the communities under the age of ten, whose primary method of response to the stranger in their midst was to run after the stranger, repeatedly shouting greetings and trying to hold the stranger's hand.

The previous problems in Jimmi Bagbo camp were partially to do with the relative lack of infrastructure and non-residential buildings and support facilities, particularly in comparison with the other 'older' camps in Bo district, which had in fact inherited much of their site facilities from the sites' previous existences as returnee camps<sup>112</sup>. There were also social problems caused by the fact that a portion of the refugees in the camp were 'veteran' refugees, who had experienced the upheavals of refugee existences, and then short-lived repatriations in Guinea, Sierra Leone and Liberia<sup>113</sup>. However, there have also been reports of a number of aid workers who have previously put the blame at least in part upon the camp layout, which it is claimed made the camp difficult to manage and administrate<sup>114</sup>. There had also been problems with the location of the latrines, which had all been put at the edges of the Phases, outside the communities, and which were then becoming security hazards, especially for women, due to their isolation. There had also been a much greater vermin problem in Jimmi Bagbo, contributing to the number of lassa fever victims: a vermin eradication programme in 2003 managed to catch no less than 4000 rats within the camp<sup>115</sup>. However, before May 2004, the new Phases had been constructed, making the camp one contiguous entity, and roads had been constructed within the camp, providing better access and communication. All vegetable plots had been removed from inside the Phases, in order to deny the rats habitat, and other sensitisation programmes have been instituted concerning lassa fever. Latrines have also been built inside the communities, although many latrines still exist outside the Phases, particularly near Phases 2 and 3.

The communities in Jimmi Bagbo are 48m long, by 24m wide. The individual plots are 12m x 8m, and the shelters are on average 6m x 4m. Thus, the interior space of the shelter conforms with guideline standards, of 4.5m<sup>2</sup> per person, but the remaining outdoor areas are smaller. The area per person within the community is (48m x 24m) ÷ 60 = 19.2m<sup>2</sup>. The potential space for each plot for vegetable gardens, once the area for the shelter and the side buffer zone has been removed, is (12m x 8m) – (4m x 6m) – (4m x 2) = 64m<sup>2</sup>, which then averages out to only 12.8m<sup>2</sup> per person, assuming a real average of five people per shelter. Furthermore, there is no extra room within the communities for latrines, showers or garbage pits. There are no areas within the communities which, on the map, are communal space interior to the community, rather than designated as plot area belonging to one household or another. Admittedly, according

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<sup>111</sup> Peace Winds Japan Fukui and Kominami *personal communication*

<sup>112</sup> UNHCR *Jimmi Bagbo Camp Profile 1*: 8: 1

<sup>113</sup> Peace Winds Japan Fukui *personal communication*

<sup>114</sup> UNHCR Mundt *personal communication*

<sup>115</sup> UNHCR Mundt *personal communication*

to the original plan, the latrines were supposed to be located outside the Phases, but this still leaves space needed for other things, according to the map at least.

Each community is 1152m<sup>2</sup> in area, which is a lot less than the equivalent area for a 12-person community by the standards of Largo camp, which would be 1701m<sup>2</sup>. The 115 communities together take up 132 480m<sup>2</sup>, or 36% of the camp, which is much lower than any of the other examples seen so far, and is especially noteworthy given the fact that the camp has had some time during which to expand. However, to this should be added the area of the back alleys, the 6m-wide gaps between the backs of the communities into which the latrines and showers have now been placed, and which are too narrow to be pathways, or indeed to be used for anything else. These run along between the long sides of each community, and so each community now has 48m x 6m = 288m<sup>2</sup> to add to the total. The total of the two areas then becomes 1440m<sup>2</sup> per community, which then becomes 165 600m<sup>2</sup>, or 46% of the total camp, which is closer to the 48% taken by the formal community modules in Largo camp. It should be said though, that the closeness, in relative percentages, of the portions of the camps taken up by communities, is much more a product of the relatively small amount of area given over to non-residential buildings and large public spaces in Largo, rather than anything else.

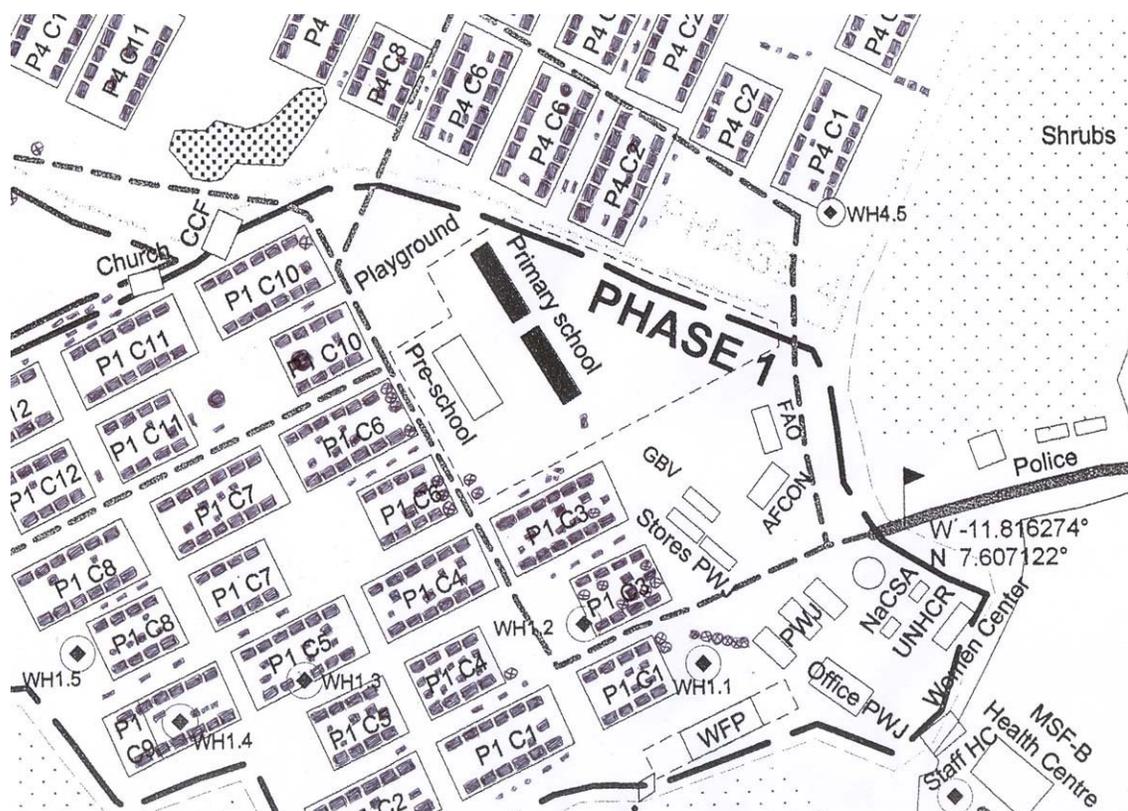
The ratio of road space to total camp area is much more difficult to calculate in the case of Jimmi Bagbo camp, because there are still relatively few defined roads, and those which exist are often of a very irregular pattern. Apart from the main access road that comes from the external road from Mattru Bagbo village, and goes into the camp past the official market, the other main road through the camp is the one which goes from the front entrance and the administrative block, to a point between Phase 1 and Phase 4, past the CCF building, and then towards the market. These may be 15m wide, and perhaps total 1km of roadway within the camp, or 15 000m<sup>2</sup> (4%) of the total area.

In the middles of the Phases, where the communities come closest together, there are roads which run between the short sides of the communities, and in the absence of communities with four sides of shelters, do much to define the edges of the short sides. However, these vary in width, from about 15m or even only 10m in Phase 1, to more than 30m in parts of Phase 2. But if an average width of road between short sides of communities of 15m is assumed, and a rough scan of the map is done to produce 58 pairs of communities which face each other at the shorter sides, and which have side alleys of 6m width on the sides, the total road length will be (24m + 6m) x 58 x 15m = 26 100m<sup>2</sup>. If to this is added perhaps another 500m of road of similar width going to the edges of the Phases without going past the sides of any of the communities, then the total is 15 000m<sup>2</sup> + 26 100m<sup>2</sup> + 7500m<sup>2</sup> = 48 600m<sup>2</sup>, or 13.5%. This too is a rather small percentage when compared to any of the models examined above. The same is true for all the non-residential buildings, which, despite the proliferation of palaver houses, churches, and local NGO buildings throughout the camp, can not come to more than 10% of the total.

This means that approximately 30% of Jimmi Bagbo camp is undefined. Most of it is not taken up by vegetable plots, as these were removed during one of the anti- lassa fever campaigns, and new ones have been placed outside the camp Phases. There are large portions of that 30% which are labelled on the map as 'rocky area' or which upon inspection turn out to be of too steep a gradient to be buildable upon. The result is another example of the statement of Goovaert's reported in Part Two, that not all of any refugee camp can ever actually be used for camp purposes.

A new set of proportional ratios can be arrived at, if that 30%, or approximately 108 000m<sup>2</sup> is removed from the equation, so that only the 70%, that is, the actually used space, is counted. Now, the communities take up 65% of the total, the roads take up 19%, and the non-residential buildings and their areas take up the rest. This immediately makes Jimmi Bagbo camp one of the most densely populated of all the examples in this thesis. The used space, of approximately 252 000m<sup>2</sup>, averages 42m<sup>2</sup> per person, below the 68.6m<sup>2</sup> for Largo, below the 60.7m<sup>2</sup> for the theoretical camp provided by the second set of calculations in Part Two of the thesis, and even 3m<sup>2</sup> per person less than the minimum recommended by the guidelines. And both contentions, that the camp is relatively open and relatively full, are true. The camp does have a lot of open space, but some of it is not space that can be put to productive use, and certainly a fair proportion of it is space that can not be built upon.

This pressure on the land becomes even more acute once the land use inside the Phases is considered. The camp management in Jimmi Bagbo has adopted a policy towards informal building by the refugees which is in many ways more liberal than that employed in Largo. Over the three years of the camp's existence, the communities have become steadily built into.



A mapping of part of Phases 1 and 4 of Jimmi Bagbo camp. All the small geometric shapes drawn onto the map are refugee-built structures. *Image: Kennedy, original map: UNHCR.*

In the oldest communities, in Phase 1, the interiors of the communities can have as many as eight or ten extra structures built in. Some of these are relatively small, including low-walled, earth-built chicken coops or dog huts. But some of the structures are much larger, and include weaving looms and their shelters, or trade stalls facing the roads on the short sides of the

communities. By far the most common, and also some of the biggest physically, are the separate structures given for the outdoor fires.



The edge of one community in Phase 1 of Jimmi Bagbo camp. The taller, ochre structure in the middle of the picture is actually housing for one of the outdoor fires for a household in the community. Another such structure can be seen in the background. *Image: Kennedy.*

Many of these have their own shelters, built up in the style of the living shelters, with four walls, and roofing. In other instances, the fires have been turned into ovens, with cylindrical earth chimneys rising above the height of the living shelters. There are now also an increasing number of communities, six in total, who have built circular-walled palaver houses inside their communities. In some of the outlying communities in Phases 2 or 3, the number of extra structures in the community may only be two or three, with the vast majority of the space still open, but in the most densely built-up parts of Phase 1, near the front entrance, covered markets have been established inside the communities, until anyone wanting to walk through the community has to thread through gaps and passageways which are only one or two metres wide.



The rear of the covered market area built into the middle of Community 3, Phase 1. *Image: Kennedy.*

This building-in of the communities has been of course, the manifestation of the development and diversification of livelihoods that has taken place in Jimmi Bagbo camp over the three-year period of its existence. It gives the lie to the idea that refugees from rural backgrounds (as most of the inhabitants in Jimmi Bagbo camp are) are just simple farmers, with a one-dimensional lifestyle and livelihood.

The building into the communities has also done much to define and protect the communities in other ways. As described above, the communities start out in effect as just two rows of shelters. They therefore lack definition at the outset at the short, unbuilt sides. If there were no other feature to these sides, then the communities would become vulnerable to just being seen, and used, as long lines of indistinguishable shelters, which just happened to have a

firebreak after every sixth shelter down the line, and without any sense of social ‘community’ being built in.

That this has manifestly not happened in Jimmi Bagbo camp is due to a number of factors. The first factor is the visual signals given by the sheer density of the building-in. The second factor is that the shelters are all facing into the interiors of the modules. This has been achieved because the alleyways alongside the exterior of the long sides of the communities were too narrow to be faced onto, even before the building of the latrines. It is also because on the other hand, the interiors of the communities, only 16m wide, are narrow enough, to enable complex social interaction of the sort seen on the same scale and dimensions inside the pathways in Largo camp. The third factor is that Jimmi Bagbo camp has had a much more thorough programme of digging drain trenches along all of the edges of the communities, and when they run along the short sides, in front of the de facto firebreak-roads, they give a clear visual demarcator of the beginning of the community interior. The fourth factor is that in the most well-established communities, particularly those in Phase 1, the refugees have built trade stalls on the short sides of the communities facing into the busiest roads, which have also partially blocked off the short sides of the communities, and acted to make the interiors of the communities more private, even when close by to one of the main roads.

The commercial sales activities which are supported by these often densely-built communities, are different from those in Largo, on a number of lines. There are still great similarities between the two. For the most part, the stalls are small, one- or two- person affairs. The products on sale are generally foodstuffs, with some of the stalls near the front entrance, and in one or two other locations, selling clothing. However, the differences are major, and some at least can be assumed to give an indication of the evolution of economic development within a camp over a longer period of time:

- The stalls have come together in a small number of clumps. In Largo camp, there were two main areas for trade stalls, the official market and then the group of stalls near the administrative block, but there were a number of other stalls scattered about the camp, singly, and often without any obvious reason for their specific location except for the entrepreneurial spirit of the individual shelter owner. In Jimmi Bagbo camp, there are also the major groups of stalls in the official market and close to the front entrance of the camp, but the rest of the stalls do not have the same random scattering. There is one further group of ten stalls along the main road that heads from the front entrance to the schools area at the top of the ridge. Then there is another smaller group of four stalls close to a major church, further along the same road between the schools and the official market. Lastly, there are ten stalls grouped together in another covered market, close together in an alley which runs along one side of the official market, but which is not of it. But there are no other stalls in the camp, even though the total number of stalls outside the official market in Jimmi Bagbo camp is greater than the number of stalls outside the official market in Largo camp (39 vs 17). Some of this is just due to the inhabitants of the communities spotting a good sales pitch on their own front steps, but in other cases it is because people have set up free-standing stalls in open ground, independent of the location of their own living quarters.
- The stalls have geographically divided according to the goods on sale. This is also somewhat true in Largo, where for instance the stalls selling clothes are for the most

part all in the group near the administrative block. But this has become more pronounced in Jimmi Bagbo. The line of independent stalls at the edge of the front entrance plaza, closest to the entry point for people from the host community, sell for the most part clothing, and luxury food stuffs, like soft drinks. The group of four stalls around the major church, perhaps appealing to the family-orientated, predominantly adult female pedestrian traffic there, all sell children's clothes. The covered market near the front entrance, in Community 3 of Phase 1, has the greatest variety of foodstuffs, ranging from camp-grown chili peppers, to imported tins of meat. This variety is also the case in the covered market in the alley which runs alongside the official market, which has a variety of foodstuffs, but also one or two stalls selling clothes. The official market, which contains 38 stalls, offers by far the most modest selection of goods. These tend to be unpackaged foodstuffs. A large proportion of them do come from the stall-holder's own gardens, but even those which don't, tend to be unpackaged, or home-wrapped, including various vegetables, eggs, and smoked fish.



The official market at Jimmi Bagbo camp, seen from the eastern end. *Image: Kennedy.*

- The physical typologies of the stalls and markets have adapted to reflect typological norms. In Largo camp, the stalls outside the official market tend just to be placed inside the pathway-side verandas of the shelters. Apart from the stall table surface and the thatch shelter, there have been no more ambitious attempts to physically adapt either the building, or the immediate surroundings. In Jimmi Bagbo camp, the stalls divide roughly into two types, very few of which involve the use of front verandas, but which reflect more accurately the stall typologies typically found in villages and towns in the region. The first of these is the free-standing stall, with a thatched shelter overhead. These are located in the front plaza near the administrative block, along the main internal road in front of the schools area, and again along the front road in front of the major church. It is also the style used in the official market, which does not have any permanent superstructure. The other type of stall also consists of a small table, but exists in a fully or partially covered market. In both cases, but especially in the case of the covered markets, the popularity of the place and the volume of foot traffic through the market is not despite the narrowness of the passageways, but *because* of the narrowness, and the resultant shade and the opportunities for close social interaction that it provides. A case in point is that of the official market in Jimmi Bagbo. A two-hour observational survey of the entry and exit points of all those walking through the camp area, found that the majority of people walked through the much more narrow, crowded adjacent alleyway, rather than through the slightly less densely-built marketplace, even if they were only passing through and not shopping.



The same market, from the western end. On the left hand side is the narrow corridor of shelters which hold the more vibrant stalls in the area. *Image: Kennedy*

- In comparison with Largo camp, there is a smaller proportion of stall-holders inside the camp who come from the host-community. Here there are no hard and fast figures. It is assumed that the stalls not in the official market are by and large run by camp inhabitants. A brief set of conversations with some of the stall-holders inside the official market also revealed that all of the women talked to, lived in the camp, although this was not an exhaustive survey. This may be because the host community in the case of Jimmi Bagbo camp is much smaller (1800 people), and therefore has fewer traders in its community. The main market in Jimmi town itself was significantly smaller, with fewer than 20 stalls, as opposed to the 56 stalls counted in Largo town market. But the smaller number of traders coming in to the camp from the host community may possibly have another reason as well. In the case of Largo camp, the camp inhabitants themselves have had less time to accrue capital for their own entrepreneurial activities, and therefore a smaller proportion of them have the financial means to buy the initial stock to engage in small trading, and local traders have stepped in to take advantage of the excess demand. In Jimmi Bagbo, despite the lack of aid agency micro-finance projects, the refugees themselves have had a longer time to accrue capital and stock, and to establish their trade within the camp. At the same time, because of the relatively small population in the host community, there is less incentive for the traders from the camp to look for sales pitches outside of the camp and inside the markets of the host community. This does not mean though, that the two economies work in isolation from each other. But, the integration operates at different level than the cross-exchange of trading pitches. There are a considerable number of people from the host-community who come into the camp, as least as far as the front plaza, in order to shop. And there is also the network of suppliers from the local host communities and from the provincial centres that the camp traders must rely upon for most of their goods.

Community activity in Jimmi Bagbo camp also manifests itself more greatly in the built environment at another level, in the proliferation of houses of religious worship. There is only one mosque, but there are a total of six churches in the camp. All but the newest church, built at the edge of the front entrance plaza next to the storage buildings, have their presences officially

acknowledged on the map. The houses of religious worship occupy their own plots of land, for the most part close to one of the two main roads inside the camp. Although there are, as mentioned before, palaver houses which have been built inside communities, there have not been any churches built inside communities, nor in the middles of the firebreak roads.

In Jimmi Bagbo camp, there are by and large the same problems with peripheral communities that exist in Largo camp, although the physical manifestations of the problems have differed. There were no reports of gangs operating at the periphery of any of the Phases in Jimmi Bagbo camp. But on the other hand, the primary reason for the moving all of the latrines from the outskirts of the Phases into the back alleys between the communities in Jimmi Bagbo camp, was the security hazard that the isolation of the latrines posed. As a crude measure of how much stake different groups of people have put into their communities, a count of the extra, informally built-in structures in each community (i.e. the primary built manifestation of investment of resources into the community by the individual inhabitants), might be instructive. A rough count of such nature reveals that there are on average more extra built structures in the interiors of the communities in the more central parts of Phase 4, than in the more peripheral parts of Phase 3. Even though Phase 3 was built at an earlier point, as one of the original three ‘villages’ of the original camp plan, the peripheral communities in that Phase (nos.1, 3, 4, 7, 8, 10) have only 1-3 structures within the communities, as opposed to the 4-7 structures inside the Phase 4 communities closest to the main road and the schools (nos. 2, 5, 6, 8). As another indicator, there are just as many palaver houses, official and unofficial, in Phase 4 as there are in Phase 3 (two apiece).

### ***How much does Jimmi Bagbo camp adhere to the principles of expanded rationalisation?***

In this section, there are a number of ways in which the levels of adherence to the general principles of expanded rationalisation do not differ greatly from the observations made above, about Largo camp. Therefore, these areas will be dealt with only briefly, and the greater attention will be paid to the areas where there is a notable difference with the experience of Largo camp.

The general points where the observations show little difference with Largo camp, can be summarised as follows:

- The shelters are made largely in the same style, and of the same materials. They have the same levels of physical sustainability, purchase costs, and accommodation of livelihoods.
- There are fewer pressures upon the water supply in Jimmi Bagbo, although the water points are all hand dug wells. As in Largo, the water points are not provided to each community, but spread out within the Phases. The ratio of people to water points, is much closer to the Sphere *Minimum Standards* standard of 250 people per water point maximum ( $6100 \text{ people} \div 25 \text{ water points} = 244$ ). On the other hand, given the size of the open spaces within the communities, it would have been almost impossible to install a water point within each community anyway. There is no special clustering of water points inside the administrative block as there was in Largo, camp, which means that the water points should in theory be more evenly distributed, and that the average distance to the water points from the communities should be shorter. The camp is

small enough so that most people are still within 100m walk of a water point, with the possible exception of those at the northern end of Phase 5, and those at the most northern tip of Phase 1. Nevertheless, the water points are all situated at the periphery, and sometimes even outside the Phases, rather than somewhere in the middle. The possible reason for this is one which demonstrates the complexity of balances of costs when it comes to final reckonings of the levels of 'rationalisation' of a camp. On the one hand, the water points are all hand dug, which means that their construction costs would have been much lower, and that there would have been much less risk of catastrophe in the event of break-down. But at the same time, it would have been very difficult to construct hand-dug wells in many places towards the centre of the camp and the centres of the Phases, because these are on higher ground, much of which is rocky, and of a steep gradient. The present locations of the wells on the other hand, are all on the lowlands at the edges of the camp.

- There are the same type of plans in Jimmi Bagbo camp, to hand over the permanent, non-residential structures to the host community, once the camp has been closed down. This has resulted in much the same grouping of non-residential buildings in a very centralised manner, near the entrance to the camp, but perhaps still too set back for them to be easily appropriated by Jimmi Town. The question of size, distance and usability in the case of Jimmi Bagbo camp is even more pertinent, as the host community is so much smaller, and may possibly have difficulties 'fitting into the bigger boots'.
- Despite the greater longevity of the camp, and the visual evidence of a developing economy, the majority of the refugees living in Jimmi Bagbo are no nearer to being truly economically self-sufficient than those in Largo. Again, the only thing that would change this, would be a completely different model of camp, based more closely upon models for rural resettlement programmes. Again, the extra sources of income through small trade and other, have the importance of providing an extra buffer against times of greater hardship, a resource of experience and capital for a future life after repatriation, and a source of personal dignity, but under the present model, it is debatable about how long it would take before a substantial number of refugees were self-sufficient enough for the monthly dry food rations to be diminished. As a side-bar to this part of the discussion, there is also the discussion of the impact of the vegetable plots upon the lives of the refugees. The experience in Jimmi Bagbo camp is that the vegetable plots do not need to be contiguous with the shelters in order to have the same economic, social and nutritional benefits for the inhabitants. But the experience of Jimmi Bagbo camp has also shown that there still needs to be an appreciable amount of land within each community, just to let that community stretch comfortably.
- The long-term concerns about the withdrawal of the camp from the local host communities remain much the same as in Largo, although perhaps even exacerbated in the case of Jimmi Bagbo, by the imbalance in numbers between the camp and the host community. The economic integration is fully there, even if it isn't symbolised by small traders exchanging communities in great number. And, the host community of 1700 people, would be facing a withdrawal from the area of a population more than three and half the times its own size.
- The extent of the long-term environmental impact of the camp is slightly less easy to predict, although there is at least one NGO in the camp which is making a head start, with a tree seedling nursery within the camp. On the one hand, the camp itself is

much smaller in area, and the number of inhabitants is smaller as well, and therefore theoretically, all other things being equal, the environmental impact of the camp should be smaller as well. But in comparison with Largo, there is less existing vegetation on the ground in Jimmi Bagbo (in large part due to the removal of the vegetable plots), and the steeper terrain has made some parts of the camp more susceptible to problems of erosion.

The one outstanding indicator of adherence to the principles of expanded rationalisation, and the one which defies easy summarisation, is that of the communities themselves. The compact layout of the communities, and the building in to that space has become not just the symbol of community creation, but one of the primary physical methods. But the same compactness and denseness means that from now on, the individual communities have nowhere else to grow. There have already been concerns expressed about the encroachments upon the firebreaks, to the point of rendering them useless in some instances<sup>116</sup>, and the same concerns must be true for the abridging of barriers for disease vectors. Emergency access to the communities is however realistically less of an issue, given the existence and good maintenance of the roads along the short sides of the communities, so even if emergency vehicles could not enter the community, there would still only be a maximum distance of 24m from the furthest shelter.

The biggest problem with the compactness of the communities though, is that of overcrowding within the shelters. As far as the minimum space within the shelters are concerned, it has already reached the furthest point that it can go, and the square metres per person ratio for the used space in the camp is even now below the minimum standards of the written guidelines. No matter how good at socially coping with overcrowding the households and communities are, that will have little effect upon the possible spread of communicable diseases. It would also have little or no effect upon the missed opportunities that overcrowding creates, in terms of usage of private space to promote livelihoods (indoor workshops, tool storage, seed storage, etc).

Any rupture to the social and physical fabric woven within the interiors of the communities would be counterproductive to say the least, and potentially disastrous. But there is also nowhere for the communities to expand backwards away from the centre either. Two metres behind the shelters are the latrines, and six metres behind the shelters are the backs of the next set of shelters. The latrines themselves are probably already too close for comfort in some instances, depending upon the weather and the direction of the wind (but again, there is nowhere else feasible to put them). Any calculation of ‘rationality’ is left therefore, with the impossible task of trying to balance public health concerns, with social development, personal security, and livelihoods promotion.

### ***Strategies for the future – Jimmi Bagbo Camp***

As for the section with the same heading above concerning Largo camp, the guiding assumptions for the proposals here, will be feasibility, and strategic choice, for a camp that is imagined as existing into the indefinite future.

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<sup>116</sup> UNHCR Nicole *personal communication*

The proposals here will concern themselves with the largely intractable problem of the imminent overcrowding within the communities. However, when addressing these problems, the camp planner may find his or her back metaphorically against the wall of the next shelter. If one thought it advisable, both morally and pragmatically, to be brutally dictatorial, then it would be easy to suggest that alternate rows of communities be quickly demolished and moved elsewhere. Luckily, that sort of a solution would go heavily against the principles under which this thesis has operated, and, *inter alia*, violently against the principles under which the real camp management at Jimmi Bagbo camp operates.

The problem is not just that the compactness and density of the communities has left no space to expand – it has also left very little room to try and rearrange things, or manipulate the existing order. Although there was no information received about exact numbers, the general impression received was that the population in Jimmi Bagbo camp was to a certain degree less dynamic than the population of Largo camp, in that there was less changing of addresses into different communities, and fewer people leaving the camp in early voluntary repatriation. In all likelihood, if there is any change of shelters within the camp, it would be again people moving away from the periphery towards the centre, i.e. towards the most crowded parts of the camp, and contributing further to the densification. But without even a small amount of turnover in the plots and communities, the planner's options are even more limited. Therefore, some of the proposals below, will be concerned with just trying to create this sort of 'wiggle room' in order that other strategies can have space to emerge.

Proposal No. 1: Densify in order to de-densify. It was asserted earlier, that a large portion of the 30% unused land in Jimmi Bagbo camp was in fact unusable, due to gradient, soil type or water levels. But that does not mean that all of the 30% falls into that category. There are in fact some swathes of land within the camp which currently lie unused, or underused, but with no good reason for their staying that way. Therefore, if there is going to be a strategy of voluntary de-densification applied to certain central parts of the camp, then the people who do voluntarily de-densify their community, must at the very least have another community to move into: some more land in the camp must be set aside for shelter movement.

At this point, it would be the obvious thing to point out that one of the sources of already open and prepared community land, is in the peripheral communities at the northern edge of Phase 4, and the western sides of Phases 2 and 3. However, from the refugees' perspective, these areas have proved to be less than attractive, for reasons of sociability, economics and personal security: if anything, people are moving away from these areas.

But, there are other parcels of land which could conceivably be used, with a minimum of preparation or clearing, or community negotiation. One such area would be the football pitch lying between Phases 2 and 4. During the one afternoon that I spent near it, there were no games being played there, despite the change in shifts in the local school during that period. At present, almost all those who set foot on the pitch do so to walk along the footpath that has developed through the middle of the pitch, going from the market to the north-eastern corner of Phase 2. In any case, there is now also another football pitch located at the eastern edge of Phase 3. Although I visited the camps before the full onset of the rainy season, the football pitch seemed to be dry, and above the levels of the swampland, and was flat, and free of brush. The size of the football pitch could accommodate three or four new 12-shelter communities, or the equivalent of more than one sixth of the total communities in Phase 1.

The re-use of the football field as an expansion zone for new communities has other points of attraction. It has no visible lien over it from any existing community, and yet in a manner of speaking, it is in prime land. It is between two Phases, and therefore does not have the problem of peripherality. It is also close to the market and at least one of the churches, and it straddles a major pathway, and would therefore provide opportunity for the establishment of small trade stalls. These attractions would hopefully make themselves evident to those who were in fact seeking to relocate because their previous shelters were bursting at the seams. Because the movements to the new communities would be done on a voluntary basis, the process would possibly take a certain length of time, but forced movement would cause too much damage. And if upon further examination by land engineers proved that the football field was on too low ground during the rainy season, then similar infills of communities could be substituted in the area along the road above the official market, near the Y.C. building and the church in the south-west of Phase 2.

Proposal No. 2 : Hold onto the gaps. If and when households do leave plots, though, it would be important not to let others from outside the community move right in. A level of one or two empty plots per community would probably do minimal harm to the social or physical fabric of the whole, and so a gentle, consultative programme of appropriation of vacated plots should be instituted. However, initially at least, the temptation must be resisted to then quickly find another productive use for that plot. The inhabitants of Jimmi Bagbo camp have shown themselves to be quick and skilled at building robust structures for trade stalls, weaving looms, chicken coops, and other manner of functions. But though the building of these structures do not contribute to population densification, they do nullify the possibility of creating some form of occasional firebreak.



A latrine alley in Phase 1. *Image: Kennedy*

In reality, the gaps would probably be first needed for new latrine holes, once the holes currently situated in the back alleys fill up. And in fact if the latrines were placed in the centre of a shelter plot, they would be further away from the nearest shelter than they are now, back in the alleys. However, the primary aim for the empty plots, would be to just hold onto them until it was necessary to expand the other shelters into the space, to provide minimum shelter/sleeping space for inner-community populations growths.

Proposal No. 3 : Draw in the periphery. Despite the overcrowding in other parts of the camp, the peripheral areas mentioned above in Phases 2, 3 and 4 are actually under-inhabited. If one does continue to assume that the camp will keep in existence, and keep on expanding into an indefinite future, then there would come a day when there would need to be further expansion once more at the periphery, but that would only be hampered by having half-inhabited communities with reputations for attracting social problems in the places where the new expansions would need to go.

It would be better to have a smaller number of complete (but not overcrowded) communities and then some land left over, rather than having a larger number of communities, some of which had chronic problems stabilising. There has been a natural tendency for people in the peripheral communities to move towards the centre (and most likely, as close to the centre as possible), whenever the opportunity arises. However, with a programme of appropriation of vacant lots such as the one described in Proposal No. 2 in place, those who would wish to move into the very centre, towards Phases 1 and 2, would find it less easy to do so. On the other hand, if Proposal No. 1 was also in place, then there would be a means for those at the western edges of Phases 2 and 3 to move to the new communities on the eastern side of the same Phases, which would also bolster stability in the original, 'old' communities in the eastern half of those two Phases as well. The decommissioned communities at the west of those Phases could then be turned over to a positive set of environmental rehabilitation projects until the time when further expansion could become necessary again.

## PART FIVE – CONCLUSION

It might seem trite at this point to begin the conclusion part of this thesis simply by repeating a point which has been made persuasively and at length over the years by authors like Davis<sup>117</sup>, Goovaerts<sup>118</sup> and Zetter<sup>119</sup>, that:

- There is no *universal* solution for the construction of an optimum refugee camp, and no *universal* solution for refugee situations.

Each refugee situation, and each refugee camp which is constructed as part of a programme to aid that situation, is unique. There are obviously lessons that can be learned from past experience, and from various academic disciplines, and if that was not the case then this thesis would have no purpose. But at the same time it must be acknowledged that the conducting of, and implementation of research into the construction of refugee camps is by definition an endless cycle, forever having to be reactive to new, unique refugee situations, until such time as the people of the world decide that there should be no more situations which lead to human beings becoming refugees. The results of any study of the construction of refugee camps will most likely lose greater amounts of relevance as the readers recede further from the specific situation that gave rise to the study. It is a risk, that any study of refugee camp design may have most relevance to the past.

To this, I would also like to add a further point, that

- There is no *universal* criteria by which the construction of a refugee camp may be judged.

I started this thesis by volunteering a personal definition of ‘rationalisation’ which I then modified to the less compact term of ‘expanded rationalisation’, and proposed this as a lens through which to make a brief, provisional overview of a very large problem. However, I cheerfully confess that this is ultimately the insistence of a position, rather than its objective proof: there is no fulcrum which exists outside the universe with which to swing the world of refugee camp construction into better light. One’s viewpoint upon refugees, the existence of refugee camps, the ultimate aims of refugee camps, and the means for attaining those aims will always be open for debate.

On the other hand, it is my hope that throughout this thesis, explicitly and implicitly, I have given more than hints that any other attempts to create a universal, objective criteria for judging the construction of refugee camps, or indeed attempts to create a universal, objective criteria for judging ‘rationalisation’, may start to spring leaks at a very early point in the examination.

But, the conclusion to this thesis should not end on a note so infused with pessimism. If the values and methods surrounding the study of refugee camp design will always be open to debate, then let the debate be constant. There will never be, for any theory, a moment of

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<sup>117</sup> Davis, I. *Shelter After Disaster*

<sup>118</sup> Goovaerts *personal communication*

<sup>119</sup> Zetter “Overview of Shelter Provision”

triumphal ‘checkmate’, but that does not mean that the debate should not be engaged in as rigorously as possible, if only for the reason that some day the results may actually give some help to some of the most vulnerable people in the world.

In the meantime, it is the rules of engagement of that debate which need as much intense scrutiny as the product of the debate itself. Very often, models for the construction of refugee camps have gone wrong not only because their aims were misguided, but because the text and graphic tools which they used to frame their ideas were at fault. In particular, a move needs to be made away from the use of the sort of vocabulary which does not admit of other possibilities to its own assertions. Terminology which reduces words like ‘responsibility’ and ‘control’ to monodimensional concepts represented by single percentage figures, should be replaced by more nuanced terms, which take better account of the sheer complexity of living amongst a large group of people.

That is not to say that there is no place for the concrete statistical analysis of the more traditional approaches to the study of rationalisation of construction. I hope that I have shown throughout Parts 2, 3 and 4, that the application of numerical analysis of costs, often as the first step in considering a problem, is invaluable as an integrated part of the full toolbox of techniques which must be applied to this subject.

However, it is also worth repeating myself at this point, in my assertion that in order to consider the full costs and benefits of any model for construction of a refugee camp, a sliding scale of indicators must be applied, which starts with, or even before, the construction process, but which stretches as far as possible into the future, and as wide as possible beyond the front gates of the camp. This sliding scale must not only include analyses of elements of construction which can be calculated to atomic precision, but must slide along to include elements which show varying degrees of engageability through statistical means, but which carry the greater weight of consideration due to their temporal longevity and geographical breadth.

A second point that has been made elsewhere but which also deserves to be repeated here, is that, ‘research literature of the shelter sector is... less well documented, it lacks coherence and it is widely diffused.’<sup>120</sup> – a point which I have felt acutely during the preparation of this thesis. If there is no universal solution to the problems of refugee camp design, then maybe the best that can be done is to attune the tools of observation and debate. And as using these tools on purely theoretical models is of limited or supplementary use, then the best possible subject will be case studies of refugee camps themselves.

At the moment, there is only a limited number of documents upon the construction of refugee camps, and only a fraction of those include any reference to actual situations observed in real camps. However, it is from this analysis that the real results of certain layout models, to the extent that they have been adopted or adapted, can be judged. Furthermore, at the moment, whatever the qualities of any one paper, article or book, their significance is often diminished by lack of easily availability. Therefore, as a last point in this conclusion, I would like to propose that as well as attuning the tools of analysis and debate, and focusing the greater part of research on practical case studies, the field of research into the construction of refugee camps would most

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<sup>120</sup> Zetter “An Overview of Shelter Provision” p. 1

benefit from the establishment of some form of open database, for the efficient dissemination of these documents.

There are at the moment a number of expanding databases which deal with refugee studies in general, which can be used as examples. Praise should be offered in particular to UNHCR's digitalising of their documentation<sup>121</sup>, to similar moves made by publications like Forced Migration Review to put their back catalogue on-line<sup>122</sup>, and to Shelterproject.org's digitalised library of research papers and texts<sup>123</sup>, and particularly their insistence that it remain always 'freeware' and openly accessible.

But if a database were to be created solely for research on the subject of the construction of refugee camps, the majority of which would be composed of case studies, then there would also need to be a discussion of the parameters by which such a database could be catalogued. The UNHCR and Forced Migration Review web-sites listed here, do word-recognition title searches, and the Shelterproject.org lists its library documents by subject ("policy", "technical research", etc), but something more detailed, or more fine-toothed might be needed. The paper library at the Refugee Studies Centre at Oxford University gets closer to the idea, by adapting a decimal system to sort first by country, and then by subject, but this would also have to be adapted.

A more promising starting point would be to codify the case studies by the major conditions which define the situation. Parameters could include one set of 'background/cause' components, and another set of 'response' components. For the 'background' components, the primary category might be one which defines the type of reaction from the host government (for that would decide much about what land was given for the camp in the first place, and what say the refugees could then have in their own fates), and then followed by categories defining general climatic and geological conditions of the camp, the predominant family groupings of the refugees, and so on. The 'response' set, could begin with categories defining the physical infrastructure of the camp, then the political structure, and then the road pattern, and then the shelter module type.

The whole point is that these lists of parameters too are up to debate and further examination. But it too must be a debate which manages to mix the theoretical with the practical, and the concludable with the hypothetical. For this, as for the field of study as a whole, it is the inclusion of the irrational which makes the whole process move towards 'rationalisation', as widely and as lengthily as possible.

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<sup>121</sup> <http://www.unhcr.ch/cgi-bin/texis/vtx/publ>

<sup>122</sup> <http://www.fmreview.org/mags1.htm> and <http://fmo.qeh.ox.ac.uk/fmo/index.asp>

<sup>123</sup> <http://fmo.qeh.ox.ac.uk/fmo/index.asp>

## BIBLIOGRAPHY

### Books

Agamben, Giorgio

*Homo Sacer: Sovereign Power and Bare Life*

Stanford University Press Stanford 1998

Horacio Caminos & Reinhard Goethert

*Urbanisation Primer*

Cambridge, MA MIT Press, 1978

Correa, Charles

*The New Landscape*

The Book Society of India, Bombay, 1985

Corsellis, Tom & Vitale, Antonella

*Transitional Settlement Displaced Populations*

Shelterproject.org (trial edition) 2004

Cuny, Fred

*Refugee Camps and Camp Planning*

Base Studies, Reports 1, 2 and 3

Intertext, Dallas, 1972

Cuny, Fred

*Relief Operations Guidebook: housing section III*

Intertext, Dallas, 1975

Cuny, Fred

*Physical Planning for Emergency-affected Communities*

Unpublished draft manual, Disaster Management Centre, 199-

Cuny, Fred, Davis, Ian, Krimgold, Frederick

*Issues and Problems In The Provision Of Shelter And Housing*

ARTIC 1978

Davis, Ian

*Shelter After Disaster*

Oxford Oxford Polytechnic Press 1978

Davis, J and Lambert, R

*Engineering in Emergencies: A Practical Guide for Relief Workers*

RedR/IT Publications. London 1995

Fellessen, Måns

*Prolonged Exile in Relative Isolation: long-term consequences of contrasting refugee policies in Tanzania*

Uppsala University Library Uppsala 2003

Goethert, Reinhard and Hamdi, Nabeel  
*Refugee Camps. A Primer for Rapid Site Planning, Land Shelter, Infrastructure, Services*  
Draft manual prepared for UNHCR Geneva 1988

Grizold, Anton  
*The National Security System In The Newly Established Slovenian State: solving the refugee problem in Slovenia*  
Koninklijk Hoger Instituut voor Defensie Brussel 1993

Haines, Kitty  
*From Refugee Camp To City*  
Unpublished master's thesis, KU Leuven PGCHS 1999

Hakovirta, Harto  
*Third World Conflicts and Refugeeism: dimensions, dynamics and trends of the world refugee problem*  
Societas Scientiarum Fennica Helsinki Helsinki 1986

Loescher, Gil  
*The UNHCR and World Politics: A Perilous Path*  
Oxford University Press Oxford 2001

Loescher and Monahan (eds.)  
*Refugees and International Relations*  
Clarendon Press Oxford 1990

Newman, Oscar  
*Defensible Space*  
Macmillan Company New York 1972

OAU (Organisation for African Unity)  
*OAU/UNHCR commemorative symposium for refugees and the problems of forced population displacements in Africa, Addis Abbaba 8-10 Sept. 1994*

Sphere Project  
*Humanitarian Charter and Minimum Standards in Disaster Response*  
The Sphere Project Geneva 2004

UNHCR  
*Environmental Guidelines*  
UNHCR Geneva 1996

UNHCR  
*Handbook for Emergencies*  
UNHCR Geneva 2000

## Articles

Carnegie Mellon University

“Emergency Habitat: The Problem & Its Context Competition”

Carnegie Mellon University Pittsburgh 1975

Cuny, Fred

“Refugee Camps and Planning: The State of the Art”

*Disasters* 1:2 pp 125-143

Denes, Melissa

“A Kind of Home”

*The Guardian* Dec. 13<sup>th</sup>, 2003

Fardanesh, Ghassem

Concept and Approach Towards Establishment of a camp in Boubele, Tabou County”

UNHCR Document Geneva 2003

Fardanesh, Ghassem & Walker, Bryan

“Dignified village life for the displaced”

*Forced Migration Review* 12:1 p. 22-24

Gordon, Alastair

“Designing for the Dispossessed”

*New York Times* 28 August 2003.

Goethert, Reinhard & Hamdi, Nabeel

“Rapid Site Planning And Refugee Camps: Deciding on Methodology”

MIT Cambridge MA, 1989

Hardin, D. Kent

“Summary Sheet to Physical Planning”

Refugee Study Centre grey literature Oxford 1985

Immers, B H and Malipaard, E J

“Transportation In Emergency Settlements”

*Proceedings of the Workshop Settlements and Disasters, Amsterdam, June 27 – July 1 1988*

ed. Van Landerwijk, J and Shordt, K,

Disaster & Emergency Reference Center, Delft 1989

Malloch Brown, Mark

“The Refugee Camp: Solution or Problem”

*Forced Out: The Agony of the Refugee in Our Time*

ed. Kismaric, Carole; Shawcross, William; Malloch Brown, Mark

London Penguin Books 1989

Muller, M S

“Community Participation and Settlement Development”, in

*Proceedings of the Workshop Settlements and Disasters, Amsterdam, June 27 – July 1 1988*  
ed. Van Landerwijk, J and Shordt, K,  
Disaster & Emergency Reference Center, Delft 1989

Setchell, Charles

“Thinking Outside the Tent: New Directions for Shelter Sector Activities”

Paper given for Second Session of the ShelterProject and Sphere Project Shelter Sector Peer Review Groups, Geneva, Switzerland, 3 October 2002.

UNHCR

“Practising and Promoting Sound Environmental Management in Refugee/Returnee Operations”

Papers presented at an International Workshop ,Geneva 22-25 October 2001

UNHCR

“Refugee Children: Escape From Persecution And War”

UNHCR Pamphlet Geneva 2004

UNHCR

“Refworld 2003” CD-ROM brochure

UNHCR Geneva 2003

Van der Gaag, Nikki

“Field of Dreams”

*New Internationalist Magazine* September 1996

Zetter, Roger

“An Overview of Shelter Provision and Settlement Policy”

Paper given for the First International Workshop on Improved Shelter Response and Environment for Refugees, 29-30 June, 1 July 1993 Geneva

### Web Links

<http://www.acdi-cida.gc.ca/xpress/dex/dex9505.htm>

<http://www.fmreview.org>

<http://www.hrea.org/sitemap.html>

<http://www.humanitarianinfo.org/liberia/mapcentre/satellite/index.asp>

<http://www.msf.org>

<http://www.patternlanguage.com>

<http://www.reliefweb.int>

<http://www.sphereprojects.org>

<http://www.york.ac.uk/inst/ioass>

The above bibliography was supplemented by interviews, briefings and e-mail exchanges with the following people, all conducted during May and June 2004:

Musa Abiriga, Country Representative, UNHCR, Freetown

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