

# Appropriate Building Materials & Technologies (ABM & T) Programme

Towards Mitigation of Housing Problem in Kenya.



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## Introduction

Since the early times, man has made relentless efforts to obtain food and shelter. The struggle for these basic needs has increased progressively as the human race advances in numbers and cultural diversity. The Universal Declaration of Human Rights of 1948 recognizes the right to adequate housing as an important component of the right to adequate standard of living. This has been further reaffirmed by subsequent various international instruments including the International Covenant on Economic, Social and Cultural Rights of 1966, the Istanbul Declaration and Habitat Agenda of 1996; and the Declaration on Cities and Other Human Settlements in the New Millennium of 2001. In all these instruments, housing is understood in the broader context of the shelter fabric together with the living environment.

Improvement of housing for the Kenyan population is a major concern not only to the Government but to all stakeholders. This concern has been influenced by the fact that the improvement in housing situation is a strategically important social and economic investment. In addition, well-planned housing and

infrastructure of acceptable standards and affordable cost when combined with essential services affords dignity, security and privacy to the individual, the family and the community as a whole. Adequate shelter also prevents social unrest occasioned by depravity and frustrations of people living in slums and informal settlements. Besides this social function, housing is also an investment good contributing both directly and indirectly towards poverty reduction through employment generation, raising of incomes, improved health and increased productivity of the labor force.

The aim of this paper is therefore to critically examine the housing situation in Kenya with a view to develop and enhance intervention measure aimed at alleviating the shelter problem in Kenya and more so in Coast province as well as contribute in poverty alleviation, increase the number of families living in decent affordable housing, so as to meet the necessary requirements of security, health and privacy.

## 1. Shelter Situation Analysis

### 1.0 Basic General Data

Kenya gained independence in 1963 and became a republic in 1964. Kenya is located in East Africa where she borders Somalia to the East, Tanzania to the south, Uganda to the west and Sudan and Ethiopia to the north. Kenya covers an area of 588,648 sq, kilometres. The population size for Kenya is estimated at around 37.2 million people with a life expectancy at birth of 54 years. The population growth rate for Kenya between the years 2000 to 2008 was 2.9 %. Kenya is divided into Eight administrative provinces namely:- Nairobi province which is the capital city of Kenya, Central province, Rift Valley province, Eastern province, Nyanza province and Coast province. Kenya's national language is Kiswahili while the official language is English.

### Shelter Related Facts and Figures

#### Access to shelter

The demand for housing in Kenya has continued to outstrip supply and particularly in urban areas. During the 1974-1978 plan period for example, only

25,000 housing units were produced compared with the 50,000 that was required. The comparable supply and demand figures for the 1997-2001 period are 112,000 and 560,000 respectively. It is estimated that, out of a total number of 150,000 housing units required annually in urban areas, only 35,000 are produced. The shortage of housing for low-income households is particularly acute in urban areas, with only an estimated 6,000 units, or 20 per cent of all houses produced catering for this group.

The housing deficit derives from the low level of investment in the sector by both public agencies and the formal private sector, with housing units produced by both sectors representing only an estimated 20 per cent of the total number of new urban households. Other factors that contribute to the national housing shortage include the rapid urbanization, inaccessibility to land and housing finance, stringent planning regulations, restrictive building standards, high cost of infrastructure, poor economic performance and increased poverty.

Since the Population and Housing Census of 2009 has never been released, according to the Population and Housing Census of 1999, the housing stock in Kenya stood at 10.4 Million dwelling units. Out of this, only 19.5% catered for the urban areas leaving 81.5 % of the stock in rural areas. While the housing stock is concentrated in the rural areas, the quality of housing especially the level of services is better in urban areas than in rural areas. For example, only 12% of households in urban areas had mud/wood walls and over 50% of rural households had mud/wood walls.

Housing affordability in Kenya is best assessed by examining rents and house prices. In Kenya, affordability of housing is a major constraint in urban areas than in rural areas. 66% of households in urban areas who rent their dwellings live in single rooms. This is an indicator of lack of affordability rather than preference. Only 24% of households in urban areas own their dwellings. According to the Kenya National bureau of statistics in a slum mapping done in Nairobi, Mombasa and Kisumu three of the biggest cities in Kenya, 30%, 35% and 30% of people live in slums respectively. In rural areas, 87% of households own their dwellings while 77% of households in urban areas rent their dwellings.

The standard of housing in Kenya is dictated by cultural and environmental factors.

The following tables on roofing and wall materials demonstrate this:

*Table 1: Distribution by roofing material in rural and urban areas*

	Corrugated iron sheets	Tiles	Concrete	Asbestos sheet	Grass	Makuti	Tin	Others
Kenya	73.6	2.4	3.4	0.6	14.8	3.2	0.3	1.7
Rural	74.0	0.5	0.2	0.1	19.5	3.3	0.3	2.2
Urban	72.0	8.1	13.3	2.1	0.8	2.8	0.4	0.2

*Source: Kenya Integrated Household Budget Survey (2006)*

*Table 2: Distribution by walling material in rural and urban areas*

	Stone	Brick/ Block	Mud/ Wood	Wood only	Corrugated iron sheet	Grass	Tin	Others
<b>Kenya</b>	<i>14.3</i>	<i>16.7</i>	<i>45.4</i>	<i>10.2</i>	<i>3.5</i>	<i>2.9</i>	<i>0.3</i>	<b><i>1.6</i></b>
<b>Rural</b>	<i>6.5</i>	<i>14.5</i>	<i>54.0</i>	<i>12.1</i>	<i>2.3</i>	<i>3.7</i>	<i>0.2</i>	<b><i>2.0</i></b>
<b>Urban</b>	<b><i>37.9</i></b>	<b><i>23.3</i></b>	<b><i>19.4</i></b>	<b><i>4.7</i></b>	<b><i>7.0</i></b>	<b><i>0.4</i></b>	<b><i>0.4</i></b>	<b><i>0.2</i></b>

*Source: Kenya Integrated Household Budget Survey (2006)*

The Ministry of Housing is strategic in ensuring that the people of Kenya access good quality housing. In doing so, the Ministry is promoting ABM & T and so far 033 Appropriate Building materials and Technology (ABM& T) centres has been constructed all over the country to provide alternative and cheap housing options. The Ministry has also spearheaded a number of incentives aimed at increasing the housing stock and home ownership. Some of these incentive are:-Tax deductibility for housing loans; no tax (Pay as You Earn) on amounts saved to a maximum of Kenya Shillings 4000 per month or 48000 per annum and lower taxation of housing bond, tax deductibility for expenditures for social infrastructure

#### Access to and cost of education

Kenya is one of the countries in Africa with a high literacy rate. This has been greatly boosted in 2003 when Kenya waived all fees and tuitions for the primary school level. The number of primary school pupils has risen from 5million to more than 8million since the programme was launched. This has increased pressure on the existing facilities and the Ministry of Education now plans to

introduce day wings in some boarding schools and double shifts in some urban schools to cope with the pressure. The free compulsory primary education was followed by the government offered of paying tuition fees for secondary school while the parents will meet the cost of boarding and uniforms likewise boosting access to secondary school education.

### 1.3. Housing Policy

Kenya has addressed shelter issues through various initiatives and key among them is the formulation of sessional paper No.5 on Housing Policy of 1966/67, the national Strategy for Shelter to the year 2000 and other measures contained in successive National Development plans. Kenya developed Sessional Paper No. 3 of 2004-which is intended to arrest the deteriorating housing conditions countrywide and to bridge the shortfall in housing stock arising from demand that far surpasses supply.

### 1.4. Actors in Shelter Delivery and their Roles.

This includes:-

- Ministry of Housing- offers policy direction and is the focal point on Housing and Human Settlements.

The Ministry collaborates with Private Sector Organizations in identifying housing needs and providing for the housing demand as well as providing suggestions on the policy direction that will enhance Public Private Partnership (PPP). The Ministry of Housing also collaborates with Development Partners and International Organizations- to fund some of its programmes and to supplement Government funding.

- Ministry of Finance which provides Financial Resources-
- Universities-Research and resource development.
- Local Government, which deals with urban planning and development.
- Local Authorities-Housing infrastructure and services.
- Non Governmental organisations Such as Shelter Forum and National Cooperative Housing Union ( NACHU).

## Shelter Design

Physical planning in Kenya is the mandate of Physical Planning department of the Ministry of Lands. Its key role is the production of physical development plans- The objectives of this department as guided by the national demands and statutory requirements as stipulated in the Physical Planning Act Cap 286 are:

1. Preparation of Development Plans (Short and Long term physical development plans)
2. Preparation of the Cities Metropolitan Plans for Nairobi, Mombasa, Kisumu and Nakuru.
3. Assist in the implementation of a National Land-Use Information System
4. Ensure the full implementation of Physical Planning Act CAP 286
5. Participate in research and development activities to generate information for planning needs.
6. Build Partnerships with other development agencies and partners to promote well planned human settlements and space
7. Developing a National Land-use Policy.
8. Developing a National Land-use development plan

Land is a scarce and valuable resource. There is lack of comprehensive land use planning and management in Kenya, which has led to development of substandard settlements with inadequate infrastructure, services and open space. The total land area in Kenya is 588,648 square kilometres and going by the 1999 national censuses data, the population density for Kenya is about 49/sq kilometres.

Kenya has a draft land policy, which aims at guiding the country towards a sustainable and equitable use of land. This land policy is formulated to address the critical issues of land administration, access to land, land use planning, restitution of historical injustices, environmental degradation, conflicts, unplanned proliferation of informal urban settlements, outdated legal framework, institutional framework and information management. It also addresses constitutional issues, such as the eminent domain and the police power as well as tenure. It recognizes the need for security of tenure for all Kenyans (all socio-economic groups, women, pastoral communities, informal settlement residents and other marginalized groups)

## 2. Organization

The Ministry of Housing is a strategic Ministry in facilitating development and management of quality and affordable shelter for Kenyans. The mandate of the ministry is spelt out in the Presidential Circular No. 1 of 2008, which includes:

- Formulation, implementation and review of housing sector policies.
- Improving the living environment in slums and informal settlements through slum upgrading.
- Promotion of low cost housing development through housing sector incentives.
- Promotion of research and utilization of Appropriate Building Materials and Technologies.
- National secretariat for coordination of stakeholders on housing and human settlements matters.
- Management of housing for Civil Servants and Disciplined Forces
- Facilitating Civil Servants to own houses through Civil Servants Housing Scheme Fund.
- Leasing of office space and residential accommodation for constitutional office holders and Disciplined Forces.
- Resolution of disputes between landlords and tenants in controlled residential tenancies.
- Development of housing through National Housing Corporation (NHC).

## 3. Shelter problem

As already highlighted above, the annual demand, for housing in urban areas in Kenya is estimated at 150,000 with only an estimated supply of between 30,000-50,000 units will continue to be produced if the factors that constraints housing production are not addressed. A further 300,000 housing units will require to be improved annually in the rural areas.

Coast Province of Kenya, along the Indian Ocean, is one of Kenya's seven administrative provinces outside Nairobi. It comprises the Indian Ocean coastal strip with the capital city at Mombasa and is inhabited by the Mijikenda and Swahili, among others. The province covers an area of 83,603 km<sup>2</sup> and has a

population of 2,487,264 inhabitants (1999 census). The economic main stay of the province is tourism and sisal production. We also have small scale fishing activities, small-scale farming and pastoralism.

One of the greatest constraints in housing delivery in the province is the high cost of building materials which is compounded by lack of employment and the high poverty levels and especially in the rural and slum areas. Some of the materials, which are produced in some large-scale industries, end up being costly due to high cost of production arising from high cost of electricity and transport costs as well.

Coupled with this problem is the environmental degradation brought about the cutting down of mangrove trees which is the most preferred building material for the poor in the province. In some areas of the province, people use burnt bricks, which not only contribute to deforestation, but also lead to air pollution.

These problems affect mostly the rural and urban poor in slums with Kinango constituency in the province ranking among the top ten poorest constituencies in Kenya.

These problems can be influenced by the Government and especially through the Slum upgrading and ABM & T programmes, the community itself, local leaders and especially the Members of Parliament and councillors .in the prudent management of Constituency Development Funds (CDF) as well as Local Authority Transfer Fund (LATIF) by coming up with programmes and projects that leads to wealth and job creation in the province.

Another area of concern is the operationalisation of the four ABM & T Centres already constructed in Coast Province. Whereas these centres are ready for use, they lack staff thus wasting away. These Centres likewise lacks furniture and although the block making machines are available, their distribution to these centre is hampered by lack of personnel in these centres thus the equipments are centralised in the Provincial headquarters greatly limiting their access especially by areas on the far end of the province.

It's worth to note that following the structural adjustment programmes by the world bank in the 1990s, Kenya reduce its workforce and froze further recruitment of employees a process that affects it to date. The major actor in solving this problem is the Permanent Secretary of the Ministry of Housing who must lobby



for allocation of more funds from the Ministry of Finance to enable recruitment of more staff. The provincial housing officer can likewise lobby for deployment of more staff and especially from the areas where there is surplus like the Ministry headquarters.

## 4 Proposal for Change and Improvement

The Ministry of Housing has embarked on a programme to construct ABM & T Centres in every constituency, one national centre and regional centres of excellence. The Ministry established the ABM & T Programme in 2006 to address the high building costs by facilitating the provision of improved and affordable housing in both urban and rural areas. ABM & T addresses poverty through enhanced living/housing conditions and promotion of related income generating activities.

So far, 33 ABM & T Centres has been constructed four of which under my direct management in Coast Province. These are one regional Centre of excellence in the provincial headquarter-Mombasa and three constituency ABM & T centres.

ABM & T refers to building processes, materials and tools that are cost-effective, safe, innovative, green/environmentally friendly as well as acceptable to the climate, socio-economic conditions, and natural resources of an area.

Appropriate Building Materials and Technologies (ABMT) refers to building processes, materials and tools that are cost-effective, safe, innovative, green/environmentally friendly as well as acceptable to the climate, socio-economic conditions, and natural resources of an area. According to the Building Materials & Technology Promotion Council (BMTPC) of India, building materials account for approximately 60% of the total building costs. ABM & T can reduce costs by up to 50% of the materials cost thereby reducing the overall building cost. To be effective, ABM & T have to be complemented with efficiency in layout design, unit designs, appropriate construction specifications, optimization in infrastructure design and minimum project administrative overheads.

A typical Centre constitutes of a classroom big enough to accommodate 100 people in one sitting, a store, a preparation room and two offices. These centres will in the end be used for the following purposes:-

- Collaborative research
- Evaluation and certification
- Documentation
- Training and skills development
- Dissemination and demonstration
- Hiring ABM & T equipment/services to the populace.
- Technical assistance and consultancy
- Facilitating affordable housing and related social facilities
- Technology transfer
- Testing, quality control and maintenance of standards

I will also develop a business plan for the ABM & T, which will constitute:

- a) Hiring out the ABM & T equipments.
- b) Produce Appropriate building materials at the centres for sale. This will be mainly Stabilised Soil Blocks (SSBs)
- c) Conduct at a nominal fee trainings and skills development.
- d) Materials testing to ensure maintenance of quality and standards.

This is necessary so as to ensure sustainability of this programme. Funds collected will go towards acquisition of additional equipments as well as maintenance of the existing equipments.

**Table 3: Cost of inputs**

S/NO	Item	Quantity	Cost (Kshs)
1	Hydraform Machine		
2	Action Pack Block Press		
3	Cement		
4	Soil		
5	Water		
6	No of employees		
7	Maintenance cost of Equipments		

**Table 4. Daily/Weekly Sales**

S/NO	Item	Total Sale	Amount( KShs)
1	Stabilised Soil Blocks		
2	Hire of Hydraform machines		
3	Hire of Action Pack Block Press		
4	Sale of Housing plans		
5	Materials testing		

**Table 5: Training programme.**

Fee per person.....

Cost of inputs		
S/No	Inputs	Amount (Kshs)
1	Training material	
2	Field visit cost(Transport)	
3	Facilitators' fees	
4	Meals & Refreshments	

Note: KShs-Kenya Shillings.



A past community ABM & T Training.



ABM & T Centre.



House built using ABM & T.



House built using ABM & T.





House built using ABM & T.



House built using ABM & T.

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