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## **Towards Self-Reliant Development Inhabitant Housing Capacity Gap of Rural Inhabitants on Mt. Elgon**

Smits, Michiel

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# Chapter 35

## Towards Self-Reliant Development: Inhabitant Housing Capacity Gap of Rural Inhabitants on Mt. Elgon



Michaël Willem Maria Smits

**Abstract** Rural communities in developing countries show a socially inclusive, resilient, and self-reliant model for their housing, despite the lack of individual capacities. However, due to scarce opportunities, many people move to the cities, often returning to challenging living conditions. As a result, both urban and rural inhabitants struggle to reach the desired living standards and well-being. This article explores general capacities of rural inhabitants in Kenya and identifies what shortages prevent inhabitant well-being within their housing. Outcomes of the interviews performed on two hundred families (four communities) evaluate whether the different communities still build housing by themselves, if they would like to continue this ‘self-reliant model’, or would prefer professionals to realize their housing. The conclusion indicates that inhabitants would prefer to build housing by themselves and exposes why these communities change to ‘external’, housing solutions. Housing alternatives which lie within their capacities, play a crucial role in sustaining the communities’ self-reliance in relation to their housing.

**Keywords** Self-reliance · Inhabitant capacities · Inhabitant-led development

### 35.1 Introduction

Existing informal rural (vernacular) architecture offers a flexible model based on locally available (renewable) materials and building methods. This model often evolved over centuries, passed down to every new generation. Due to the nature and character of the vernacular archetype, extensive maintenance is often needed. Even though the maintenance is considered inconvenient, the continuity allows the

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M. W. M. Smits (✉)

Faculty of Architecture and the Built Environment, Delft University of Technology, Delft, The Netherlands

e-mail: [m.w.m.smits@tudelft.nl](mailto:m.w.m.smits@tudelft.nl)

community to practice its execution. This makes them highly resilient towards change (Nel and Binns 2000). The circular sustainable model is still widely used among many rural African communities. Rural communities have been trying to improve the living quality, however the change introduced industrialized materials and construction methodologies. In practice, this means, despite that durability and maintenance have improved, the process created significant external dependency in material, construction and skills (labor). Causing unsustainable, non-circular and climatic undesirable solutions. What is equally important, it diminishes the community's self-reliance<sup>1</sup> towards their built environment (Smits 2014). The reasons are manifold for rural inhabitants to improve the quality of the existing vernacular housing. In most cases they are restricted to only use local, natural materials and traditional construction methods.

In an effort to change the existing housing model, they now often use materials and techniques that lay outside the inhabitants' knowledge sphere. If these communities are to continue the self-reliant housing model, they need a way to upgrade it (extend durability, lower maintenance) without damaging its qualities: self-building practice, climatic orientation, and renewable materials. To sustain both self-reliance and house qualities it is vital to evaluate inhabitant capacities<sup>2</sup> and use them in decision-making (Smits 2017). However, inhabitant capacities often seem to contradict the ones necessary to build their desired house. Inhabitants are aware of the housing they would like, however, lack the capacities (materials, knowledge, skills and finance) to build the house by themselves. Therefore, this study investigates the conditions in which inhabitants are living in right now and how they would prefer to live. The rural area of Mt. Elgon proves a representative study area<sup>3</sup> in which communities with various levels of 'capacities' can be found. This explores general capacities of rural inhabitants and helps identifying what shortages are preventing them from improving their housing.

For this purpose, over two hundred families participated in a survey conducted in February 2017. Due to the sensitive context of the survey a questionnaire was combined within an interview. Here the interviewer had the opportunity to answer any questions and explain the interviewee's privacy rights (informed form). To have a representative sample of the Mt. Elgon area, four communities with different levels of income, housing and ownership were targeted. To have a representative sample per community (around 50% of the population) communities were targeted of approximately 100–120 households. Moreover, did one male and one female researcher investigate every community, sampling 25 females and 25 males from various households.

This article focusses on the type of housing most of the rural inhabitants of Mt. Elgon live in right now, the housing type they desire, and what their capacities are. This will help expose the discrepancies between the capacities inhabitants have

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<sup>1</sup>Self-reliance: to which extent a person or family can rely on their own capacities.

<sup>2</sup>Capacities: collection of all available resources, tools, knowledge and skills.

<sup>3</sup>Representative study area: the level of 'development' in the area is representative for many others.

and those they desire. This article will elaborate the executed study on Mt. Elgon in four steps. Firstly, explaining the context of Mt. Elgon and relevance of the targeted communities. Secondly, describing the methodology and consecutive execution of the study in February 2017. Thirdly, elaborating the most important outcomes of the study. Fourthly, describing the conclusions and restrictions to the study. This article will conclude the importance of assessing and incorporating inhabitant capacities towards their housing, which the author coined: “capacity informed decision-making”. As this article will show, the communities in the Mt. Elgon area have a shared notion of their desired housing. This shared image is studied in detail, including: housing size and materialization. However, almost half of all the participants of the presented study estimate that they won’t be able to afford desired housing, resulting in a large part of the population remaining in challenging conditions: 75% of the studied communities live in mud-based houses. Indicating a need for alternative housing solution(s) for a large part of the community.

## 35.2 Mt. Elgon Area & Targeted Communities

Over 70% of the built housing worldwide, is built informally and often by the inhabitants themselves (UN-Habitat 2013). South Asia and Sub-Saharan Africa will have one of the most significant shifts from rural to urban in the upcoming decades (UN-Habitat 2015). This shift has posed a great threat to the wellbeing of vulnerable families in the past and predict huge problems ahead. In Africa, projections are that over half of the urban population (61.7%) lives in slums and by 2050, Africa’s urban dwellers are projected to have increased from 400 million to 1.2 billion (UN-Habitat 2015; United Nations 2012). It is needless to say that it will be vital to understand one of the largest contributors to this urbanization, namely: rural-urban migration (Tacoli et al. 2014). Therefore, this article studies the current living situation of rural inhabitants on Sub-Saharan Africa as it contributes to the fastest urbanizing area on the continent. With 20–25% of the countries’ population urbanizing in the next 20–30 years (World Bank 2016) Kenya proves to be representative case.

In particular West Kenya has a large number of growing cities Kisumu, Eldoret, and Nakuru (World Bank 2016), also called the ‘western hub’. In the left image of Fig. 35.1 this urbanization is projected. Here, Mt. Elgon is one of the rural areas that potentially hold rural-urban migrants.

In this area four communities were sought to analyze their current and desired housing. Considering the available resources for this study, a total of 200 inhabitants could be interviewed. Based on this scope several criteria were chosen to identify the communities: firstly, to have a representative sample, at least 40–50% (Thompson 2012) of each population had to be included in the study. Therefore, four communities of around 100–120 families were sought in Mt. Elgon area. Secondly, to prevent a subjective representation, communities with variable levels of income were selected (only selecting poor communities would support the claim that



**Fig. 35.1** (Left to right): urbanization index (World Bank 2016), location of Mt. Elgon in Western Kenya and location of selected communities. (Source: Google Maps)

capacities do not meet the desired housing). The communities on the North-eastern slope of Mt. Elgon have varied levels of income (areal employers include: Mt. Elgon Orchards, ADC Japata and ADC Suam), good schooling, and healthcare. Thirdly, a mixture of housing quality had to be identified. It was crucial to show that the mismatch between capacities and desired housing is found amongst different levels of income and quality of housing.

Four researchers from Nairobi University and a local social worker deliberated with the village elder and areal chief for suitable communities in the Northeast area of Mount Elgon. Here, 12 rural communities were evaluated according to previously mentioned criteria. The considered communities were (estimated inhabitants): Chepchoina (70), Cherubai (200), Habitat (94), Japata (90), Kaisheber (150), Kaptega (50), Koronga (550), Nabeki (420), Njoro (300), Sokomoko (100), Vamia (150) and Wangu (30). Finally, four communities in proximity to each other were selected and grouped:

1. No/low income, doesn't own plot, mainly renting/self-build houses
2. Low/regular income, doesn't own plot, mainly/self-build renting houses
3. Low/regular income, owns plot, mainly self-build houses
4. Regular/high income, owns plot, mainly commercially build house.

The Japata settlement near Kaptega river was selected as group 1 (Fig. 35.2: red marker). This community of approximately 70 households, was allowed to temporarily settle themselves as farm workers and since independence (1963) have been living there. They do not own the plot they live on, are not allowed to build permanently, and have low/non-existent incomes.

Chepchoina village was selected as group 2 (Fig. 35.2: green marker). This community of approximately 110 households lives around the Chepchoina village market. The plot is privately owned; most of its residents rent a house in this area. The families have a mixed income and often combine small business with farming,



**Fig. 35.2** Map of the selected communities on Mt. Elgon. (Source: Google Maps)

generating a low/regular income. This community has its own marketplace and bus stop, which influences landownership.

Vamia was selected as group 3 (Fig. 35.2: blue marker) consisting of approximately 120 households. The plot belongs to the inhabitants and they mainly have a regular income combining a commercial position with farming their lands. The Habitat community was selected as group 4 (Fig. 35.2: orange marker), consisting of 94 households owning their plots. The majority works fulltime for a commercial farm and have a regular/high income.

With the four communities selected, the next section will elaborate on the methodology used to interview the communities and consecutive questionnaire.

### 35.3 Survey, Mixed Methodology: Interview & Questionnaire

Studying inhabitant capacities in relation to their housing, involves both quantitative and qualitative aspects. Quantitative capacities consider measurable aspects such as: income, size of family, ages, etc. Where, qualitative capacities consider why and how they live at the moment, moreover, understanding their housing preferences. For this purpose, a mixed method was used, where both questionnaire and structured interview are performed in a survey framework (Creswell 2013; Fowler 2013). The questionnaire was used to register quantifiable answers, closed questions and later on to compare the 200 outcomes. The structured interview was used to address open questions and help to understand motives. A structured interview is chosen to ensure that the interviews follow the exact same procedure. The questionnaire supports the structured interview to ask the same questions in the same order amongst all 200 participants of the survey.

### 35.3.1 *Interview Context*

The survey was performed in a vulnerable environment where many of the participants have difficulties to sustain a living (below international poverty line: \$1.90 p.p.d.). Moreover, many participants live in a traditional house and traditional relation between man and woman. Therefore, it was essential to take preliminary precautions. As the community elder, chief, and local social workers were already involved, they were also aware of the survey and informed the communities. To get a balanced perspective all households, 100 surveys were conducted with women and 100 surveys with men. To prevent social/cultural dilemmas two female and two male researchers were hired. Sophie E. Kibuywa, is head of a local organization (Desece: development education services for community empowerment) and has decades of experiences in conducting local researches. She recruited the researchers and instructed them for the survey. Evaluating the experiences within the four selected researchers Pauline was appointed as team leader (she was the most experienced) (Fig. 35.3).

During the survey, the researchers were staying separately (men/women) in the middle of the targeted communities. Two communities were next to their place of residence and two communities were in a short travelling distance (max. 5 min on motorbike). There was an office arranged at the local hospital where they were able to work.

### 35.3.2 *Interview Instruction & Guide*

To prevent any inconsistencies in executing the surveys, a questionnaire instruction sheet was prepared for the researchers. The instruction explains step by step how the survey should be performed and what the points of attention are. It starts by explaining the context, in which the survey is positioned, gives the objective and aim, continues by introducing the composition (targeted age and such), and explains



**Fig. 35.3** (left-right): B. Sawenja, K. Humphrey, S. Kibuywa, P. Nabalayo and A. Nyangugu. (Source: Author)



the practicalities of the questionnaire: location, recruitment of the participants, picture/audio recording, venue, breaks and ethical issues. Ensuring that the surveys were taken in a safe environment, with the participants of appropriate age and gender and not invading the privacy of the participant. The interview guide has a similar purpose to the instruction. However, it gives the exact questions that need to be addressed during the interview. The guide was written according to the advised structure of an interview guide by: *Qualitative Research Methods* (Hennink et al. 2010). It starts by introducing the research purpose and explains the attached consent-form (see attachment). The researchers are asked to read the consent form and answer any questions of the participant. When all of them are answered the interview can be conducted. The questions are divided in three sections: general information, questions about current house, and questions about the desired house.

- Section 1: The general information questions are closed quantitative questions that are relatively easy and comfortable to answer. Questions are meant to evaluate: family size, occupations, ages, financial capacities, and landownership. The answers will help understanding the extent to which these capacities enabled the current and desired type of housing.
- Section 2: The questions on current habitation aim to understand the house people live in. The questions emphasize ownership, amount of structures, house size, in/outdoor functions, used materials, self-build practice, help by community members, satisfaction, maintenance, and the reasons for not realizing desired housing.
- Section 3: Questions in this section focus on the participants' desired housing. The closing questions in this section emphasize if they would be able to afford<sup>4</sup> the desired house based on their existing capacities. Moreover, if they would prefer to build the house by themselves, supported by their community.

The questionnaire was available via Google-sheet, accessible by smartphone (all researchers had one). All interviewers had a printed version of the questionnaire, interview guide and instruction with them.

### 35.3.3 *Pilot & Adjustments*

On the 30th of January 2017, the first pilot was run amongst the researchers. Here the team was requested to test the survey (using the printed English questionnaire, making audio recording and pictures) amongst each other. The team concluded that there was a necessity of translating the questionnaire to Swahili as it was too difficult to do this simultaneously during the interview. The cross-cultural survey guidelines of Mohler et al. (2010), also called The Team Translation Model Procedures (TRAPD) provide with an appropriate team translation model that suited the

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<sup>4</sup>Afford: to what extent the capacities enable or disable a realization.



**Fig. 35.4** (top to bottom): samples of the Japata ADC & Habitat community. (Source: Author)

requirements of this study. The group of researchers was divided in two teams and separately made their translation. In the review session they compared their translations, discussed the differences and made a concept translation. The results were reviewed by Sophie E. Kibuywa and returned to the team. They had a second adjustment session where they debated the review and made a final translation.

### **35.3.4 Executing the Survey**

The survey started with one research team in the Japata ADC and one in the Habitat community. Every time locating one household that had a mother present and another that had a father present. According to the set target, every team conducted between 8 and 10 interviews per day. The researchers used the physical print to write down the answers of the participants and their phones to make the audio recordings. After each survey, the researchers took a picture of the participants. Afterwards they were given 1 kg of sugar per household as compensation. At the end of the week the researchers used 3 days to digitalize the 100 answer sheets and upload the pictures and audio recordings (Fig. 35.4).

On February 16th, the survey continued in the Vamia and Chepchoina communities, following the same procedures as the Japata ADC and Habitat community. The research teams were able to finish the second round of 100 surveys by February 24th (Fig. 35.5).

## **35.4 Outcomes Survey**

In the following sections the outcomes of the survey are compared between the four communities. In each consecutive part of the questionnaire the most important findings are shown and explained.



Fig. 35.5 (top to bottom): samples of the Vamia & the Chepchoina community (Source: Author)

**Table 35.1** Shared income, Income stability & family size

5. How much is your shared income?				
	Japata	Chepchoina		
<1000	0,0%	4,7%		
1000–2499	9,1%	4,7%		
2500–4999	20,5%	9,3%		
5000–7499	40,9%	16,3%		
7500–9999	13,6%	16,3%		
10,000–24,999	15,9%	37,2%		
25,000–49,999	0,0%	9,3%		
50,000–99,999	0,0%	2,3%		
100,000–500,000	0,0%	0,0%		
6. Is this stable or does it fluctuate?				
	Japata	Chepchoina	Vamia	Habitat
Stable	18,4%	28,9%	19,5%	64,2%
Fluctuates	81,6%	71,1%	80,5%	35,8%
8. Number of children				
	Japata	Chepchoina	Vamia	Habitat
0–3 years	42,9%	69,4%	36,6%	32,1%
4–7 years	38,8%	22,4%	43,9%	58,5%
8–11 years	18,4%	8,2%	17,1%	3,8%
12+ years	0,0%	0,0%	2,4%	5,7%

### 35.4.1 General Information Questions

Table 35.1 projects shared income, income stability and the family size, between the four communities. Although the Habitat and Chepchoina community have a higher average income, the majority of inhabitants (>50%) earns up to 25,000 KsH (roughly \$250) per month. Considering that the majority of the community has between 0 and 7 children this leaves the households with \$4 per person per day (2-person household), \$1,6 in a five-person household and worst-case \$0,8 in a nine-person household. With income fluctuating in at least 70% of the households in three

**Table 35.2** Questions on: farmland, ownership and the contribution to livelihood

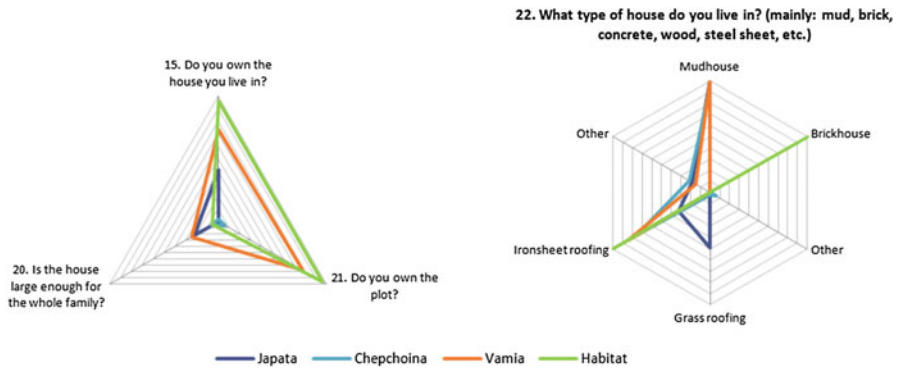
12. Do you have farmland (shamba)?				
	Japata	Chepchoina	Vamia	Habitat
Yes	38,8%	54,2%	80,5%	94,3%
No	61,2%	45,8%	19,5%	5,7%
13. Do you own this farmland?				
	Japata	Chepchoina	Vamia	Habitat
Yes	0,0%	34,7%	70,7%	84,9%
No, companyland	79,6%	0,0%	0,0%	1,9%
Unknown	20,4%	22,4%	17,1%	1,9%
Familyland	0,0%	12,2%	9,8%	7,5%
No	0,0%	24,5%	0,0%	3,8%
Rented	0,0%	6,1%	2,4%	0,0%
14. Does it generate income?				
	Japata	Chepchoina	Vamia	Habitat
Yes: grow crops for family	36,7%	28,6%	63,4%	66,0%
Yes: for family and selling	2,0%	18,4%	14,6%	18,9%
Unknown	59,2%	22,4%	22,0%	1,9%
No	2,0%	30,6%	0,0%	13,2%

out of four communities, questions arise if the families are able to sustain basic life necessities (as they are far under the international poverty line: \$1,90). It is important to state that Japata has a considerably lower average income.

Table 35.2 shows that although most households did not state that they are farmers (<15%) three out of four community has a majority that has a farmland (>50%), which contributes to their daily livelihood. Current capacities in the communities show that some of the households have been able to secure a stable and substantial income. However, the vast majority of the households have a daily budget below the poverty line and the income in most cases fluctuates often. It makes the households highly vulnerable and indicates that making means to an end is difficult. In relation to their built environment that in most cases the financial capacities for materials and labor are marginal. The next section reflects on how these capacities relate to current habitation.

### 35.4.2 Questions on Current Housing

Ownership in the communities differentiates substantially: see Fig. 35.6. The government owns the land on which the Japata community lives, inhabitants are mainly workers of the Japata ADC farm. Japata has an almost equal ownership and renting division. However, as they do not own the land it is questionable to what extent they are allowed to live there. Chepchoina has almost solely renting residents (>95%) and



**Fig. 35.6** Left: house ownership and Land ownership, Size suitability; right: type of current house

therefore the majority has no land rights. The opposite is true for the neighboring Vamia. Here, the majority (>70%) owns both land and house. Despite the differences in all three mentioned communities, the vast majority (>90%) of their households live in mud-based houses. This occurs despite the fact that Chepchoina and Vamia on average have a much higher income than Japata. Even renting does not seem to enable households with an average higher income to live in an 'improved house'. Which can be explained by two factors: availability of brick houses and fluctuations in income. The latter explained by the 70–80% of households in these communities have seasonal/unstable jobs. The Habitat community stands quite the contrary to the other three communities. Here, the land is individually owned, however, via a collective. Considering the height and the stability of their income they are the only community who could afford a brick house.

However, it seems that in none of the communities the current capacities have offered sufficient living space for the whole family (Fig. 35.6). With the majority of the households having between 0 and 7 children in a house between 5,7 and 13,7 square meters this problem can be explained.

In the case of Japata and Vamia the majority of the materials (75–100%) are not bought but collected. The only costs involved are to cover transportation. Table 35.3 shows the large amount of natural materials used in constructing houses, which makes the materials affordable, especially amongst the communities with a low income.

Looking at the self-built practice (Fig. 35.7) especially in Japata and Vamia this influences the maintainability of the house. The opposite happens in the Habitat community where more than 90% is not able to maintain the house by themselves. A more worrying trend seems to be the ability to afford maintenance in case income becomes low or stops altogether. The Japata community actually has the most positive score in this section. Here, over 65% of the households think they will be able to pay for the maintenance on the house, due to the availability of materials.

Although the capacities and living situations differ strongly, they all seem to result in an opinion of dissatisfaction on the house (Fig. 35.8). The Habitat

**Table 35.3** Material cost & availability

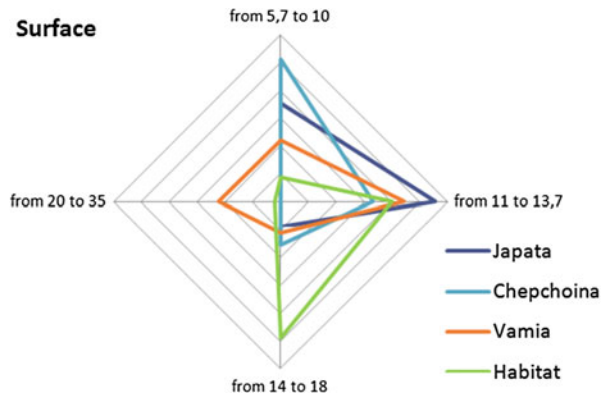
If yes: a. Did you have to pay for the materials or are there other ways of collecting/ acquire these materials

	Japata	Chepchoina	Vamia	Habitat
Pay	14,8%	0,0%	0,0%	100,0%
Free	7,4%	14,3%	0,0%	0,0%
Collected	14,8%	4,8%	0,0%	0,0%
Collected and paid for transportation	63,0%	19,0%	100,0%	0,0%
N/A	0,0%	61,9%	0,0%	0,0%

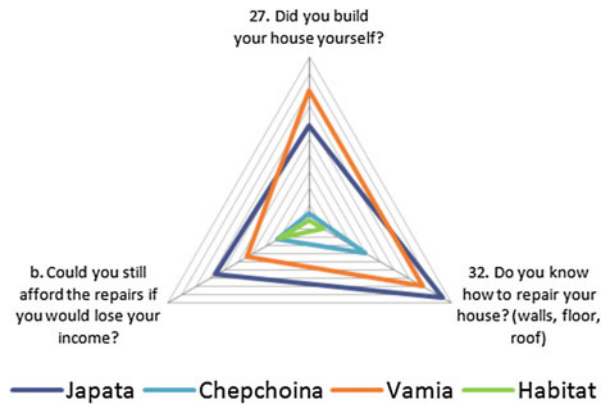
25. Are those materials local natural resources (e.g. mud or straw) or Manufactured (e.g. cement, iron sheet)?

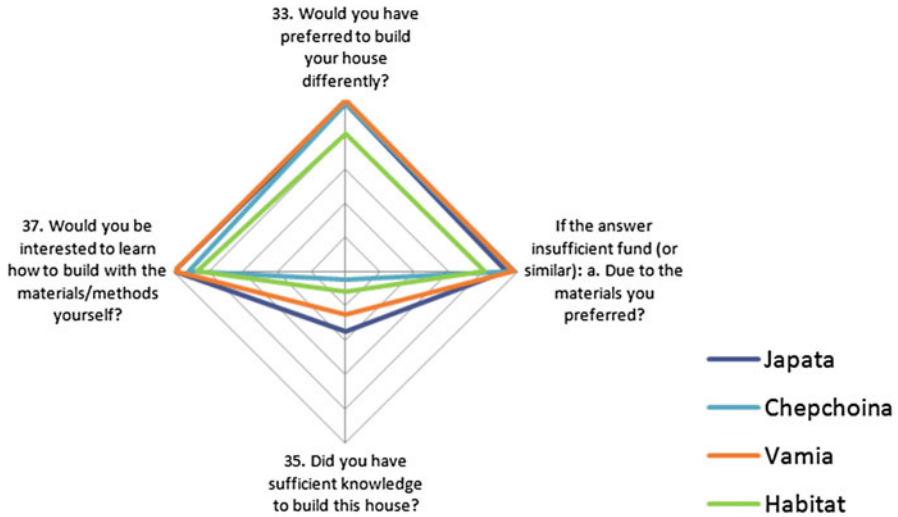
	Japata	Chepchoina	Vamia	Habitat
Natural	100,0%	78,3%	90,0%	0,0%
Industrial	0,0%	21,7%	10,0%	0,0%
Both	0,0%	0,0%	0,0%	100,0%

**Fig. 35.7** Surface of current house



**Fig. 35.8** Self-build practice, repair ability and affordance





**Fig. 35.9** House preference, sufficiency funds, building knowledge and willingness

community shows a little more content with the existing house, however, >80% still prefers to build the house differently. When asked why, the majority answered: due to the lack of funds, which most likely is linked, to the type of materials they would have preferred to build with (>80%). Moreover, when asked if they would know how to build this house by themselves, more than 64% of all respondents do not think they are able to do so (Fig. 35.9).

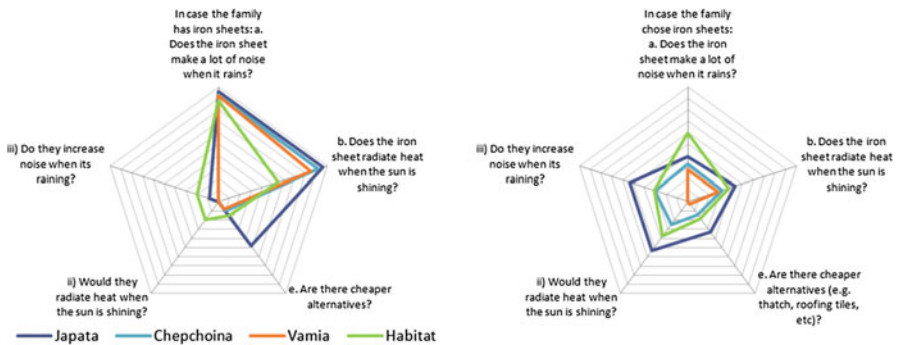
The last question on the existing house inquires if the inhabitants would be interested to learn how to build their desired house. What they most likely do not consider is the knowledge, skill level and training needed to build such a house. Building such a house would actually require extensive professional knowledge, skills and training, such as: mason, steelworker, carpenter, etc. Those types of trainings would either take many years in training or could be learned on the job. Indicating not only a problem in comprehending the needed requirements but also that there is a considerable knowledge, skill and training gap between the currently used and desired building technique. In the last section on the results this topic will be further explored.

### 35.4.3 Questions on Roofing

Based on a previously made observation in the area: the houses built with thatch in comparison to roofing sheets, seem to be cooler during the day and warmer during the evening. When it rains the roofing-sheets produce a lot of noise in comparison to the thatched roof. To better understand if the inhabitants had similar observations and how they reflected on material suitability, a short section was included in the



**Fig. 35.10** (left to right): roofing sheet Chepchoina, thatched roof Vamia. (Source: author)



**Fig. 35.11** Left: opinion about existing roofing sheet; Right: opinion about desired roofing sheet

survey. Figure 35.10 shows the results on the existing house (left image). With the majority of the communities having roofing sheets (Japata >32%, Chepchoina, Famia & Habitat 75–100%) they have sufficient experience to reflect on the effects of the roofing sheet (Fig. 35.11).

Results show that the majority of the households find the roofing sheet radiating heat when the sun is shining (>90%) and makes noise during rains (50–95%), confirming the initial observation made in the communities. Despite these disadvantages the majority still uses roofing sheets. Moreover, does the majority not know any cheaper alternatives (50–90%). The rest of the respondents do point out thatched roof as existing alternative. Respondents admit that those alternatives would react better to sun (50–90%) and rain (80–100%), indicating that there are no cheaper alternatives, however, they have better characteristics than roofing sheets. Which indicates a possible knowledge gap of alternative roofing solutions within the communities.

The same questions were asked after households stated their preferred type of house. Here, between 70 and 90% of the households (Fig. 35.10, right image) answered that they prefer using iron sheet roofing. When asked if the iron sheets made noise during rain or radiate heat when the sun is shining, the answers were



quite the opposite to their current housing. Here, the majority of the households (rain noise: 40–70% & sun radiation: 55–70%) stated that the iron sheets do not have this effect. In the interviews, many households stated that the main reason there are no cheaper alternative is the difficulty they have to find grass locally. Due to this shortage people started to sell grass as a building product. The available ‘free’ grass has to come from such a distance that the transport costs are almost equal to buying roofing sheets. Moreover, in their opinion the grass roofing requires more maintenance and leaks more often. Other reasons for preferring roofing sheets are: fire resistance and insect-proof. It seems that these reasons influence their perspective on the disadvantages of the roofing sheet.

### 35.4.4 Questions on the Desired House

The questions in the third section of the questionnaire focused on desired housing. In the Japata and Chepchoina community respondents would all prefer to own both the house and land. Among all the communities 95–100% of all the households would prefer to own their house and the land they live on (Table 35.4).

When asked which materials they would prefer to build their desired house from (see Fig. 35.12) the majority chose bricks (45–75%) and iron sheets (70–95%). Most households state that the preferred materials are expensive (see Table 35.5).

Figure 35.13 shows that inhabitants prefer to build the house by themselves (75–95%) and if they can’t or won’t build the house themselves that they will need to hire labour (90–100%). Japata and Vamia think that their community would help most of them in building the house (>95%), which in Chepchoina (mainly renting) and Habitat (formed community) is quite the contrary. It could be argued that these communities are differently organised and therefore inhabitants are reluctant to help each other. This, in the Habitat community is strange considering the fact that they own the land communally. What is most worrying, is that three out of four communities will not be able to make house repairs when their income deminishes.

The willingness to learn how to build the desired house is very strong (Fig. 35.13) amongst all households: 95–100%. Indicating that self-build practice is preferred. Although in some communities there are doubts if community members would be

**Table 35.4** Desired house/land ownership

39. Would you prefer to own or to rent the house?				
	Japata	Chepchoina	Vamia	Habitat
Own	98,0%	100,0%	100,0%	100,0%
Rent	2,0%	0,0%	0,0%	0,0%
44. Would you prefer to own or to rent a plot?				
	Japata	Chepchoina	Vamia	Habitat
Own	100,0%	97,9%	100,0%	100,0%
Rent	0,0%	2,1%	0,0%	0,0%

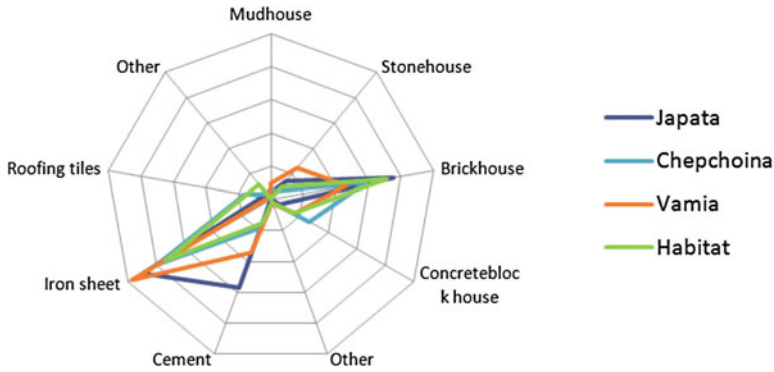


Fig. 35.12 Preferred materials, material costs

Table 35.5 Material costs

47. Are those materials expensive or cheap?				
	Japata	Chepchoina	Vamia	Habitat
Expensive	81,6%	63,0%	87,8%	56,6%
Cheap	18,4%	37,0%	12,2%	43,4%

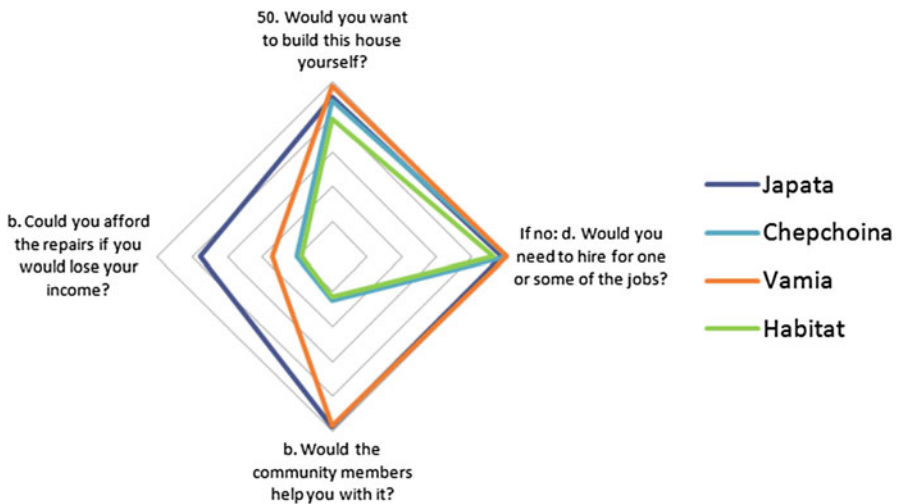
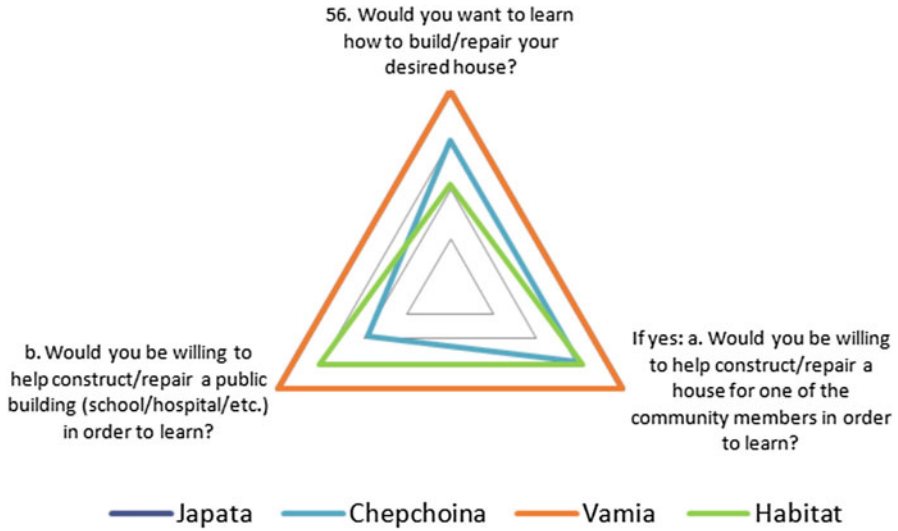


Fig. 35.13 Self-build preference, community help and affordance

willing to help build a new house. However, almost all households are willing to help (95–100%) a community member if they can learn how to build in return, indicating there is a strong willingness to learn by helping each other. What might be even more interesting is that again the vast majority of the households are willing to help constructing public building in order to learn how to build in an ‘improved’ way (Fig. 35.14).



**Fig. 35.14** Repair preference house, help of community members and willingness build community infrastructure

### 35.5 Conclusion

This study proves that the majority of the interviewed households are living in challenging housing conditions. These living conditions are in most cases in mud-based houses often too small for the entire family. Although the households living in these conditions have an idea on their desired housing, they lack the capacities to realize such housing. Landownership is an important restriction for households in achieving better housing. The Japata community lives on government land and is not allowed to build an improved house. The Chepchoina community mainly rents and is therefore very vulnerable to changes in income. The Habitat community has severely restricted land rights and is not allowed to make any extensions/additions. The Vamia community has the most households owning their land and house. With an acceptable and stable income, it is unclear why they were not able to realize desired housing.

The problem seems complex, however, it revolves around two elements: current capacities and the capacities needed to build the desired house. The majority of the interviewed households have more than sufficient capacities to build a house by themselves. This ‘traditional’ way of building is a shared practice within the family and their community. This practise suits all their capacities: local/natural/free materials, local/available tools, financial and required skills. However, it is clear that almost all households desire a different way of housing. Looking at what those preferences would require it is clear there is disparity between the capacities inhabitants have and those they need to realize improved housing. The lack of locally available alternatives in typology, material and building methodology, limit

the scope in which the households consider alternative options. Additionally, is the inhabitants' understanding of materials and skills limited on what possible harm they inflict. Moreover, are possible alternatives difficult to articulate without a substantial knowledge base. This makes the formulation of a possible alternative 'desired' house by the inhabitants themselves difficult. Integrating their current capacities into alternative housing solutions will play a vital role to its success and implementation. As shown in this study, considering alternative solutions that do not meet the inhabitants' capacities is simply not viable. The study proves that there is a high willingness to build by oneself, help each other and help to build community infrastructure. This sense of community could be fundamental in advising rural communities how they can improve their living environment without losing their self-reliance. In a consecutive article the methodology developed for analysing inhabitant capacities will be explained. Furthermore, will show how these capacities can be used in what the author calls: capacity-based decision-making.

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