AN ASSESSMENT OF OPPORTUNITIES FOR LOCAL PRODUCTION OF CONSTRUCTION AND BUILDING MATERIALS USING THE SOUTH AFRICAN PUBLIC HOUSING DELIVERY PROGRAMME AS A PROCUREMENT LEVER

Tebogo Makube (PhD)[a, a ♣]

[a] Department of Trade & Industry, Private Bag X84, Pretoria, 0001, South Africa.

Tel.: +27123943927; Fax: +27123944927. *E-mail:* TMakube@thedti.gov.za / TMakube@hotmail.com

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Abstract

The objective of this study is to review challenges and opportunities in the delivery of the public housing programme. The focus is on assessing opportunities for local production and manufacturing of construction materials. This is important for lowering the cost of delivering infrastructure, increase access to houses, job creation and diversification of enterprise and supplier development in the sector. Thus public expenditure and procurement should be considered as strategic levers for industrial development. The New Growth Path (NGP) and the Industrial Policy Action Plan (IPAP) make an avid point that much public procurement is conducted on an ad hoc rather than a strategic basis and does not deliver adequately on either value-for-money or key industrial policy objectives. This is because the procurement of the public housing programme across the country is not directly linked to industrial policy imperatives, especially in the areas of local production and enterprise development in the supply of construction materials.

This study contends that public housing programme must be linked to industrial policy objectives and that the government should prioritise the designation of construction materials and products for local production. This will require an emphasis on local procurement, especially in the sourcing of materials for the construction and delivering of low-cost houses funded by the government. Emphasis should not only be based on the final delivery of houses but leveraging public expenditure to expand and diversify suppliers of construction and building materials. Local production, supplier and enterprise development should be mandatory in in the request for proposals (RFPs) for public housing delivery.

1. Introduction

The objective of this study is to review challenges and opportunities in the delivery of the public housing programme. The focus is on assessing opportunities for local production and manufacturing of construction materials. This is important for lowering the cost of delivering infrastructure, increase access to houses, job creation and diversification of enterprise and supplier development in the sector. Thus public expenditure and procurement should be considered as strategic levers for industrial development.

Generally, well planned and targeted public housing programmes provide the foundation for sustainable livelihoods by supporting broad community development goals, including housing, economic development, infrastructure, and social services (Mapiravana & Ampofo-Anti, 2011; van Wyk *et al,* 2012). However, South Africa is facing a huge shortage of housing; this is despite the fact that the government has been delivering houses for the poor through the housing subsidy scheme since 1994. According to the National Treasury (2011), through the subsidised housing programme, government has delivered more than 2.6 million houses; however, the housing backlog remains on the increase as reflected in Table 1, which shows the estimated low-cost housing backlog from 1996 to 2011.

Table 1: Low-cost housing backlog in South Africa: 1996-2011

Year	Backlog
1996	1.5 million houses
2001	1.8 million houses
2011	2.1 million houses

Source: Department of Housing, 1994 and Department of Human Settlements, 2011.

The Financial & Fiscal Commission (FFC) (2011) submits that it is increasingly accepted that the public housing delivery system has not managed to meet the challenges of scale, affordability and sustainability. The challenge facing the public housing programme is not simply to provide a physical structure but sustainable neighbourhoods that can contribute to urban economic and social life (National Treasury, 2009; Financial & Fiscal Commission, 2011). Other challenges relate not only to the enormous size of the housing backlog, the diverse needs of the homeless and others who are currently inadequately housed but also to the housing environment, which has many complex facets. Poverty, unemployment, economic stagnation and negative behaviour, together with financial and capacity constraints make the task for housing delivery even more daunting (City of Cape Town, 2009).

It can be added that South Africa, like many developing countries, is faced with challenges of rapid urbanisation resulting from migration both rural and from neighbouring countries. This has an impact on the growth of cities and demand for urban land, housing and public infrastructure. As already stated, an estimated 2 million households live in informal and inadequate housing today. The public housing sector is facing a myriad of other challenges, households being on housing waiting lists for 10 years or longer, leading to considerable frustration (Financial & Fiscal Commission, 2011). The FFC also notes that over 1.3 million households who do not qualify for a housing subsidy live in inadequate, overcrowded and / or informal housing as they are unable to afford current house prices. Urban sprawl and low densities are cited as contributors to unproductive and inefficient cities as poor households continue to be marginalised by distance and transportation costs and the lack of agglomeration in many urban centres (Turok & Parnell, 2009). These challenges undermine economic development and efficiency, and they call for a rethink in the delivery of housing and its acceleration. In the delivery of houses, public procurement and expenditure on low-cost housing programme have a huge potential to propel economic development through local production of building materials.

2. Problem statement

The Department of Trade & Industry (2013) in the 2013/14 – 2015/16 Industrial Policy Action Plan (IPAP) asserts that much public procurement is conducted on an ad hoc rather than a strategic basis and does not deliver adequately on either value-for-money or key industrial policy objectives. The procurement of the public housing programme across the country is not directly linked to industrial policy imperatives in the areas of local production and enterprise development, especially in the supply of construction materials. The decision to design and construct new homes has material-intensive implications that are economically significant. Human settlements require the use of a wide range of resources, including land, money, building materials, manpower, energy and water. As a general principle, it is essential that resources be used as efficiently as possible and the cost of construction minimised (Mapiravana & Ampofo-Anti, 2011).

Eliasson *et al* (2009) postulate that public housing programmes have common linkages with industrial policy in three particular dimensions; (i.) the financial capacity to engage in very large and advanced public procurement, (ii) in creating a larger local production capture area for economic and technological spillovers, and (iii) in introducing an opportunity to shift industrial policy focus to more effective product procurement programmes (Eliasson *et al*, 2009: 2). In South Africa, the public sector's demand for building materials is huge, driven by the

government infrastructure programme in energy, roads, rail, education, health and human settlements. This presents an opportunity to assess opportunities for industrial development in the South African infrastructure programme; in particular, the delivery of the public housing programme. Local production of building materials can help to stimulate industrial development, which will assist in reducing building costs, life cycle costs and minimise the lead time for building delivery in South Africa; this will positively impact on the access to affordable housing, all other things being equal.

3. Objective of the study

The main objective of the study is to consider some of the procurement options available to the government to deliver low cost housing developments in South Africa. This study also assess the feasibility of designating building materials for local production in the public housing development programme, provide an analysis of the building materials industrial structure, and trends for imports and exports. This study provides recommendations for interventions on some building materials, and calls for an expansion of opportunities for local production, enterprise and supplier development in the sector. This will have an impact in accelerating industrial development and thus facilitating access to families who are in dire need of shelter.

4. Methodology

This study reviewed literature and official government policies on the on the delivery of public housing programmes, it undertook desktop research, especially the review of financial and economic data to explore trends in the public housing delivery programme and the associated construction materials sector. Stakeholder views were also analysed and were helpful to make an informed view of the challenges and opportunities facing the public housing sector. The analysis was used to recommendations for the designation and localisation of construction materials used in the public housing programme in South Africa.

5. Governance and institutional framework for housing delivery in South Africa

In South Africa, the right to housing is enshrined in Section 26 of the Bill of Rights, which states that *"…everyone has the right to have access to adequate housing" and that "…the state must take reasonable legislative and other measures, within its available resources to achieve the progressive realization of this right"* (Constitution of the Republic of South Africa, 1996). As a result, government has intensified its programme on housing delivery to ensure that it meets its commitment to progressively realise the right of all citizens to safe and affordable housing.

The Constitution, in schedules 4A and 5A, assigns housing as a concurrent function of national and provincial government. It also provides that where the housing function can best be administered locally it can, by agreement, be assigned or delegated to a municipality provided that the municipality has the capacity and resources to perform the function. In the current constitutional dispensation in South Africa, housing delivery is not the direct responsibility of municipalities but they can be accredited to deliver this function based on their capacity. However, municipalities deliver other important services and servitudes such as development planning, water, electricity, roads. The Constitution also places a significant substantive constraint on all governments by requiring resources to be put towards the progressive realisation and other socio-economic rights listed in the Bill of Rights. Social and economic rights such as rights to access to housing have significant policy and fiscal implications. However, these rights do not place an absolute, immediate obligation on the state. Instead, the Constitution states that "…the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights" (see S27(2) and S26(2) of the Constitution of the Republic of South Africa). Besides the Constitution, the Housing Act (Act No. 107 of 1997) obliges all spheres of government to give priority to the needs of the poor in relation to housing development. It outlines the responsibilities of the various spheres of government in relation to housing delivery, including providing for municipalities to be developers in the housing development process. Government is expected to mainstream the culture of fairness and equality in all aspects service delivery and planning, as enshrined in the Batho Pele (people first) principle. This includes the equitable allocation of public finances, provision of houses, promotion of sustainable livelihoods, and transparency in application of procurement policies. The next section discusses supply and demand side issues affecting housing delivery in South Africa.

6. Supply and demand side issues affecting public housing delivery in South Africa

The public housing delivery programme is influenced by both supply and demand side issues. On the supply side, various government policies have been formulated towards overcoming the huge shortage through several public housing delivery reform programmes through delivering Reconstruction and Development Programme (RDP) housing, Breaking New Ground (BNG): a comprehensive plan for the development of sustainable human settlements, upgrading informal settlements and the Finance-Linked Individual Subsidy Programme (FLISP) aimed at subsidising mortgage interest rates (Financial & Fiscal Commission, 2013). Despite these efforts,

housing demand continues to grow as people flock to cities and urban centres in search of opportunity and change (Rust, 2006).

6.1 The National Norms and Standards Construction of Stand Alone Residential Dwellings (2007)

In 1999 the then Minister of Housing, now Minister of Human Settlements introduced the National Norms and Standards for the Construction of Stand Alone Residential Dwellings in terms of section 3(2)(a) of the Housing Act (Act No. 107 of 1997). The norms and standards provide the minimum technical specifications including environmentally efficient design proposals. These were revised on 1 April 2007 in respect of Permanent Residential Structures (National Norms and Standards), which are contained in the 2009 National Housing Code. All standalone houses constructed through application of the National Housing Programmes must at least comply with the norms and standards. As stipulated, each house must have:

- minimum gross floor area of 40m^2;
- two bedrooms;
- separate bathroom with a toilet, a shower and hand basin;
- combined living area and kitchen with wash basin; and
- ready board electrical installation, if electricity is available in the project area.

In general, all residential properties created through the national housing programme must at least comply with the following levels of services, as per the National Norms and Standards:

Table 2: National Norms and Standards for the construction of stand-alone houses

Type of Service	Minimum Level
Water	Single standpipe per stand (metered)
Sanitation	Ventilated Improved Pit (VIP) latrine or alternative system agreed to between the community, the municipality and the Member of the Executive Council (MEC)
Roads	graded or gravel paved road access to each stand (this does not necessarily require a vehicle access to each property)
Stormwater	Lined open channels
Street lighting	Highmast security lighting for residential purposes where this is feasible and practicable, on condition that such street lighting is not funded from the MIG initiative or from other resources

Source: 2007 National Norms and Standards for the construction of stand alone houses

In addition to the Ministerial Norms and Standards, all houses must be enrolled with the National Home Builders Registration Council (NHBRC) and they must comply with the building standards imposed by the NHBRC. All construction is furthermore subject to building plan approval by municipalities and building standards imposed by municipal by-laws.
Since the introduction of the National Building Regulations (NBRs) in 1985, municipalities have applied these functional requirements when checking building plans that have been submitted for approval (NHBRC, 2011). When an innovative product being proposed falls outside the experience of the municipality`s building control official, an assurance of the fitness for purpose of the product will have to be required. In terms of the NBRs this assurance can be given by submission of an applicable report issued by the Council for Scientific and Industrial Research (CSIR), which is a statutory organisation for technology transfer, or by the South African Bureau of Standards (SABS); or by submission of a current certificate issued by Agrément South Africa. To date Agrément South Africa has issued 430 certificates of which approximately 75% have been awarded to innovative building systems. Examples of areas where Agrément Certificates have been awarded and remain valid are:

- *baths, bathroom and toilet units*
- *bridge deck joints*
- *ceilings and roofing*
- *concrete additives*
- *damp-proofing*
- *insulation*
- *non-traditional soil stabiliser and thin bituminous surfacing systems*
- *plumbing*
- *windows*
- *storage tanks*
- *sanitation*
- *wall coatings*
- *walling and building systems*
- *waterproofing.*

Whereas norms and standards provide essential requirements for the design and construction of houses, they don't cover all construction materials/products used in the building and delivery of houses. This is an area that must be looked into in the harmonisation of standards for construction materials, and not only in the housing sector. Harmonised construction material standards have the effect of creating a more uniform level of construction methods and safety. The European Commission created a set of standardised European design norms that provide a common approach to structural design across the EU. The pan-European harmonised rules on structural design also contribute to the establishment and functioning of

the internal market for construction products and engineering services, by eliminating potential barriers to trade that exist when countries have different standards (Grech, 2013). In South Africa, harmonisation of standards and better coordination in the buying of both supplies and contractors services can have an effect on the government's savings.

6.2 Public procurement policy framework and legislation in South Africa

In South Africa, preferential public procurement policy is, amongst others, identified as an instrument to redress the social-economic imbalances brought about by past racial discrimination. A number of criteria are identified for promotion through public procurement, including:

a) the development of small-and-medium and micro enterprises;

b) the promotion of historically disadvantaged individuals, women and physically handicapped people;

c) the creation of new jobs;

d) the promotion of local enterprises in specific provinces and (e) the promotion of local production, (Green Paper on Public Sector Procurement Reform in South Africa, 1997).

Watermeyer (2003) argues that public procurement is the means by which the country´s policy objectives are implemented. Its effectiveness and efficiency through the purchase of goods and services is affected by a number of factors including legislation, regulations, policies, institutional arrangements, management, transparency and accountability. Section 217 of the Constitution sets out the basis in terms of which organs of state should enter into contracts for goods and services. Apart from the Constitution, procurement policy is also regulated by the Preferential Procurement Policy Framework Act (PPPFA) (Act No.5 of 2000) and its amended regulations of 2001 and 2011. Public procurement is also central to good public financial management and public resources allocation in line with Section 217 of the Constitution, the Public Finance Management Act (PFMA) (Act No. 1 of 1999) and the Municipal Finance Management Act (MFMA) (Act No. 6 of 2003). Public procurement also accounts for a sizable part of economies in both developed and developing countries; generally it contributes between 15 to 25 per cent to the gross domestic product (GDP), thus representing huge amounts of public expenditure (Taylor & Yülek, 2012). This shows that the government possesses the necessary purchasing power to leverage procurement in support of broader economic development goals.

Public procurement seen by the government as one of the key industrial levers in the New Growth Path (NGP) and Industrial Policy Action Plan (IPAP). The revised PPPFA regulations which came into effect on the 7 December 2011 empower the Department of Trade and Industry (the dti) to designate industries, sectors and sub-sectors for local production at a specified level of local content. This is only applicable in the public sector's procurement system and cannot be legislated in the private sector due to limitation imposed by the World Trade Organisation's (WTO) rules on Trade Related Investment Measures (TRIMS). It must be noted that South Africa is not signatory to WTO's Agreement on Government Procurement (GPA), so it can designate products for local procurement and production in the public sector. Given its economic significance, public procurement has the potential to influence the economy in terms of production and consumption on a large scale. Construction materials play an important role in infrastructure delivery and it is important that the government consider designating these materials to leverage its expenditure in the sector; this should also include diversified supplier and enterprise development programmes.

In examining difficulties encountered in implementing the preferential procurement policy in conjunction with the low-cost housing programme, Magoro & Brynard (2010) contend that the Provincial Departments of Local Government and Housing in South Africa are largely incompetent when it comes to implementing the preferential procurement policy. In spite of budget increase for the acceleration of housing delivery, the South African government continues to face an immense housing backlog and this can be attributed largely to incompetent implementation of the procurement policy. They further argue that the murky method(s) of tender awards and the dismal state of monitoring and evaluation mechanisms in place to oversee the progress of construction work further exacerbates the problem (Magoro & Brynard, 2010). It can be added that low-cost housing delivery challenges are also as a result of a myriad of complex inter-related issues including inadequate supply of suitable land closed to economic opportunities, misaligned intergovernmental exclusive and concurrent functions, costs associated with the provision of bulk infrastructure, and a mismatch between affordability tests, targeting of beneficiaries and allocation of houses. The implementation of the low-cost housing programme in South Africa and associated challenges are reviewed further in the following section.

6.3 Low-cost housing delivery process in South Africa

The conventional construction for houses in the South African context starts by acquiring land, followed by the assessment of technical site constraints (slope analysis, bulk services assessment, preliminary geotechnical and environmental assessments), bulk infrastructure investments,

house construction, hand-over and maintenance (see Figure 1) (Construction Industry Development Board, 2011).

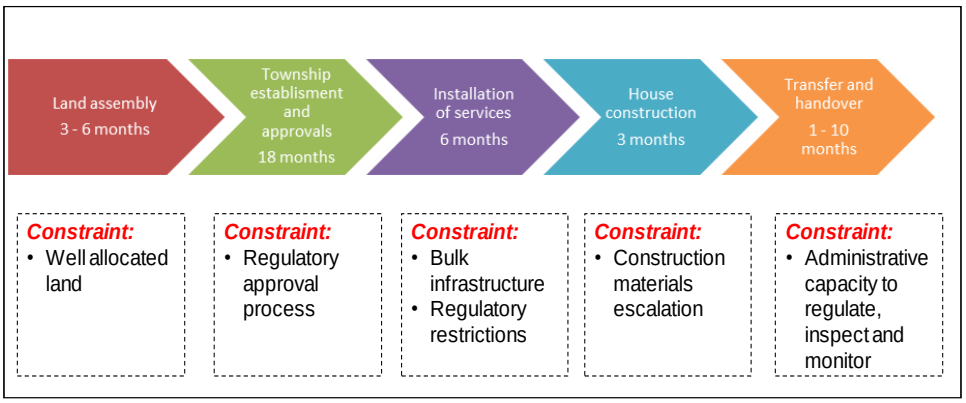

Figure 1: Housing delivery process

Source: Department of Human Settlements, 2011

Suitable land and financial limitations are some of the challenges impacting on the delivery and equitable allocation of housing for everyone as envisaged in the constitution. As such, low cost housing tends to be located at the periphery of economic opportunities and this increases the transaction cost of beneficiaries. Poorly located housing results in the deepening of already high levels of inequality and inefficiency in South African towns and cities. This may impose long term costs on households and growing pressure on the public sector to fund access to basic infrastructure and transport services (National Treasury, 2009).

There are fiscal challenges with providing fully subsidised housing in South Africa. The Financial and Fiscal Commission (FFC) (2011) notes that high levels of unemployment in mean that 60 per cent of households are potentially eligible for fully subsidised houses. The FFC (2011) also contends that the current subsidy is perceived as discouraging complementary investment and participation by the private sector and households, especially at the lower end of the market. This has resulted in an increasing burden and dependence on the government for housing (Rust, 2006). In spite of the challenges, the 2010 General Household Survey notes that there has been continued growth in the ownership of dwellings, rising from 53.1% in 2002 to 58.1% in 2010 (see Figure 2). At the very same time, the percentage of the households who were renting decreased from 22.5% in 2007 to 20.6% in 2010, while the percentage of dwellings that were partially owned declined rapidly to 10.9%. This shows that there has been an inverse relationship between fully owned dwellings and renting. As ownership increases, renting decreases. The percentage of households whose tenure status was classified as 'other' (e.g.

house/flat/room in back yard, informal/squatter settlement, hostel, tent, caravan, boat) decreased slightly from 11.8% in 2002 to 10.4% in 2010 (Stat SA, 2011: 20).

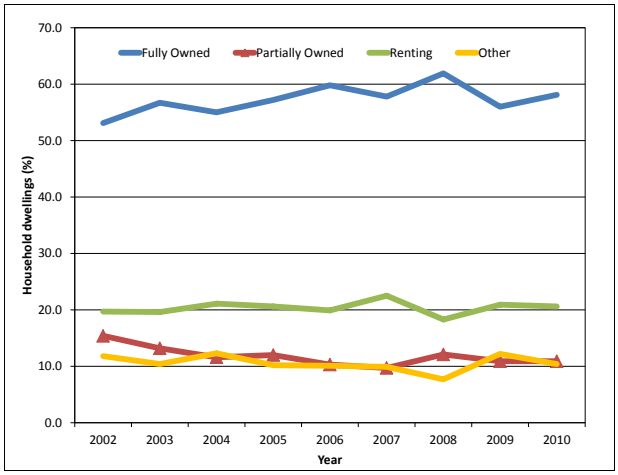

Figure 2: Percentage of households living in formal dwellings

Source: Stats SA, 2010 General Household Survey

The survey also reports that the percentage of households living in informal dwellings has remained unchanged at 13% between 2002 and 2010; this is reflected in Figure 3. While the proportion of informal dwellings declined in provinces such as KwaZulu-Natal, Limpopo and Mpumalanga, increases were observed in Gauteng, North West and Western Cape. The provinces with the highest percentage of informal dwellings in 2010 were Gauteng (21.5%), North West (18.8%), Western Cape (17.1%) and Free State (13.3%) (Stat SA, 2011: 20).

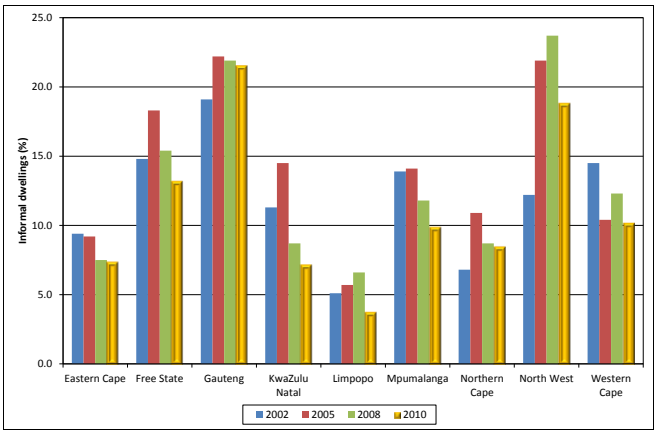

Figure 3: Percentage of households living in informal dwellings per province

Source: Stats SA, 2010 General Household Survey

The National Treasury notes that nearly 70 per cent of the housing backlog is in urban areas. While demand is increasing, the pace of delivery has declined, partly due to higher building and land costs. The persistence of large informal settlements has necessitated a shift

towards developing serviced sites, security of tenure and affordable rental housing. To support this outcome, R50.5 billion has been allocated for low-income housing and upgrading informal settlements in secondary cities, as well as R27 billion for upgrading informal settlements in large cities in 2012 medium term expenditure framework (MTEF) (National Treasury, 2012). The 2010 General Household Survey also reports that 18.9% of South African households were living in an 'RDP' or state-subsidised dwelling while a further 13% had at least one household member on a demand database/waiting list for state-subsidised housing. A larger percentage of female-headed households received subsidies compared to male-headed households (see Figure 4).

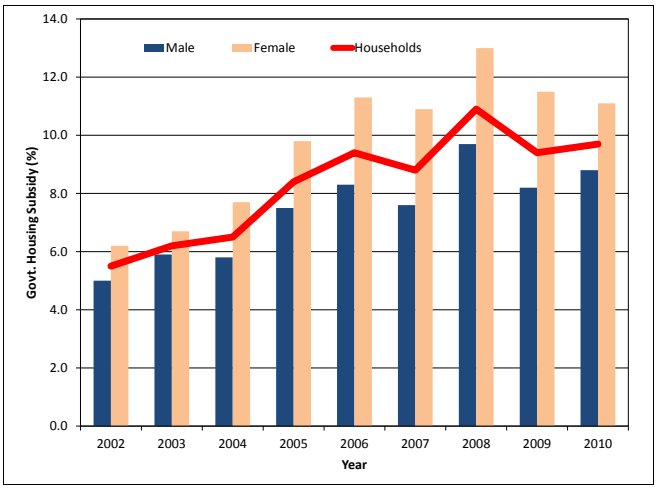

Figure 4: Percentage of households receiving a government housing subsidy

Source: Stats SA, 2010 General Household Survey

The survey also found out that across the country, 17.2% of households felt that the walls of their dwellings were weak or very weak, whilst 17.9% felt that the roof was weak or very weak. There was considerable variation between provinces in the perceptions about housing quality. Most complaints were noted in the three Cape provinces: Eastern, Northern and Western Cape.

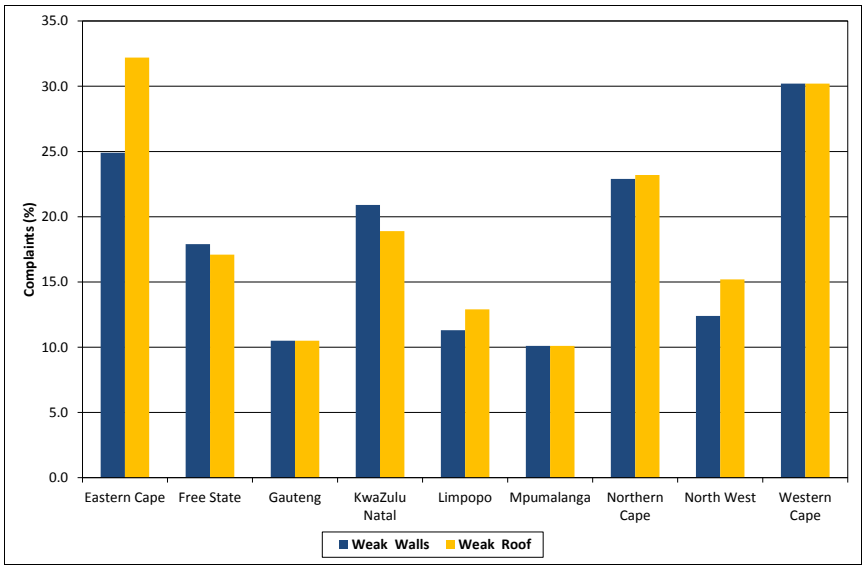

Figure 5: Percentage of household complaining about the quality of subsidised ('RDP') houses

Source: Stats SA, 2010 General Household Survey

National Economic Development and Labour Council (Nedlac, 2004) notes that there is a trend towards the use of corrugated metal roofing in low cost 'RDP' housing. *"…The reason for this is that this roofing material requires a minimum of support (virtually no wooden trusses) and, therefore, can cost as little as one-third of the cost of using fibre cement sheeting and concrete tiles – both of which require substantial support structures"* (Nedlac, 2004:3). Fibre cement sheeting generally represents the roofing material of choice as it the cheapest alternative. The Construction Industry Development Board (CIDB) also notes that while South Africa has a well-developed set of national standards which enable manufacturers and contractors to provide consumers with high quality products, concerns have been raised in the industry about increasing non-compliance of materials and products with national standards, including:

- *"…many building projects are poorly specified, and artisans and foremen are not accredited in terms of their performance in achieving the necessary standards;*
- *many of the current specifications are perceived to present a barrier to entry to small scale entrepreneurs and exclude their participation in particular markets, and a limited amount of clients are reportedly not requiring materials to comply with SANS standards; and*
- *there is a lack of capacity amongst building inspectors to evaluate compliance requirements" (Construction Industry Development Board, 2011:4).*

The abovementioned challenges lead to owners of publicly provided 'RDP' houses not be satisfied with the end product. Partly these challenges are attributed to the procurement system.

Magoro & Brynard (2010) argue that in certain instances housing construction tenders are awarded to companies that, in fact, consist of nothing more than a company registration certificate. *"…These tenderers recruit other companies that do not possess the requisite expertise as subcontractors to do the actual construction* (2010: 11). Rogerson (2004) argues that the practices of contractors who attempt to secure a tender without the necessary expertise create a high-risk environment for clients and government in terms of structural defects and life cycle costs. As a result, this undermines the use of the preferential procurement policy as an instrument of socio-economic objectives, including poverty reduction (Magoro & Brynard, 2010).

There is no doubt that South Africa faces a significant challenge in providing affordable, suitable accommodation to its citizens. To robustly deal with this challenge is a need to review the delivery of low-cost houses, this includes the empowerment of beneficiaries to play a role in building their houses, and the review of the procurement and funding models.

6.4 The funding of low-cost housing delivery process in South Africa

In the 2012 medium term expenditure framework (MTEF) and as reflected in Figure 6, R1 billion was added to the integrated human settlements development grant *(conditional fiscal transfer for human settlements)* to provide for informal settlements upgrading, increasing the three-year baseline amount for the grant to R50.5 billion. (National Treasury, 2012).

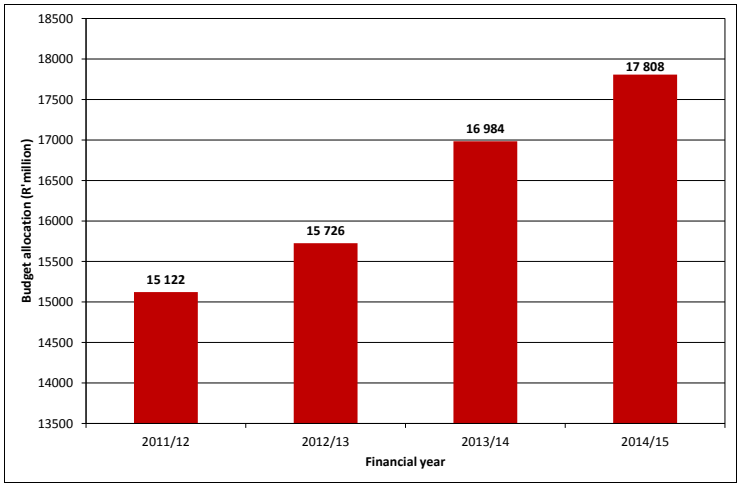

Figure 6: Budget allocation for the integrated human settlements development grant

Source: National Treasury, 2012

National Treasury (2012) notes that in terms of housing expenditure in nominal terms, the integrated housing and human settlement development grant has disbursed approximately R60 billion between 1995 and July 2010. This has provided a total of 2.6 million housing

opportunities, at a gross average cost of R18 850 per unit and an average annual delivery rate of 200 000 units a year.

Table **3** shows that human settlement expenditure increased from R12.4 billion in 2009/10 to R17.2 billion in 2011/12, representing average annual increase of 18.5 per cent. In line with the rapid rate of urbanisation and demand for housing, the Eastern Cape, Gauteng, KwaZulu Natal and the Western Cape were allocated more funding for human settlements relative to other provinces. However, the projected overall rate of expenditure growth declined between 2008/09-2011/1 compared to the previous period. Also, a lack of capacity, among other factors, results in annual under spending of the grant.

Table 3: Integrated human settlements development grant expenditure, (2005/06-2011/12)

R'million	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
	Outcome			Pre-audited outcome	Medium-term estimates		
Eastern Cape	607	637	337	981	1 313	1 599	1 803
Free State	370	528	467	859	963	1 301	1 380
Gauteng	1 357	1 760	2 614	2 778	3 187	3 772	4 323
KwaZulu Natal	816	1 075	1 311	1 627	2 180	2 714	3 150
Limpopo	383	605	633	825	997	1 235	1 415
Mpumalanga	269	330	652	797	795	976	1 118
Northen Cape	103	105	231	219	325	273	313
North West	615	697	786	952	1 100	1 289	1 578
Western	552	769	1 122	1 306	1 581	1 869	2 142
Total	**5 072**	**6 506**	**8 153**	**10 344**	**12 441**	**15 028**	**17 222**
(%) growth (average annual)		**2005/06-2008/09**				**2008/09-2011/12**	
Eastern Cape		17.4%				22.5%	
Free State		32.4%				17.1%	
Gauteng		27.0%				15.9%	
KwaZulu Natal		25.9%				24.6%	
Limpopo		29.1%				19.7%	
Mpumalanga		43.6%				11.9%	
Northen Cape		28.6%				12.6%	
North West		15.7%				18.3%	
Western		33.3%				17.9%	
Total		**26.8%**				**18.5%**	

Source: National Treasury, 2009

While the national housing programme has been delivering approximately 200,000 fully-subsidised housing units per annum, the current government programme does not adequately address the growing need and demand, and fiscus is under pressure for more budget allocations.

7. The role of construction materials in the public housing programme

In analysing the South African construction industry sector, a deduction can be made that the sector has experienced a constant growth in the last decade, possibly explained by the boom in residential and commercial property development. It is estimated that some 200 000 people are employed in the materials manufacturing sector, with an average number of employees of between 200 and 500 persons per organisation (Construction Industry Development Board, 2011). In 2008, the construction of new residential buildings in South Africa accounted for about 25% of the total national building and construction budget of R158.6 billion. From April 2007 to March 2010, the South African public sector allocated about 10% of its annual infrastructure budget (about R10 billion per annum) towards housing development (Construction Industry Development Board, 2011). When the input costs of home building are analysed, materials typically account for 60% of the costs while labour accounts for the remaining 40% (Mapiravana & Ampofo-Anti, 2011). The Construction Industry Development Board (2011) estimates that of the current building and construction investment of about R158.6 billion per annum, materials accounts for about R95 billion as reflected in Figure 7 .

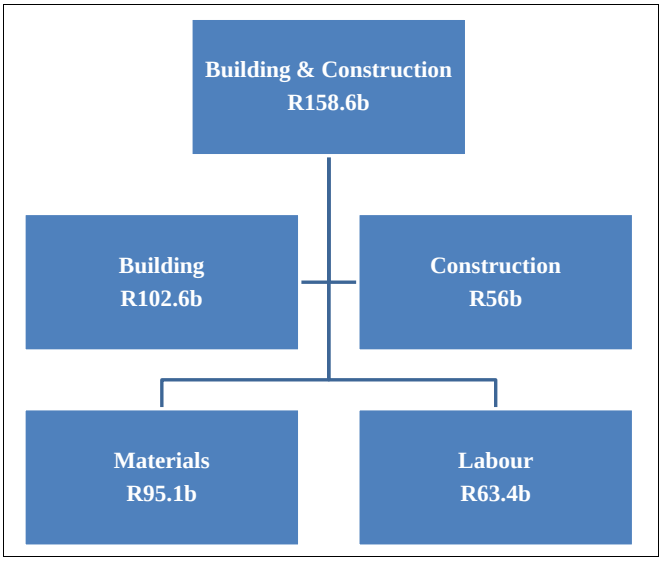

Figure 7: Building and construction investment cost indicators

Source: Construction Industry Development Board, 2011

7.1 Building materials

Analysis of the building materials market situation in South Africa identified the major building material cost drivers as cement and concrete and steel. Figure 8 shows cost indicators for an affordable low-cost house construction. Bulk infrastructure comprises 23% of the cost, followed by profit margins (20%), internal finishes and structural frame (16% each). All other

costs are less than 10% each (National Treasury, 2011). The share of the profit margin is relatively high as the industry practice for project management is between 8% - 15%.

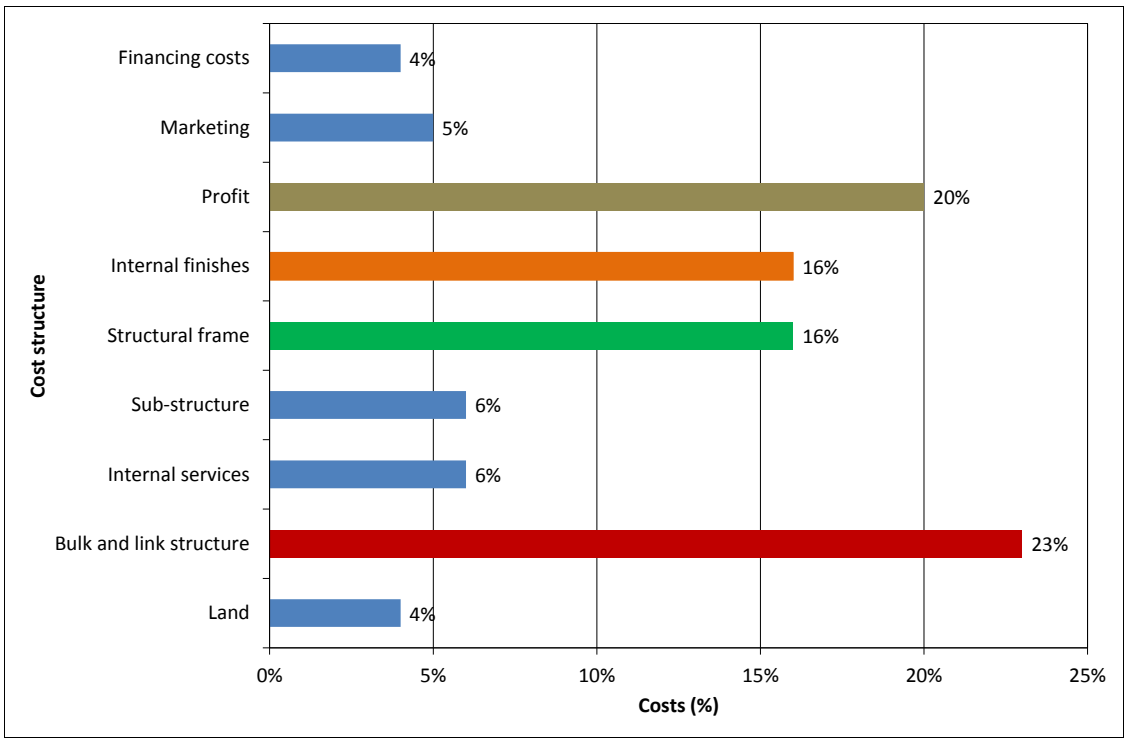

Figure 8: Low cost housing cost indicators

Source: National Treasury, 2011

The building of a house comprises concrete or clay brick or block masonry walls with timber roof construction and metal or fibre-cement roof sheeting, or concrete or pressed metal roof tiles. Such conventional construction is largely covered by the deemed-to-satisfy rules accompanying the building regulations (*Agrément South Africa, 2011)*.

As already stated, key building materials in the South African residential building sector are cement and steel. The Construction Industry Development Board (2011) reports that in 2008, the split in cement demand between building and construction works was 65% : 35%. In the building sector, the split between residential and non-residential buildings was 68% : 32%. Table 4 ranks the market share of the major building materials in South Africa.

Table 4: Market share of the major building materials in South Africa

Material group	Rand market share (%)	Ranking
Cement and reinforced concrete	16.5%	1
Reinforcing steel and sections	11.1%	2
Walling	10.6%	3
Flooring	9.3%	4
Roofing and vertical cladding	8.3%	5
Aggregate and sand	6.7%	6
Decorative paint	5.7%	7
Doors & frames	5.2%	8
Plumbing pipes & fittings	4.9%	9
Particle board & MDF*	4.3%	10
Roof trusses	4.1%	11
Glass & mirrors	2.7%	12
Sanware	2.1%	13
Taps & fittings	1.7%	14
Ceramic wall tiles	1.7%	15
Ceilings and partitioning	1.2%	16
Geysers	1.1%	17
Insulation	0.9%	18
Paving	0.8%	19
Windowsills, fasciaboards & bargeboards	0.7%	20
Guttering & downpipes	0.4%	21

**** 35% of PB & MDF is used in Building Industry & 65% in Furniture and other***

Source: Own calculations, compiled from Mapiravana, 2010; CIDB, 2011

An overview of the leading manufacturers of the building materials per products is given in Table 5 below.

Table 5: An overview of major building material groups

Building Product	Leading Manaufacturers			
Cement	PPC	Holcim	Lafarge	NPC
Reinforcing steel and sections	Mittal	Macsteel	Highveld	Cisco
Bricks and walling	Corobrick	Crammic	Briko	Rosema
Flloring	Belgotex	Nouwens	Domo	Ceramic Ind
Roofing and vertical cladding	Mittal	Macsteel	Lafarge	Marley
Sand and aggregate	Holcim	Lafarge	Afrimat	WG Wearne
Doors	TDM	Nulu	Van Acht	Swartland
Frames	Wispeco	Dura	Nulu	Van Acht
Plumbing pipes and fittings	DPI	Petzetakis	Incledon	
Roof Trusses	Mitek	Federated	Iliad	
Ceilings	BPB Gypsum	Everite	Lafarge	
Glass and mirrors	PFG Glass	AFGLASS	Imports	
Taps	Cobra	Watertech	Imports	
Geysers	Kwikot	Frnake		
Paving	Corobrik	Rosema	Briko	
Windowsills and, fasciaboards	Everite	Hans Merensky		
Gyttering and downpipes	Buildmand	Everite	Petzetakis	Main Ind.

Source: CIDB, 2011

Highlights of the housing building materials and issues influencing supply are given in Table 6.

Table 6: Highlights of the housing building materials and issues influencing supply

Key supply sector	2011 issues influencing supply	Relative importance*
Bricks	Energy costs	
	Transport costs	
	Mineral rights and other regulations governing mining	
	Environmental impact assessment processes	
	Energy-efficient brickmaking technologies	
	Alternative steel structures	
Timber	Decline in afforestation	
	Pricing of inputs – administered prices	
	Labour legislation – minimum wages	
	Land reform policy	
	Reform of the South African Forestry Company Limited (Safcol)	
Cement and cement products	Consensus view on demand forecasting and supply capacity	
	Cost pressures impeding timely investment in increasing capacity	
	Electricity, transport and logistics costs and reliability	
	Conformity and compliance with environmental legislation	
	Economic downturn – reduction in fixed investment in buildings	
	Delays in government tender awards	
	Availability of key skills	
	Import penetration and dumping	
Sand and aggregates	Regulation	
	Mineral and Petroleum Resources Development Act	
	Electricity availability and cost	
Steel and steel products	Dominance of one supplier – periodic shortages of key steel products	
	Steel pricing and competition issues	
	Electricity price increases adversely affecting mini-mill production	
	Scrap metal exports adversely affecting domestic availability of mill feedstock	
	Domestic demand recovery and growth	
	Capacity utilisation	
Glass	Energy costs	
	Import competition	
Plastic pipes	Polymer pricing	

* **Very important** **Important** **Not currently important**

Source: Developed from the DBSA: 2011 Infrastructure Inputs Monitoring Project

High costs of building materials

7.1.1 Bricks

The Clay Brick Association (CBA) estimates that total energy costs are about 30% to 35% of brick production costs. This is because electricity is used in the brick production process to crush and extrude the clay brick. Some coal is mixed into the extrusion. Energy costs have been rising due to an increase in coal prices that are approaching import parity prices and electricity prices have also recently risen steeply in recent years (Development Bank of Southern African (DBSA), 2011).

7.1.2 Steel

The DBSA (2011) notes that primary steel production is concentrated around five facilities located in the Witwatersrand industrial heartland. The three exceptions are the ArcelorMittal Saldanha steel plant, located at the Saldanha harbour in the Western Cape (and largely export-oriented), ArcelorMittal's Newcastle works, and the Cape Town Iron and Steel Works (Cisco) scrap-based steel mill and steel product plant. The DBSA argues that the market structure, pricing and location of the steel industry pose a risk for the South Africa economy.

7.1.3 Glass pricing and competition issues

The increase in the producer price index (PPI) for all glass products more or less matches the increase in the PPI for all sectors. However, price increases for glass supplied to the building industry significantly exceeded the increase in the overall PPI (DBSA, 2011:12).

7.1.4 Plastic pipes and input polymer pricing

DBSA (2011) estimates that polymer inputs are estimated to constitute some 40% of plastic pipe making costs, with labour costs comprising some 36%. Upstream polymer suppliers tend to practice import parity pricing, which impedes downstream plastic convertor industries, including plastic pipe manufacturers.

7.1.5 Sand and aggregates and sand

According to the Aggregate and Sand Producers Association of Southern Africa, only about half of quarrying activity is reported to the Department of Mineral Resources, and there are actually more than 1000 quarries operating in the country. Regulation in the sector needs to be amplified.

7.2 Building and construction materials' imports and export trends

The estimate of building materials' imports and exports in 2008 is provided in Table 7.

Table 7: Estimate of the imports and exports; 2008

Product/material	Imports (%)	Exports (%)
Insulation	20-25	0-25
Particle board	5-10	Minimal
Medium density fibreboard	90	0
Glass	2-38	5-15
Plastic piping	2	6
Timber prefab trusses	10	10
Steel prefab trusses	15	85
Window frames	2	5
Door frames	2	0
Carpet	5	10
Ceramic tiles	35	11
Galvanised Iron	19-44	25
Chromadek/Globalcoat	15-25	35
Steel tiles	1	20
Cement	5	1
Range	**5-44**	**0-85**

Source: CIDB, 2011

It can be noted that construction materials and products such insulation, fibreboard, glass, trusses galvanised iron and global-coat are under pressure of imports. These are there products that need to be prioritised for local production through incentives and local procurement.

8. Issues for strategic consideration

8.1 Review the role of the state in housing delivery and empower beneficiaries in the construction of their homes

Government is facing a mammoth task to deliver houses amid growing demand. It also carries the risk of having to provide warranties for poor workmanship on some of the low-cost houses. There is a need therefore to review the way houses are delivered and relieve government of the risks involved in the construction of houses. Housing support mechanisms must be established in order to support beneficiaries in the construction of their homes, the state can provide land, infrastructure and subsidies. A technical housing support service manned by competent community building teams (possibly, a revamped NHBRC) must be established to assist beneficiaries to build structures of their choice that comply with norms and standards. In addition, government must assist homebuilders to obtain materials at reasonable prices from local building suppliers; this would help to strengthen the local economy. This will require a

reform of the procurement system which must target housing cooperatives and emerging enterprises to supply building materials complying with the norms and standards of structural construction.

8.2 Harmonisation of norms and standards for construction materials

In order to afford access to construction materials manufacturing industry for diversified suppliers and to ensure the degree of market transparency that will create the conditions for a harmonized system of general rules in the construction industry, harmonized standards should be established as a matter of urgency. The National Building Regulations are framed around health and safety requirements. To date, the only compulsory standard in the construction industry is that for cement (DBSA, 2011). Agrément South Africa certifies non-standardised / nonconventional construction products, through technical assessments that verify whether the products and systems are fit for purpose. Most of the standards do not prescribe the materials and construction solutions that may be provided to satisfy the regulations. The DBSA (2011) notes that there is an increase in sub-standard materials being used in the construction of houses. This is another area requiring a considered attention; the NHBRC, SABS; Agrément South Africa must work together in improving regulatory compliance and performance.

8.3 Reform of the procurement system and support for supplier development and localisation in the construction materials manufacturing industry

Broad based black economic empowerment in the building and construction sector, including the materials manufacturing and distribution sectors, is influenced by the BBBEE Charters in the:

- *Construction Charter (design and construction sectors);*
- *Mining Charter (cement, aggregate and sand);*
- *Manufacturing Charter;*
- *Wholesale and Retail Charter; and*
- *Financial Charter.*

Of these, only the Construction, Mining and Financial Charters have been finalised.

Opportunities for enterprise development through the form of new entrants in the manufacture of products with low entry barriers with opportunities possible particularly in low capital intensive manufacturing sectors such as:

- *Sand and aggregate;*
- *Cement bricks;*
- *Concrete tiles;*

- *Corrugated roof profiling; and*
- *Door and window manufacturing.*

A recommendation is also made that government prioritise the designation of construction materials and products such insulation, fibreboard, glass, trusses galvanised iron and global-coat are under pressure of imports. These are there products that need to be prioritised for local production through incentives and local procurement. There is a need to reform procurement policies in the construction and delivering of low-cost houses funded by the government. The public housing programme must be linked to industrial policy objectives and that the government should prioritise the designation of construction materials and products for local production. This will require an emphasis on local procurement, especially in the sourcing of materials for the construction and delivering of low-cost houses funded by the government. Emphasis should not only be based on the final delivery of houses but leveraging public expenditure to expand and diversify suppliers of construction and building materials. Local production, supplier and enterprise development should be mandatory in in the request for proposals (RFPs) for public housing delivery. .

8.4 Stakeholder engagement and coordination

In developing the construction materials manufacturing industry strategy to localise building materials for low-cost housing, it is important that the Department of Trade & Industry engages strategic departments in the delivery and financing of housing, including the industry and financial institutions involved in the value chain of housing delivery. Important departments include departments of Human Settlements (policy), National Treasury (funding), NHBRC (housing regulations), *Agrément South Africa* (building material certification), SABS (standards and quality).

9. Conclusion

This study sought to assess opportunities and challenges in the building and construction of publicly provided houses. There are opportunities for growth in the local production of construction materials. Government must leverage its expenditure in the sector to foster job creation, enterprise and supplier development in the housing delivery value chain. Areas of focus for strategic industrial policy interventions are supplier development and localisation, reforming public procurement for low-cost housing delivery, emphasis on standards and quality housing delivery, and stakeholder engagement and coordination. These interventions can generate positive economic externalities which are an embodiment of effective industrial policy.

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