



EVALUATING THE QUALITY OF THE NATIONAL GOVERNMENT SELF-HELP HOUSING SCHEME IN THE WESTERN CAPE; BEFORE AND AFTER NHBRC INVOLVEMENT

By

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DECLARATION

I certify the content of the dissertation to be my own and original work and that all sources have been accurately reported and acknowledged, and that this document has not previously been submitted in its entirety or in part at any educational establishment.

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ABSTRACT

According to Section 26 (1) of the constitution of Republic of South Africa, everyone has a right to have a satisfactory house to restore and honour the dignity of the South Africans. However South African government implemented several housing programmes to bridge the gap of housing backlog in South Africa. One of the housing programmes that South African government implemented is People Housing Process (PHP). It was approved in 1998 by South African government.

South African government shifted focus on the quality of houses and mainly focused on the quantity of houses delivered through the financial year. There have been a lot of quality complaints on PHP. The quality defects are signs of foundation failures, cracks on foundations, water flooding around the houses, water not properly channelling to the drain, cracks on walls, dampness of walls, mould on walls, water seeping through the windows, poorly applied external plaster, incorrect bonding of internal walls to external walls, walls that are not straight walls, sagging ceiling panels, gable not properly filled with mortar, roof structure not properly tied up, sagging roof coverings, roof leaks, sagging roof tiles and ridges, rust on painted iron material, poor quality of blocks used, insufficient cement on mortar mix and peeling off paint.

National Home Builders Registration Council (NHBRC) are the custodians of the home building industry. They were excluded from PHP from 1998 till March 2012. NHBRC was approved to inspect PHP house in April 2012. Thus, the aim of the study was to compare the houses that were built before NHBRC involvement in PHP with those that were built after NHBRC involvement in PHP.

The sample included 50% of each of the two groups (those in houses built without NHBRC involvement and those built with NHBRC involvement), the research involved at least 50 respondents per group (McMillan, *et al* 2001:177 – recommends 15 respondents per group). The sample size per group has been put at 50 since the larger the sample the higher the accuracy.

The study is classified as quantitative research because it intended to quantify the variation in occurrence, situation, problem or issue; the information was gathered using predominantly quantitative variables and the analysis was geared to ascertain the magnitude of the variation.

The findings of the study revealed that the quality of the houses that were built under PHP programme before NHBRC intervention on PHP was not up to standard however the quality on those that were built after NHBRC involvement improved.

Therefore it is recommended for Western Cape government to implement the rectification programme which was approved by National Department of Human Settlements in 2009 mainly focusing on houses that have been severely structurally compromised and are regarded as unfit for human habitation as it poses a threat to the health and safety of the occupants (The National Housing Code, 2009: 11-13).

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ABBREVIATIONS

ANC	: African National Congress
SAHPF	: South African Homeless People's Federation
PHP	: People Housing Process
RDP	: Reconstruction and Development Programme
NHBRC	: National Home Building Regulation Council
HCPMA	: Housing Consumer Protection Measures Act
FUR	: Final Unit Report
SANS	: South African National Standards
DAG	: Development Action Group
NGO	: Non-Governmental Organisation
NHFC	: National Housing Finance Corporation
NURCHA	: National Urban Reconstruction and Housing Agency
RHLF	: Rural Housing Loan Fund
HDA	: Housing Development Agency
SHRA	: Social Housing Regulatory Authority
ISUP	: Informal Settlement Upgrading Programme
NBR	: National Building Regulations
CoCT	: City of Cape Town
PDI's	: Previously Disadvantaged Individuals
MEC	: Member of the Executive Council
QFD	: Quality Function Deployment
HOQ	: House Of Quality
VOC	: Voice Of Customer
BRE	: Building Research Establishment
ASA	: Agrément South Africa
HBM	: Home Building Manual

SCCA : Southern Climate Condensation Area

SABS : South African Bureau Standard

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Huchzermeyer (2001: 305) noted that the housing policy was created on the agreement that housing is a basic need, a human right and it provides dignity. The “right to have access to acceptable housing” was originally pronounced in the African National Congress (ANC) Reconstruction and Development Programme (RDP) in 1994 and valued in the Constitution of the Republic of South Africa (South Africa Constitution, 1996: 12). South Africa has an unpleasant history of apartheid which led to racial division to historical disadvantaged individuals (HDIs). The South African government implemented numerous acts, policies and programmes to bridge the gap caused by the apartheid government.

According to section 26 (1) of the Constitution of Republic of South Africa, 1996 (Act 108 of 1996) everyone has the right to have access to acceptable housing and moreover it states that the state must take reasonable legislative and other measures within its available resources to achieve this right (Republic of South Africa's Constitution, 1996: 7).

Housing Act 107 of 1997 implemented national housing programmes which is described as any national policy framework to aid housing development including the support to any person who cannot individually provide for their own housing needs, facilitate housing delivery, rehabilitate and upgrade existing housing stock including municipal services and infrastructure (Department of Housing, 1997: 5).

People Housing Process (PHP) was officially approved in 1998 by the South African government. Newton (2013: 1) noted that PHP was encouraged by the work of South African Homeless People's Federation (SAHPF) to bridge the gap of housing backlog in South Africa. It was also formed with the aim of transmitting skills to unskilled labour, to fight poverty and to minimise the high rate of unemployment in South Africa.

2. BACKGROUND TO THE STUDY AND LITERATURE REVIEW

The Western Cape Government (2013: 1) defines People Housing Process (PHP) as a process where beneficiaries are actively involved during defining stage of a project, planning stage of a project, executing stage of a project and during closing stage of a project. It was officially approved in 1998 by the South African government and was inspired by the work of South African Homeless People's Federation (SAHPF) as observed by Newton (2013: 1). PHP combines community initiatives, supports community participation and ownership, promotes community empowerment through the transfer of skills and builds community partnerships.

South Africa's 1996 Constitution gives assurance that each and every South African citizen has a right to have access to acceptable housing and further states that it is not just a right but it provides human dignity. Chenwi (2006: 1) highlights that the government must take reasonable legislative and other measures within its available resources to achieve the realisation of this right. Government tries to implement rights through legislation, acts, policies and other programmes.

According to Munusammy (2013: 8), the government has completed important changes with regards to housing delivery since 1994 to March 2017. There are millions of South Africans who did not qualify to have houses prior 1994 but now they have access to houses. Based on the statistics assembled by National Department of Human Settlements (Annual report 2016/2017, 2016), the government has constructed and delivered over more than three point one (3.1) million houses from 01 April 1994 to 31 March 2017 to the beneficiaries.

Table 1: Annual number of houses built from 1 April 1994- 31 March 2017

Financial Year	Number of houses built
1994/1995	60 820
1995/1996	74 409
1996/1997	129 193
1997/1998	209 000
1998/1999	235 635
1999/2000	161 572

2000/2001	170 932
2001/2002	143 281
2002/2003	131 784
2003/2004	150 773
2004/2005	148 253
2005/2006	134 023
2006/2007	153 374
2007/2008	146 465
2008/2009	160 403
2009/2010	166 758
2010/2011	45 256
2011/2012	179 197
2012/2013	113 776
2013/2014	114 354
2014/2015	95 210
2015/2016	99 904
2016/2017	90 692
Total	3 115 064

Source: National Department of Human Settlements, (1994/1995 annual report-2016/2017 annual report).

In view of the assertions above, housing delivery started slowly after the initial (1994/1995 financial year) democratic elections. In 1994/1995 financial year, 60,820 housing units were constructed and delivered to the beneficiaries. The next year (1995/1996 financial year), the housing delivery increased to about 74,409. In 1996/1997 financial year, housing delivery nearly doubled to 130,000 housing units. By the end of the first five years 709,057 houses were constructed and delivered to the beneficiaries. Housing delivery increased in 1998/1999 financial year when 235,635 houses were delivered and dropped significantly in 2010/2011 financial year when 45,256 were constructed and delivered.

Ogunfiditimi (2008: 2) confirmed that South African government is one of the countries in the world that has constructed and delivered the highest number of houses to the beneficiaries through numerous housing programmes to achieve the vision to adequate housing for all as indicated in the National Housing Policy framework. Government is bridging the backlog of houses through different types of housing programmes and subsidy schemes made available by South African government.

Mandela (1994: 5-8) noted that the Reconstruction and Development Programme (RDP) is one of housing delivery mechanisms. The RDP authorises the principle that all South Africans have a right to adequate housing in which to live in harmony and dignity. Housing is a human right. One of the RDP's main concerns is to provide for the homeless, poor of the poorest and those that cannot independently provide a shelter over their heads. RDP is a people-centred programme.

Mandela (1994: 5-8) further emphasises that the South Africans must be involved in the decision-making process to ensure that they bring necessary service delivery to the communities, in implementation to ensure skills transfer, in new job opportunities with the aim of eradicating poverty and to require new skills, and in managing and governing the society. It empowers the South Africans with education and training programmes as those are very important as it deals with unskilled labour and transferring of skills most of the time. The central objective of RDP is to improve the quality of life for the better for all South Africans and in particular the most poor and marginalised sections of our communities.

Bond (2000: 284) posits that although housing may be provided by different parties, donors and volunteers the democratic government is finally accountable for making sure that housing is provided to all South Africans. The democratic government must generate a policy framework and legislative provision so that the housing delivery is achieved, and it must assign subsidy funds from the budget, to reach a goal of not less than five per cent (5%) of the budget by the end of the five-year RDP so that housing is affordable and accessible to even the poorest South Africans.

Khosa (2000: 6) concurs with Mandela (1994: 5-8) by saying that the methodology used towards the implementation of housing, infrastructure and services must engage and empower the communities, be affordable, developmental, sustainable, take account of funding, resource constraints and encourage gender equality.

Housing Act 107 of 1997 identifies the Constitutional authority to acceptable housing access and explains Government responsibilities towards this right by setting out the legal plan for the sustainable development of housing. It lays down general principles and rules that apply to the development of housing in Government. It defines the national, provincial and local government functions with regards to the housing development to ensure that each Government sphere fulfills its functions, roles and responsibilities. It also governs the establishment and operation of the South African Housing Development Board, as well as provincial boards and the financing of housing programmes (Ossafrica.com, 1997: 7-12).

Housing Act 107 of 1997 supports all three spheres of government (national, provincial and local government) to prioritize the needs of housing development in consultation with poorer individuals and communities, particularly recognizing the needs of women to promote gender equality and other marginalized groups. The Housing Act 107 of 1997 emphasizes that the housing developments must be affordable, sustainable, environmentally friendly and culturally diverse. Housing developments must be managed fairly, honestly, justly and transparent to meet the values of good governance (Ossafrica.com, 1997: 7-12).

National Housing Code (2009: 27) states that all housing must provide protection from weather, a robust structure, and acceptable living space and privacy. A house must include sanitary facilities, storm-water drainage, a household energy supply (whether linked to grid electricity supply or derived from other sources, such as solar energy), and convenient access to clean water. Moreover, it must provide for secure occupation in different forms. Upgrading of existing housing must be accomplished with these minimum standards in mind.

National Department of Human Settlements offers several subsidies to underprivileged individuals to support the housing struggle and to honour human dignity. Initiatives include the following different types of subsidies (Department of Human Settlements, 2010:22).

- Individual housing subsidies,
- Institutional housing subsidies,
- Rural housing subsidies,

- Farm resident housing subsidies,
- Incremental housing programmes,
- Rental housing programmes,
- Project link subsidies,
- Consolidation subsidies, and
- People housing process.

According to Thwala (2010:16), South African government has concentrated on the number of houses constructed and delivered and short sighted the housing delivered with several structural defects. The defects are signs of foundation failures, cracks on foundations, water flooding around the houses, water not properly channelling to the drain, cracks on walls, dampness of walls, mould on walls, water seeping through the windows, poorly applied external plaster, incorrect bonding of internal walls to external walls, walls that are not straight, sagging ceiling panels, gable or beam filling not properly filled with mortar, roof structure not properly tied up, sagging roof coverings, roof leaks, sagging roof tiles and ridges, cracked roof tiles, rust on painted iron material, poor quality of blocks used, insufficient cement on mortar mix and peeling off paint.

Following many failures of the RDP houses that the government has built between 1994 and 2001, National Home Builders Registration Council (NHBRC) was brought on board in 2002 to assist with quality control on the houses excluding PHP housing programme. NHBRC mandate is to ensure all houses meet their quality standards and to mitigate failure of the houses (Department of Human Settlements, 2013:12).

National Home Builders Registration Council (2014: 12) defines a quality house as reliable if it meets the beneficiary and government needs. The following warranties are in place at NHBRC for newly built homes in terms of the Housing Consumer Protection Measures Act 95 of 1998 (HCPMA). 90 days or three months for maintenance related issues, 1 year or 12 months for roof leaks and 5 years for major structural defects. The homebuilder will be required to rectify at his expense any deficiency related to workmanship and materials during these periods. All NHBRC warranties are effective as from the occupation date. Quality can be measured against the specification, to be able to check if work done is according to the required specification and according to the approved building plan. If there are any deviations from the building plan, the

engineer must submit a rational design or a method statement ensuring that the alternative method can be used (Home Building Manual Part 1, 2 and 3, February 1999, Revision No.1).

Quality is also ensured by making sure that the building plan conforms to Department of Human Settlement's norms and standards. Quality can also be measured against rational design, municipal by laws, National Building Regulations (NBR) and Home Building Manual Part 1, 2 and 3 from NHBRC (Home Building Manual Part 1, 2 and 3, February 1999, Revision No.1).

Contractor must also submit foundation inspection certificate, A19 roof certificate from an engineer after the completion of each house to ensure they conform to specification. NHBRC must issue a Final Unit Report (FUR) for each and every subsidy house that is complete to issue out the warranties on the durability of structure. All material used on site must be South African National Standards (SANS) approved (National Home Builders Registration Council, 2014: 12).

The very first subsidised housing project to be NHBRC enrolled in the country was in the Western Cape. On 6 August 2004, a project of seven hundred (700) houses in Caledon Myddelton (Theewaterskloof Municipality) was enrolled. Units from this project also received the first individual Home Enrolment in South Africa (Mbali, 2010: 1).

Since then, the Western Cape has been the leading province with regard to NHBRC home enrolments of subsidised houses. To date, Western Cape enrolled ninety-four (94) projects comprising forty-three thousand, five hundred and thirty-eight (43 538) units. The Western Cape Department of Human Settlements, is itself, a registered Developer with the NHBRC, and all municipalities in the province are either currently registered, or have in the past been registered, as Developers (Mbali, 2010: 1).

There is a healthy relationship between the Provincial Department of Human Settlements and the NHBRC, and they also have a long-standing service level agreement (since 2003) in terms of which they pay the project and home enrolment fees for all projects funded by Department of Human Settlements from the housing grant (Mbali, 2010: 1).

All contractors that are appointed to construct houses on NHBRC enrolled projects need to be registered with the NHBRC. Developers of these projects which could be the

province, municipalities or their implementing agents also have to be registered (Department of Human Settlements, 2010: 15).

NHBRC monitors all of the projects that are enrolled for compliance and issues certificates of completion for houses that meet the standards and non-compliances in respect of substandard work. Failure of rectification of non-compliances by the home builders can lead to de-registration of the contractors or developers. NHBRC plays a very important role in housing delivery and they are the custodians of quality in the home building industry and the department is fairly happy with the service it provides (National Home Builders Registration Council, 2014: 12).

The quality of subsidised home building in the Western Cape has improved significantly since the NHBRC came on board in 2003 excluding PHP programme and through this process of monitoring and certification a high standard of building has been consistently maintained since the NHBRC started their enrolments (Department of Human Settlements, 2010: 1-14).

The majority of complaints on the quality of houses that are received by the Department of Human Settlements in Western Cape are in respect of houses built prior to the NHBRC becoming involved or on the People's Housing Process (PHP) programme, which was excluded from NHBRC enrolment (Department of Human Settlements, 2010: 1-14).

Department of Human Settlements brought on board NHBRC on PHP in April 2012 because the variable quality of housing delivered under the PHP programme is a concern that is why Department of Human Settlements had to partner with the NHBRC and other stakeholders to improve that quality and achieve the same consistency they have achieved under other programmes (Department of Human Settlements, 2010: 2).

Department of Human Settlements understand that enrolling these projects and houses would simply shift the risks associated with the project from the beneficiaries as stated in PHP policy who turn to the government for assistance to the NHBRC. Department of Human Settlement goal is to get to the point where they treat PHP projects like any other housing programme where they are subject to project and home enrolment (Department of Human Settlements, 2010: 1).

Support organisation acts as a developer on PHP. They are responsible for the appointment of suppliers as per the policy but Department of Human Settlements no longer leaving the appointment of contractors to support organisations alone. They will still be involved in the selection but the department will appoint them and hold them accountable. In addition the track records of the suppliers will also be verified by the department's works inspectors and engineers to ensure that PHP groups make informed choices with respect to quality of work and progress time frames (Department of Human Settlements, 2010: 1-14).

Department of Human Settlements also created an internal database of PHP suppliers where the suppliers need to be registered in their database to be considered for contracts. They can institute a process to suspend suppliers from their database if they deliver substandard houses (Department of Human Settlements, 2010: 1-14).

The next step towards their goal is to get all PHP contractors registered with the NHBRC. They also acknowledge that many emerging contractors are working in this PHP sector and they have a responsibility as the government and the NHBRC to assist emerging contractors to develop their knowledge, skills and capacity to take on larger projects by assisting them to pass the NHBRC entrance exam and register with their organisation (Department of Human Settlements, 2010: 1-14).

1.3 PROBLEM STATEMENT

Since 1994, South African government has initiated and implemented various housing programmes that sought to provide housing for the poor and to bridge the gap of housing backlog in South Africa as stated in the National Housing Policy framework. One of the housing programmes is People Housing Process (PHP) which is driven by the beneficiaries according to the policy however PHP is not driven by the beneficiaries as set out in the policy. It is a contractor driven approach with different internal and external stakeholders.

There are protests around the country based on the slow pace delivery and poor quality of the houses delivered through PHP. The large number of houses that need to be delivered forced government to focus on the quantity of houses delivered. In spite of

this, there is an everlasting backlog list of housing beneficiaries. Even those who received houses complain about the quality of the houses delivered.

According to Thwala (2010:16), the government shifted focus to provide high quality standards of houses for the poor. Some partners including NHBRC were brought in to assist in addressing the quality of houses being delivered. It is not known whether the bringing in of this partner has affected the quality of the houses delivered.

Department of Human Settlements (2012: 22) describes the subsidy scheme as an imperative measure through which South Africans can have access to houses. The South African individuals that qualify for a housing subsidy receive a once-off grant from the government. Government does not give money to those who qualify for a housing subsidy however the subsidy amount is paid directly to the financial institution, conveyancing attorney or service provider.

Chenwi (2006:2) clarifies that the grant is only used to purchase a piece of land and to provide services such as water, sanitation and to buy the materials that are needed for building a house or to buy existing houses. The housing subsidy is not a loan but a human right to those who qualify and they do not need to pay it back.

Western Cape Provincial Government's guidelines, 2005 states that the aim of PHP projects is to assist the beneficiaries through different stages of building their own homes with technical support from third parties. The PHP policy further encourages the use of fewer professionals during the construction process and encourages the beneficiaries to contribute labour to their own homes with the aim of saving funds. The savings result in a bigger and a better house for a smaller amount of money.

Massyn and Lamont (2009: 5) noted that the policy states that the main purpose of PHP is to empower the beneficiaries, educate the community, transfer skills and to train the beneficiaries in the construction process. The training that is provided to the community becomes a life-skill to be used to obtain future employment and also ensure that the housing unit meets with the client's requirements.

Egbu, Ellis and Gorse (2004: 308) notes that most of the defects are mainly people related problems that occur during design and construction stage. Sommerville (2007:

395) agrees with Egbu et al. by saying that the great number of the defects in low-income houses occurs during the construction stage due to insufficient site supervision. Thwala (2010: 16) revealed that government has focused on the number of houses constructed and delivered and short sighted the issue of structural defects.

1.4 OBJECTIVES

In order to provide answers to the research questions, the following objectives are set:

- Objective 1: Outline quality problems of the houses built before NHBRC involvement against the houses built after NHBRC involvement in Western Cape.
- Objective 2: Investigate extent of defects in Western Cape for those houses built without NHBRC involvement against those houses built with NHBRC involvement.

1.5 RESEARCH QUESTIONS

This study aims to provide answers to the following research questions:

- Question 1: Are there any quality differences between the houses built before and after NHBRC involvement in the PHP?
- Question 2: Are the quality requirements met since NHBRC involvement in the PHP?

1.6 RESEARCH METHODOLOGY

The research methodology in this study serves a guide on the intended approach to be used to gather information from study objects which are human beings. The reason for targeting human beings related to the quality of houses delivered through PHP programme in the Western Cape will be determined.

1.6.1 TARGETED POPULATION AND SAMPLE SIZE

Maree (2007:179) posits that the size of the sample is critical to the correctness of the results of the research in that the larger the sample the higher the probability of getting the correct results. Three factors are suggested which should influence the size of the sample, and these are;

- type of statistical analysis planned,
- accuracy of results required from the research, and
- characteristics of the population to be studied.

In another study, McMillan and Schumacher (2001:177) suggest that there are eight (8) factors to be considered for the determination of the sample size, and these are illustrated in the table 1 below:

Table 2: Factors affecting sample size decision

1. Type of research <ul style="list-style-type: none">• correctional research a minimum of 30 subjects• comparing groups, minimum of 15 correspondents per group• major research – 100 respondents per subgroup – 2- - 50 per minor subgroup
2. Research hypothesis – if you expect small differences use a large sample
3. Financial constraints – there isn't always enough finance for research projects
4. Importance of results – dependent on the decisions to be made and their impact
5. Number of variables studied – the higher the population or critical the decision the larger the sample required
6. Methods of data collection – inaccurate / inconsistency methods require larger samples
7. Accuracy needed – accuracy of results increases with the increase of sample sizes
8. Size of population – as population size increases a progressive smaller percentage of subjects may be selected.

Source: McMillan and Schumacher, 2001:177.

In view of the assertions above, the total number of houses (total population under study) is just over a 1 000 (1170), part of the houses were built without the NHBRC involvement and the later part was built with the involvement of the NHBRC. The sample will therefore include 50% of each of the two groups (those in houses built without NHBRC involvement and those built with NHBRC involvement), the research will involve at least 50 respondents per group (McMillan, *et al* 2001:177 – recommends 15 respondents per group). The sample size per group has been put at 50 since the larger the sample the higher the accuracy.

1.6.2 RESEARCH DESIGN

Kumar (2011:31) suggests that type of research can be looked at from three (3) different perspectives:

- applications of the findings of the research study,
- objectives of the study, and
- mode of enquiry used in conducting the study.

The third perspective (mode of enquiry perspective) concerns the process adopted to find answers to the research question. There are two approaches to enquiry:

- the structured approach, and
- the unstructured approach.

Kumar (2011:32-33) explains that in the structured approach everything that forms the research process is predetermined like objectives, design, sample, and the questions planned to ask the respondents. Kumar (2011:32-33) further explains that the structured approach is more appropriate to determine the extent of a problem, issue or phenomenon. The structured approach to enquiry is usually classified as **quantitative research**.

The study is classified as quantitative research because it tends to quantify the variation in occurrence, situation, problem or issue; the information will be gathered using

predominantly quantitative variables and the analysis will be geared to ascertain the magnitude of the variation.

Therefore, drawing conclusions on the findings of quality of houses built through PHP programme in the Western Cape Province before NHBRC involvement and after NHBRC involvement can be accomplished.

1.6.3 DATA COLLECTION TECHNIQUE

1.6.3.1 ADMINISTERED QUESTIONNAIRE

A questionnaire was administered and specific type of questions which require participants to choose answers they think are applicable to them was designed. I personally administered the questionnaire.

This study used a questionnaire to determine the nature of the defects occurred on houses delivered through PHP in Western Cape. Thereafter, compared the quality of houses that were built before with those that were built after NHBRC involvement. The houses built before and after NHBRC involvement was determined by the number of years from the occupation date.

1.6.3.2 ANALYSING QUALITATIVE DATA

After the data has been captured using various techniques that are relevant, certain activities must be done with this data (data processing) before conclusion which prove or disprove research question is drawn.

1.6.3.3 PREPARATION OF DATA

After the required data is gathered from different respondents, it will be a must to be prepared before the analysis.

1.6.3.4 CODING OF DATA

This is the analytical process whereby data from both quantitative (laboratory experiments) and qualitative is categorized in order to facilitate analysis.

1.6.3.5 ESTABLISHING THEMES AND CATEGORIES

Different themes and categories will be identified prior to analysis.

1.6.3.6 STRUCTURING ANALYSED DATA

This is a process whereby data is structured in a particular way with the purpose of storing and organizing it. For this type of study data structuring will done on a computer as well as on journal for the purpose of readily convenience when it is required for referral and further studies.

1.6.3.7 INTERPRETING DATA

This is the last stage of data processing before conclusions and deductions are drawn. The collected data will be assigned meanings and further clarification.

1.6.3.8 PROVIDING TRUST WORTHINESS OF DATA

As a proof of credibility of the data collected during the study, the following will be done:

- A list of administered questionnaire will be attached as the appendix of the dissertation.

1.7 ETHICAL CONSIDERATION

In order to comply with ethical behaviour and standards, no individual names were mentioned on the study so that the participants can give the correct information with confidence knowing that no information will be linked to them.

It is therefore essential to protect the identity of the person from whom the information was gathered. If collected, the identity of the participants was protected at all times and not left lying around in notebooks or un-protected computer files.

Bailey (1978:384) noted that harm includes not only hazardous medical experiments but also any social research that might involve such things as discomfort, anxiety, harassment, invasion of privacy, or demeaning or dehumanising procedures. Therefore no harm occurred to the participants in any way.

Everyone who participated in this study freely consented to participation without being forced or unfairly pressurised. This means they were well-informed about what participation entails and reassured that declining will not affect any services they receive. Written consent may frighten the individuals in some situations, verbal consent was obtained.

1.8 DELIMITATIONS OF STUDY

The research of this study is limited to the following:

- Houses built through PHP programme.
- Information supplied by Western Cape Department of Human Settlements.
- Information supplied by NHBRC.
- PHP houses built in Western Cape Province only.
- PHP houses before and after NHBRC involvement.
- Information supplied by the beneficiaries.
- Research conducted in Khayelitsha Township.

1.9 SIGNIFICANCE OF STUDY

The significances of carrying out this research are:

- To examine the causes of defects in PHP.
- To investigate whether poor mechanism led to shoddy workmanship.

- To determine use of unskilled labour on PHP.
- Self-driven approach led to poor workmanship and is advisable on future programmes or not.
- NHBRC involvements on PHP cause any improvement in terms of quality.
- The reasons of excluding PHP programme to be enrolled in NHBRC in 2002.
- The reasons led to PHP housing programme being treated different to other housing programmes.
- Determine the difference between PHP programme and other housing programmes.
- Involvement of NHBRC on PHP programme from the onset could it have been eliminated the shoddy workmanship that the Western Cape Province is experiencing.
- Determine if the Province learn from their mistakes by bringing NHBRC on board in 2012.

1.10 OUTLINE OF THESIS

The report will consist of 6 chapters as follows:

Chapter 1: Introduction and background

This chapter focuses on introduction, background to the study and literature review, problem statement, objectives, research questions, research methodology, ethical consideration, limitations of the study, significance of study and outline of research.

Chapter 2: History on National Government's self-help scheme houses

Chapter two will focus on related history on National Government's self-help scheme houses based on current books, academic journals and websites.

Chapter 3: Processes leading to a quality house

Chapter three will focus on processes, procedures, regulations and policies that constitute a quality in a house.

Chapter 4: Research Design and Methodology

The design and techniques adopted for this research will be reflected in this chapter. The preliminary work and the results obtained will also be shown in this chapter. The main study will also be introduced in this chapter.

Chapter 5: Data presentation, data analysis and discussion of results

The results and discussions of the main study will be represented in this chapter.

Chapter 6: Conclusion and Recommendations

The conclusions drawn from the investigation and the possible recommendations derived from the main study will be included in this chapter.

1.11 CONCLUSION

South Africa's history has been dominated with bitter apartheid which led to racial division. Towns and cities have been divided into townships without basic infrastructure for historical disadvantaged individuals. The government implemented RDP to meet basic needs, provide achievable, realistic and clear programmes to bridge the gap. The government also implemented several legislations and acts to work in harmony with RDP.

PHP is one of the housing programs designed to bridge the housing backlog in South Africa. It also plays a crucial role on skills transfer and job creation to the communities. Moreover it provides shelters for many South Africans that cannot provide for their own houses. However there have been many protests around Western Cape Province about the poor quality of houses delivered through PHP and slow pace delivery.

Department of Human Settlements agreed that the majority of complaints on the quality of houses that are received in Western Cape are in respect of houses built prior to the NHBRC becoming involved on PHP. Department of Human Settlements also confirmed that the quality of subsidised home building in the Western Cape has improved significantly since the NHBRC came on board in 2003 excluding PHP programme.

The background of the study as well as literature review was discussed on this chapter to have a better understanding of South African history as well as different types of housing programmes.

CHAPTER 2

HISTORY ON NATIONAL GOVERNMENT'S SELF-HELP SCHEME HOUSES

2.1 INTRODUCTION

According to section 26, chapter 2 of the South African Constitution protects citizen's right to adequate housing. It further says that it is not only a constitutional requirement but a human dignity. The Government realises that this is a right for all South Africans. The right of having access to adequate housing is not going to be implemented instantly or overnight, it will take time and government has built over 3 million subsidised housing units since 1994 (Masilela, 2012: 1).

Section 26 (2) of the Constitution of Republic of South Africa emphasizes that it is the government's duty to take reasonable legislative and other measures, within its available resources, to achieve the progressive realization of this right. Provincial government and local government share responsibility with national government for delivery of sufficient or acceptable housing (Constitution of the Republic of South Africa, 1996:7).

The Constitution also states that "no one may be evicted from their home, or have their home demolished, without an order of court made after considering all the relevant circumstances. No legislation may permit uninformed evictions (Masilela, 2012: 7).

In October 2000, the Constitutional Court made an important ruling on the government's constitutional obligation to provide adequate housing for all and shelter for children (Anon, 2012: 8). The establishment of legal rights to housing began in 1997, the Housing Act was passed. A comprehensive National Housing Code was issued in 2000.

According to Statistics South Africa 2011, City of Cape Town has the highest proportion of households who live in shacks not in backyards across the municipalities in the province. City of Cape Town consists of 13 percent (%) of people who lives in shacks. City of Cape Town consists of 7 percent (%) of people who lives in backyards. Together, shacks in backyards and shacks not in backyards accommodate almost 20

percent (%) of all households in the Province (Statistics South Africa, 2011: 16-18), due to the massive growing demands the backlog remains difficult to eradicate.

The Department of Human Settlements has recognised that the backlog in South Africa is not being reduced fast enough due to massive increase in a number of people living in shacks and in backyards and has committed to increase the rate of delivery by bridging the backlog by 2030. Department of Human settlements looks at total eradication of backlogs of more than 2,1 million housing units, which translates to about 12,5 million people (Yearbook 2012/13, 2013: 6).

National Department of Human Settlements already provides various subsidies to the poor to aid the housing effort and to honour human dignity. Initiatives include the following different types of subsidies (Department of Human Settlements, 2010:22).

- Individual housing subsidies,
- Institutional housing subsidies,
- Rural housing subsidies,
- Farm resident housing subsidies,
- Incremental housing programmes,
- Rental housing programmes,
- Project link subsidies,
- Consolidation subsidies, and
- People housing process.

According to Knights (2004), government's goal is subject to fiscal affordability, to increase housing delivery on a sustainable basis to a peak level of 350 000 units per annum until the housing backlog is overcome. It is expected that this process may take several years as the housing delivery is a long term achievement due to its nature. Realisation of the goal relies on government ensuring that its implementation systems in all three spheres of government can accommodate the budget allocation and delivery programme.

Anon (2012) observes that broad principles of housing policy include people centered delivery and partnerships; skills transfer and economic empowerment; fairness and equity; choice; quality and affordability; innovation; transparency, accountability and monitoring; and sustainability and fiscal affordability.

2.2 SELF-HELP SCHEME HOUSES

According to Turner (1972: 43), self-help housing is a process where individuals decide to do something about their housing situation in order to uplift their quality of life. They use their own resources such as labour, savings, material and management ability.

Gilbert (2004: 13-40) observes that the South African Government's choice in 1994 of going for the quantity rather than quality option was most probably dictated by the large backlog of housing required when it introduced the National Housing Subsidy Scheme. In South Africa, self-help housing was formally adopted in 1998 in the form of the People Housing Process, which was seen as empowering communities in the various aspects of the housing delivery process (Department of Human Settlements, 1998: 10-11).

The Western Cape Provincial Government's guidelines on PHP states that PHP projects are directed at assisting families to build or organise their own homes, with technical support from third parties (Department of Housing Western Cape, 2005). The policy goes on to state that the PHP method is a lower-cost method, saving funds by utilising fewer professionals and encouraging beneficiaries to contribute labour to their own houses. These savings result in a bigger, better house for less money.

The aim of this system is to empower and educate the community as well as train the beneficiaries in the construction process, provide the required artisan skills so that this training will become a life-skill to be used to obtain future employment and also ensure that the housing unit meets with the client's requirements (Massyn and Lamont, 2009:207).

A PHP project needs to be initiated by the community but as most communities do not have the capacity to initiate these projects they are normally supported through the process by a community-based organisation, a non-governmental organisation, a provincial department or the municipality. The PHP is understood as a way of enhancing the housing subsidy to go further by eliminating profit in housing delivery, and allowing beneficiaries to exercise a large degree of resilience, ingenuity and ability to look after their own housing needs (National Housing Code, 2000:5).

The PHP is based on maximum beneficiary involvement during the building of their houses as an alternative housing delivery with the aim of supporting people's initiatives

(Mani, 2009: 24). The PHP was introduced by the government to assist those beneficiaries who wish to enhance their housing subsidies to build or organise the building of their homes.

The Western Cape Provincial Government's guidelines on PHP states that PHP projects are directed at assisting families to build or organise their own homes, with technical support from third parties. The policy goes on to state that the PHP method is a lower-cost method, saving funds by utilising fewer professionals and encouraging beneficiaries to contribute labour to their own houses (Massyn and Lamont, 2009: 211).

The Development Action Group (DAG) is a NGO that operates in the field of community facilitation and have been involved in numerous PHP projects since the inception of this delivery model. The main objective of a DAG PHP project is to provide for housing delivery in a participatory way that leads to an integrated understanding of development amongst the community and local authority participants (Manie and Tapela, 2006:12).

They further state that the main ingredients of a DAG PHP project is capacity building prior to commencement of the project, community control, choice of design and specification of the housing unit, use of local and own labour and a high quality end product. It must be noted however that despite Government expressing an interest in increasing the use of the PHP delivery method is has only been used on approximately 10% of housing delivery for the period 1998 – 2003 (Manie and Tapela, 2006:12).

The PHP is a government housing-delivery mechanism that supports households who wish to enhance their subsidies by building their own homes or organising between themselves the building of their homes. The process allows beneficiaries to establish a housing-support organisation that will provide them with organisational, technical and administrative assistance. The assistance includes training and guiding the beneficiaries in building their own homes (South Africa Yearbook 2012/13, 2013:2-20).

The subsidy is available to beneficiaries enjoying functional tenure rights to the land they occupy. The land is normally in rural areas and belongs to the State and is given by the State and the authorities. Unlike the project-linked subsidy, where a contractor builds houses for a number of people, the PHP allows people or beneficiaries to build or organise the building of their homes (Department of Human Settlements, 2010:80-85).

The PHP is a useful tool for community involvement. Savings resulting from beneficiary participation in the building of their own homes and the material used may result in homes that are bigger and of better quality than contractor-built houses. PHP assists households who wish to enhance their homes by actively contributing towards building their own homes (Department of Human Settlements, 2010:90).

In 1998 the government decided to adopt a new housing delivery alternative that is people-driven called the “People’s Housing Process” (PHP). The main objective of this approach was to ensure that communities are at the centre of the construction of their homes. The other objective of PHP was to transfer skills to the community by using unskilled labour and also to conquer high rate of unemployment in South Africa (Mani, 2009: 23).

2.3 APPLICABLE BUILDING LAWS AND REGULATIONS

2.3.1 THE SOUTH AFRICA CONSTITUTION ACT, ACT 108 OF 1996

The Constitution provides for the right of access to adequate housing for everyone living in South Africa including children and prisoners. Section 26 (2) of the Bill of Rights puts an obligation on the State to take reasonable legislative and other measures within its variable sources to achieve the progressive realisation of this right. Section 26 (3) prohibits evictions from and demolitions of people’s homes without an order of court made after considering all relevant circumstances (Constitution of the Republic of South Africa, 1996:7).

2.3.2 THE HOUSING ACT, ACT 107 OF 1997 AND HOUSING CODE

The Housing Act, Act 107 of 1997 provides for the facilitation of a sustainable housing development process, for this purpose to lay down general principles applicable to housing development in all three spheres of government, to define the functions of national, provincial and local government in respect of housing development (Housing Act 107, 1997:2).

The housing Code which emanates from the Housing Act, Act 107 of 1997 is a comprehensive document that sets out the overall vision for housing in South Africa. It

sets out linkages between various policies and housing delivery programmes (Housing Act, 1997:12-14).

2.3.3 HOUSING CONSUMER PROTECTION MEASURES ACT, ACT 95 OF 1998

The purpose of the Housing Consumer Protection Measures Act of 1998 is to make provision for the protection of housing consumers, to provide for the functions and the establishment of the NHBRC and to provide for the matters connected therewith. The NHBRC registers every builder and regulate the home building industry by formulating and enforcing a code of conduct. The implementation of the Act is monitored continuously (Housing Consumer Protection Measures Act, 1998: 2).

2.4 ROLE OF SOUTH AFRICAN HOMELESS PEOPLE'S FEDERATION (SAHPF) IN HOUSING

SAHPF was created in 1996; it is a member of Slum Dwellers International, a network aiming to facilitate housing delivery by building self-reliance within low-income communities. SAHPF is made of local community organizations (saving schemes of between 10 to 15 members) brought together at the community, city and national level to enable collective management needed to work towards consensus solutions. PHP was approved in 1998 and was inspired by the work of SAHPF (Ashoka, 2005:1-3).

SAHPF uses collective action as a core strategy to strengthen communities, enabling them to initiate and manage changes in areas that they have prioritized – housing being one of them. SAHPF also mobilises communities' own resources, including money, time, and labour. It keeps SAHPF's costs low and enables them to negotiate for complementary goods, like land tenure security, infrastructure, that are necessary to sustain demand for long-term investment in housing (Ashoka, 2005:1-3).

2.5 HOUSING SUBSIDIES

A housing subsidy is a grant by government to qualifying beneficiaries for housing purposes. The subsidy is either paid to a seller of a house or, in new developments; the subsidy is used to finance the construction of a house that complies with the ministerial

minimum norms and standards. The house is then transferred to the qualifying beneficiary (South Africa Yearbook 2012/13, 2013: 8).

One of the Department of Human Settlements' areas of responsibility in the delivery of human settlements relates to the bottom-most end of the market, where it provides housing subsidies to the poor. This is where the bulk of the housing backlog exists, affecting mainly those who earns from R0 - R3 500 a month and never owned a house before (South Africa Yearbook 2012/13, 2013: 344).

Variation amounts are added in subsidy amount for people with disabilities who qualify for a housing subsidy receives additional amount to their subsidy to improve their houses with special additions such as paving, ramps to their doors, grab rails in bathrooms, door handles that are installed on a lower position to be wheelchair friendly and visible door bells for the deaf. Their subsidy application forms must be accompanied by doctor's certificate as a proof confirming their disability status (South Africa Yearbook 2012/13, 2013: 135).

Variation amounts are also added where there is geographic terrain whereby roads are not developed for material to be delivered by trucks to the sites where labour has to be hired just to deliver the material and also on geotechnical conditions where soil is maybe H class (clay soil) thus need a stiffened raft which is more costly (South Africa Yearbook 2012/13, 2013: 135).

2.6 ROLE OF HOUSING

As the Constitutional Court has said, the provision of "housing as a human right constitutes more than simply providing bricks and mortar". Proper housing is a fundamental building block not only to human decency in terms of living conditions, but also in terms of stability (Anon, 2012: 7).

Government focus shifted from housing being just a roof over people's heads, to providing sustainable and integrated human settlements where people can work, pray, play and have access to amenities required for their day-to-day living. Government functions are to determine, finance, promote, communicate and monitor the implementation of housing and sanitation programmes (Department of Human Settlements, 2013: 120-122).

In other words, having proper housing allows stability in life, facilitates the storage of belongings, a foundation from which to look for a job most applicable to a job seeker, to build from a small house into a better one, and provides stability for children's education. It is important fundamental bedrock to a better and improved quality of life cannot be underestimated (Department of Human Settlements, 2013: 120-122).

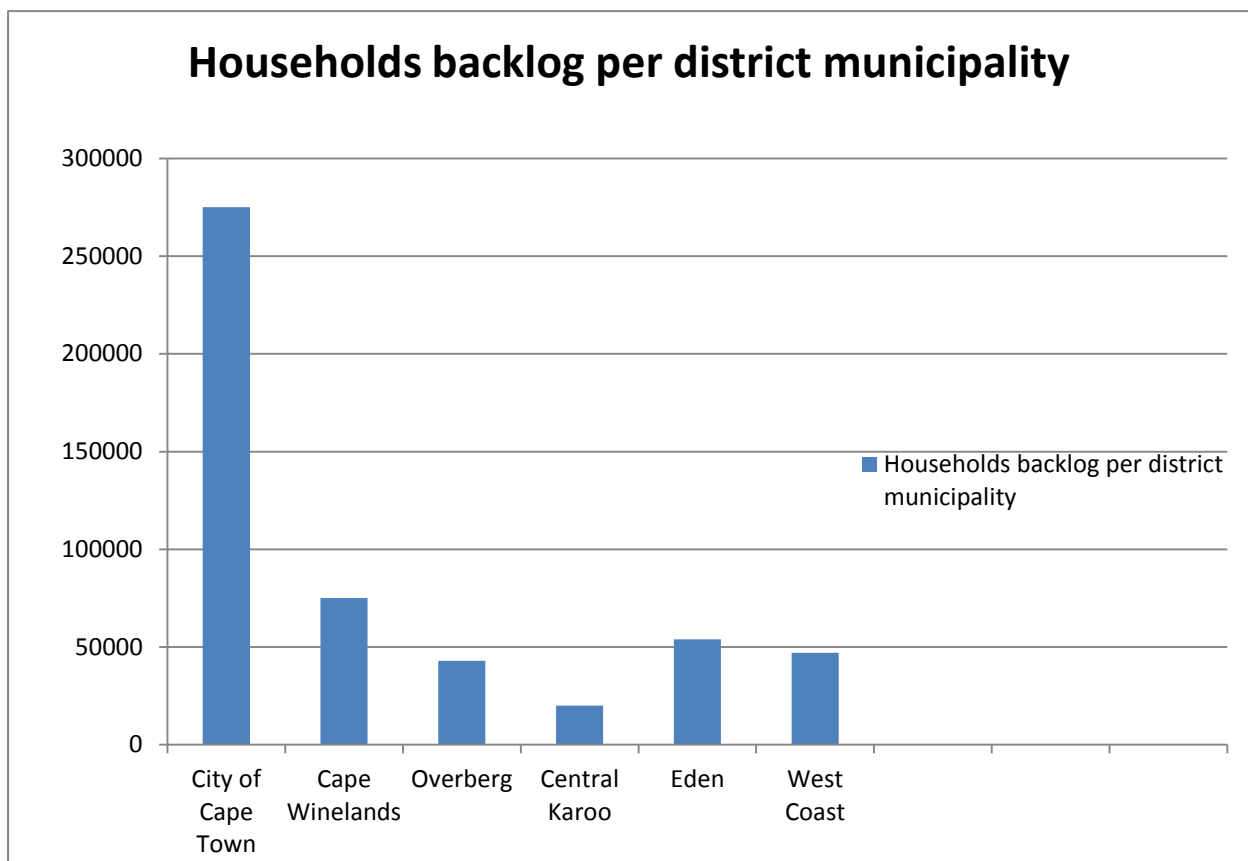
The establishment of formal housing also naturally brings with it over time, better opportunities for commerce around those housing settlements, schools for children who grow up in those neighbourhoods, infrastructure in terms of electricity and water, and so on. In other words, formal housing can act as an essential catalyst to aid development and growth. Proper housing aids the development of better communities where all people can feel that they truly belong to society (Masilela, 2012:6).

Although the South African housing policy provides for an effective right to housing for all its citizens, the issue of prioritisation is important given the context of extreme housing needs and shortages. In the Housing Act priority is accorded to the poor and addressing special needs. All households earning R3 500 per month or less qualify for subsidy assistance (Department of Human Settlements, 1998: 1-17).

2.7 HOUSING SITUATION AND DEMAND

The housing backlog, as per the Western Cape Housing Demand Database and the City of Cape Town's housing database revealed that the provincial backlog is estimated at approximately 521 305, with 54% situated in the City of Cape Town (CoCT).

Figure 1: Household backlog per district municipality



Source: Department of Human Settlements (2013)

2.8 ROLE PLAYED BY HOUSING INSTITUTIONS

The department's support institutions that plays an important role in enhancing the norms and standards of housing, as well as making housing more accessible to all South Africans. The institutions also facilitate the specific housing and housing related needs of the market, in addition to the role provincial governments and municipalities play (Department of Human Settlements, 2013: 345-350). These institutions are accountable to the Executive Authority of the Department of Human Settlements. The institutions are as follows:

- National Home Builders Registration Council (NHBRC),
- National Housing Finance Corporation (NHFC),
- National Urban Reconstruction and Housing Agency (Nurcha),
- Social Housing Foundation,
- Rural Housing Loan Fund (RHLF),

- Housing Development Agency (HDA),
- Servcon Housing Solutions,
- Social Housing Regulatory Authority (SHRA), and
- Thubelisha Homes.

2.8.1 THE NATIONAL HOME BUILDERS REGISTRATION COUNCIL (NHBRC)

The early days of a democratic South Africa brought with it millions of people needing adequate housing. At the time, unprincipled home builders cashed in on the dire need for housing, constructing defective houses for customers who had no recourse for their grievances. This led to customer dissatisfaction and boycotts, which in return discouraged banks from lending to lower income house purchases (National Home Builders Registration Council, 2015:1-7).

There was a clear and urgent need for a central authority to oversee standards in the home building industry (National Home Builders Registration Council, 1998: 9). NHBRC was established in 1998 in terms of the Housing Consumer Protection Measures Act 1998 (Act 95 of 1998) and is mandated to protect the interests of housing consumers and to regulate the home building industry.

The main purpose of the Housing Consumers Protection Act is to give protection to housing consumers. At the same time it created the National Home Builders Registration Council (NHBRC), whose objective is to stand for the interests of housing consumers by giving a warranty to protect against defects in new homes and to give cover to housing consumers in respect of the failure of builders to fulfill their obligations in terms of this Act (Housing Consumer Protection Measures Act, 1998: 9). NHBRC renders the following services:

- Home Builder Registration,
- New home enrolment,
- Home inspections,
- Complaints and Conciliations,
- Technical Advisory Services,
- Home Builder Training and Development, and
- Research and Innovation.

2.8.1.1 NHBRC WARRANTY SCHEME

The first and most important step is compliance, in line with Housing Consumer Protection Measures Act. All home builders must be registered with the NHBRC and all new homes must be enrolled at least 15 days prior to construction. Enrolment is not only required by South African law, it allows the NHBRC to conduct quality inspections on all new homes during various stages of construction. It also affords the housing consumer with three warranties. All NHBRC warranties are effective as from occupation date (Home Building Manual part 1 and 2, 1999: 3). The warranties are as follows:

- Builder rectification of minor defects identified by the housing consumer within the first three (3) months of occupation,
- Builder rectification of roof leaks identified within one (1) year from date of occupation, and
- Major structural defects identified within five (5) years from date of occupation.

NHBRC warranty scheme does not cover the following items (Home Building Manual part 1 and 2: 4):

- Alterations/ additions,
- Swimming pool,
- Tennis court,
- Household appliances,
- Air conditioning system,
- Fence,
- Lift, and
- Stable/ workshop.

2.8.1.2 NHBRC INVOLVEMENT IN PHP

Following many failures of the RDP houses that the government has built prior 1994 National Home Builders Registration Council (NHBRC) was put on board in 2002 to assist with quality control on the houses excluding PHP housing programme. NHBRC mandate is to ensure all houses meet their quality standards to mitigate failure of

houses. National department has initiated housing rectification programme with the sole purpose to rectify all the defective houses in all provinces (Manyani, 2015: 4).

The majority of complaints on the quality of houses that are received by the Department of Human Settlements in Western Cape are in respect of houses built prior to the NHBRC becoming involved or on the People's Housing Process (PHP) programme, which was excluded from NHBRC enrolment (Mbali, 2010: 1-4).

Department of Human Settlements brought on board NHBRC on PHP in April 2012 because the variable quality of housing delivered under the PHP programme is a concern that is why Department of Human Settlements had to partner with the NHBRC and other stakeholders to improve that quality, and achieve the same consistency they have achieved under other programmes (Mbali, 2010: 1-4).

Previously beneficiaries of government's PHP, who are actively involved in the building of their own homes, were exempted from NHBRC registration. A number of these houses were badly built and have since deteriorated. NHBRC will be required to enrol the PHP houses (Manyani, 2015: 4).

2.9 HOUSING CHALLENGES

According to Section 3 of the South African housing context (2007:36), the housing crisis means that rapidly growing numbers of people are unable to access adequate housing. They are forced to live in poor conditions, with inadequate access to basic services, protection from the elements, living space and protection from arbitrary evictions. It is difficult to quantify the large housing backlog due to a lack of reliable statistics and lack of agreement on a suitable definition of inadequate housing.

At the time of South Africa's first democratic elections in 1994, it was estimated that approximately 1.5 million families lived in inadequate housing conditions in urban areas. This figure (1.5 million) included families living in shacks in informal settlements and the backyards of formal houses, sharing overcrowded formal houses and living in overcrowded hostels. Seven years later, in 2001, the number of families living in inadequate housing conditions in urban areas had increased to 2.4 million (and this figure is believed to still be increasing). The rapid increase in informal settlements is a very visible manifestation of the increasing housing backlog. From 1996 to 2001, the

number of families living in shacks increased from 1.45 million to 1.84 million. This is an increase of 27%, which is far greater than the 10% increase in population over the same period (Department of Housing, 1994: 27).

The root of the housing problem lies in South Africa's apartheid history. Apartheid was a model of social engineering that pervaded every level of existence and social fabric. Under apartheid, more than 80% of South Africans were denied land and housing rights. Apartheid laws controlled where people could live and resulted in large numbers of people having to live in unacceptable conditions in informal settlements, backyard shacks and hostels. Growing poverty and unemployment and increasing income inequality have increased these problems (Department of Housing, 1994: 27).

There have also been problems with the quality of housing delivered. Evaluations of the impact of the Housing Subsidy Scheme have found that though it has contributed towards an overall general improvement in people's lives (e.g. with regards to access to secure tenure and basic services), in general, the real needs of people have not been adequately met and beneficiaries are highly dissatisfied. The location of new housing projects, typically on the periphery of towns and cities where large amounts of cheap land are usually available, was also found to be a major problem due to the inaccessibility of employment and urban opportunities. Equally troubling has been the lack of people-centred approaches, with low levels of community participation in most aspects of housing projects (Department of Housing, 1994: 27).

Reasons for the inadequate quality of much of the subsidised housing have been a lack of government capacity for supporting housing delivery; the severe constraints of the subsidy amount, which is insufficient for an adequately sized housing unit on an adequately-located and -serviced piece of land and a lack of real support for people-driven housing processes.

Although the People's Housing Process (PHP) programme was introduced in 1998 to support people-driven housing processes, government staff generally lack the skills to work in a participatory, bottom-up way, and there has been insufficient funding available to support the facilitation of people-driven housing processes by NGOs.

2.10 INFORMAL SETTLEMENTS

There are several definitions of informal settlements. According to Statistics South Africa informal settlements are defined as an unplanned settlement on land which has not been surveyed or announced as residential, consisting mainly of informal dwellings or shacks. An informal dwelling is a temporary structure not approved by a local authority and not intended as a permanent dwelling (Statistics South Africa, 2011: 7).

The 2009 National Housing Code Informal Settlement Upgrading Programme (ISUP) illustrates informal settlements on the basis of the following characteristics:

- Illegality and informality,
- Inappropriate locations,
- Restricted public and private sector investment,
- Poverty and vulnerability, and
- Social stress.

City of Tshwane Metropolitan Municipality observes informal settlement as one shack or more constructed on land, with or without the consent of the owner of the land or the person in charge of the land. Shack means any temporary shelter, building, hut, tent, dwelling or similar structure which does not comply with the provisions of the National Building Regulations (NBR) and Building Standards Act, 1977 (Act 103 of 1977), the regulations promulgated under that Act and the Municipality's Building Control By laws and which is primarily used for residential purposes (Statistics South Africa, 2011: 8).

Buffalo City Metropolitan Municipality is in agreement with the definition of City of Tshwane Metropolitan Municipality, it is defined as areas where groups of housing units have been constructed on land that the occupants have no legal claim to, or occupy illegally; unplanned settlements and areas where housing is not in compliance with current planning and building regulations or unauthorized housing (Statistics South Africa, 2011: 8).

2.11 NUMBER OF HOUSEHOLDS LIVING IN INFORMAL SETTLEMENTS IN THE WESTERN CAPE

The City of Cape Town (CoCT) has the highest proportion of households who live in shacks, not in backyards (13%) across the municipalities in the province. The number and proportion of households living in shacks not in backyards by district municipality is summarised below. Together, shacks in backyards and shacks not in backyards accommodate almost 20 percent (%) of all households in the Province (Statistics South Africa, 2011:13-14).

Figure 2: Number of households living in informal settlements in the Western Cape

Municipality	Shacks		Backyards	
	No. of households	% of households	No. of households	% of households
City of Cape Town	143 823	13%	74 957	7%
Cape Winelands	19 815	10%	11 836	6%
Eden	14 068	9%	9 522	6%
Overberg	7 506	10%	4 048	5%
West Coast	6 272	6%	4 744	4%
Central Karoo	183	1%	174	1%
Western Cape	191 668	12%	105 282	6%

Source: Census, 2011

According to the Census 2011, there has been a significant increase in the number of households living in informal dwellings in the City of Cape Town since 2001, although

the proportion of households living in formal dwellings has remained stagnant. In 2001, 79 percent (%) lived in formal dwellings (Statistics South Africa, 2011:13).

By 2011 this had decreased slightly to 78 percent (%) only 1 percent (%) difference from 2001. The number living in shacks in backyards has increased at a faster rate, although off a lower base. The number of households living in shacks not in backyards has increased by 33,645 (thirty three thousand six hundred and forty five) over the ten year period although the proportion of households living in shacks not in backyards has declined slightly from 14 percent (%) in 2001 to 13 percent (%) in 2011 (Lehohla, 2011:13).

In Cape Town alone, the housing backlog is estimated at around 400 000 households and it is widely anticipated that this demand will not be appropriately addressed. The inability of the housing delivery instruments to address the growing demands of the urban poor, in part explains the increase in informality within South Africa. However, in addition to changing demographics (high rates of influx and subdivision of existing households) and macro and micro economic factors (increasing unemployment in the formal sector); exclusionary land use regularization (which tends to favour the wealthy) has resulted in the increase in informality (Upgrading informal settlements, 2007: 3).

2.12 THE RDP HOUSING SYSTEM IN THE WESTERN CAPE

The African National Congress (ANC) government initiated the building of Reconstruction and Development Programme (RDP) housing units in order to provide housing to the previously disadvantaged individuals (PDI's) and to address the severe housing backlog that has developed in South Africa in recent years.

However, in spite of the good intentions, there has been a profound criticism with regard to the inferior building standards and quality of the housing units. RDP consists of six basic principles.

2.12.1 THE SIX BASIC PRINCIPLES OF THE RDP

Six basic principles, linked together, make up the political and economic philosophy that underlies the whole RDP. This is an innovative and bold philosophy based on a few simple but powerful ideas (Anc.org.za, 1994: 5-6). They are as follows:

2.12.1.1 AN INTEGRATED AND SUSTAINABLE PROGRAMME

The legacy of apartheid cannot be overcome with disorganised and uncoordinated policies. The RDP brings together strategies to connect all resources in a logical and purposeful effort that can be sustained into the future. These strategies are implemented at national, provincial and local levels by government, municipalities, parastatals and organisations within civil society working within the framework of the RDP (Anc.org.za, 1994: 5-6).

2.12.1.2 A PEOPLE DRIVEN PROCESS

People with their goals and collective determination, are the most important resources. RDP focuses on people's most immediate needs, and it relies, in turn, on their energies to drive the process of meeting these needs. People participation or involvement is very crucial as the RDP is the people driven process (Anc.org.za, 1994: 5-6).

Regardless of race or sex, or whether they are rural or urban, rich or poor, the people of South Africa must together shape their own future. Development is not about the delivery of goods to a passive citizenry. It is about active involvement and growing empowerment (Anc.org.za, 1994: 5-6).

2.12.1.3 PEACE AND SECURITY FOR ALL

Promoting peace and security must involve all South Africans and must build on and expand the National Peace Initiative. Apartheid placed the security forces, police and judicial system at the service of its racist ideology. The security forces have been unable to stem the tide of violence that has surrounded people (Anc.org.za, 1994: 5-6).

To begin the process of reconstruction and development security forces that reflect the national and gender character of South Africa must be established. Such forces must be non-partisan, professional, and uphold the Constitution and respect human rights. The judicial system must reflect society's racial and gender composition, and provide fairness and equality for all before the law (Anc.org.za, 1994: 5-6).

2.12.1.4 NATION-BUILDING

Central to the crisis in South Africa are the massive divisions and inequalities left behind by apartheid. South Africans must not maintain the separation of South African society into a 'first world war' and a 'third world war' - another disguised way of preserving apartheid. South Africans must not confine growth strategies to the former, while doing patchwork and disorganised development in the latter, waiting for trickle-down development (Anc.org.za, 1994: 5-6).

Nation building is the basis on which to build a country that can support the development of Southern African region. Nation building is also the basis on which to ensure that South Africa takes up an effective role within the world community. Only a programme that develops economic, political and social viability can ensure South African national power (Anc.org.za, 1994: 5-6).

2.12.1.5 LINK RECONSTRUCTION AND DEVELOPMENT

The RDP is based on reconstruction and development being parts of an integrated process. This is in contrast to a commonly held view that growth and development, or growth and redistribution are processes that contradict each other. Growth is the measurable increase in the output of the modern industrial economy is commonly seen as the priority that must pave the way for the development (Anc.org.za, 1994: 5-6).

Development is represented as a marginal effort of redistribution to areas of urban and rural poverty. In this view, development is a deduction from growth. The RDP breaks decisively with this approach. Hence the growth is defined as an increase in output, and then it is of course a basic goal (Anc.org.za, 1994: 5-6).

However, where that growth occurs, how sustainable it is, how it is distributed, the degree to which it contributes to building long-term productive capacity and human resource development, and what impact it has on the environment, are the crucial questions when considering reconstruction and development (Anc.org.za, 1994: 5-6).

The RDP integrates growth, development, reconstruction and redistribution into a unified programme. The key to this link is an infrastructural programme that will provide access to modern and effective services like electricity, water, telecommunications, transport, health, education and training for all South Africans (Anc.org.za, 1994: 5-6).

The programme both meet basic needs and open up previously suppressed economic and human potential in urban and rural areas. In turn this leads to an increased output in all sectors of the economy, and by modernising infrastructure and human resource development, it also enhances export capacity. Success in linking reconstruction and development is essential if the important goal is to achieve peace and security for all (Anc.org.za, 1994: 5-6).

2.12.1.6 DEMOCRATISATION OF SOUTH AFRICA

Minority control and privilege in every aspect of South African society are the main obstruction to develop an integrated programme that unleashes all the resources of South Africa. Thorough going democratisation of South African society is, in other words, absolutely integral to the whole RDP. The RDP requires fundamental changes in the way that policy is made and programmes are implemented (Anc.org.za, 1994: 5-6).

Above all, the people affected must participate in decision-making. Democratisation must begin to transform both the state and civil society. Democracy is not confined to periodic elections. It is rather an active process enabling everyone to contribute to reconstruction and development. An integrated programme, based on the people, that provides peace and security for all and builds the nation, links reconstruction and development and deepens democracy; these are the six basic principles of the RDP (Anc.org.za, 1994: 5-6).

2.13 ROLE OF THREE SPHERES OF GOVERNMENT IN PHP

2.13.1 ROLE OF LOCAL GOVERNMENT IN PHP

Municipalities must ensure that the right to housing is progressively realized in their jurisdiction. They must also identify and designate land for housing and ensure that water, sanitation, electricity, roads, storm water drainage and transport are provided (Housing Act 107, 1997: 19-22).

According to Housing Act 107 (1997: 19-22) if a municipality has been accredited to administer national housing programmes in terms of which a housing development project is being planned and executed, such municipality may not act as developer, unless such project has been approved by the relevant provincial housing development board. However local government must as part of the municipality's process of integrated development planning take all reasonable and necessary steps within the framework of national and provincial housing legislation and policy to ensure that the dwellers of its area of jurisdiction have access to adequate housing, issue title deeds, locate plots and boundaries, do building inspections during construction mainly the substructure to ensure that the house has been built within boundaries.

Housing Act 107 (1997: 19-22) emphasizes that the accredited municipality shall set housing delivery goals in respect of its area of jurisdiction, identify land for housing development, maintain a public environment conducive to housing development which is financially and socially viable, promote the resolution of conflicts arising in the housing development process, and initiate plan, co-ordinate, facilitate, promote and enable appropriate housing development in its area of jurisdiction.

Local government participate in a national housing programme in accordance with the rules applicable to such programme by (Housing Act 107, 1997: 19-22):

- Promoting a housing development project by a developer,
- Act as a developer in respect of the planning and execution of a housing development project on the basis of full pricing for cost and risk,
- Entering into a joint venture contract with a developer in respect of a housing development project,

- Establishing a separate business entity to execute a housing development project,
- Administering any national housing programme in respect of its area of jurisdiction, and
- Facilitating and supporting the participation of other role players in the housing development process.

2.13.2 ROLE OF PROVINCIAL GOVERNMENT IN PHP

According to Housing Act 107 of 1997 Provincial government does everything in its power to promote and facilitate the provision of adequate housing in its province within the framework of national housing policy. Provincial government must coordinate housing development in the province and support municipalities in the performance of their duties such as to determine provincial policy in respect of housing development, promote the adoption of provincial legislation to ensure effective housing delivery, take all reasonable and necessary steps to support and strengthen the capacity of municipalities to effectively exercise their powers and perform their duties in respect of housing development. Moreover the provincial government shall co-ordinate housing development in the province. In instances whereby a municipality cannot or does not perform a duty imposed by the Housing Act, Provincial government intervene by taking any appropriate steps to ensure the performance of such duty, and prepare and maintain a multi-year plan in respect of the execution in the province of every national housing programme and every provincial housing programme, which is consistent with national housing policy (Housing Act 107, 1997: 16-18).

Housing Act 107 (1997: 16-18) emphasizes that the MEC shall administer every national housing programme and every provincial housing programme which is consistent with national housing policy and in accordance with that programme and the prescripts contained in the Code furthermore any projects in respect thereof, the financing thereof out of money paid into the provincial housing development fund, determine provincial housing development priorities in accordance with national housing policy and apply procurement policy in respect of housing development determined by the Minister.

2.13.3 ROLE OF NATIONAL GOVERNMENT IN PHP

National government is responsible for, among other things, determining a housing policy, setting broad national housing delivery goals and monitoring the performance of provincial and local government delivery goals and budgets. It is also required to establish and maintain a national housing data bank and information system (Housing Act 107, 1997: 9-12). The national government acting through the Minister consults with every MEC and the national organisation representing municipalities establish and facilitate a sustainable national housing development process.

According to the Housing Act 107 (1997: 9-12), the Minister determines national policy including national norms and standards in respect of housing development, set broad national housing delivery goals and facilitate the setting of provincial and, where appropriate, local government housing delivery goals in support thereof. Moreover the minister also monitors the performance of the national government and, in co-operation with every MEC, the performance of provincial and local governments against housing delivery goals and budgetary goals.

Housing Act 107 (1997:9-12) noted that the Minister shall determine a procurement policy and to assist provinces to develop the administrative capacity required for the effective exercise of their powers and performance of their duties in respect of housing development furthermore the Minister shall support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and perform their duties in respect of housing development. Apart from that the Minister shall promote consultation on matters regarding housing development between the national government and representatives of:

- civil society,
- the sectors and subsectors supplying or financing housing goods or services,
- provincial and local governments and any other stakeholder in housing development, and
- Promote effective communication in respect of housing development.

Housing Act 107 (1997:9-12) clarifies that the Minister shall also establish a national institutional and funding framework for housing development, negotiate for the national apportionment of the state budget for housing development, prepare and maintain a

multi-year national plan in respect of housing development, allocate funds for national housing programmes to provincial governments including funds for national housing programmes administered by municipalities, allocate funds for national facilitative programmes for housing development, obtain funds for land acquisition, infrastructure development, housing provision and end- user finance, institute and finance national housing programmes, establish and finance national institutions for the purposes of housing development, and supervise the execution of their mandate, evaluate the performance of the housing sector against set goals and equitableness and effectiveness requirements, take any steps reasonably necessary to create an environment conducive to enabling provincial and local governments, the private sector, communities and individuals to achieve their respective goals in respect of housing development; and promote the effective functioning of the housing market (Housing Act 107,1997:9-12).

2.14 PEOPLE HOUSING PROCESS (PHP) HOUSING SUBSIDY PROGRAMME

The government has developed housing policy and implemented a number of programmes and subsidy mechanisms to provide access to housing in South Africa, hereby fulfilling its obligation to promote and ensure the right to adequate housing for all. One of the significant housing subsidy schemes that are being implemented by government is the PHP (Constitution of Republic of South Africa, 1996: 7).

PHP is a housing mechanism that encourages client engagement in the development process and the aims of this delivery system are the empowering and uplifting of the community by giving them the responsibility, skill and power to assist each other in developing their own community environment. The client or beneficiary engages in the process from the start and has a large degree of choice over matters relating to the product, the project and the development process to be followed (Massyn and Lamont, 2009:1).

In May 1998 government approved policy to support people's initiatives, National Housing Policy supporting the People's Housing Process. This policy and programme encourages and supports individuals and communities in their efforts to fulfill their own housing needs and who wish to enhance the subsidies they receive from government by assisting them in accessing land, services and technical assistance in a way that

leads to the empowerment of communities and the transfer of skills. PHP housing delivery approach depends on subsidies from government and technical, financial, logistical and administrative assistance from NGO's and support organisations (Thematic Committee, 2001: 4).

For PHP subsidy mechanism and programme to be successful and sustainable technical assistance and support from government, the private sector and non-governmental organisations is critical. Communities are mobilised to organise themselves and to collectively take decisions about their needs, contribution and needed support. PHP projects promote those facing the greatest hardship to be the most resourceful (Thematic Committee, 2001: 1-6).

Furthermore, those projects such as those supported by the South African government can work to unleash that resourcefulness for lasting change. PHP affirm the value of the wisdom of ordinary people to take control of their own lives. Furthermore, experience gained through this process encourages people to have confidence in themselves and to tackle other challenges in their neighbourhoods (Thematic Committee, 2001: 1-6).

In Western Cape, like all over the world women continue to contribute without acknowledgement or recognition. The government is aware that many households (particularly poor households) are headed by women and that policies must ensure that women play a major role and they have equal access to resources (Thematic Committee, 2001: 5).

Through the PHP process the role that women especially play in decision making processes around housing delivery is highlighted. Majority of the community institutions that are set up to provide housing consists predominantly of women. These women are actively involved in the planning, financial arrangements and construction of their houses. In addition, they have broken stereotypes which categorised them in a manner that excluded them from playing certain parts e.g. as bricklayers normally seen as roles for men (Department of Local Government and housing, 2005: 31).

Communities involved in this process are supported by government to share knowledge and to learn from one another. Exchange programmes are organised where communities and their support partners meet to share their experiences. Very unique networks have been formed to ensure that other communities benefit from the experience of others (Thematic Committee, 2001: 5). The Peoples Housing Process is

underpinned by the principle of building communities, and this principle makes it relevant to housing programmes in any part of the world.

Although much of the focus in the past years has been on housing delivery targets, the housing programme in South Africa has also focused on the needs of special groups. In recognition of the special needs of disabled persons, government has approved additional funding in addition to the normal subsidy amount to provide for modifications to houses where beneficiaries or members of their household are disabled (Charlton, 2004: 17).

2.14.1 PHP BENEFITS TO BENEFICIARIES

According to Thematic Committee (2001: 1-6) the benefits of Peoples Housing Process are to save on labour costs due to the fact that the beneficiaries builds houses by themselves. The beneficiaries save on profit to be paid to developers. The beneficiaries also participate on decision making of final end product which also create employment opportunities and also transfer skills to unskilled labour. PHP is flexible in the sense that the beneficiaries have a chose to begin with a smaller house and make additions at a later stage. They can also build a house of their choice, sometimes for less money. There is more choice, creativity and community involvement. PHP creates an environment for poor and vulnerable groups to initiate and participate in their housing programme furthermore they receive training on skills that they can later use to earn an income e.g. bricklaying, carpentry, painting, tiling, plastering etc.

2.14.2 CHALLENGES FACING PHP

Thematic Committee (2001: 1-6) observed challenges faced by PHP as the poor design of houses; houses that are environmentally unsound; houses that are not suitable to the local climate, and houses that entail high maintenance costs

In confronting these challenges the housing policies and programmes implemented by the government will be strengthened and will further contribute towards ultimately achieving the goals of the Habitat Agenda of adequate housing and sustainable human settlements (Thematic Committee, 2001: 1-6).

With PHP delivery system the intention is that the community engages in the management aspects of the project but also provides the labour component of the project, at no cost to the project, which in turn frees up subsidy money to create larger and better quality houses. The delivery system is unique in that it empowers the beneficiaries of the housing subsidy to be responsible for managing the development and building process (Thematic Committee, 2001: 1-6).

2.14.3 BASIC ENTRY REQUIREMENTS OF PHP

National Department of Housing (2001:6-7) provides access to beneficiaries who meet the following criteria:

- A person who is a lawful resident in South Africa,
- A person who is unemployed or not earning more than R3500.00 per month,
- A person who is 18 years of age or older,
- A person who is legally married, cohabiting or legally divorced,
- A person who is single with financial dependents,
- A person who has not previously benefited from government subsidy, and
- A person who has not owned a fixed residential property.

2.15 ROLE OF SUPPORT ORGANISATION IN PHP

The Support Organisation's main responsibility is to give technical and administrative assistance to beneficiaries and for preparing beneficiaries for PHP by going through a series of workshops with the community. Support Organisation acts as a developer on PHP projects. Support Organization is appointed by the community or beneficiaries (National Department of Housing, 2001:6-7).

The role of support organisation involves conceptualising, packaging, registering of legal entities, setting up delivery systems and implementation of the project (National Department of Housing, 2001:6-7). Support organization is also involved in capacity building and training. The beneficiary training takes place during the pre-application phase and on approval of their subsidies. In the pre-application phase beneficiaries are addressed in mass meetings or big groups (National Department of Housing, 2001:6-7).

The next stage is subsidy approval and approved beneficiaries are invited to a workshop where the housing delivery processes are dealt with in detail. Therefore the bulk invest in any housing project is in the pre-implementation stage which is partially funded through the facilitation grant. The Support Organisation develops different contracts with all stakeholders for the smooth implementation of the project. Individual beneficiaries enter into a contract on the basis of their choice (National Department of Housing, 2001:6-7).

2.16 THE SUPPORT ORGANISATION HAS THE FOLLOWING RESPONSIBILITIES:

According to National Department of Housing (2001:6-7) the support organisation shall help families to apply for the PHP subsidy, manage the subsidy grants and open up a bank account where the subsidies are kept safely, assist with the transfer of the land, submit the building plans which are negotiated with the families / households to the Municipality, advise families on how to make or buy building materials, make credit arrangements with suppliers, train, assist and supervise construction work and certify progress made and to manage the draw-down payments using the account administrator

The Support Organisation plays an important role in a PHP project. The Organisation must be easily accessible to all people in the PHP project. Sometimes Support Organisations set up Housing Support Centres or offices so that communities can be reached. It is where the people can get information on building a house and receives skills training; use equipment to make bricks and where they can borrow building equipment (National Department of Housing, 2001:6-7).

2.17 ROLE OF ACCOUNT ADMINISTRATOR IN PHP

Department of Human Settlements pays the subsidy amount directly to the support organisations account administrator then account administrator pays the supplier according to the progress made on site. In Western Cape account administrators makes four payments on one house (National Department of Housing, 2001:1-12).

The stages of payments are as follows:

- Slab,
- Wall plate height,
- Roof height, and
- Completion stage.

The other amount that is paid by the account administrator is a grant funding. It consists of the following grants:

- Facilitation grant, and
- Establishment grant.

Facilitation grant is paid on stages, 50 percent (%) on project approval and signing contract agreement, 30 percent (%) on beneficiary approval and 20 percent (%) on completion of top structures. Facilitation grant is a sum of R144.00 (one hundred and forty four rands only) per unit. Establishment grant is only payable when the house is 100 percent (%) complete. It is a sum of R800.00 (eight hundred rands only) per unit (National Department of Housing, 2001:1-12).

2.18 ROLE OF FACILITATOR IN PHP

Facilitator's main responsibility is to be involved in the briefing stage or initial stage of the project. Briefing process is very crucial in the built environment. It minimises the risks or unforeseen circumstances in an early stage than to deal with them when they occur. It also minimises unnecessary costs, delays and poor quality. The whole point of facilitation process is to have clear communication lines and also clarify clear roles and responsibilities for all stakeholders involved in a project. It also helps to emphasize that the beneficiaries are involved from the start of the project in PHP and also have a choice on the design of the house (National Department of Housing, 2001:1-12).

2.19 CONCLUSION

The following issues were discussed in this chapter: housing subsidies, role of housing, housing situation and demand, role played by housing institutions, self-helping houses, applicable building laws and regulations and role played by SAHFP in housing.

Provision of adequate housing to the poor is seen as a task of South African government. There is a huge housing backlog in Western Cape due to population growth and high rate of unemployment. Inadequate housing is seen as a lack of service delivery to rightfully implement the government policies and procedures.

Western Cape government is clearly way ahead from where it was in 1994 in terms of housing delivery with regards to the number of houses that are delivered on yearly basis. However Western Cape government shifted focus from the quality of houses delivered and focused mainly on the quantity of houses delivered.

The major challenge that is currently facing the province is to improve the quality of houses delivered and to implement the national rectification programme which will be discussed in depth in the next chapter. South African government has also tried to put different types of subsidies in place with the aim of protecting human dignity.

Department of Human Settlements in Western Cape would not have made it this far if it was not the role played by housing institutions. Housing institutions play a vital role with regards to the implementation of norms and standards, national building regulations, municipal bylaws, government policies and procedures.

The other issues that were discussed on this chapter were the politics and service delivery problems around housing problems. The procedures and processes on how to eradicate informal settlements in Western Cape were discussed.

It is quite evident as per statistics findings that in Western Cape there is a significant increase of informal settlements, this is partly due to global economic pressures with increasing households failing to access housing finance and the rural-urban migration as a result of lack of employment opportunities in rural areas pushing housing demand.

Eradication of informal settlements is a complex challenge in Western Cape. The ongoing influx of people toward urban areas in search of employment remains a key driver of housing demand and the challenge of growing informal settlements. Department of

Human Settlements in Western Cape as well as local government are doing everything in its power to eradicate the informal settlements as fast as they can.

The different roles and responsibilities of PHP stakeholders were discussed because they play an important role in the overall planning, coordinating and controlling of a project.

Stakeholder's form part of 4 m's of project management which is as follows:

- Man,
- Money,
- Machinery, and
- Material.

CHAPTER 3

PROCESSES LEADING TO A QUALITY HOUSE

3.1 DEFINITION OF QUALITY

Quality means different things to different people. There are many definitions of quality from different quality Guru's. According to Crosby quality is conformance to requirements. Crosby also emphasized the principle of doing it right the first time or zero defect principle. According to Juran quality is fitness for use. Juran also emphasized the 80-20 principle which is 80% of problems are created by 20% of the causes. According to Deming a good quality means a predictable degree of uniformity and dependability with a quality standard suited to the customer (Chandrupatla, 2009: 1-10).

A quality house is reliable as it meets the beneficiary, technical, design, specification, planning and government needs. Quality can be measured against the specification, to be able to check if the work done is according to the required specification and according to the approved building plan (Project Management Guide, 2014: 1-11).

No product or service can be delivered with the exact size, this leads to a process of tolerance which is a difference between the maximum size and minimum size limit. If there are any deviations from the building plan, the engineer must submit a rational design or a method statement ensuring that the alternative method can be used and is of acceptable standard (Chandrupatla, 2009: 8-10).

Quality is also ensured by making sure that the building plan conforms to Department of Human Settlement norms and standards. The minimum norms and standards of low-income houses are as follows (The National Housing Code, 2009: 21-43):

- 40 square meter house,
- Two bedrooms,
- Combined living / kitchen area and a kitchen basin,
- The installation of ceiling with a prescribed air gap for entire dwelling,
- The installation of above ceiling insulation,
- Plastering of all internal walls,

- Plastering and painting of external walls,
- A separate internal bathroom with bath, hand wash basin and toilet, and
- A standard basic electric installation with pre-paid meter box with distribution board and one light, one plug to each room.

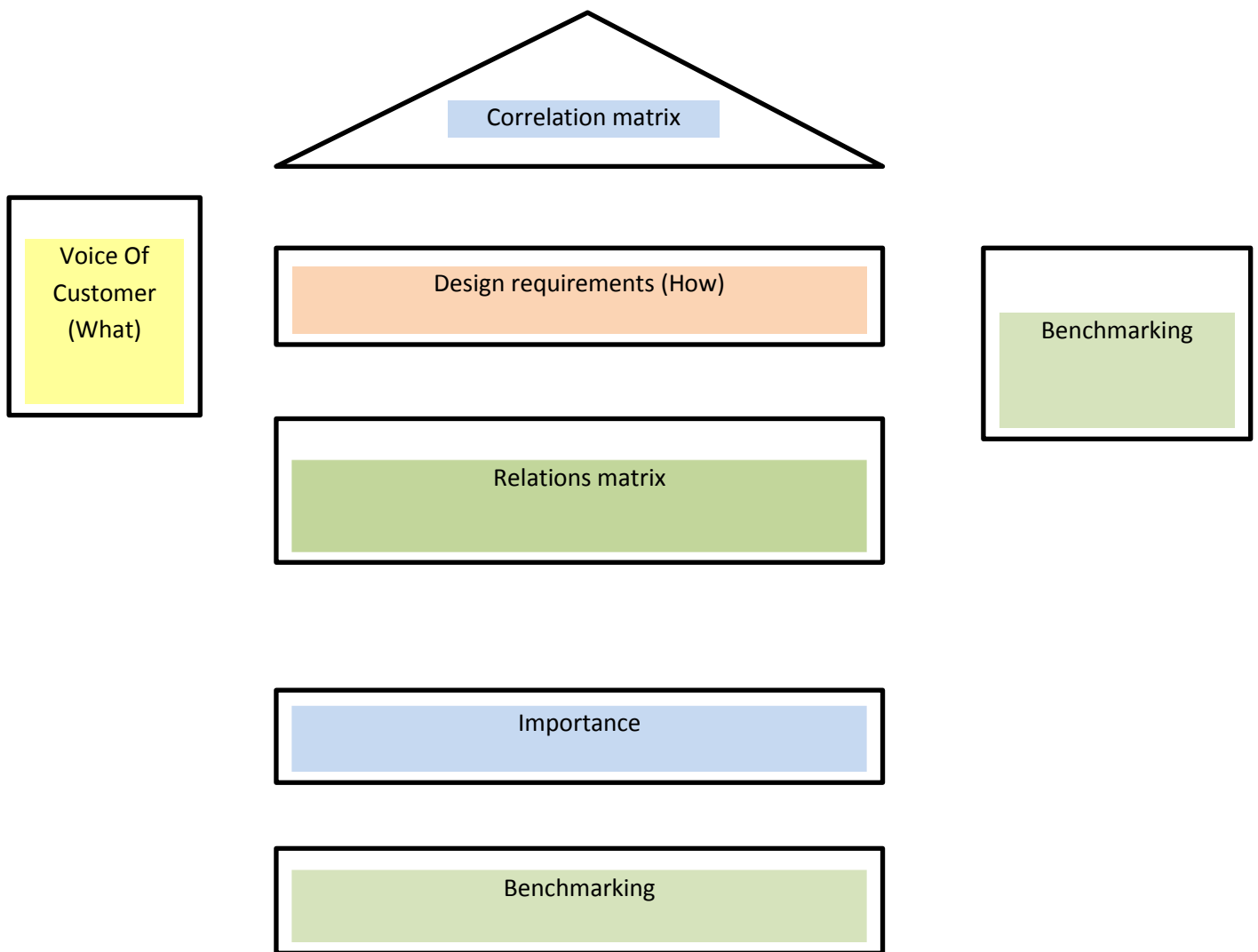
Quality can be measured against the following items:

- National Building Regulations (NBR),
- Rational design,
- Agrément Certificate,
- MANTAG Certificate,
- Municipal by laws,
- Department of Human settlements norms and standards,
- Housing code,
- NHBRC Home Building Manual part 1 and 2, and
- NHBRC Home Building Manual part 3.

Contractor must also submit foundation inspection certificate, A19 roof certificate from an engineer after the completion of each to ensure they conform to specification. NHBRC must issue a Final Unit Report (FUR) for each and every house that is complete and does not have any outstanding non-compliance to issue out the warranties on the durability of structure. FUR acts as a warranty guarantee that the house conforms to requirements. All material used on site must be South African National Standards (SANS) approved (National Home Builders Registration, 2014: 12).

Quality Function Deployment (QFD) Bernal et al (2009:6) conquers with Deming that it is oriented to the “voice of the customer” and not to the “thoughts of the developer”. With the focus on the consumer, all decisions made during the service design are targeted at the customer.

According to Schutta 2005, quality can be illustrated in terms of house of quality (HOQ). It is called House of Quality due to a roof-like structure in its top. The house of quality can be divided in “rooms”. A tour through the different “rooms” is given below.



Source: AkaO Yoji, 2004

3.1.1 VOICE OF CUSTOMER (VOC)

This section deals with establishing objectives which represents the answer to what is desired in order to reach the new service development. The objectives are derived from client's requirements and are called voice of customer. A more detailed description is needed in order to implement client requirements (Bernal, Dornberger, Suvelza and Byrnes, 2009; 8-10).

3.1.2 DESIGN REQUIREMENTS

After completing the client's requirements, need to go to the design requirements of the service. It is necessary to define how each client's requirement will be satisfied by the

service. These are measurable features that can be evaluated at the end of the development process (Bernal, Dornberger, Suvelza and Byrnes, 2009; 11-14).

3.1.3 RELATION MATRIX

Relations between the client and design requirements are not always equal; there are complex relationships and varying levels of strength. A single design requirement may have an influence on several of the client's requirements (Bernal, Dornberger, Suvelza and Byrnes, 2009; 15-16).

3.1.4 BENCHMARKING

The QFD technique allows for a competitor assessment with Benchmarking. The competitor's services are compared to the company's services. Benchmarking is carried out for "What" and "How". The two companies' services are compared along the lines of client requirements ("What"). A characteristic measure is determined for each service feature. Next, the clients' perception of the satisfaction requirements will be assessed and compared to the competitors' (Bernal, Dornberger, Suvelza and Byrnes, 2009; 17-19).

In the technical competitor comparison ("How's), the design requirement fulfilment will be compared. It is recommended that the personnel in charge of the service design make this evaluation (Bernal, Dornberger, Suvelza and Byrnes, 2009; 17-19).

3.1.5 IMPORTANCE LEVEL

The importance level states the relative significance of each client ("What") and design requirement ("How") to achieve the desired goal (Bernal, Dornberger, Suvelza and Byrnes, 2009; 20-21).

3.1.6 CORRELATION MATRIX

The correlation matrix is a triangular table. "How" is integrated by establishing the correlation between all of the elements. The matrix describes the strength of the

relationships between the design requirements. The aim is to identify which requirements support each other and which ones do not. Positive correlations mean that the service development efficiency can be increased without competing or duplicate effort. Deciding which features are absolutely necessary to the service is aided by negative correlations; by increasing one feature, there is a decrease in another and vice versa. If there are no negative correlations, there could be a mistake in a previous step (Bernal, Dornberger, Suvelza and Byrnes, 2009; 22-23).

3.2 STRUCTURAL QUALITY OF A HOUSE

Structural quality is generally used to measure the fitness of a building for its intended use. Quality is one of triple constraints in the construction industry and project management industry. The non-achievement of such a crucial aspect of a triangle can result in the failure of a construction project and in the dissatisfaction of clients and/or building occupants. Failure on one side of a triangle affects the other side which is time and cost (Burke, 2009: 36).

Furthermore, the non-achievement of quality can result in delays with regards to time which is also another important triple constraint in building projects and the need for rework, which can result in a significant financial loss which is cost. Quality focuses on eliminating customer dissatisfaction, non-conformance to quality expectations, defects and variations and seeks to avoid waste of time, materials, and financial resources due to rework (Love, Edward and Smith, 2005: 197).

3.3 STRUCTURAL DEFECTS IN PHP

According to Khumalo (2010: 2), one of the reasons for violent demonstrations and riots in South Africa is the lack of housing and the fact that available housing is likely to be badly constructed low-income houses with cracks. This is a problem that affects most provinces in South Africa.

Government has focused on the number of houses delivered and shifted focus on structural defects. Most of the defects that are reported to Department of Human Settlements are houses that are enrolled through PHP prior NHBRC involvement (Ogunfiditimi, 2008: 3).

The defects are structural cracks, non-structural cracks, waterproofing, latent defects, patent defects, floor slab level lower than the curb, roof leaks, dampness of walls, paint peeling off, walls not square and water seeping through windows and doors (Chong and Low, 2006: 2).

National Department approved housing rectification programme in 2009 mainly focusing on houses that have structural defects. It has been proven that most of the houses that fall under housing rectification programme are the houses that were delivered or built through PHP programme. The intentions of PHP programme were to build houses for all people who couldn't afford them (The National Housing Code, 2009: 11-13).

Defects to houses that were built between 15 March 1994 and 31 March 2002 can be rectified. This applies to houses with structural defects where the municipal services were inappropriate. From 1 April 2002, the Housing Consumer Protection Measures Act 95 of 1998 protects people who receive subsidised housing excluding houses that were enrolled on PHP (The National Housing Code, 2009: 11-13).

However this means that they can lodge complaints with the National Home Builders Registration Council (NHBRC) about structural problems in their houses. Examples of structural problems are cracking walls, weak doors and roofs, and insecure buildings. The Act says that the builder of the home must fix structural defects that develop during the warranty period of five years. The home owner must also notify the home builder in writing within the warranty period as from occupation date (The Housing Consumer Protection Measures Act, 1998: 11).

The rectification programme facilitates the renovation or complete reconstruction of residential properties financed by Government through the various housing programmes offered by Government. The programme focuses on the following; the renovation or complete reconstruction of residential properties that have been severely structurally compromised and are regarded as inappropriate for transfer into ownership of the beneficiary or unfit for human habitation as it poses a threat to the health and safety of the inhabitants (The National Housing Code, 2009: 11-13).

A significant number of houses collapsed, the housing system had been abused and not used for the direct purposes it was intended for. This programme was also mismanaged by contractors who didn't train people, but allowed them to build houses without proper training. Many contractors had built shoddy houses and didn't train

people under the peoples housing programme. It was found that people were not skilled to build houses; hence all the defects in the houses occurred (Department of Human settlements, 2009: 1-4).

Western Cape Province has not implemented the housing rectification programme yet though it has been approved by National Department. Before the actual rectification can begin, both national and provincial department will send technical experts throughout the province to visit all the defective houses to determine the extent of work that needs to be done and at what cost to prepare for tendering process. Some of the houses will be demolished and built from scratch while the others will be fixed and delivered to the beneficiaries (Department of Human settlements, 2009: 1-4).

Government will provide alternative measures when the house is found to be defective, the beneficiaries will be requested to move out to a temporary shelter while the defective house is under construction. Nevertheless PHP is promoting community participation by using unskilled labour and local labour. Use of unskilled labour dominated in a high rate of structural and non-structural defects in PHP (Department of Human settlements, 2009: 1-4).

3.4 CAUSES OF STRUCTURAL DEFECTS IN PHP

According to research conducted by the Building Research Establishment (BRE) (Egbu, Ellis and Gorse, 2004: 308), 90% of housing failures are due to problems arising in the design phase whereby the houses are environmentally unsound; houses are not suitable for the local climate more especially in Western Cape because of massive rain in winter and construction phase of a project whereby the houses entails high maintenance costs.

These problems include the following issues:

- Poor communication,
- Inadequate information or failure to check information,
- Inadequate checks and controls,
- Lack of technical expertise and skills, and
- Inadequate feedback leading to frequent mistakes.

Egbu *et al.* (2004: 308) note that most of these errors are mainly human errors. A great number of the defects in PHP houses occurs during the construction phase and are mostly due to poor communication, inadequate checks and controls and lack of technical expertise and skills (Sommerville, 2007: 395).

As an illustration, Alink (2003: 18) states that failures have resulted from incorrect building procedures and poor on-site supervision and workmanship. This is in agreement with the argument of Egbu *et al.* (2004: 308). According to Alink (2003: 18), factors contributing to the lack of success and poor quality in PHP houses include:

- Lack of sufficient finance,
- Use of unskilled labour,
- Use of emerging contractors,
- Lack of contribution by the private sector,
- Lack of management commitment toward quality achievement, and
- Substandard quality of workmanship.

3.5 RELEVANCE OF THE NATIONAL BUILDING REGULATIONS (NBR) TO AFFORDABLE HOUSING

The NBR as published in the Government Gazette from time to time apply equally to affordable housing or low - income houses and to luxurious housing developments. The NBR consist of performance standards for buildings, without prescribing how these are to be achieved. It entirely depends on the design and the specification of a building (The National Housing Code, 2009:22-23).

The SANS 0400 (NBR) publication, relating to the application of the building regulations contains both the NBR and a set of deemed-to-satisfy rules. The rules are provided to assist designers to meet the performance requirements set out in the regulations. It deals with conventional construction only, is not regulations, nor does it have the force of law of the NBR.

3.6 PROOF OF COMPLIANCE WITH NATIONAL BUILDING REGULATIONS (NBR)

There are several methods of persuading a municipality that a particular design complies with the requirements of the NBR, namely that the building will be constructed in accordance with:

A design that conforms in all respects with the Deemed-to-satisfy rules set out in SANS 0400,

A certificate issued by the Board of Agrément SA, that is,

- An Agrément Certificate, or
- A MANTAG Certificate, and
- A rational design.

3.7 RATIONAL DESIGN

According to NHBRC Home Building Manual, Part 2, Section 10, page 113 rational design is prepared by a competent person or an engineer. It covers the relevant elements of the structure. Alternative building methods, systems or components, are covered by an Agrément Certificate. This provides an assurance of fitness for purpose of non-standardised building and construction products and systems, by evaluating these against prescribed performance criteria.

Rational designs are normally presented in relation to the structural strength and stability of a dwelling and much less frequently, in relation to:

- Resistance to rainwater penetration,
- Damp proofing,
- Fire protection,
- Lighting and ventilation, and
- Drainage.

The general requirements of the above mentioned items are all the same as those of the National Building Regulations. However, there is a tendency for regulatory authorities that are presented with a rational design, to assume that it covers all aspects

of the work. For this reason the National Department insists that the competent person must:

- Clearly identify those aspects of the building that are the subject of the rational design,
- Inspect for compliance with the rational design, and
- Assume full professional responsibility for the subsequent performance of the subjects covered by the rational design.

All aspects of the work that are not the subject of the rational design, must comply with the Deemed-to-satisfy rules of SANS 0400 or be covered by a Certificate issued by the Board of Agrément SA.

Home Building Manual, Part 2 further mentions that it is incumbent on the Competent Person when submitting his rational design to state clearly what design loads he has adopted, what criteria have been used to determine compliance with any of the required level of performance and where relevant, what test methods have been used to determine compliance with criteria, the results therefrom and by whom such tests were carried out.

NHBRC Home Building Manual, Part 2, page 113 states clearly that the acceptance of a rational design by the NHBRC does not in any way imply that the NHBRC accepts professional responsibility for any elements or buildings so designed. This responsibility remains at all times with the relevant Competent Person.

3.8 AGRÉMENT CERTIFICATE

The NHBRC Home Building Manual, Part 2, Section 11, page 124 clarifies that Agrément South Africa (ASA) provides via its agrément and MANTAG certificate an assurance of the fitness of purpose and the quality of building innovations. It further provides sufficient technical information so that users of the innovation as well as designers and specifiers and financial and regulating agencies can decide on the merits of the innovation under a particular set of circumstances. Agrément and MANTAG certificates provide a means of demonstrating to what extent a building innovation meets the functional and other relevant prescriptive requirements of the National Building Regulations.

3.9 MANTAG CERTIFICATE

NHBRC Home Building Manual, Part 2, page 124 explains that a MANTAG Certificate is a distinct type of Agrément Certificate dealing with:

- Acceptable safety and health criteria for houses and related outbuildings, and
- Non-residential schools and primary health care centres in areas where the local authority is of the opinion that the type of construction is appropriate, given that in these areas it is of paramount importance that the buildings be erected at the lowest possible cost.

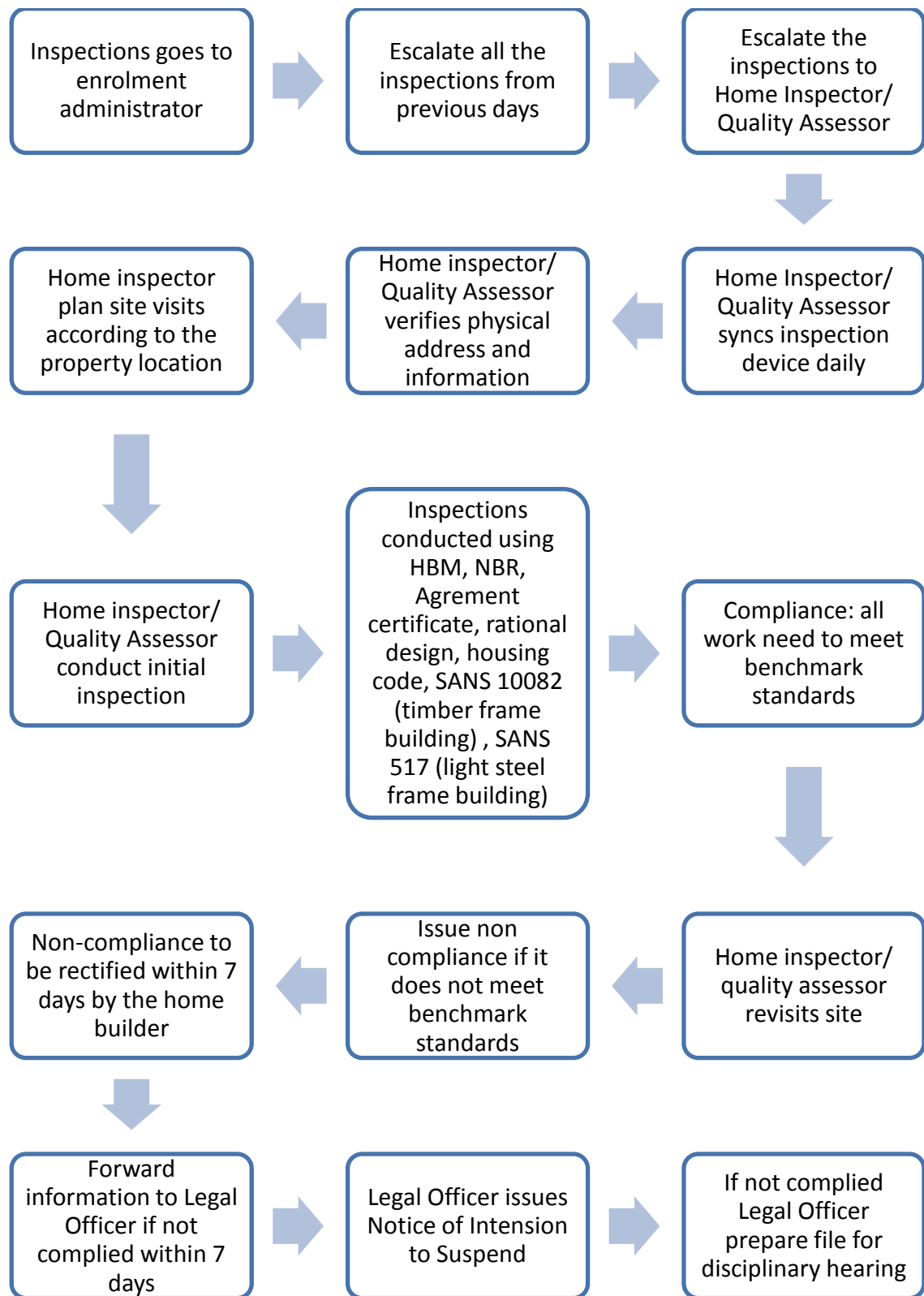
Currently the minimum Agrément norms for the acceptability of houses qualifying for MANTAG certification relate to:

- Behaviour in fire,
- Structural strength and stability,
- Thermal performance,
- Weather tightness,
- Protection against harmful substances,
- Provision for minimum levels of ventilation and natural lighting,
- Degree of privacy that is achievable,
- Comfort and habitability,
- Marketability,
- Security,
- Value for money, and
- Practicality of upgrading.

3.10 NHBRC INSPECTION PROCESS FLOW

According to NHBRC, inspections revolve around three departments. The departments are as follows: enrolment department, inspectorate department and legal department. Enrolment department deals with printing of enrolment certificates; inspectorate department conducts inspections on daily basis and ensure that the standard on site

meets benchmark requirements. Legal department prepares files and arrange disciplinary hearing for the home builders that fail to comply.



Source: NHBRC, 2015

3.11 HOUSING CODE

National Housing Code, part 3, volume 2, page 22 focuses on the minimum National technical norms and standards for the creation of serviced residential stands and houses that are constructed through the application of the National Housing Programme. It further emphasizes that all residential developments that are undertaken through the finance provided in terms of the National Housing Programmes must comply with the norms and standards.

In terms of the provisions of section 3(2)(a) of the Housing Act, 1997 (Act No. 107 of 1997), which came into effect on 1 April 1998, the Minister of Housing must determine national policy, including national norms and standards in respect of housing development.

The minimum size of permanent residential structures that is provided by means of the housing subsidy is 40 square metres of gross floor area. Each house as a minimum must be designed on the basis of:

- Two bedrooms,
- A separate bathroom with a toilet, a shower and hand basin,
- A combined living area and kitchen with wash hand basin,
- A ready board electrical installation where electricity supply in the township is available,
- Plastered externally, and
- Painted externally.

The minimum technical specification for People Housing Process Projects is divided into different sections. The sections are as follows:

- Soil conditions,
- Site preparation,
- Foundations,
- Superstructure,
- Roof, and
- Light and ventilation.

3.11.1 SOIL CONDITIONS

The type of favourable soil conditions should be suitable for the soil classification and the competent person must design the foundations based on the type of foundation that is suitable for soil conditions (NHBRC classification H, S, R, and C);

- Level Topography,
- Maximum 10 meter connection to municipal water supply and sewer, and
- The Southern Climate Condensation Area (SCCA) is excluded (as a different dispensation is available to these areas).

3.11.2 SITE PREPARATION

According to the National Housing Code, 2009: page 27 the finished ground levels must direct water away from the building, in areas where termite infestation is known to be a problem. The soil within the site must be treated in accordance with the recommendations set out in SABS 0124 (Application of certain soil insecticides for the protection of buildings).

3.11.3 FOUNDATIONS

As per National Housing Code, the correct cement for the purpose intended must be clearly specified and it must comply with the requirements of SABS ENV 197-1 common cements and SABS 413-1. The foundation of any building must be designed to safely transmit all the loads from the building to the ground without causing or being subjected to excessive movements. In favourable soil conditions the foundations must be designed to reduce as far as practically possible, the depth of excavation, the height of the foundation walls and the cost of unnecessarily large footings.

Any variation from the foundations required by the Deemed-to satisfy rules of the NBR must be the subject of a rational design by a Professional Engineer. In problematic soil conditions, a Professional Engineer must design the foundations and advise on the articulation of the superstructure and all additional prescribed requirements that are deemed necessary. The minimum foundation specifications are:

- External: 500 x200mm (10Mpa) concrete strip footings,
- Internal: 400 x 200mm (10Mpa), and
- Founding depth: 400mm.

3.11.4 SUPERSTRUCTURE

According to National Housing Code, any wall shall be constructed in a way that it will adequately resist the penetration of water into any part of the building where it would be detrimental to the health of the occupants or to the durability of the building. The wall must be provided with the means to fix any roof truss, rafter or beam to the wall in a secure manner that will ensure that any forces to which the roof may normally be subjected will be transmitted to the wall supporting it; and of combustibility and fire resistance characteristics appropriate to the use of the wall. The minimum specifications for walls are:

- 140mm cement masonry,
- Maximum 10mm bed joint,
- Allow for gable, and
- Height of external walls to be 2400mm.

3.11.5 ROOF

The roof of any building shall be so constructed that it will resist any forces to which it is likely to be subjected, be durable and waterproof, not allow the accumulation of any rainwater upon its surface be constructed to provide adequate height in any room immediately beneath the roof/ceiling assembly; and have a fire resistance appropriate to its use. The minimum specification for the roof is:

- 5mm full hard galvanised roof sheets, cranked at centre to eliminate ridge capping, and
- Fixed with screws to purlin beams.

3.11.6 VENTILATION AND LIGHTING

Any habitable room, bathroom, shower-room and room containing a lavatory shall be provided with a means of lighting and ventilation which will enable such room to be used without detriment to health and safety or causing any nuisance for the purpose for which it is designed.

Description	40 m ² floor area of dwelling
Minimum window area (light area) for each habitable room, including kitchens.	5% of floor area.
Minimum area of openable windows or controllable ventilation openings for each habitable room, including kitchens.	5% of floor area with one opening having an area of at least 0,1m ² .

Source: National Housing Code, 2009

3.12 CONCLUSION

This Chapter focused on the tools that are used to measure quality or processes that are used to determine a quality house. The NHBRC are the custodians of quality in the home building industry. NHBRC benchmarking standards were discussed on this chapter which are NHBRC Home Building Manual part 1,2 and 3, National Building Regulations which are legal instruments intended to ensure that the building perform in such a way that is socially acceptable in terms of health, safety and amenity in which the building is situated. National Building Regulations are typically accomplished on the design, construction and operation of building covering such diverse areas as indoor air quality, sanitation, and glazing.

Agrément certificate and rational design are also one of benchmarking tools used by the NHBRC to measure quality as well as housing code which is a document compiled by the Department of Human Settlements. It covers different chapters and different section. It also pays attention on national housing programmes, norms and standards, technical guidelines, subsidy quantum, SANS 10082 (Timber frame building as well as SANS 517 (Light steel frame building). It also clarified different definitions, techniques, methods, theories that were discovered by different quality Gurus.

Structural defects and causes of structural defects were the crucial points as the main core of the research is about the quality of houses delivered through PHP.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

According to Malhotra (1999), the methodology that is used to conduct any study is determined by the nature of the study. It can either be a qualitative research or quantitative research. In order to compare the quality of houses built before NHBRC involvement in PHP and houses built after NHBRC involvement in PHP, there is a need to identify the type of defects occurred on the houses built before NHBRC involvement in PHP projects with those houses that are built after NHBRC involvement in PHP.

It is crucial to offer findings which will be discussed in depth in Chapter five (data presentation, data analysis and discussion of results) and recommendations which will be discussed in depth in Chapter six (conclusion and recommendations). Recommendations will be offered in Chapter six to prevent further occurrence of the defects in the Western Cape Province. This chapter serves to outline the research methodology used in this study.

Maree (2007:285) observes that research methodology process includes a number of activities to be performed. These are arranged in proper sequence of timing for conducting research. One activity after another is performed to complete the research work. Research methodology includes the following steps:

- Type of Research,
- Sources of Data,
- Instruments for Data Collection,
- Research Methods,
- Sampling, and
- Delimitations of the Study

4.2 TYPE OF RESEARCH

A qualitative type of research was adopted for this study because it generates words rather than numbers. The reason for this is that the nature of this research is in such a way that the researcher does not have to intervene with the events or observe them directly. What was required here are the descriptions, analysis and interpretation of events that occurred. This means that the data being collected and interpreted is qualitative research.

Had it been quantitative research, the researcher would be required to gather information by direct measurement or observation of events. A conclusion on such a study would be drawn on findings that are experimental (e.g. laboratory experiments).

Therefore, drawing conclusions on the findings of quality of houses built through PHP programme in the Western Cape Province before NHBRC involvement and after NHBRC involvement can be accomplished.

The primary sources of the study are textbooks, journals, internet websites, government gazettes and policies. The information was used for a better understanding of any information that is related to the title. The type of research used for the entire study was the qualitative research. The questionnaires were in line with the research objectives, designed and distributed to the respondents. This type of research was useful to draw up the findings and recommendations and the research objectives were met.

4.2 SOURCES OF DATA

For the purpose of the study, primary data was used. Primary data was collected directly from the premises of the beneficiaries. Primary data are the data which the researcher collects through various methods like interviews, surveys, questionnaires etc. The primary data are original and relevant to the topic of the research study so the degree of accuracy was very high. Moreover, primary data is current and it can better give a realistic view to the researcher about the topic under consideration. Reliability of primary data is very high because these are collected by the concerned and reliable party.

4.3 INSTRUMENTS FOR DATA COLLECTION – QUESTIONNAIRE

Questionnaire is a set of questions that has been prepared to ask a number of questions and collect answers from the respondents relating to the research title. A number of questions were printed and answered by the individuals or respondents. The form had blank spaces in which the answers were written. Sets of questionnaires were distributed to the beneficiaries and the answers were collected relating to research title.

More over a questionnaire is a sequence of questions asked to individuals to acquire statistically useful information about a given title. When properly constructed and responsibly administered, questionnaires become a vital instrument by which statements can be made about specific groups or people or entire populations.

Inappropriate questions, incorrect ordering of questions, incorrect scaling, or bad questionnaire format can make the survey valueless, as it may not accurately reflect the views and opinions of the participants. A useful method for checking a questionnaire and making sure it is accurately capturing the intended information is to pre-test among a smaller subset of target respondents. In a research or survey questions asked to respondents, and designed to extract specific information. It serves four basic purposes:

- collect the appropriate data,
- make data comparable and amenable to analysis,
- minimize bias in formulating and asking question, and
- make questions engaging and varied.

For this study purpose a set of questions has been prepared to collect information relating to the title of the study. In this study a structured questionnaire has been used with different types of questions.

The questionnaire was designed for the beneficiaries. The main data contained the questions on the following:

- Identify quality problems delivered through PHP in the Western Cape Province,
- Investigate extent of defects on PHP projects in the Western Cape,
- Analyse if occurrence of defects is likelihood or seldom in PHP,

- Investigate quality problems before and after NHBRC involvement in PHP,
- Identify number of years the beneficiary has been living in the house to be able to determine if the house was built before or after NHBRC involvement,
- Evaluate various factors that led to poor quality of houses delivered through PHP,
- Determine if the beneficiary is the first owner or not,
- Determine if there was any maintenance work done or not since the occupation date,
- Identify quality problems on sub-structure of the house,
- Identify quality problems on super-structure of the house,
- Identify quality problems on roof structure of the house,
- Identify quality problems on storm water of the house, and
- Identify quality of material used to build the house.

Table 4.3.1 represents number of questionnaires sent to beneficiaries

	No. of questionnaires received
Number of respondents (from 1998- March 2012) (Before)	25
Percentage	50%
No. of questionnaires sent	50
Number of respondents (from April 2012 to date) (After)	25
Percentage	50%
No. of questionnaire sent	50

4.4 RESEARCH METHODS - RESEARCH DESIGN

For collection of primary data for this research work, survey method has been used. Experimental method is not found suitable for this study because the title is a theoretical title and there is no need to have experiments. The survey method is explained below:

4.5 SURVEY METHOD

Survey is used to collect quantitative information about items in a population. Surveys are used in different areas for collecting the data even in public and private sectors. A survey may be conducted in the field by the researcher. The respondents are contacted by the research person personally, telephonically or through mail. This method takes a lot of time, efforts and money but the data collected are of high accuracy, current and relevant to the title.

When the questions are administered by a researcher, the survey is called a structured interview or a researcher-administered survey. When the questions are administered by the respondent, the survey is referred to as a questionnaire or a self-administered survey. It is an efficient way of collecting information from a large number of respondents.

Statistical techniques can be used to determine validity, reliability, and statistical significance. Surveys are flexible in the sense that a wide range of information can be collected. They can be used to study attitudes, values, beliefs, and past behaviours because they are standardized, they are relatively free from several types of errors. There is an economy in data collection due to the focus provided by standardized questions. Only questions of interest to the researcher are asked, recorded, codified, and analysed.

A survey as recommended by Leedy, 1999 was necessary in this study especially because the data was collected intuitively in the premises of the participants. Its advantages are that there is minimum participant intervention. The data for this study was based on the opinions of the respondents and not through the experiments. Thus the research type used for this study will be qualitative research because it generates words more than numbers.

Maholtra (1999) observes that the main purpose of the research objectives is to give a detailed explanation to an event that occurred. Robson (1993:4) concurs with Malhotra (1999) and further mentioned that the main aim of the research objectives is to also give a detailed description to an event.

4.5.1 OVERVIEW

This section presents the method or the strategy used for the administration of the questionnaires. The questionnaires were delivered from the 27th of February 2016 till the 27th of March 2016. The objective of the questionnaire was to compare the quality of houses built before NHBRC involvement and houses built after NHBRC involvement in PHP. A house consists of five stages which are substructure, superstructure, roof, storm water and finishes. The questionnaire consisted of each question on each and every stage of a house. The aim of this exercise was to get accurate findings from the beneficiaries and accurate recommendations.

4.6 RESPONDENTS POPULATION - SAMPLING

Maree (2007:179) posits that the size of the sample is critical to the correctness of the results of the research in that the larger the sample the higher the probability of getting the correct results. Three factors are suggested which should influence the size of the sample, and these are, namely;

- type of statistical analysis planned,
- accuracy of results required from the research, and
- characteristics of the population to be studied.

In another study, McMillan and Schumacher (2001:177) suggest that there are eight (8) factors to be considered for the determination of the sample size, and these are illustrated in the table 1 below:

Table 4.6.1: Factors affecting sample size decision

<p>Type of research</p> <p>correctional research a minimum of 30 subjects</p> <p>comparing groups, minimum of 15 correspondents per group</p> <p>major research – 100 respondents per subgroup – 2- - 50 per minor subgroup</p>
<p>Research hypothesis – if you expect small differences use a large sample</p>
<p>Financial constraints – there isn't always enough finance for research projects</p>
<p>Importance of results – dependent on the decisions to be made and their impact</p>
<p>Number of variables studied – the higher the population or critical the decision the larger the sample required</p>
<p>Methods of data collection – inaccurate / inconsistency methods require larger samples</p>
<p>Accuracy needed – accuracy of results increases with the increase of sample sizes</p>
<p>Size of population – as population size increases a progressive smaller percentage of subjects may be selected.</p>

Source: McMillan and Schumacher, 2001:177.

In view of the assertions above, the total number of houses (total population under study) is just over a 1 000 (1170), part of the houses were built without the NHBRC involvement and the later part was built with the involvement of the NHBRC. The sample will therefore include 50% of each of the two groups (those in houses built without NHBRC involvement and those built with NHBRC involvement); the research will involve at least 50 respondents per group (McMillan, *et al* 2001:177 – recommends 15 respondents per group). The sample size per group has been put at 50 since the larger the sample the higher the accuracy.

4.7 DELIMITATIONS OF THE STUDY

To carry out the research study the following limitations will be expected and faced during the research study, the research of this study is limited to the following:

- Houses built through PHP programme,
- Information supplied by Western Cape Department of Human Settlements,
- Information supplied by NHBRC,
- PHP houses built in Western Cape Province only,
- PHP houses before and after NHBRC involvement,
- Information supplied by the beneficiaries, and
- Research conducted in Khayelitsha Township.

However, to overcome the limitations and maintain the effectiveness of the research work sincere efforts will be taken into serious consideration.

4.8 CONCLUSION

In this Chapter, the research design and methodology which includes the six basic steps was discussed. The basic steps are as follows:

- Type of Research,
- Sources of Data,
- Instruments for Data Collection,
- Research Methods,
- Sampling, and
- Delimitations of the Study

Research type used for this study is qualitative research. The reason for using qualitative research was also discussed and it was the fact that it generates words than numbers. Therefore, drawing conclusions on the findings of quality of houses built through PHP programme in the Western Cape Province before NHBRC involvement and after NHBRC involvement can be accomplished due to the fact that there were no laboratory experiments taken. The link between research proposal and research methodology was also shown.

CHAPTER 5

DATA PRESENTATION, DATA ANALYSIS AND DISCUSSION OF RESULTS

5.1 INTRODUCTION

In this Chapter, questionnaires were distributed to respondents to be able to draw up the findings. One hundred questionnaires were distributed to the relevant people that may have a positive impact to the primary objectives of this study. Fifty questionnaires were completed and returned. Out of fifty questionnaires that were completed and returned, twenty five questionnaires are the respondents of the houses that were built before NHBRC was involved in PHP. Another twenty five are the respondents of the houses that were built after NHBRC involvement in PHP.

5.2 QUESTIONNAIRES RESPONSE

One hundred questionnaires were distributed to the beneficiaries of PHP project in Western Cape. Out of eighty, fifty questionnaires were returned and completed by the respondents which are sixty two point five percent in terms of the percentage.

5.3 NUMBER OF YEARS AND MONTHS LIVING IN THE HOUSE

Table 5.3.1 shows number of years and months in which the beneficiary lived in a her or his house

	No. of questionnaires
Number of respondents (from 1998- March 2012)	25
Percentage	50%
Number of respondents (from April 2012 to date)	25

Percentage	50%
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The whole aim of this question was to be able to determine the houses built before NHBRC involvement and houses built after NHBRC involvement. Numbers of respondents from 1998 till March 2012 were built before NHBRC involvement. Numbers of respondents built from April 2012 to date were built after NHBRC involvement.

5.4 MAINTENANCE WORK DONE FROM THE OCCUPATION DATE

Table 5.4.1 shows if there was any maintenance work done from the occupation date in the house

	Yes	No
Number of respondents (from 1998- March 2012)	2	23
Percentage	8%	92%
Number of respondents (from April 2012 to date)	9	16
Percentage	36%	64%

Houses built before NHBRC involvement on PHP shows that 2 respondents out of 25 which is 8% in terms of the percentage indicated that they did the maintenance work on their houses from the occupation date while 23 respondents out of 25 which is 92% in terms of the percentage indicated that they never did any maintenance work on their houses since the occupation date.

Respondents of the houses built after NHBRC involvement shows that 9 out of 25 which is 36% in terms of the percentage indicated that they did the maintenance work on their houses from the occupation date while 16 out of 25 respondents which is 64%

in terms of the percentage indicated that they never did any maintenance work on their houses.

5.5 FIRST OWNER

Table 5.5.1 shows if the beneficiary is the first owner or not

	Yes	No
Number of respondents (from 1998- March 2012)	25	0
Percentage	100%	0%
Number of respondents (from April 2012 to date)	19	6
Percentage	76%	24%

25 out of 25 respondents of the houses that were built before NHBRC involvement which is 100% in terms of the percentage indicated that they are the first owners while 19 out of 25 respondents of the houses built after NHBRC involvement indicated that they are the first owners which is 76% in terms of the percentage.

5.6 RESPONSE AS TO WHETHER THERE ARE SIGNS OF FOUNDATION FAILURES OR NOT

Table 5.6.1 shows if there are any signs of foundation failures on the walls of the house

	Yes	No
Number of respondents (from 1998- March 2012)	23	2

Percentage	92%	8
Number of respondents (from April 2012 to date)	0	25
Percentage	0%	100%

23 out of 25 respondents of the houses built before NHBRC involvement responded that there are signs of foundation failures on the walls of their houses which is 92% in terms of the percentage. 2 out of 25 respondents of the houses built before NHBRC involvement responded that there are no signs of foundation failures on the walls of their houses which is 8%.

25 out of 25 respondents of the houses that were built after NHBRC involvement responded that there are no signs of foundation failures on the walls of their houses which is 100%.

5.7 RESPONSE AS TO WHETHER THERE ARE CRACKS ON FOUNDATIONS OR NOT

Table 5.7.1 Represents if there are cracks on the foundations of the house

	Yes	No
Number of respondents (from 1998- March 2012)	23	2
Percentage	92%	8%
Number of respondents (from April 2012 to date)	0	25
Percentage	0%	100%

92% of the houses built before NHBRC involvement said that there are cracks on the foundations of their houses while 0% respondents of the houses built after NHBRC involvement said that there are no cracks on the foundations of their houses.

5.8 RESPONSE AS TO WHETHER THERE IS WATER FLOODING AROUND THE HOUSE OR NOT

Table 5.8.1 Represents if the water floods around the house during the rainy season

	Yes	No
Number of respondents (from 1998- March 2012)	25	0
Percentage	100%	0
Number of respondents (from April 2012 to date)	1	24
Percentage	4%	96%

100% of the houses built before NHBRC involvement said that there are water floods around their houses during the rainy season while 4% respondents of the houses built after NHBRC involvement said that there are water floods around their houses during the rainy season.

5.9 RESPONSE AS TO WHETHER THE WATER IS PROPERLY CHANNELLED TO THE DRAIN OR NOT

Table 5.9.1 represents if the water is properly channelled to the drain to avoid water flooding

	Yes	No
Number of respondents (from 1998- March 2012)	16	9
Percentage	64%	36%
Number of respondents (from April 2012 to date)	15	10
Percentage	4%	96%

64% of the houses built before NHBRC involvement said the water is properly channelled to the drain to avoid water flooding while 4% respondents of the houses built after NHBRC involvement said that the water is properly channelled to the drain to avoid water flooding.

5.10 RESPONSE AS TO WHETHER THERE ARE CRACKS ON WALLS OR NOT

Table 5.10.1 represents if there are any cracks on the walls of the house

	Yes	No
Number of respondents (from 1998- March 2012)	25	0
Percentage	100%	0%
Number of respondents (from April 2012 to date)	1	24
Percentage	4	96%

100% respondents of the houses built before NHBRC involvement said that there are cracks on walls of their houses while 4% respondents of houses built after NHBRC involvement said that there are cracks on the walls of their houses.

5.11 RESPONSE AS TO WHETHER THERE ARE CRACKS AROUND OPENINGS

Table 5.11.1 shows if the cracks appear around the door and window openings only in the house

	Yes	No
Number of respondents (from 1998- March 2012)	19	6
Percentage	76%	24%
Number of respondents (from April 2012 to date)	2	23
Percentage	8	92%

76% respondents of the houses built before NHBRC involvement said that the cracks appear around the door and window openings only on their houses while 8% respondents of houses built after NHBRC involvement said that the cracks appear around door and window openings only.

5.12 RESPONSE AS TO WHETHER THERE IS DAMPNESS ON WALLS OR NOT

Table 5.12.1 represents if the walls shows dampness during the rainy season

	Yes	No
Number of respondents (from 1998- March 2012)	25	0

Percentage	100%	0%
Number of respondents (from April 2012 to date)	1	24
Percentage	4%	96%

100% respondents of the houses built before NHBRC involvement said that the walls shows dampness during the rainy season while 4% respondents of houses built after NHBRC involvement said that the walls shows dampness during the rainy season.

5.13 RESPONSE AS TO WHETHER THERE IS MOULD ON THE WALLS OR NOT

Table 5.13.1 shows if there is mould on the walls of the house

	Yes	No
Number of respondents (from 1998- March 2012)	1	24
Percentage	4%	96%
Number of respondents (from April 2012 to date)	1	24
Percentage	4%	96%

4% respondents of the houses built before NHBRC involvement said that there is mould on walls of their houses while 4% respondents of houses built after NHBRC involvement said that there is mould on the walls of their houses.

5.14 RESPONSE AS TO WHETHER THE WATER IS SEEPING THROUGH WINDOWS OR NOT

Table 5.14.1 represents if the water seeps through the windows during the rainy season

	Yes	No
Number of respondents (from 1998- March 2012)	24	1
Percentage	96%	4%
Number of respondents (from April 2012 to date)	1	24
Percentage	4%	96%

96% respondents of the houses built before NHBRC involvement said the water seeps through the windows during the rainy season while 4% respondents of houses built after NHBRC involvement said that the water seeps through the windows during the rainy season.

5.15 RESPONSE AS TO WHETHER THE PLASTER ON EXTERNAL WALLS IS POORLY APPLIED OR NOT

Table 5.15.1 shows if the plaster is poorly applied on the external walls of the house

	Yes	No
Number of respondents (from 1998- March 2012)	22	3
Percentage	88%	12%

Number of respondents (from April 2012 to date)	0	25
Percentage	0	100%

88% respondents of the houses built before NHBRC involvement said that the plaster is poorly applied on walls of their houses while 0% respondents of houses built after NHBRC involvement said that the plaster is poorly applied on the walls of their houses.

5.16 RESPONSE AS TO WHETHER THE INTERNAL WALLS ARE BONDED CORRECTLY TO THE EXTERNAL WALLS OR NOT

Table 5.16.1 shows if the internal walls are bonded correctly to the external walls

	Yes	No
Number of respondents (from 1998- March 2012)	10	15
Percentage	40%	60%
Number of respondents (from April 2012 to date)	20	5
Percentage	80%	20%

40% respondents of the houses built before NHBRC involvement said that the internal walls are bonded correctly to the external walls while 80% respondents of houses built after NHBRC involvement said that the internal walls are bonded correctly to the external walls.

5.17 RESPONSE AS TO WHETHER THE WALLS ARE STRAIGHT OR NOT

Table 5.17.1 represents if the walls of the house are not straight

	Yes	No
Number of respondents (from 1998- March 2012)	11	14
Percentage	44%	56%
Number of respondents (from April 2012 to date)	1	24
Percentage	4%	96%

44% respondents of the houses built before NHBRC involvement said that the walls of their houses are straight while 4% respondents of houses built after NHBRC involvement said that the walls of their houses are not straight.

5.18 RESPONSE AS TO WHETHER THE CEILING PANELS ARE SAGGING OR NOT

Table 5.18.1 represents if the ceiling panels are sagging around the house

	Yes	No
Number of respondents (from 1998- March 2012)	9	16
Percentage	36%	64%
Number of respondents (from April 2012 to date)	0	25
Percentage	0%	100%

36% respondents of the houses built before NHBRC involvement said that the ceiling panels are sagging around the house while 0% respondents of houses built after NHBRC involvement said that the ceiling panels are sagging around the house.

5.19 RESPONSE AS TO WHETHER THE GABLE IS PROPERLY FILLED

Table 5.19.1 represents if the gable is properly filled with mortar mix

	Yes	No
Number of respondents (from 1998- March 2012)	12	13
Percentage	48%	52%
Number of respondents (from April 2012 to date)	19	6
Percentage	76%	24%

48% respondents of the houses built before NHBRC involvement said that the gable is properly filled with mortar while 76% respondents of houses built after NHBRC involvement said that the gable is properly filled with mortar.

5.20 RESPONSE AS TO WHETHER THE ROOF STRUCTURE IS PROPERLY TIED OR NOT

Table 5.20.1 shows if the roof structure is properly tied up to the wall plate

	Yes	No
Number of respondents (from 1998- March 2012)	17	8
Percentage	68%	32%

Number of respondents (from April 2012 to date)	19	6
Percentage	76%	24%

68% respondents of the houses built before NHBRC involvement said that the roof structure is properly tied up to the wall plate while 76% respondents of houses built after NHBRC involvement said that the roof structure is properly tied up to the wall plate.

5.21 RESPONSE AS TO WHETHER THE ROOF COVERINGS ARE SAGGING OR NOT

Table 5.21.1 represents if the roof coverings are sagging all around the house

	Yes	No
Number of respondents (from 1998- March 2012)	13	12
Percentage	52%	48%
Number of respondents (from April 2012 to date)	1	24
Percentage	4%	96%

52% respondents of the houses built before NHBRC involvement said that the roof coverings are sagging all around the house while 4% respondents of houses built after NHBRC involvement said that the roof coverings are sagging all around the house.

5.22 RESPONSE AS TO WHETHER THERE ARE ROOF LEAKS OR NOT

Table 5.22.1 represents if there are roof leaks on the roof of the house

	Yes	No
Number of respondents (from 1998- March 2012)	23	2
Percentage	92%	8%
Number of respondents (from April 2012 to date)	6	19
Percentage	24%	76%

92% respondents of the houses built before NHBRC involvement said that there are roof leaks on the roof of their houses while 24% respondents of houses built after NHBRC involvement said that there are roof leaks on the roof of their houses.

5.23 RESPONSE AS TO WHETHER THE ROOF TILES AND RIDGES ARE SAGGING OR NOT

Table 5.23.1 shows if the roof tiles and ridges are sagging

	Yes	No
Number of respondents (from 1998- March 2012)	9	16
Percentage	36%	64%
Number of respondents (from April 2012 to date)	0	25
Percentage	0%	100%

36% respondents of the houses built before NHBRC involvement said that the roof tiles and ridges are sagging while 0% respondents of houses built after NHBRC involvement said that the roof tiles and ridges are sagging.

5.24 RESPONSE AS TO WHETHER THERE IS RUST ON PAINTED IRON MATERIAL OR NOT

Table 5.24.1 represents if there are rust stains on painted iron material

	Yes	No
Number of respondents (from 1998- March 2012)	23	2
Percentage	92%	8%
Number of respondents (from April 2012 to date)	4	21
Percentage	16%	84%

92% respondents of the houses built before NHBRC involvement said that there are rust stains on painted iron while 16% respondents of houses built after NHBRC involvement said that there are rust stains on painted iron.

5.25 RESPONSE AS TO WHETHER QUALITY OF BLOCKS USED IS POOR OR NOT

Table 5.25.1 shows the poor quality of bricks or blocks

	Yes	No
Number of respondents (from 1998- March 2012)	19	6

Percentage	76%	24%
Number of respondents (from April 2012 to date)	0	25
Percentage	0%	100%

76% respondents of the houses built before NHBRC involvement said that their house has been built by poor quality of blocks while 0% respondents of houses built after NHBRC involvement said that their houses has been built by poor quality of blocks.

5.26 RESPONSE AS TO WHETHER THE CEMENT ON MORTAR MIX IS SUFFICIENT OR NOT

Table 5.26.1 represents if the cement used on mortar mix is insufficient

	Yes	No
Number of respondents (from 1998- March 2012)	19	6
Percentage	76%	24%
Number of respondents (from April 2012 to date)	0	25
Percentage	0%	100%

76% respondents of the houses built before NHBRC involvement said that the cement used on mortar mix is insufficient while 0% respondents of houses built after NHBRC involvement said that the cement used on mortar mix is insufficient.

5.27 RESPONSE AS TO WHETHER THE PAINT IS PEELING OFF OR NOT

Table 5.27.1 shows if the paint is peeling off on the walls

	Yes	No
Number of respondents (from 1998- March 2012)	19	6
Percentage	76%	24%
Number of respondents (from April 2012 to date)	5	20
Percentage	20%	80%

76% respondents of the houses built before NHBRC involvement said that the paint is peeling off on the walls of their houses while 20% respondents of houses built after NHBRC involvement said that the paint is peeling off on the walls of their houses.

5.28 DISCUSSIONS IN RELATION TO OBJECTIVES OF THIS STUDY

The aims and objectives of this study are to identify quality problems delivered through PHP in the Western Cape Province, investigate extent of defects in Western Cape, analyse if occurrence of defects is likelihood or seldom in PHP, investigate quality problems before and after NHBRC involvement in PHP, identify number of years the beneficiary has been living in the house to be able to determine if the house was built before or after NHBRC involvement, evaluate various factors that led to poor quality of houses delivered through PHP, determine if the beneficiary is the first owner or not, determine if there was any maintenance work done or not since the occupation date, identify quality problems on sub-structure of the house, identify quality problems on super-structure of the house, identify quality problems on roof structure of the house, identify quality problems on storm water of the house and identify quality of material used to build the house.

The findings from the questionnaires were able to meet the research question and research objectives mentioned on Chapter one (research proposal)

5.29 CONCLUSION

A questionnaire was administered and specific type of questions which require participants to choose answers they think are applicable to them were designed as mentioned on Chapter one (research proposal).

The data obtained from the questionnaires completed by the beneficiaries was analysed and presented. The findings from the questionnaires were able to meet the research questions and research objectives mentioned on Chapter one (research proposal).

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

In this Chapter, conclusions drawn from the investigations and possible recommendations will be discussed. Conclusion has been drawn based on the questionnaires that were distributed to respondents. Fifty questionnaires were completed. Out of fifty questionnaires that were completed and returned, twenty five questionnaires are the respondents of the houses that were built before NHBRC was involved in PHP. Another twenty five are the respondents of the houses that were built after NHBRC involvement in PHP.

6.2 COMPARISON OF HOUSES BUILT BEFORE AND AFTER NHBRC INVOLVEMENT

One hundred questionnaires were distributed to the beneficiaries, fifty questionnaires were returned. Out of fifty questionnaires, twenty five were for the beneficiaries of the houses that were built before NHBRC involvement in PHP and another twenty five were for the beneficiaries of the houses that were built after NHBRC involvement in PHP. The two sets of questionnaires had similar questions to be able to draw up accurate findings.

The findings of the study revealed that the quality of the houses that were built under PHP programme before NHBRC intervention on PHP was not up to standard. The findings of the study of the houses that were built after NHBRC involvement on PHP revealed that the quality of the houses improved.

92% respondents of the houses built before NHBRC involvement in PHP responded that there are signs of foundation failures on the walls of their houses while 0% respondents of the houses built after NHBRC involvement in PHP responded that there are signs of foundation failures on the walls of their houses. It is quite evident that in substructure the quality of the houses built before NHBRC is not good at all while the houses built after NHBRC involvement conquers that the substructure on houses built after NHBRC involvement improved.

The other category that the respondents responded to was the cracks on the foundations. 92% of the houses built before NHBRC involvement said that there are cracks on the foundations of their houses while 0% respondents of the houses built after NHBRC involvement said that there are cracks on the foundations of their houses. It is also clear on this category that the substructure the quality of the houses built before NHBRC is not good at all while the houses built after NHBRC involvement conquers that the quality of substructure of the houses built after NHBRC involvement improved.

100% of the houses built before NHBRC involvement said that the water floods around their houses during the rainy season while 4% respondents of the houses built after NHBRC involvement said that the water floods around their houses during the rainy season. It is quite evident that the quality of the storm water of the houses built before NHBRC is not up to standard while the houses built after NHBRC involvement conquers that the storm water on the houses built after NHBRC involvement meets the requirements.

The other question that was addressed to the beneficiaries as part of the storm water management was whether the water is properly channelled to the drain or not. 64% of the houses built before NHBRC involvement said the water is properly channelled to the drain to avoid water flooding while 4% respondents of the houses built after NHBRC involvement said that the water is properly channelled to the drain to avoid water flooding. This question also conquers with the findings of the storm water management mentioned above.

The other category which may lead to a structural failure that was addressed to the beneficiaries is the cracks on walls. 100% respondents of the houses built before NHBRC involvement said that there are cracks on walls of their houses while 4% respondents of houses built after NHBRC involvement said that there are cracks on the walls of their houses.

It is quite evident from the percentage received that the quality of superstructure of the houses built before NHBRC is not up to standard while the houses built after NHBRC involvement conquers that the superstructure on the houses built after NHBRC involvement meets the requirements. 76% respondents of the houses built before NHBRC involvement indicated that the cracks appear around the door and window

openings on their houses while 8% respondents of houses built after NHBRC involvement said that the cracks appear around door and window openings only.

The other category that was addressed to the beneficiaries is the dampness of walls. This category might be triggered by various factors like faulty guttering, cracked roof tiles and more commonly the condensation. Damp can cause serious damage not only to the appearance of the house but to the structure of the property and beneficiaries health. 100% respondents of the houses built before NHBRC involvement said that the walls shows dampness during the rainy season while 4% respondents of houses built after NHBRC involvement said that the walls shows dampness during the rainy season.

The roof structure of the houses built before NHBRC involvement on PHP showed quality problems when compared with the houses built after NHBRC involvement. 68% respondents of the houses built before NHBRC involvement said that the roof structure is properly tied up to the wall plate while 76% respondents of houses built after NHBRC involvement said that the roof structure is properly tied up to the wall plate.

52% respondents of the houses built before NHBRC involvement said that the roof coverings are sagging all around the house while 4% respondents of houses built after NHBRC involvement said that the roof coverings are sagging all around the house. 92% respondents of the houses built before NHBRC involvement said that there are roof leaks on the roof of their houses while 24% respondents of houses built after NHBRC involvement said that there are roof leaks on the roof of their houses.

36% respondents of the houses built before NHBRC involvement said that the roof tiles and ridges are sagging while 0% respondents of houses built after NHBRC involvement said that the roof tiles and ridges are sagging.

The literature that had been reviewed in the Western Cape indicated that the quality of houses built after NHBRC involvement in PHP programme improved. Issues that were raised are signs of foundation failures, cracks on foundations, water flooding around the houses, water properly channelled to the drain, cracks on walls, dampness of walls, mould on walls, water seeping through windows, poorly applied plaster, bonded internal walls to external walls, straight walls, sagging ceiling panels, gable properly filled with mortar, roof structure properly tied up, sagging roof coverings, roof leaks, sagging roof tiles and ridges, rust on painted iron, quality of blocks used, cement on mortar mix and peeling off paint.

However on all the construction elements that are mentioned above, the findings revealed that the quality of those houses that were built before NHBRC intervention in PHP is not up to standard while those houses that were built after NHBRC intervention in PHP meet the requirements.

6.3 RECOMMENDATIONS

PHP is one of the housing programmes that address the needs of houses in South Africa. However the literature reviewed revealed that there is a huge gap in terms of quality with regards to the houses that were built before and after NHBRC involvement in PHP. Therefore it is recommended for Western Cape government to implement the rectification programme which was approved by National Department of Human Settlements in 2009 mainly focusing on houses that have structural failures.

The programme focuses on the following; the renovation or complete reconstruction of residential properties that have been severely structurally compromised and are regarded as inappropriate for transfer into ownership of the beneficiary or unfit for human habitation as it poses a threat to the health and safety of the inhabitants (The National Housing Code, 2009: 11-13).

Western Cape Province has not implemented the housing rectification programme yet though it has been approved by National Department of Human Settlements. It is also recommended that before the actual rectification can begin the technical experts have to visit all the defective houses to determine the extent of work that needs to be done and at what cost to prepare for tendering process. (Department of Human settlements, 2009: 1-4).

In accordance with the literature reviewed, it is recommended that the Department of Human Settlements should revisit the specification of low cost houses. It is recommended that the gutters must be installed on low cost houses as the gutters improves the effectiveness of storm water management by reducing the water flooding around the houses. By installing the gutters it will minimise the rising damp and penetrating damp through the walls.

In accordance with the findings of this study, it is recommended that Department of Human Settlements must introduce the use of a cavity wall instead of one brick wall.

Cavity wall helps to prevent rain water from penetrating through the inside wall of the house. In that case a cavity wall can minimise the issue of dampness on the walls which is also a health hazard to the beneficiaries and may compromise the integrity of the structure.

In accordance with the literature reviewed, it is recommended that the Department of Human Settlements must implement the use of facebrick instead of blocks. Houses built by a facebrick do not require the external walls to be plastered nor painted. It can minimise the cracks, plaster that is poorly applied and paint that is peeling off. More over a facebrick house does not require any maintenance work to be done on the external walls. It will also address the issue of affordability towards the beneficiaries.

In accordance with the findings of the study, it is recommended that the Department of Human Settlements should put the training needs in place for the Support Organisation as they are the drivers of PHP in terms of technical assistance and administrative assistance. It is also recommended that local labour should be trained as PHP requires utilisation of local labour on community projects. More over by providing training to the beneficiaries, government can also transfer the skills to the community and address the issue of unemployment.

6.3 CONCLUSION

People housing process is meant to deliver quality and affordable houses for the poor of the poorest. It involves community participation from the initial stage till the completion stage. Support Organisation acts as a developer in People Housing Process. The Support Organisation's main responsibility is to give technical and administrative assistance to the beneficiaries.

However the Support Organisation does not have a technical background to monitor the crucial aspects of the project. The research question stated on Chapter one has been addressed and it was revealed that the drivers of PHP do not have a technical background. They are a group of beneficiaries that is appointed by the beneficiaries to form a committee. Support Organisation plays a vital role in PHP hence it very important for the Department of Human Settlements to put training measures into place.

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8. APPENDIX

Questionnaire

Title

“Evaluating the quality of the National Government self-help housing scheme in the Western Cape; before and after NHBRC involvement”

Do not write your name or your organisation name. This is purely an academic exercise.

SECTION A: BIOGRAPHY

Please cross the applicable boxes

1. How long have you been living in your house?

Years	Months

2. Have you ever done any maintenance work from the occupation date?

Yes	No
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3. Are you the first owner?

Yes	No
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Mention anything else you want to mention in relation to the above:

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SECTION B

Please respond to all questions by putting an X to an appropriate box

	a). Defects on self-help housing scheme	Yes	No
1.	There are signs of foundation failure on the walls of my house		
2.	There are cracks on the foundations of my house		
3.	The water floods around my house during the rainy season		
4.	The water is properly channeled to the drain to avoid water flooding		
5.	There are cracks on the walls of my house		
6.	The cracks appear around the openings only in my house		
7.	The walls shows dampness during the rainy season		
8.	There is mould on the walls of my house		
9.	The water seep through the windows during the rainy season		
10.	The plaster is poorly applied on the external walls of my house		
11.	The internal walls are bonded correctly to the external walls		
12.	The walls of my house are not straight		
13.	The ceiling panels are sagging around the house		
14.	The gable is properly filled with mortar mix		

