



Nagoya Institute of Technology

Investigation of Sustainable and Affordable Housing Policy and Planning Principles in Afghanistan

アフガニスタンにおける低中所得者用の実現可能な住宅政策原
理と計画の調査分析

A Dissertation

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BY

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All praise is to Allah, Lord of the Worlds. And salutations and greetings upon Muhammad and upon his family and companions. I intend to study and teach, take and give a reminder, take and give benefit, take and give advantage, to encourage the holding fast to the book of Allah and the

way of His messenger, and calling to guidance and directing towards good, hoping for the countenance of Allah and His pleasure, proximity and reward, transcendent is He.

(O my Lord! Expand for me my chest; ease my task for me; and remove the impediment from my speech; so, they may understand what I say Allah, there is no ease except in that which You have made easy, and You make the difficulty, if You wish, easy.) (Ibn Alsanni)

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Abstract

For Community Development, the Housing is a basic need of every human being. Sustainable and affordable housing policy and planning may be defined as government's actions to achieve the housing goals. Housing in recent architectural and Urban environmental research, principles of sustainability and affordability in relation to economic, environmental and social policies have been widely discussed on a worldwide scale. Planning of urban housing can play a very important role in achieving sustainable growth and development by integrating sustainable development principles into urban planning strategies, policies, programs and projects. In addition, affordability is at the heart of household's efforts to improve their housing situation. It has been widely recognized that employment, income generation and access to housing are highly interrelated internationally. Housing affordability, therefore, has become one of the dominant research topics in recent years. However, few studies have been undertaken to investigate the compatibility between affordable housing and sustainable housing. Sustainable and affordable development of housing, a basic unit of human settlement is also a crucial component of social development in a community.

A Conceptual Framework for Affordable and sustainable housing is a significant part of today's life for Afghan low and middle-income groups, but Afghanistan is still under development, as it does not have a national housing policy yet. The demand for housing in Afghanistan has also increased in recent years as a result of natural population growth, the migration from villages to city centers and Afghan refugees return to country most settled in the big cities. A decreasing mortality rate, the number of persons per household and the growth of nuclear families in contrast to extended families led by economic development and decreasing unemployment have supported this. In spite of that, it was evident that little research has addressed the affordability problem faced by the middle-income households.

Based on the background, this research introduces a conceptual framework for defining housing problems from the perspective of beneficiaries' support and it seeks to analyze the effectiveness of Afghan national development policies and planning in facilitating sustainable-affordable habitat across the country. The principles developed in this research could be generally applied and adopted in Afghanistan, a country that is still less economically developed.

This dissertation has six chapters. Chapter one introduces the structure of the dissertation, which consists of two main parts: Afghan Housing policy and planning

Chapter two is a literature review to position this research, and also to clarify the relationship among other researches. The reviewed regards housing policy and planning at international level, housing affordability, environmental sustainability and social and culture adaptations to national level in a context of Afghanistan.

In chapter three, sustainable and affordable housing policy principles that are adopted in Afghanistan are analyzed. The focal point of this chapter is to study the mortgage market; the government could leverage available resources to put into place a guarantee facility to mitigate certain risks for commercial banks. Also, the efforts to enhance the capacity in commercial banks and introduction of new housing finance system which are important in addition to the adaptation of Islamic sharia regulation: Create a guaranteed facility to stimulate mortgage lending, to build capacity, to perform a market segmentation exercise, and also to ensure housing financing.

In chapter four, the key developments in A Conceptual Framework Afghanistan's sustainable and affordable housing planning are investigated. The planning includes the layout patterns, passive housing strategy and housing interior comfort with exterior welfare in an Afghan context.

chapter five, is the three-model housing policy and planning proposal case study which present the practical approval of research. As a cadmic role of research in final chapter sixth illustrated a short theoretical and graphical conclusion and result. Also at the end we added appendix part for some necessary data.

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LIST OF AVERVATION

| | |
|--------|--|
| MUDA | Ministry of Urban Development Affairs |
| MRDA | Ministry of Rural Development Affairs |
| JICA | Japan International Cooperation Agency |
| CASBEE | COMPREHENSIVE ASSESSMENT SYSTEM FOR BUILT ENVIRONMENT EFFICIENCY |
| LEED | LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN |

**Investigation of Sustainable and Affordable Housing Policy and
Planning Principles in Afghanistan**

Chapter 1

Introduction

Chapter 1

Introduction

1.1 General Introduction of Research

This dissertation is an investigation of sustainable and affordable housing policy principles and planning in Afghanistan. Application of sustainable and affordable housing policy principles, and planning result in creation of pleasing and liveable shelters and sustainable communities. Such approach could solve the challenges and problems as created by, war, poor live economic conditions by influencing the very base of planning, urbanism and policy making. The focus is to investigate the sustainable and affordable housing policy principles adopted in Afghanistan. Secondly, this research aims to better introduce sustainable and affordable housing, interior and exterior planning in the area.

The goal of this dissertation is to develop the best possible Afghan community design concept for both inside architecture and outside circulation, as well as urban planning. This research also aims to analyse, with a basis in the sustainable and affordable housing policy principles, the concept of planning in Afghanistan as mainly a conceptual framework contemporary methods coming from UN- Habitat developed countries. Also included are elements and methods from contemporary Islamic architecture, as well as planning in Middle East, with special consideration for the Afghanistan traditional architecture and urban approaches. This means local religious and cultural aspects, space requirements, as well as physical environments.

There are not any academic researches available regarding sustainable and affordable housing policy principles, planning architecture and urban planning in Afghanistan. This research as a whole will be a study both from architectural and urban planning viewpoints. The study is composed via two approaches: One, history and background study from both architecture and urban planning, and two, proposal of conceptual methods and guidelines for the solution of existing problems. Sustainable and affordable housing policy principles and planning can provide architectural housing plan to solve the problems of the Afghanistan suburbs, which were created from the

old un-facilitated structures, existing contemporary architecture, urban planning and grid system.

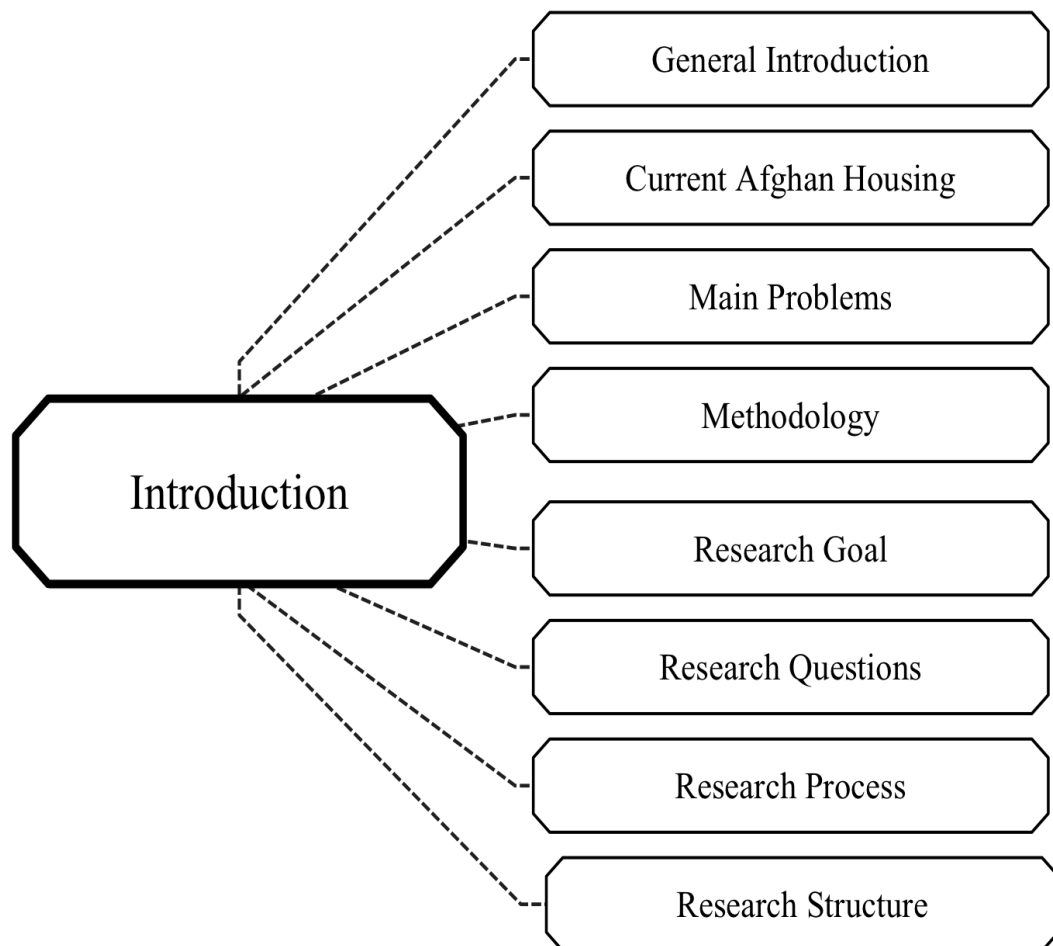


Figure 1.1. Summery map of Introduction

The research also touches both interior and exterior comfort in architecture and urban design as means for creating welfare in Afghanistan housing layout and housing topology. As sustainable and affordable planning in Afghanistan is a movement that intends to address the problems of the Afghan housing, the combination of planning and policy will contribute to the solution of the challenges and problems in urban areas and suburbs while sustaining the useful cultural and traditional methods, as well as the character of local architecture.

The research contains the following sections:

- General Introduction and observation of history of urbanism and architecture in Afghanistan.
- Sustainable and affordable housing policy conceptual framework, principles, planning and sustainable architecture in Afghanistan.
- Description and analysis from architectural viewpoints by theory and sustainable and affordable housing typology in Afghanistan.
- The characteristics of sustainable and affordable housing. Uses and activities, public space, circulation and selection of some typological characteristics of architecture act as criteria and reference. Summary of the strengths and weaknesses of the sustainable and affordable housing concept is also included.
- A conceptual framework of sustainable and affordable housing policy for All Afghan especially in first step for low income Group.
- The conclusions, methods and plans for solving problems provided through each chapter, an overview of findings regarding the conceptual and proposed plan, as well as recommendations for future research.

1. 2 Background of Research

This dissertation is about the next degree of typological characteristic management of design for all development communities by employing specific codes according to each community. This helps to plan for a comprehensive housing plan and to eliminate poor quality buildings. Samples of a typological characteristic management embody the institution of the same occurrence, park, and building height to outline the general public housing of the streets as well about Afghan rural area and village. Afghanistan has experienced rapid urbanization since the 2001. Currently the total population 33 million living in urban areas is around (25%), and roughly 75 % living in rural areas (different types of villages and nomadic tents, most of mud houses).

Housing conditions in Afghan communities have not gained attention over the last years. Housing shortages, chronic overcrowding, un-standard and unsustainable housing conditions as well as the ensuing health, environmental and socio-economic

issues are well-researched and documented in both capital Kabul and some other big cities. While the wide-ranging problems are apparent, the short and longer-term solutions are more elusive.

By investigating sustainable and affordable shelter for all Afghans, we find that all of them are very similar in their general composition and planning. It is thus difficult to differentiate them, or to identify their locations from aerial photos or plans. Even in spite of the climatic differences.

The MDU (Ministry of Urban Development) has been actively researching to have a country-wide housing planning policy that replicates practices illustrating acceptable governance: The Operational management of housing in the restrictive atmosphere. The work can help draft the replacement of all management interventions by creating truly Afghan solutions that develop new choices and opportunities.

In rural area, the ministry of Rural and Rehabilitation and Development (MRRD) just work in some public projects like clinic buildings, primary school buildings, water well for drinking and some small renewable energy programme but up to yet they do not have any policy, planning about rural housing sustainability and affordability.

This study aims to enhance Afghan understanding of process with sustainable and affordable housing policy principles. With any luck, this will help in creation of the Afghan National Housing policy.

1.3 Main Cause and Problems

The MDU (Ministry of Urban Development) has not had a country-wide national planning and policy for Sustainable and affordable housing. The research focuses on issues of urban poverty and vulnerability, more than 35 years' wars, destruction in the traditional characteristics, and the principles and practices of mix New Sustainable Urbanism and traditional practices. What sorts of problems and debates have emerged in discussions about mix New Sustainable Urbanism and traditional practices? What sorts of problems and debates have emerged in discussions about rural housing development? Do the residents like the designed environment? What are possible

solutions for the problems? The main criteria addressed in this dissertation include uses and activities, affordability of housing, sustainability's of housing, housing layout, public space, circulation and typological characteristics of architecture. They are derived from a set of villages and suburban problems uncovered through a literature review. By the twenty first century, through modernization and technocratic culture, Afghanistan remains mostly a rural country. From it, approximately 33 million people 25 % are urbanized and 75% living in different patterns villages, work on farmlands maintaining the subsistence farm economy (15% lead to some form of nomadic life and economy). By the 21st century, through modernization and technocratic culture, the foremost aspects of Afghanistan remain rural. Finally, this study will draw the conceptual map for All Afghan Sustainably and affordable housing and Housing layout (Village and Neighbourhood).

1. 4 Goal of Dissertation

The purpose of the study is “A Conceptual Framework for Development of Afghan Community,” with multidisciplinary research methodology to develop a delightful and habitable Afghan community arranged that responds to the encompassing cultural and physical settings supported by the new studies: A Conceptual Framework for Development of Afghan Community, Investigation of sustainable and affordable housing policy principles and planning in Afghanistan. The findings from the literature review and site survey, data from MUD in some of the big cites in Afghanistan to be basic concept for Afghan National housing policy, National Urban Planning and sustainable and affordable shelter for Afghans. This dissertation aims to be the first comprehensive academic reference for the government, universities, researchers, policy makers, donors, and other interested parties in Afghanistan.

In addition, the purpose of this investigation is to help develop and upgrade the rural areas, resulting in plans for pleasing and liveable Afghan suburb and communities, which respond to the surrounding cultural and physical environments based on the new traditional neighbourhood and traditional urban competition programs. In this proposal plan (Case Study chapter five), it is also intended to sustain traditional housing, which fits in the environment, and try to upgrade it to modern standards. One

objective was to group all the villages and engage the people with the “value of spaces” -definition, health, environment, and traditional methods by easily understandable systems and other activities. Finally, this research will act as a guideline, and open the way for the future research regarding architecture and urbanism in Afghanistan.

1. 5 Methodology and Approach

This study is conducted in support of founding a basic housing affordable policy, sustainable design and construction methods that pay close attention to the specific environmental aspects of each geographical region in Afghanistan. This research is conducted in multidisciplinary research methodology, as the amount and quality of data varies enormously over the different disciplines concerned. Attention is placed in a case for step by step, as well as in the complete analysis and its results, containing a classification, population, land possession and native ancient authorities and organizations of communities from the purpose of topography, designing and environment, also mentioning the characteristics of these areas and finance of community.

The study was conducted by an intensive and mixed use of quantitative and qualitative methods to better handle the various analysis queries raised within the study. Quantitative methods were used within the study to answer the challenges of developing numerous acceptable measures towards housing property, and affordability, as well as applying such measures to the Afghan housing context. The study was involved with analyses at the conceptual principal level to reveal the character of residential housing affordability within households across totally different socio-economic teams, particularly returnees, war incapacitated and low and middle-income academics. As comparative study the Quality Function Deployment (QFD) uses a matrix format to capture a number of issues that are vital to the planning process. The House of Quality Matrix is the most recognized and widely used form of this method. As for combine mix research it is good tools As I try shortly to adopted it for Afghan Sustainable and Affordable housing policy and Planning process.

1. 6 Aim of Research

The aim of this research is to analyze sustainable and affordable housing policy principles, planning and designing as well as layout patterns adoptable in Afghanistan for use by the Afghan government (Especially MUD). The analysis additionally intends to share each policy, design and Sustainable designing (Comfort of Housing Interiors, and Welfare Through Housing Layout) with a spotlight on individuals from particularly Afghan low-income households. In approaching climate change and housing via applied political philosophy, the analysis departs from political and scientific disciplines, where the target is usually to see empirical facts. Rather, the analysis addresses what needs to be tested in small-scale experiments. The metaphysical basis of this analysis, therefore, issues normative claims, specifically around what's at stake, for whom, and also the principles by which the advantages and burdens of inhabitation ought to be distributed

1.7 Research Questions

To support the aim, this analysis is grounded in three core questions:

Question one: How should a conceptual framework of housing policy be drafted for the first time? Special attention needs to be placed in the participative way UN and other development and developing countries have formulated theirs. The goal is ‘the provision of adequate, affordable and sustainable housing for all income groups in both rural and urban areas.’ In addition, how have the “what matters” and “who matters” been framed in planning and housing policies in Afghanistan?

Question Two: What is the right conceptual framework for Afghan government base housing affordability and sustainability on?’

Question Three: What area unit have the tensions between ‘what matters’ and ‘who matters’ been framed and adopted in Afghanistan housing and environmental designing policy?

Question four: Is Afghanistan have a standard research institution about housing policy and planning? What is the correct issue for Afghanistan government and International community to aim at regarding housing affordability and property? For all Afghans to possess a shelter, particularly for the low financial gain and Government employees?

Question Five: How have 'What matters' and 'who matters' been framed a first Afghan national housing Policy and Sustainable Architecture Shelter Strategy?

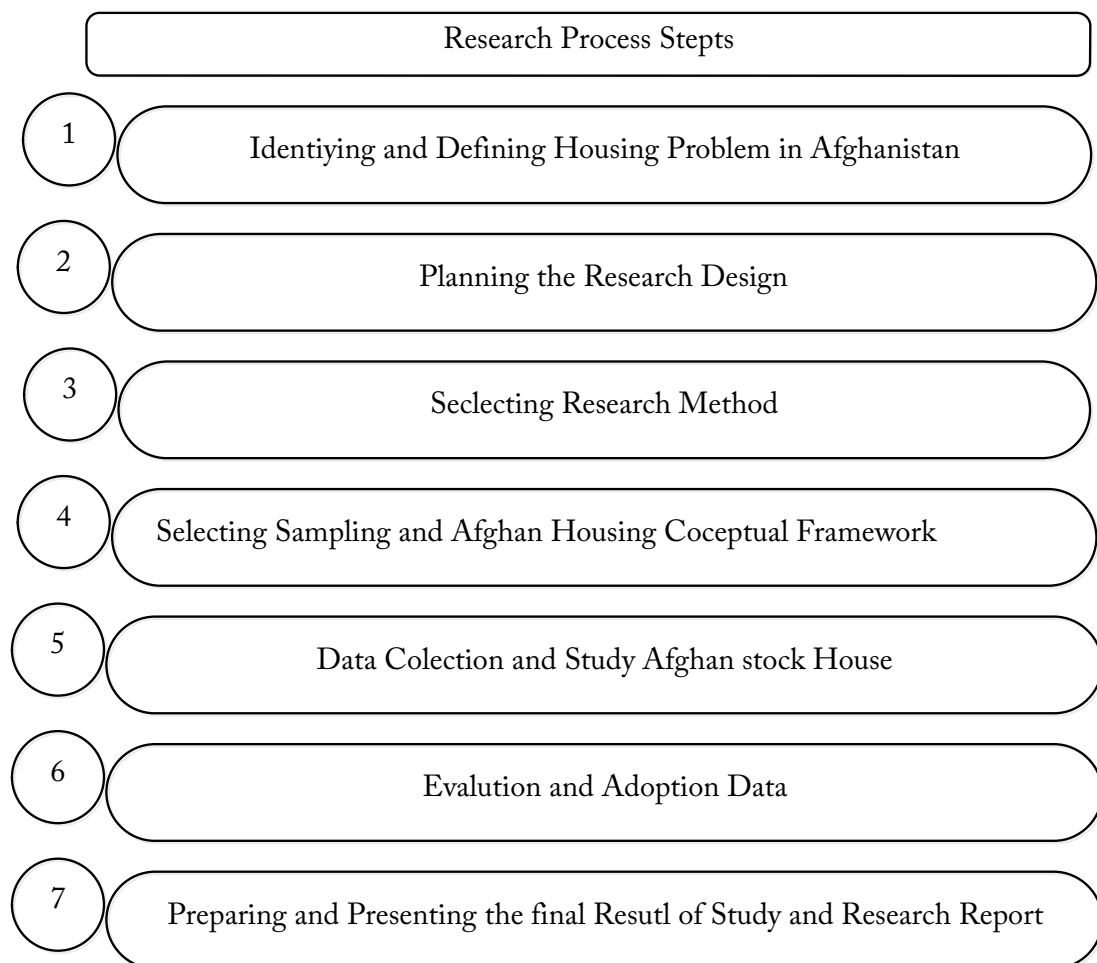


Figure 1.2. Research Step by step Process

No set of empirical facts will dictate the answers to those forms of queries. A mountain of knowledge regarding the variations might be accrued between democracies and dictatorships, however while not the normative part that's the political, still nothing would follow that Afghan government should or could enforce. Sustainable and

affordable housing policy principles and design was created for a number of reasons, creating an enduring and complex network, in which a variety of actors both public and private act as additional values and discourses. The primary problems are found in reasonable housing policy principles, properties and designing new instruments, like laws or budgets. These new instruments are simply put ‘important punctuation marks’ in ‘the Afghan movement of individuals and programs around all common community issues.’ Focusing on property programs, reasonable housing policy principles and designing show that the core of policymaking is a precise, definite and implicit diagnosing of a big concept, and thus the legitimate use of power is coupled to certain ‘representations’ of policy issues. The discursive aspects of a policy system ought to be analysed together with the real aspects of the policy system. Developing normative claims could be a reflective exercise, that depends on intuition and logic. This exercise involves filling up ethical judgments, principles and beliefs regarding the globe. To address this, analysis queries 1 and 2, the connected literature on the ideas of housing affordability and environmental sustainability were reviewed. Following that, twin housing policy narratives of affordability and property were explored together with public accessible policy documents and government ways, laws, and legislation. The exploration within the developments in housing and environmental policy isn't meant to be thorough, but instead a short overview of the key developments in policy over time, and among a dynamical social, economic and political context. The analysis is chronological; to mirror the notion of policy as a method that's traditionally place-oriented, and conjointly thematic.

The following sub questions address the main research question and the Aim of the section:

- Sub question 1: How is a housing policy formulated, and what criteria constitutes an appropriate housing policy?
- Sub question 2: What urban and Rural housing development policies are applicable in Afghanistan to concede the current social and economic condition?
- Sub Question 3: How feasible and Adoptable Un-Habitat and other Development Countries Housing Policies are? Are the profit strategies that were used easily adoptable in Afghanistan?

- Sub question 4: How are Afghanistan housing problems related to needs, provision and creation of the conceptual framework for the policy? Which solutions are feasible?
- Sub question 5: How could an implementable policy be formulated, and is there enough capacity to meet the challenges of providing adequate shelter for all Afghanistan (as roughly 75 % of the population is living in rural areas)?
- Sub question 7: What results can be drawn from the current research?

1.8 Argument

The dominant paradigm in new Afghan national housing policy denotes that price is the most important factor in housing. This conceals numerous other aspects in the policy and Planning about what matters. The following concerns of housing must be fulfilled: Basic needs, the basic fairness of the distribution of wealth and national identity, and also services in the private domain. In contrast to the materiality and connections to place, the following argument is brought forward in debates over housing; debate over climate change deals with diffuse and dispersed causes and impacts which traverse national boundaries and will be felt most gravely by people living in the future.

While the core tensions between housing affordability and climate change debates are intergenerational, justice requires the current Afghan social and political arrangements to be truly just. In turn, however, reckoning with the intergenerational dimensions of climate change, as well as how people are housed, much relies on a process of public reasoning, in which people are encouraged not only to set out and pursue their own interests, but also to reflect on and defend the interests of others. Adopted principles of sustainable communities show that other means, such as economics, politics or law alone are inadequate for this task. They overlook how these low economic outcomes are realized, whether they are things that people value, and at what cost. It is inadequate for addressing questions of the adequacy of housing in terms of size, location, amenity and what people need to translate this housing into meaningful ends. Perhaps most importantly, however, this paradigm provides an inadequate language with which to express the moral concerns underpinning housing and sustainable principles that apply in Afghanistan.

1.9. Structure of Dissertation

This dissertation contains five chapters including this introduction. In the next chapters, the literature is collected on the international policy and planning, practices in developed and developing countries, particularly regarding housing affordability, environmental sustainability and social and culture adaptations. Literature on housing affordability and environmental sustainability will also be reviewed to examine these concepts, and to sketch the theoretical tensions between them. As a concept of housing affordability, the concerns lay on the relationship between housing costs and household incomes. Thus, there are two main conceptions of housing affordability: the tenure-neutral concept of housing stress and the ability of households to enter into home ownership. In addition, environmental sustainability as the goal of managing human impacts on the natural environment is underpinned by a concern for the welfare of people living in the future. Given the breadth of this concept, the research will focus on how it can become a base for the government of Afghanistan, just like policy and planning of environmental sustainability has. The ideas about distributive justice are implied and explicit in both housing affordability and environmental sustainability, though these are poorly developed. Chapter three examines the program of sustainable and affordable housing policy and principles in Afghanistan. In chapters four, key developments in Afghanistan, sustainable and affordable housing planning and layout patterns, and environmental policy are documented respectively to provide a basis for addressing research questions. In fifth chapter, the analysis is presented chronologically, keeping with chapters three and four. Chapter five is thus the concluding chapter in this research. The aim of the research is referred to conclude the major findings of the research, the limitations, as well as implications for further researches.

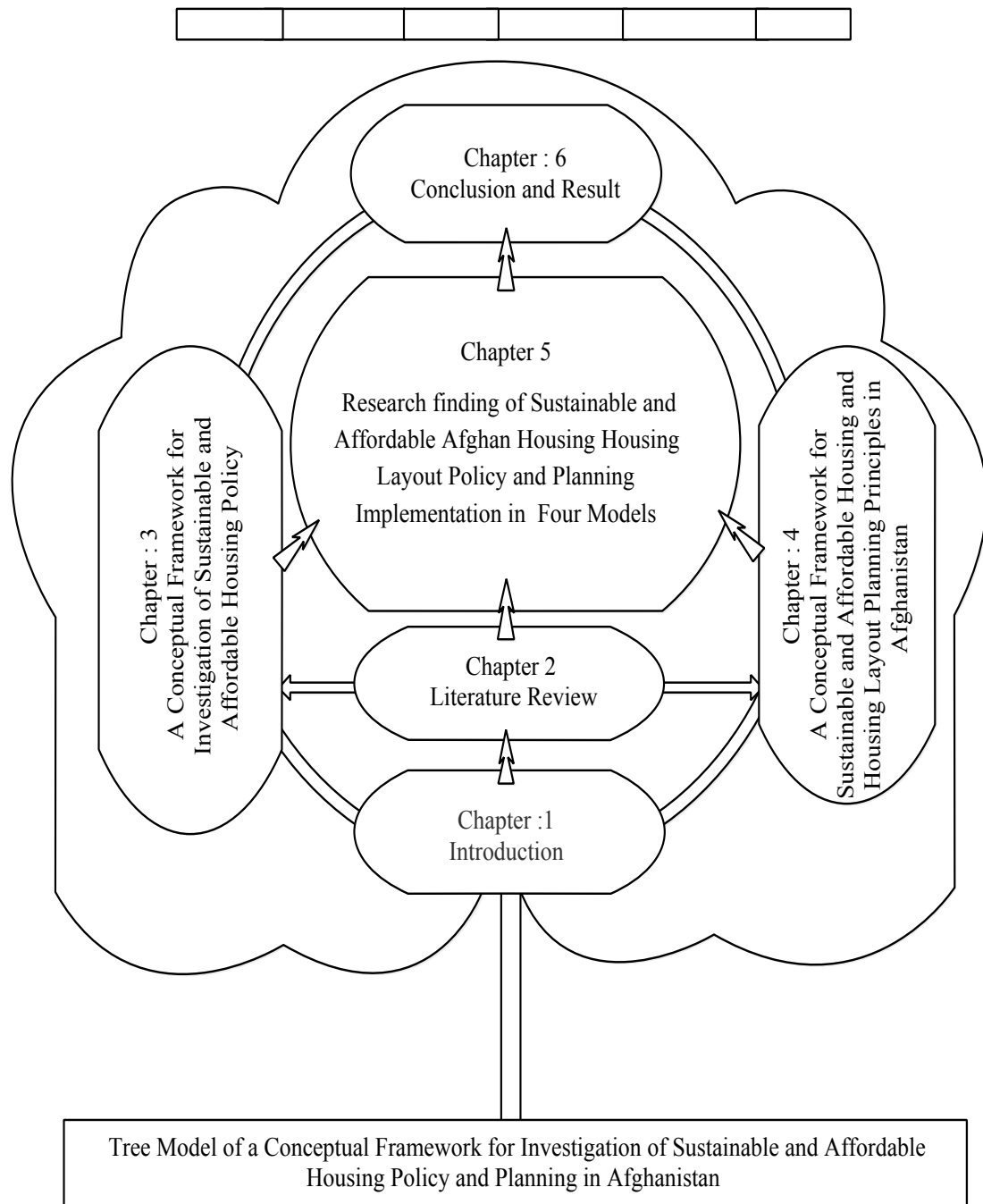


Figure 1. 3. Research Structure with Upward Tree Model Process

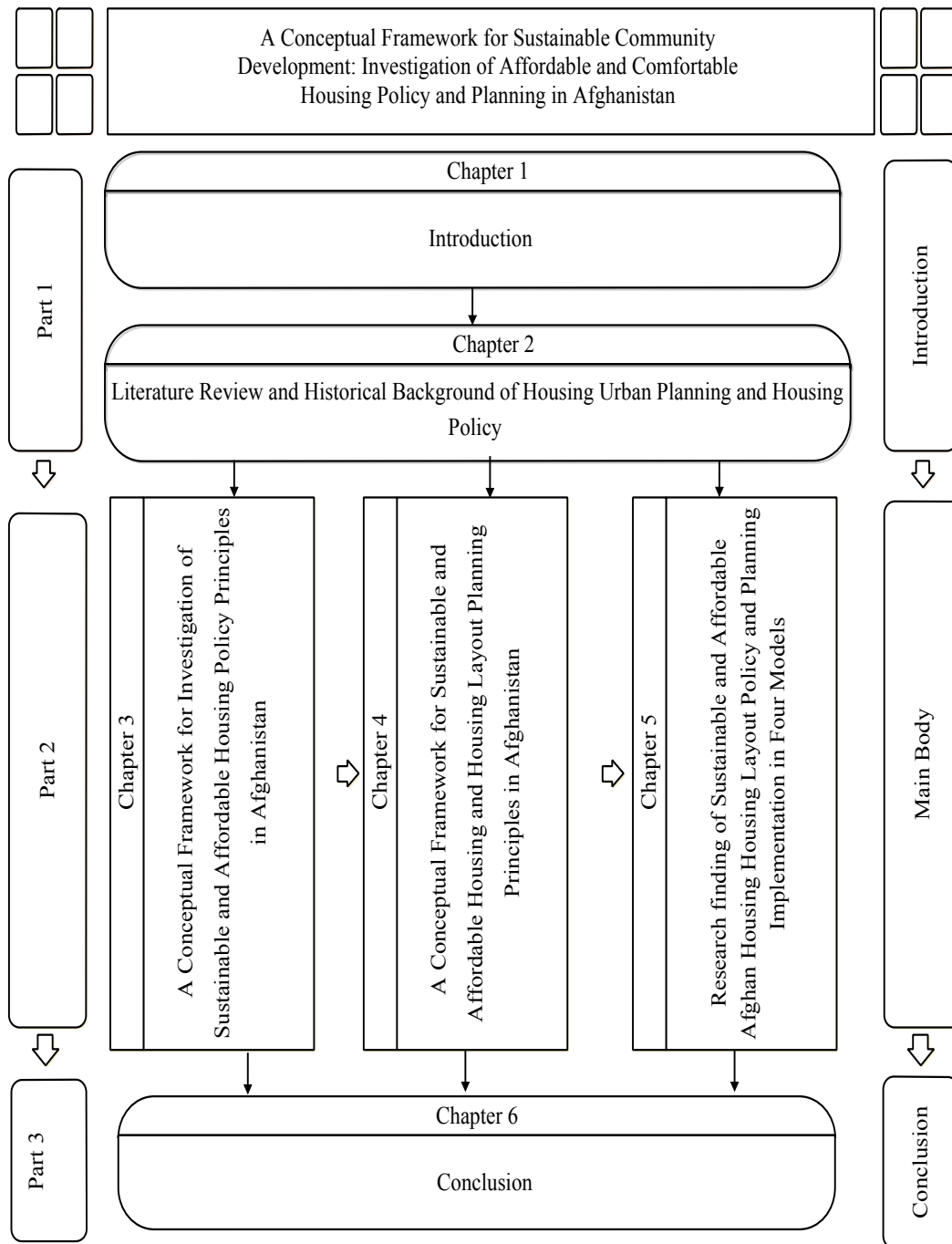
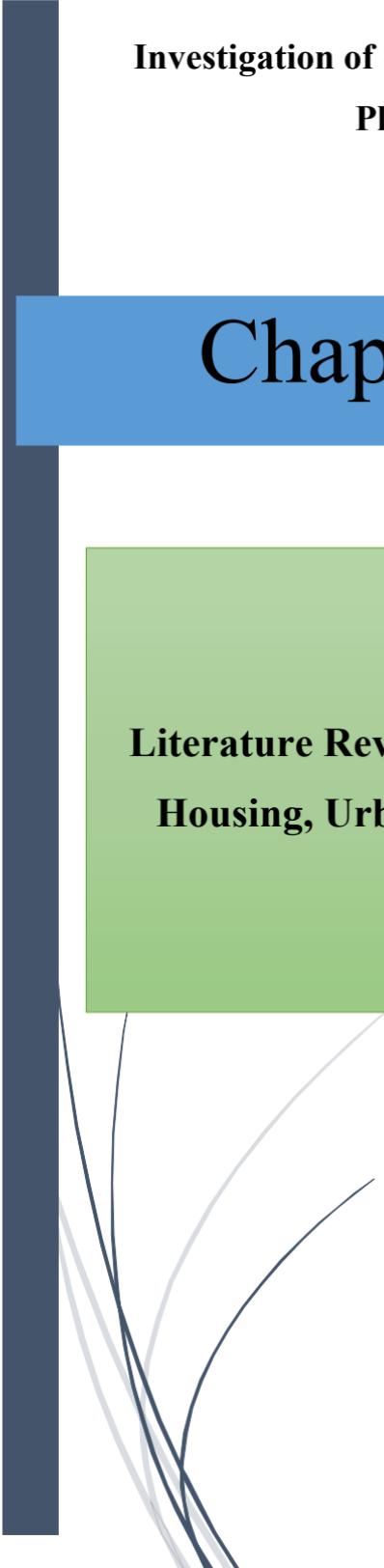


Figure 1.4 . Research Structure and Design



**Investigation of Sustainable and Affordable Housing Policy and
Planning Principles in Afghanistan**

Chapter 2

**Literature Review and Historical Background of
Housing, Urban Planning and Housing Policy**

Chapter 2

Literature Review and Historical Background of Housing and Urban Planning and Housing Policy

2.1 A Review of United Nation and International Housing Policy

To adopt by the simplest and economically approach and technique we should always recognize and investigate the International sustainable property community condition and somewhat Background. Because the new all international and a few UN organizations analysis concern to supply security of tenure to quite two billion those that lacked it world- wide, to develop property sustainable and affordable human settlements in an urbanizing world, and to supply adequate shelter for all. These complicated and discouraging challenges needed international wide shelter policies and planning coming up with, that may well be cipher to regions and to local areas. There arose the requirement to develop locational-specific responses occupation for the involvement of local and national actors in manufacturing policies, that suited localized desires. Transcending the protection offered by the shelter, man wishes to maneuver up the requirement chain for meeting the strain of identity, status, aesthetics, emotional satisfaction, living support systems, linkage with community etc., that create the house an organic entity. A well sustainable and affordable planned house and housing layout would be harmonious with nature and connected with social infrastructural facilities, providing some facultative surroundings. Home sets the pattern within the development of the character of the individual moreover because the price system, that shapes the society. Investment in sustainable and affordable housing has multiplier factor effects on the economic process of the country. [41], [64], [37], [11]

In each relative and absolute terms, the world urban housing conditions of the bulk of urban dwellers have continuing to low down and decline. Over the last four decades, this worrisome trend has continuing to influence and challenge concepts around totally different housing provision approaches. As a result, once dominant development approaches have in turn given thanks to new ones inside the housing

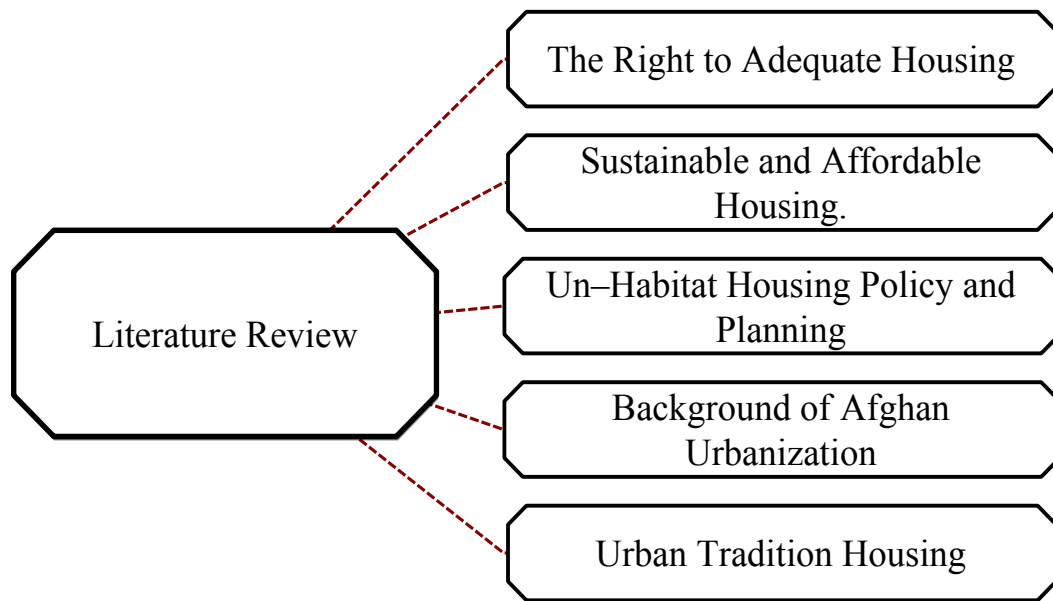


Figure 2.1. Literature Review

policy accord of the international community. This has crystal rectifier to marked and profound changes and shifts in housing policy orientation of countries in several components of the planet. In a historical context, the Sixties and early Nineteen Seventies were dominated by the concept of modernization and concrete growth. Official attention was centered on physical coming up with and therefore the production of housing by public agencies. This era stressed terribly robust state dominance in physical development and inspired the in depth use of master plans, direct construction of housing and therefore the obliteration of informal settlements. By the middle Nineteen Seventies to middle Nineteen Eighties the notion of distribution of growth and provision of basic desires became dominant. This section ushered in an exceedingly new thinking that urged the support of assistance possession on a project-by-project basis through the popularity of informal settlements, squatter upgrading, website and services and multiplied subsidies to land and housing. whereas permitting the individuals to incrementally improve their housing and living, began to dominate the world housing policy discourse with the main influence of the environs. Islamic State of Afghanistan was a signer thereto declaration and has created effort to adapt its housing reform in accordance to the environs II Agenda. To understanding the dilemmas, it's vital to grasp the historical

housing evolution within the Islamic State of Afghanistan moreover because the nature of public and personal housing sector.

2.2. The Main Principles and Key Aspects of the Right to Adequate Housing

One of the most essential needs of people everywhere in the world is adequate housing. This is recognized by the United Nations, and other international human right association. Thus, governments are encouraged to facilitate their citizens' acquisition of Adequate shelter. This involves: protecting the rights of owners and tenants; ensuring that citizens of all classes have the opportunity to obtain satisfactory housing; and to induce the private sector to invest in this economic sector (thereby reducing government expenditure as well as overall costs of housing. In Afghanistan, there are many constraints for this situation. Lack of effective implementation strategies, poor promotion of security of tenure, inadequate supply of affordable land and infrastructure, inadequacy of housing finance systems, poor utilization of local building materials and technologies, lack of support to small-scale construction activities, inappropriate standards and legislation, inadequate participation of communities in shelter development process and support to self-help, lack of focused research and experimental projects, poor utilization of research findings, are amongst such major constraints.

The safe and secure shelter is one in all the essential wishes of soul and right to the shelter has been recognized as a basic right in international covenants. The International Covenant of alliance and alliance on economic, social and cultural rights, to it Afghanistan could be a non-public, upholds the proper to adequate housing as somebody's right. Untied Nation clarifies the characteristics of the proper to adequate housing, as a result of the need to review shortly as following:

- the proper to adequate housing contains freedoms: These freedoms embrace Protection against forced evictions so the capricious destruction and demolition of one's home, the proper to be free from capricious interference with one's home, privacy, and family; so, the proper to create a selection on one's residence, to figure out where to live and to freedom of movement.

- the proper to adequate housing contains entitlements: These entitlements include: Security of tenure; Housing, land and property restitution;
- Equal and non-discriminatory access to adequate housing: Participation in housing-related decision-making at the national and community levels.
- Adequate housing ought to provide over four walls and a roof: kind of conditions ought to be met before specific types of shelter is in addition thought of to represent “adequate housing.” These parts unit whereas elementary as a result of the basic offer and convenience of housing.

For housing to be adequate, it must, at a minimum, meet succeeding criteria: General comments unit adopted by the understanding bodies supported their wanting

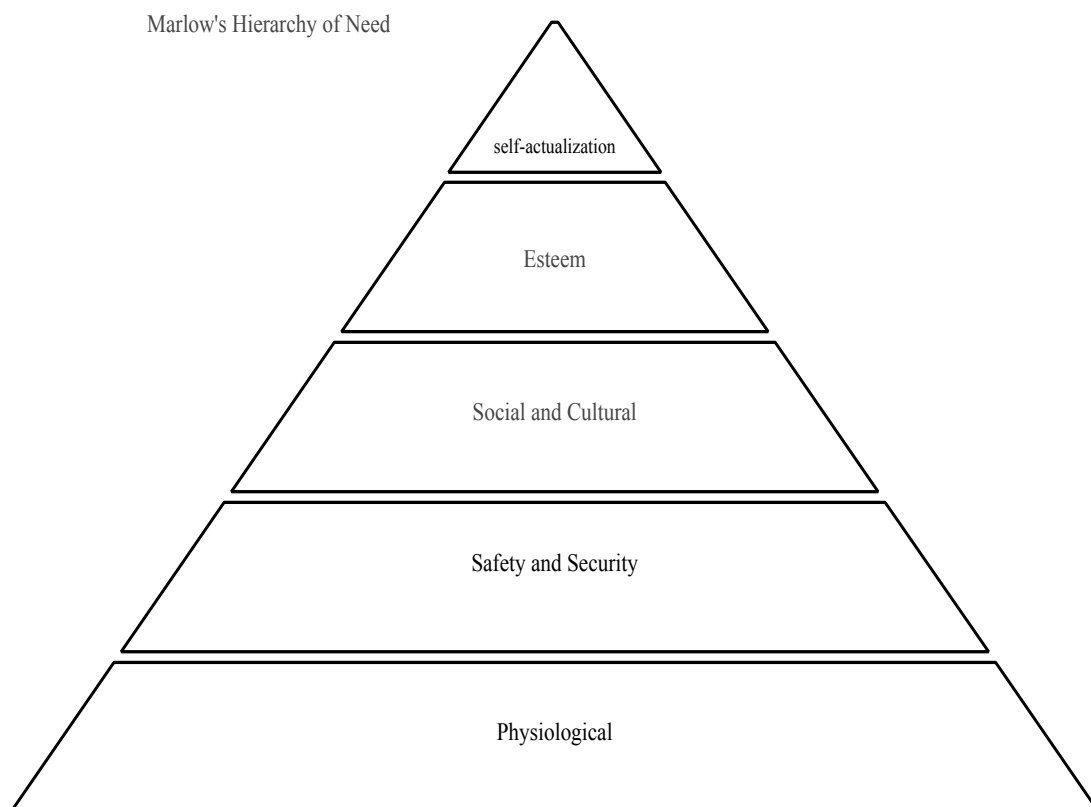


Figure 2.2. Marlow's Hierarchy of Need

experience. they supply delicate steering to States on their obligations arising below a selected understanding

- Security of tenure: Housing is not adequate if its occupants haven't got a degree of tenure security that guarantees legal protection against forced evictions, harassment, and various threats.
- The convenience of services, materials, facilities and infrastructure: Housing is not adequate if its occupants haven't got safe water, adequate sanitation, energy for preparation, heating, lighting, food storage or refuse disposal.
- Affordability: housing is not adequate if its price threatens or compromises the occupants' enjoyment of assorted human rights.
- Habitability: Housing is not adequate if it does not guarantee physical safety or give the adequate house, additionally as protection against the cold, damp, heat, rain, wind, various threats to health and structural hazards.
- Accessibility: Housing is not adequate if the actual wishes of poor and marginalized groups do not appear to be taken into account.
- Location: housing is not adequate if it's interrupt from employment opportunities, health-care services, schools, kid care centers and various social facilities, or if set in impure or dangerous areas.
- Cultural adequacy: Housing is not adequate if it does not respect and take into account the expression of cultural identity.
- Protection against forced evictions. Protection against forced evictions might even be a key element of the proper to adequate housing and is closely joined to the security of tenure. Forced evictions unit created public as a results of the “permanent or debarment against their will of individuals, families and/or communities from the homes and/or land that they occupy, whereas not the provision of, and access to, acceptable varieties of legal or various protection.”² keep with the world organization Human Settlements Programme (UN-Habitat), a minimum of a mixture of millions of us among the globe unit forcibly evicted every year, whereas millions unit vulnerable with forced evictions. Forced evictions unit distributed during a notable form of circumstances and for a range of reasons, as AN example, to form

approach for development and infrastructure comes, urban improvement or city modification of state, or prestigious international events, as a result of conflicts over land rights, armed conflicts or grouping patterns of discrimination.

2.3. A lesson from Review of Japan's Housing Policy and Planning

As my long keep in Japan concerning close to seven-year, I had smart expertise living in the governmental housing (Shi Jiutaku) than that's smart to adopted some attainable conception each policy and Planning In Afghanistan. In Japan at the national government level, the Housing and Urban Sustainable Development Corporation, that resulted from a merger of 2 earlier corporations in 1981, builds housing buildings and rents them to tenants. Local governments, that is, prefectures and municipalities, additionally contributed to housing development, generally directly operational rental residences and generally fixing government-affiliated companies. The housing development has sharply inbuilt the Fifties and Sixties. In fact, the quantity of housing development units over doubled from 1958 to 1968. [165]- [166], [167], [169]- [170]. To extend the quantity of housing units was a high priority. Several of the units in-built those years' area unit currently thought of to be too tiny even for the government standard. It appears that the policy has shifted from simply increasing housing development units to produce smart quality housing and to introduce a lot of a market mechanism. In some ways, public policy has been targeted to extend the number of housing units. Solely recently has attention been given to quality. Public policy for quality, if ever required, could also be quite completely different from that for amount. As an example, the (lowest) sponsored mortgage rate granted by the public-sector Japan Housing Loan Corporation applies solely to the ground area of a purchased house below a threshold size. (Seko, ch. three during this volume, for details.) maybe a ceiling on the yen quantity of sponsored loans can be even from the fairness purpose of view; but, the floor- area restriction encourages the development of little homes and prevents development of high-quality housing in residential area areas. The government has additional direct ways in which of conducive to enhancements within the housing stock. First, several government entities maintain sponsored (rental) housing for his or her staff. whereas

most of them satisfy the minimum normal of living, some are just too recent and too little. [165]- [166], [167], [169]- [170].

It is very necessary to renovate or replace aging government properties with terribly tiny and small units, each those utilized by government staff and people used as rental housing. several of these buildings area unit low-rises and will get replaced by high-rises with larger units. Another peculiar facet of the Japanese housing market is that the prevalence of company housing and public servant housing, each of that area unit heavily sponsored in rents. This appears to be a minimum of partially attributable to the advantage that advantages each employer and employees: Operational expenses of company housing area unit deductible within the company's profit calculation, whereas the subsidy- a part of rents isn't rate able in employees' financial gain. Public-servant housing is usually caliber however heavily sponsored in rents. This is additionally tax-free in government employees' revenue enhancement. These distortions could partially develop high-quality housing. Public policy relating to land and housing emphasizes protection of the un-underprivileged in Japan. However, taxes and laws with an intention of protective the unfortunate typically have the alternative economic effects. In summary, all economists in Japan suggest raising the assessments of land for property and heritage taxes so as to eliminate distortions. people who believe that lock-in effects area unit giant suggests a discount in capital gains tax (at least for the long holding). Combined with fewer transactions tax, fewer capital gains tax would enhance the economical allocation of land. How- ever, these changes could also be opposed by people who need to use the legal system to attain equity rather than potency and to stop bubbles from forming within the housing market. Also, economist's area unit usually in favor of modifying the Land Lease and Building Lease Laws to permit landlords to terminate leases at the time of their expiration. These changes would increase the availability of high- quality rental housing. [165]- [166], [167], [169]- [170].

The fundamental purpose of the new Japanese Housing policies would be a market-driven construction industry that may limit public controls the maximum amount of potential. The goal of the new policy is to trust only on the market and to relinquish government management of the housing market. [165]- [166], [167], [169]- [170].

The Public Housing Act was developed in Gregorian calendar month 1951 and has been one in all the 3 pillars of Japanese post-war housing policy². the aim of this Act is to contribute to stability in individuals' livelihoods and to push welfare by developing and allocating low-rent housing to people with low incomes so as to confirm healthy and civilized living. The Act defines the system of federal agency housing. The central government subsidizes the development prices of federal agency housing that meet the uniform criteria below the Act.

1. Research regarding reasonable and little homes has become one in every of the recent trends in housing style in Japan, as has been determined in several house styles works that from that have we have a tendency to get a lot of benefits to use some project in Afghanistan. Periodical coverage will tell that the quantity of such works has clearly been increasing since the 90s, as compared with the 70s and 80s. The trend of tiny homes was additionally determined within the 50s. In those postwar years of economic process, it had been driven by the conditions of the time, like offer and housing shortages and concrete centralization. Today's social conditions are considerably totally different from those within the 50s, and naturally, the total idea of tiny homes has greatly modified from the past. The core system is that the technique of materializing any low house by group action specific-purpose services in one place and effort different area open. Combining this idea with structural concepts gave rise to the notion of categorizing not solely the living vogue however additionally the structural system itself into mounted and versatile parts³. this idea was clearly advocate by Kiyoshi Seike and Makoto Abe in their works in 1951. associate integrated versatile area will adapt to short- and long changes through the use of subsystems like furnishings and partitions. For the past ten years, the term "small houses" has been accustomed categorical "houses designed on tiny sites" in several cases. various building system experiments are allotted, which might be summarized as tries to propose housing style that represents the manner it ought to be to measure within the current urban surroundings. In specific terms, building system experiments have shifted their focus from the fabrication of materials within the 50s to the event of utterly new ways that of applying existing ready-made materials in recent years. Below are a

number of the samples of various building system experiments. [165]- [166], [167], [169]- [170].

With the shortage of housing provide Moreover as material provided, the architects of the time aimed to form richness in the mode with the minimum budget, materials, and space¹⁰. the precise objectives were integrated layouts, modernization of services, reduction of construction value and rationalization of production. several experimental efforts were created for fabrication and production, that junction rectifier to the event of ready-made homes within the 60s and forward. However, there was very little awareness of the positioning issue. On the opposite hand, the subsequent insights were gained with relevancy the little homes designed once 1990: additionally, to wood structures, varied structural sorts appeared, together with steel and concrete structures. Occasionally, there are efforts to hunt new ways in which of applying existing ready-made materials or place in follow new structural concepts. value reduction isn't essentially in question. As compared with the 50s, the whole floor space has become larger and building/site areas smaller. there's a heightened awareness of building homes on little sites, specifically living within the jammed urban surroundings. [165]- [166], [167], [169]- [170].

To surmise our discussion in the following:

1. development of a replacement housing economic system supported the free market
2. Improvement of the operate of the non-public housing market.
3. Reform of the general public rented housing system towards restructuring a housing safety net.
4. regeneration of the designed setting for urban areas.
5. Ready-made units for uncommon homes.
6. New applications of existing ready-made materials and new structural concepts
7. Low price house experiments.

2.4. History and background of Afghan Urbanization and Housing Design, Planning and Adaptation

2.4.1. Adaptation Definition

In the American Encyclopedia of Architecture, Design, engineering and Construction, we find adaptive reuse defined as the field of Architecture concerned with continuing a building or structure in service by mean of creating a new use for it, or with the reconfiguration of a building so its original use can continue in a new form that meets new requirements. Swedish constructionist gives a definition to adaptive reuse as a perceiving economically, socially, culturally viable uses of a sustainable nature.

Modification of associate organism or its components that produces it fitter for existence beneath the conditions of its surroundings, the adjustment or changes in behavior, physiology, associated structure of associate organism to become a lot of suited to some surroundings. Urbanization may be a process development of this century, and therefore the developing world is wherever this demographic transformation is going down. within the decade since the preparation of the last World Bank for Reconstruction and Development urban strategy, the globe has become, for the primary time, over urban. Over 90 % of urban growth is currently occurring within the developing world and nearly 2 billion folks can become urban residents within the next twenty years. In Africa and South Asia, urban populations area unit expected to double throughout this era. This demographic trend raises vital questions on the method of managing urbanization and delivery mechanisms for urban development help within the decade ahead.

2.4.2 In Fast Facts Urban Definition

An urban setting is written in connation cities and cities. Cities unit of measuring body areas of dense human habitation, that unit of measuring separated from rural settings and concentrate varied types of power in connation such a lot settlements. there's a long-standing dialogue on the influence of cities on social order and organization. The ascent of cities in lower- and middle-income settings is difficult

commonplace interpretations. as an example, Slums in capital of state cities increasing in choice and size and unit informal settlements placed either among the center of cities or per-urban areas and exhibiting restricted access to services, through overcrowding, unhealthy conditions and dangerous locations, poor quality housing and supported on insecure, irregular and non-tenured land considerably in mountainous space of capital of state. Addressing the challenges of urbanization would want torrential nearer collaboration considerably among the underdeveloped and backward countries like state across all tiers of the state. Urbanization isn't absolutely a challenge for cities. To be effective, developing countries can love economical, multi-tiered coordination mechanisms to support policy formulation and coordinated interventions between national, regional and native governments. Metropolitan and regional agencies would possibly have to be compelled to be established wherever there's a mate between municipal boundaries and to boot the urban economic footprint soon deliver services many effectively in cities and pre-urban areas and promote process.

The emergence and growth of cities is affected through various factors. Urban economists have a broad agreement concerning the role of agglomeration externalities within the emergence and growth of cities. Following this idea, economic specialization is taken into account as a key issue to urban growth. combination indices of specialization and diversification square measure calculated for all thought-about counties. Then, their effects square measure examined on the expansion of urban employment. Specialization economies have a negative impact on employment growth, we have a tendency to don't notice any proof for the impact of spatial lag on localization of economies. Meanwhile, in contrast to the negative result, that the population has on its inhabited neighbors, employment growth will increase, since the market potential expands. Ascent of urbanization rate principally resulted within the world shift from village to the urban village and two of that may have negative consequences for the human like declining means of life remnants of the previous amount and also the emergence of latest ways that of life. As a result of the maximum amount as folk's welcome to progress from urbanization and modernization within the variety of behavior and attitudes ought to worry concerning the negative ecological impact ensuing from this development too and

contrast to past *modus vivendi*, consumption scurry is one amongst the plain options of the new methodology that result the maximum amount environmental pollution.

2.4.3. Urbanization in Profound Impact on Groundwater Hydrology

With increasing urbanization, each the quantitative and qualitative aspects of the hydrological cycle suffering from growth in population density and consequently a rise in the building density. Buildings and roads enlarge the unconscious space and place along modify the natural system. as a result of the massive unconscious areas, an even bigger proportion of the incident precipitation seems as high-speed runoff and so the degree of runoff will increase. On the choice hand, the runoff created is to boot bonded or conducted to associate unlined installation, that successively may provide smart conditions for recharge to need the place. what is further, outflow from installation distribution system might even be an offer of groundwater recharge. Urbanization might additionally cause radical changes in groundwater quality like rising levels of salinity and part compounds any as contamination by crude. Thence urbanization influences formation, flow regime and therefore the quality of water within the underlying formation. the implications of those influences, particularly in developing countries like Afghanistan country wherever the urbanization growth isn't ordinarily planned, could produce serious difficulties. The difficulties also are increased by aridity. In such things associate economical groundwater management is needed to unravel the present issues and to forestall creation of any difficulties. this can be solely attainable once the quantitative and qualitative impacts of urbanization on groundwater familiar.

2.4.4. Big Issues

Hundreds of legion urban dwellers in low- and middle-income nations area unit in danger from the direct and indirect impacts of global climate change. while not effective, domestically driven adaptation there'll be terribly serious consequences for them and for national economies. However, there an area unit limits to the injury or devastation that adaptation will forestall and additionally terribly serious deficiencies within the institutional capacities for urban adaptation in most low- and middle-income nations. This makes it all the additional imperative that world

agreements area unit reached to realize the required cuts in greenhouse emission emissions. But there an area unit terribly substantial synergies between flourishing adaptation pattern to global climate change and flourishing native development pattern. Indeed, reductions in poorness, together with enhancements in housing and living conditions and in provision for infrastructure and services, area unit central to adaptation. Successful, well-governed cities greatly cut back climate-related risks for low-income populations; unsuccessful, badly ruled cities don't and should greatly increase such risks.

2.5. Afghan Urban Cities and Towns Adaptation Review to Sustainable and Neighborhoods and Affordable Housing.

2.5.1 Urbanization Background in Afghanistan

Afghanistan is that the most apace urbanizing country in Asia because it plays “Catch up” to its regional neighbors when three decays of war. The push and pull factors that influence people’s call to migrate to urban square measures are common to alternative elements of the globe. In recent years, over Three million refugees came back to the country, with the bulk sinking within the country’s urban centers and primarily within the capital town, Kabul. capital of Afghanistan could be a powerful magnet for Afghans longing for security and a higher life when decades of warfare, notably for refugees arriving from abroad and IDPs throughout the country. Today, town features a population of over five million, with impoverished residents filling war-devastated sections of town and constructing new dwellings higher and better on the encompassing hillsides. It seems that the expansion of capital of Afghanistan can continue intense within the next 10-15 years. fast urbanization is additionally leading to dangerous pressures on archaic infrastructure that can't meet the water, electricity and alternative needs of enormous parts of the population, whereas issues of health and hygiene related to high-density settlements square measure common. Infrastructure like roads, traffic system, phone system, electricity, water and sanitation, renovation of buildings, is in shambles and therefore the would like for reconstruction is extremely necessary to bring back town of capital of Afghanistan to a higher place for living (7). In spite of those varied drawbacks,

capital of Afghanistan continues to be perceived by several Afghans because the town of chance, wherever jobs will be found and wherever several instructional and health facilities square measure settled. The widespread informal or unplanned settlements of the capital square measure an issue of a lot of dialogue, at present, and can ought to be addressed. To grasp concerning all country Urbanization and, urban ancient components and concrete growth we are going to review a look to any or all necessary cities and country capital. Urbanization is happening in Afghanistan at a quick pace; still very little info is obtainable on the topic. This to some extent has been thanks to the actual fact that urbanization has been a rather new development within the country and has received low priority within the hierarchy of government's organic process programs. Moreover, the absence of reliable statistics has restricted any systematic study of the topic. There square measure solely variety of scattered documents and papers concerning the topic. The aims have been an endeavor to initial sketch out a number of the urban problems at the broad national level so think about the urban style scale at intervals the constraints of the offered info. It's hoped that this study can open up a dialogue towards the ever-increasing effects of urbanization Kabul country capital and other big Afghan cities. The 20th one Century technocratic culture, the monotheism Republic of Afghanistan for the foremost half remains to be a rural country. From its estimated 28 million population 15 to 20 percent is urbanized, 15 percent lead some form of nomadic life, and from sixty-five to seventy percent work on farmlands maintaining the subsistence farm economy (?).

Urbanization and technological modification has been a rather new method in Afghanistan. Recent forces of modernization, in the main throughout the past three and a half decades, could have brought new opportunities in major cities; however, at constant time it's created new imbalances. Such changes have affected all aspects of life: law, family structure, wedding patterns, job opportunities, and Urban forms. Some within the process have gained, however others have lost. Inequalities became wider, and social disorientation is merging. For a few new jobs opportunities, have detached, whereas others are displaced from their ancient occupations. Misuse of land, decaying town core, sprawling suburbia, environmental degradation like pollution of underground water and destruction of leaf square measure all changing

into the apparent dimensions of the new urban scene. Costs of farm product square measure going up; land values square measure rising; however, the getting power of the urban poor has been decreasing. it's changing into tougher and tougher for the bulk of the key cities' population to satisfy basic wants like shelter. All this suggests new responsibilities and new outlooks on a part of government authorities and professionals. There's plenty which will be learned from the experiences of alternative developing countries. Kabul capital of Afghanistan and alternative Afghan huge cities has had the chance to avoid a number of the misfortunes of alternative developing cities, however the road remains open for artistic thought and action. this could notably be necessary within the context of Afghanistan that is at a way earlier stage on its road to economic and social development compare to several alternative developing nations. To study starts with a summary of urbanization in Afghanistan at the national level. This is often meant to sketch out a number of the problems which will influence action at the lower levels. It then follows by a locality on the urban tradition, that is enclosed for the aim of each historic documentation also as providing a background on tradition against that new changes will be measured. Following then could be a section on the expansion of capital of Afghanistan, that traces the historic growth of town from its early history up to the current conditions. The ultimate section could be a proposal for a paradigm community, that provides a model for addressing the immediate issues of housing within the town.

2.5.2 Urban Tradition in Afghanistan

Little is thought regarding the urban heritage of Islamic State of Afghanistan. Gift day practitioners concerned within the Peshawar' Gate method of development in major cities have very little acutely aware understanding of the changes they're transferal regarding. Recent citadels once dominating the cities area unit being replaced by new hotels or cinemas. The recent swarming lined bazaars within which trade, crafts, and public life were unified with residential quarters area unit giving thanks to clean stagnant wanting boulevards. the large dome covering the "Char Sun" that served as a city sq. till recently in urban center and Kandahar was torn down for the explanation for reclamation. The dense and tight, however unified and

economical urban systems characteristic of Islamic cities area unit replaced by chaos and fragmentation with the town edges grasp.

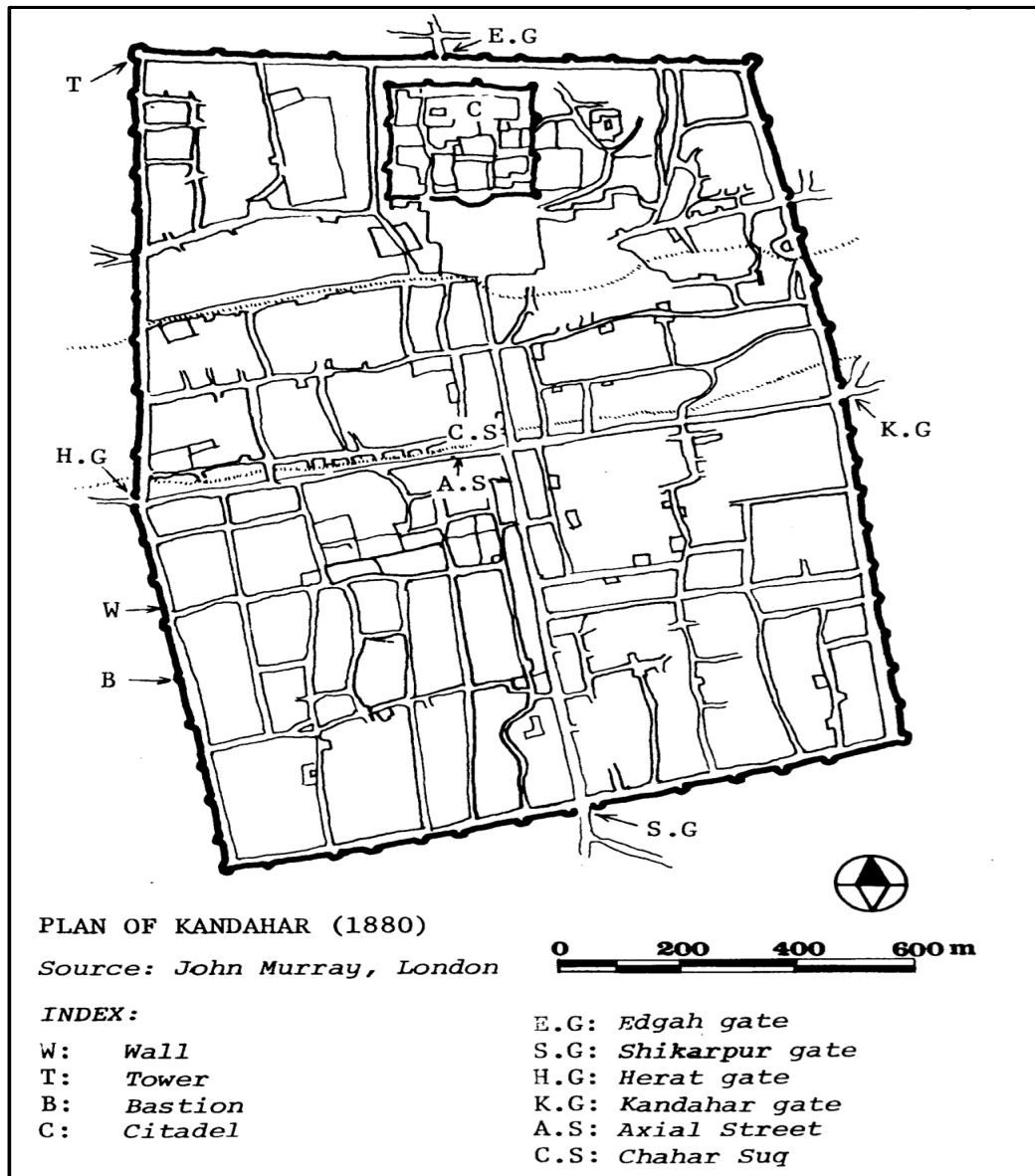
2.5.2.1. Herat

The old city center of Herat could be a sensible living example of the standard urban forms in Afghanistan. The current day urban center has long over flowed. The boundaries of the arrange of 1916 shown here (figure 2.1), however the recent section of urban center still nowadays for the most part maintains its original physical kind still as activities. The origin of Herat's layout is unknown. History of urban center itself goes back to the time of Alexander the nice who purportedly when gaining control, the world in 330 B.C. Ordered the building of a mighty fastness. Through ages Herat has passed totally different stages of rise and fall with its peak throughout the time of Timurids (15th Century) who when Genghis Khan's devastative destruction started a brand new creative and cultural revival creating urban center one among the many cities of Central Asia as well in Afghanistan. The shrines and mosques outside gift day urban center proves the enlarged size of the town at that point. Middle Eastern influence over the city throughout sixteenth and seventeenth Centuries one will postulate that the oblong arrange that is comparable to the Arab town plans could are ordered out throughout this era. Really Kandahar that was planned and designed throughout the seventeenth Century includes a similar lay- out inform to quality of the thought at the time. interestingly enough one among the gates in urban center is known as when Afghanistan indicating the shut association between urban center and also the geographic region which could have led to the Arabic urban designing influence. The Herat was ordered move into a quadrangle of 1300 meters by 1500 meters that the world nowadays holds a population of 80,000 people. It had been enclosed by a wall of concerning eight meters high having a thickness of four meters at rock bottom tapering to concerning three meters at the highest. every face of the wall had concerning twenty-five bastions. The regularity of the north wall is interrupted by the recent fastness that was already there therefore touching the new layout which could have otherwise been straight. As a result, a projection of concerning one hundred eighty meters seems on this facet. Another part that existed before this layout is that the grand

place of worship "Masjid-i-Jamai" that is found within the northeastern quarter of the town. Between the recent fastness "Arg-i-Kuhna" and also the north wall, the new fastness "Arg-i-Nau" was placed. The new fastness was later enlarged to incorporate a tract of concerning 270 meters long. The recent fastness was positioned on a mound eighteen meters high, dominating the town. This dominating position was necessary in terms of management and security of the town. The recent fastness was a brick structure forty-five meters wide and a hundred thirty-five meters long that had its own fortification and was surrounded by a wet ditch, the town had 5 gates: 2 on the side were named leader and Qutb Shah; the one on the west was named when Iraq; and also, the one on the south was named when Kandahar whereas the one on the side was referred to as Kushk. In addition to a fosse that encircled the town, there was a further trench protected by an occasional wall. Within inside of city 2 major axial streets go through the center of the town; another major street ran around the perimeter of the city adjacent to the walls. Residential streets were tight making a maze of circulation. Mosques and cisterns were equally distributed inside the reach of every neighborhood. the general structure of the town was a well-balanced set of articulated components simply reached and known by its inhabitants.

2.5.2.2. Kandahar

Kandahar may be an ideal of a town that was engineered by the need of 1 man- king Ahmad Shah Ba Ba. Once being electoral king by the powerful Durrani tribe, he ordered the building of a replacement town in 1761. The set up shown here relies on a sketch set up ready by Major Leach and revealed by John Murray in London in 1881. History of Kandahar goes back to the time of Alexander the nice United Nations agency purportedly marched south to Kandahar and established a colony that was then observed as Alexander-in Arachosia. M. Elphinstone (c. 1815) records that shortly before Ahmad Shahs town, 2 different cities were engineered; one was Hossein Abad engineered by Shah Hossein (1694-1722) and also the different was Naderabad built by the Persian king Nader Afshar (1737-1774). During a sketch revealed in Angus Hamilton's "Afghanistan", a fortified town shown in ruins is observed as "Shauri Nader" that means the town of titled it "Ashraf-ul-Blad", that



INDEX:

B.G: Edgah gate S.G: Shikarpur gate H.G: Herat gate K.G: Kandahar gate

A.S: Axial Street C.S: Chahar Suq W:Wall ,Tower ,B:Bastion ,C: Citadel

Figure 2.4 . Kandar old Master Plan

Source Oscar Von Niedermayer

means the foremost distinguished town. Another title "Dar-ul-Qarar", that means the abode of the quiet was conjointly tried; however, the fresh established town shortly among the folks received the recent name Qandahar. The set-up of Qandahar was rectangular in form. The axial streets that existed in urban center and later in Jalalabad were planned in Qandahar too. the dimensions of Qandahar were or so

constant as urban center. Hamilton records length of western face 1800 meters, that of the eastern 1650 meters, the northern 1070 meters, which of the southern 1230 meters. These figures are near the Leach's sketch that was drawn 1600 meters by 1200 meters' Other options like walls, gates, towers, citadel, axial streets, so on conjointly existed in Qandahar. town walls were eight.2 meters high, 6.25 meters thick at the bottom and four.4 meters thick at the highest. the town was enclosed by a trench seven.3 meters wide three and three, 3 meters deep. It had four main gates through that the most streets ran: the northern gate was referred to as Edgah, the southern Shikarpur, the western Heart and also the Japanese national capital. additionally, there have been 2 minor gates, the Bar Durrani on the Japanese face and use Khana on the western face. The principal axial streets in Qandahar were thirty-six meters wide; the peripheral street adjacent to the wall was twenty-three meters Qandahar was the house of Durrani tribes. The four quadrangles of the town were

occupied by totally different Durrani tribes. In 1906 once Qandahar had twenty,000 houses, it had 3700 retailers additionally to the roadside peddlers and vendors. this suggests or so a mean of 1 buy each 5 homes that points wide; and also, the dome of "Chahr Sun" was twenty-two meters in diameter.to the widespread existence of little scale crafts and industrial activities typical of preindustrial cities

2.5.2.3 Afghan Architecture and Urban Housing layout and residential street patterns

Two styles of homes may well be differentiated at intervals these cities. One was the common-or-garden house of the typical one who was a craft- man, a merchant, a carriage driver, or associate degree unskilled laborer like porters et al. These homes were little, 3 to four rooms organized around little curtilage, and were primarily suited to the requirements of an extended family. In distinction, the house of the rich elite was either an owner, a non-secular leader or a bourgeois, was giant and comprised of various sections: The most family quarter, the servants' quarter, and also the guest quarter. The family quarter in some cases had 2 sections utilizing sun orientations, one for summer residence and also the alternative for winter use. These

homes typically enclosed extended families keeping kinship power along. The layout of all homes was powerfully influenced by the Muslim culture; they were inward wanting homes hospitable a non-public open house. They'd no windows on the road aspect except hole-like openings that were sometimes employed by house women after they peaked through to visualize what was happening on the road. The sunny roofs compete a very important role in transportation along the neighboring women couldn't meet publically areas attributable to spiritual restrictions. Neighboring youngsters throughout winter once streets were muddy additionally actively used the roofs. In- aspect the house girl's quarters were separated from men's; guest quarter was continually situated close to the doorway hidden from the remainder of the house. All residential streets were pedestrian oriented; they were winding and as slender as a pair of meters. sometimes they were coated on top of as a result of second story enlargement of dwellings. nowadays within the recent sections of those cities the irregular pattern and slender streets build it not possible for town services to be provided for those square measures; garbage trucks cannot get close to the houses; water pipelines and sewers are tough and extremely pricey to put in. The tight streets in these densely-created areas additionally stop adequate air circulation. Residential streets were continually muddy throughout the wet winter season as a result of very little sun reaches the bottom. On the opposite hand the shaded streets were a pleasant place within the summer for walking, or playing, or chatting with neighbors. folks took pride in being related to bound streets; teams living on completely different streets were usually noted by the names of those streets. People of different ethnic origins were usually found to be living on different streets. Such affair of the road was additionally bolstered by the spiritual virtue of excellent friendly relations.

2.5.2. 4 Afghan National Pattern Urban Growth

For centuries Afghanistan has village town. They were little regional centers nourished by a farm economy, regional trade and political powers. Their size usually fluctuated below the shifting of the political center of the country and its privileges. city at just once was larger than Kabul; and Qalat was a lot of necessary than ever 100 years past once it occupied a strategic location within the context of British

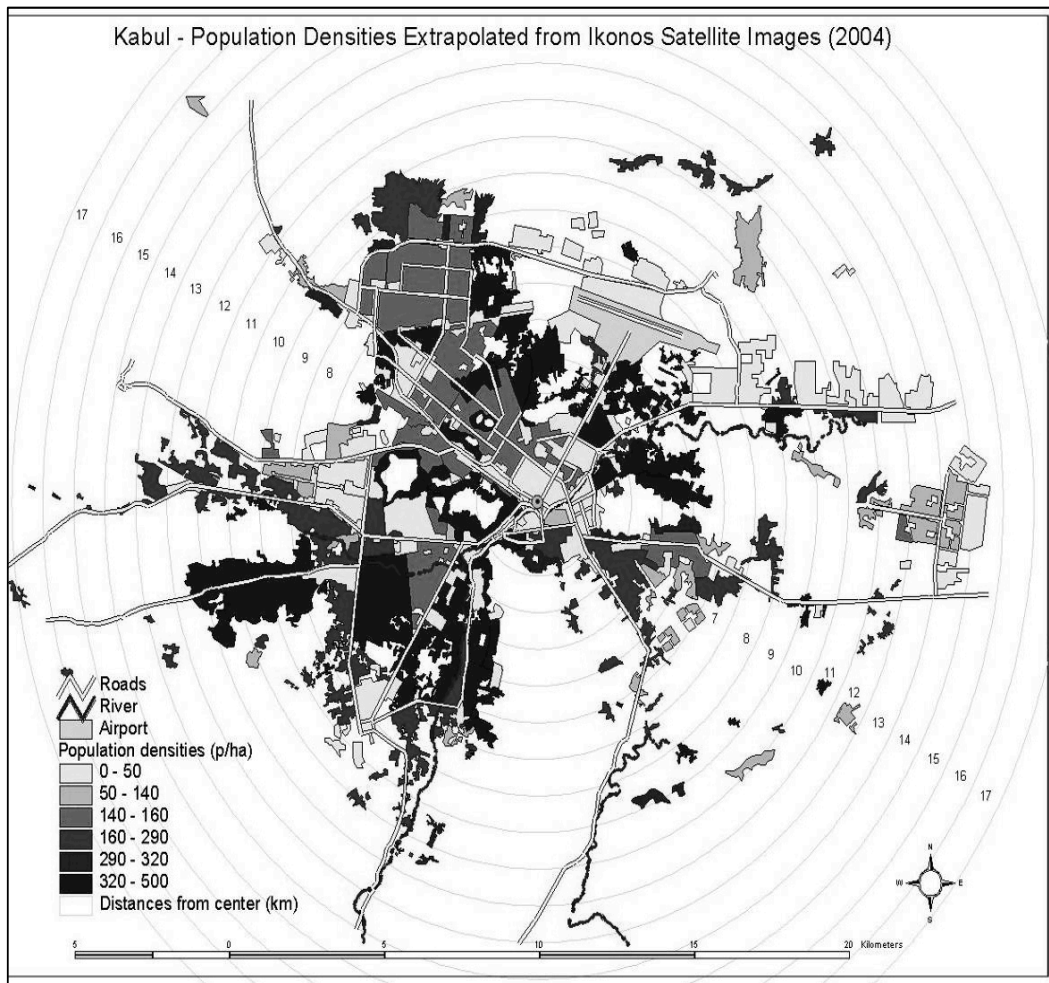


Figure 2.5 . Kabul City Master Plan

Source : World Bank

organization efforts. apart from these shifts of political influences typical of a turbulent country like Afghanistan, changes within the cities were insignificant. Sizes of cities remained identical for centuries; and that they were equally distributed over the landscape in step with the attractiveness of trade locations and close resources. But recently new trends became apparent. we all know that the population of Kabul has doubled within the past twenty years whereas population of cities like city and Kandahar has hardly modified from what was 100 years past. Cities like Kunduz and Baghlan that hardly existed forty years past have become necessary industrial cities rising to the position of second class cities. Jalalabad that was nothing quite little social structure center 20 years past has become and necessary resort city nowadays. All this can be happening below the influence of the new modernizing forces that are receiving momentum throughout the last 2 to 3

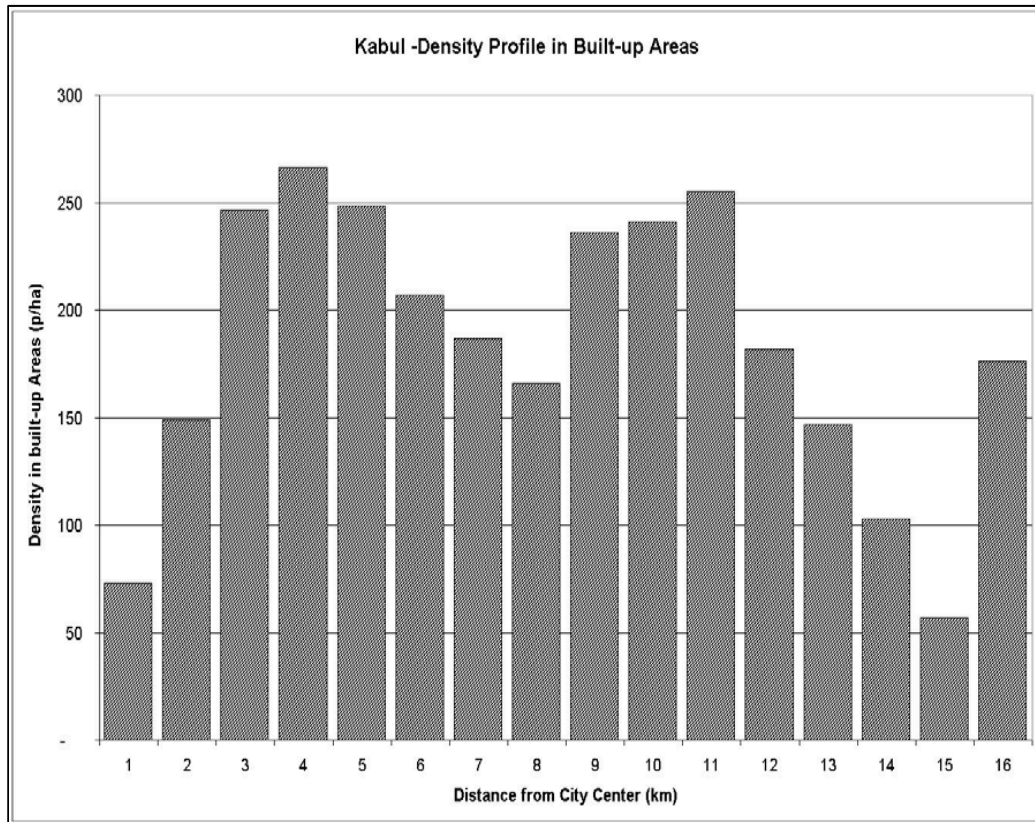


Figure 2.6 . Kabul Population densities Profile in built-up area

Source : World Bank

decades. Consequently, national urban scene is commencing to amendment drastically. Growth of recent industries, shifting of trade routes, centralization of power and privilege within the capital, and dynamic aspirations of the voter's square measure among the new factors that square measure inflicting shifts in population. These trends square measure gap up new opportunities; at identical time, they're making a series of recent issues like shortages in housing and inadequacies in services like colleges, urban transport, urban utilities, etc. Into the past the out-rummage around for the longer term is merely meaty through associate degree understanding of the past. This section appearance into the shape of ancient cities as they were functioning within the past. though such functions have part modified, it's not within the intention of this study to judge recent changes that square measure occurring at intervals these cities. it's hoped that this study can produce a background for more re- search on the impact of recent changes on these cities. Most of Afghanistan's cities functioned at intervals the context of a

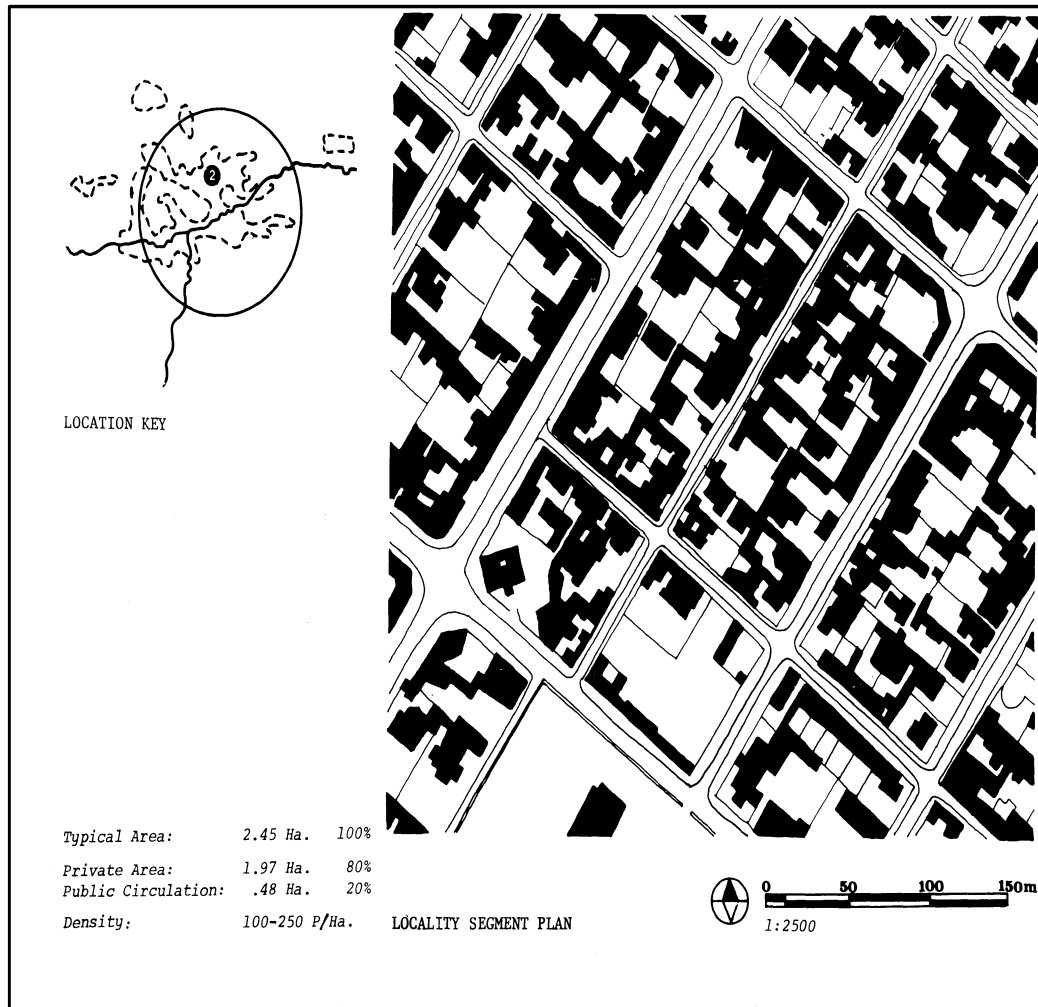


Figure 2.7. Shar-i-Naw Locality Segment Plan in Kabul city Source Kabul Master plan
Source : Samaizai Report

preindustrial/feudal system, that reinforced ancient values supported Moslem code of ethics. Virtues like loyalty to family, adherence to hereditary occupations, kinship and family bury wedding formed behaviors of each sector of the urban society. Segregation of residential quarters by occupation, influence of spiritual elite on the body of the town, existence of stratified class structure that distinguished standing among land house owners, merchants and craftsmen were the social characteristics of urban life. Economically these cities functioned as market centers for the encompassing boondocks and regional commerce. There additionally existed a major degree of specialization between city and country. cities were residents of landowners, merchants, craftsmen moreover as body, legislative, spiritual and military elite that controlled the region. Country residents came to the town for

reasons of product exchange, legal matters, and spiritual and social festivities. In a way, cities additionally functioned because the place for the congregation of urbanites and farmers throughout occasions of mutual concern. Since most of the peasants worked as tenant farmers, granaries were situated at intervals the town below the landlord's superintendence. Following could be a transient description of Afghanistan's major preindustrial cities, city and Kandahar. once the outline an overview of the physical characteristics that were common in most of Afghanistan's ancient cities is given. The information primarily focuses on the physical aspects of those cities.

2.5.2. 5 Urban Growth in Afghanistan as Example Study of Kabul

Sketchy proof suggests that capital Kabul in its recent history enjoyed some live of growth and prosperity throughout the time of King Babur within the Sixteenth Century followed by an amount of decline within the Seven- tenth Century. it's calculable that national capital throughout the Seventeenth Century was nothing over a village city of concerning 10,000 people. The transfer of the capital from urban center to national capital within the second a part of Eighteenth Century was a vital part in comforting Kabul's gradual growth within the resulting decades. What follows could be an unelaborated tracing of Kabul's growth with a top-level view of key events which will imply to the character of changes that have taken place. the selection of periods into consideration was supported the provision of maps and data for those periods.

1. Kabul 1878-1916: In line with H. Hangman, in 1878 Kabul had 23,000 homes with a population of 70,000 people. At this time the city had Associate in approximately area 180 Hectares. It's affordable to contemplate what at this point lay business executive the walls because the town with villages like Deh Afghanan, Bebi Maru, Deh Mazang, and Guzargah as town suburbs. this can be conjointly clear from the usage of the word 'deh' that means village, that is employed as a part of a number of these names. nowadays these areas are still referred to as by their previous rural names though fully urban. the subsequent are a number of the

highlights of the period: In 1878 Kabul was still enveloped by a wall; estimation and part as a result of there was no compelling causes that might build the population grow throughout this time; so, delicate comparisons are moot. the actual fact that the world of the town has doubled between 1878 and 1916 is part attributable to the low-density enlargement within the fringe of the town. There might also be a dimension of quality relating to what was thought of to be the town as critical

country. Famous bazaars at this point were the Chahr Chatta Bazaar, the Shor Bazaar, and therefore the Chindawal Bazaar.

2. Kabul 1916-1930: Oscar von Niedermayer reported the-population Kabul to be 65,000 folks in 1916. The area of the town at this point will be calculable to be 400 Hectares. There might also be a dimension of quality relating to what was thought of to be the town is 5000 but what was reported in 1878.

3. Kabul 1930-1940: Ahmad and Aziz reported the population of Kabul to be a 120,000 in 1936. The world of the town at this point will be calculable to five

hundred Hectares. throughout the thirties an outsized residential neighborhood was for the primary time planned outside the boundaries of the previous town. the event was for the primary time burled once the grid layout therefore typical of latest Western cities. though villas existed before this point, the concept of one family single dwelling on a personal plot, in distinction to the densely-connected housing of the previous town, was introduced. The new section was named Shahr-i-Nau, that means the new town. it had been during this amount that the last gate of the town, city Gate, was torn down. typically, the 1930 were an amount of conservatism during which modification was seen as a gradual method in distinction to the unconventional reforms of the 1920'. the subsequent are a number of the highlights of the period:

4. Kabul 1940-1950: In line with R. Furan the population of Kabul in 1951 was a 150,000. The area in 1950 will be calculable to regarding 750 Hectares. throughout this era residential developments were planned on the side of the mountains. The social and economic development of the town followed the slow and conservative pace of the thirties. The subsequent are a number of the highlights of the period:

5. Kabul 1950-1960: J. Humman reports the population of Kabul to be 250,000 in 1959. The area of the town in 1960 will be calculable to regarding a hundred and fifty Hectares. With the gift from the us and country, Kabul underwent a brand-new surge of growth. Kabul's share of governmental investment began to rise. Roads were improved, workplace buildings and hotels began to seem, employment accrued, natural increase in addition as migration from alternative cities began to rise and new residential areas started mushrooming.

6. Kabul 1960-1970: In 1970 the population of Kabul reached the 0.5 1,000,000 mark. The area at this point will be calculable to regarding 2700 hectares. Ascension of the town that had started within the fifties continued through the sixties. Trendy buildings like hotels, cinemas, offices, establishments, and government buildings began to dominate the city's skyline. At identical time squatters accrued speedily and therefore the city's physical form modified drastically.

7. Capital Kabul and other Afghan big cites Urban Population Growth and other development condition after year 2001:

After the year 2001 the Afghan capital Kabul and other major cities population become urgent and had high level graph because of the arrival of a large number of refugees were many residents of the capital and major cities, also a huge numbers from rural areas as coming to work and education for and against in the recent past in many rural areas, lack of security, and destruction of housing and villages and lack of life needs and facilities those factors and other factors that the expected major cities and the capital cities such now have so high population depreciation against the previously planned master plan to double and more still.

Against any governmental organs services regularly policy and planning work was not done on account of lack of national institutions and international organizations are very few basic things are related or not if they want favorable work environment relevant government agencies in order to provide significant development activities. Back squat relevant private sector must say is convincing more people that turned their homes of cities built in town but some non-standard version of powerful peoples and companies mad some neighborhood and small private tows with so poor quality of planning and facilities that may create so much problem in future. Also,

some powerful and war lord propels occupied some park and open space area for house which may also have big urban issues in future.

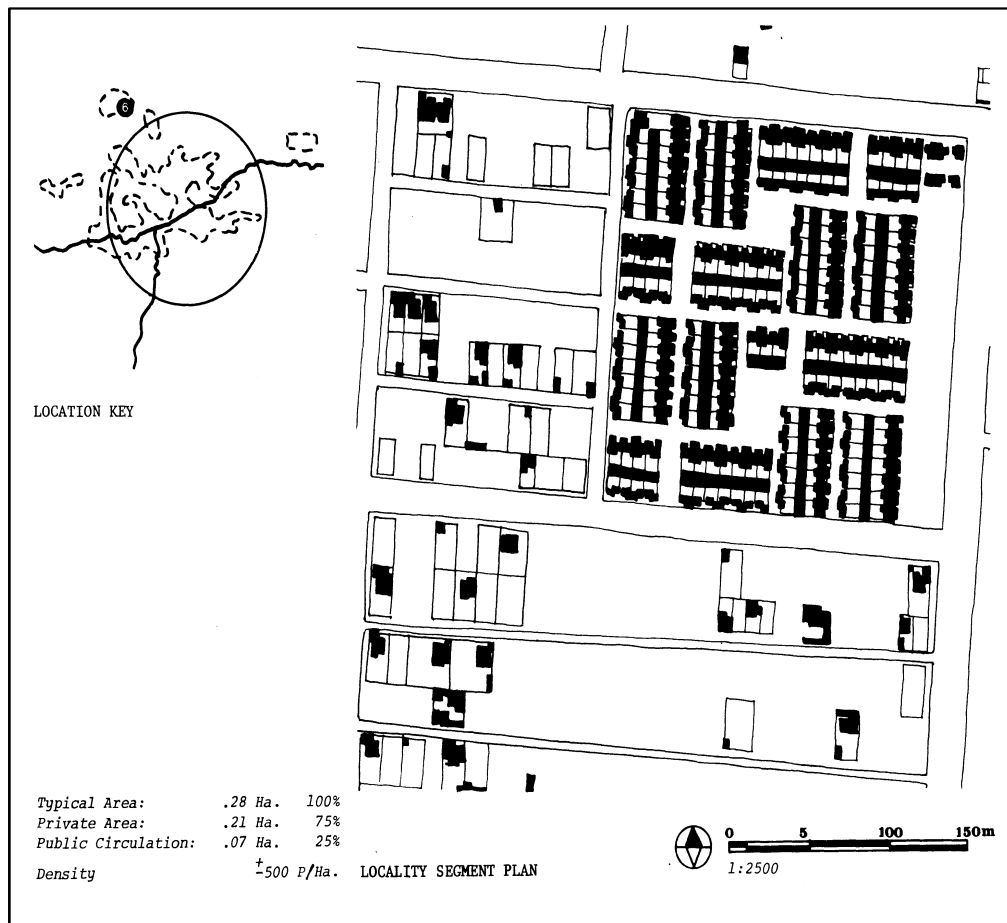


Figure 2.8 . Khirkhana Locality Segment Plan in Kabul city Source Kabul Master plan
Source : Samaizai Report

**Investigation of Sustainable and Affordable Housing Policy and
Planning Principles in Afghanistan**

Chapter 3

**A Conceptual Framework for Investigation of
Sustainable and Affordable Housing Policy
Principles in Afghanistan**

Chapter 3

A Conceptual Framework for Investigation of Sustainable and Affordable Housing Policy Principles in Afghanistan

3.1. Introduction

Sustainable and affordable housing have long been necessary designing and Planning in giant urban areas and around the peripheries of major cities wherever increment has junction rectifier to an increasing demand for good housing environments.

It's to boot a vital half at intervals the social and economic artifact of all nations. No country is still glad that adequate housing has been delivered to the various economic groups that structure its individuals.

It is calculable that there are quite one hundred million homeless and regarding one billion peoples throughout the planet. Though they represent one quarter of all humanity, solely a tiny low fraction lives within the industrial countries. Developing countries like Afghanistan suffer the foremost acute housing issues. Regarding one third or additional of their total population is homeless.

The explanations and nature of those issues take problem from country to country betting on local social, economic and political contexts. The housing issues of low-income countries take issue greatly from those knowledgeable about in developed economies; rural and urban housing additionally exhibit their own peculiar variations.

This chapter makes an attempt to develop an abstract conceptual framework for sustainable-affordable housing for urban areas and some general rural of planning in Afghanistan. To check as example capital Kabul could be a city with a protracted history. when changing into the capital of Afghanistan in 1775, the population and territory of the town dilated steady. The town was superbly formed with lots of trees. Since the start of the twentieth century, the town has knowledgeable about rising. From the Seventies to the top of the century, development of the town has been sluggish attributable to numerous political turmoil and conflicts. the present infrastructure was additionally severely broken throughout this era. Since 2001, the Afghan government. And other people of Islamic State of Afghanistan are creating

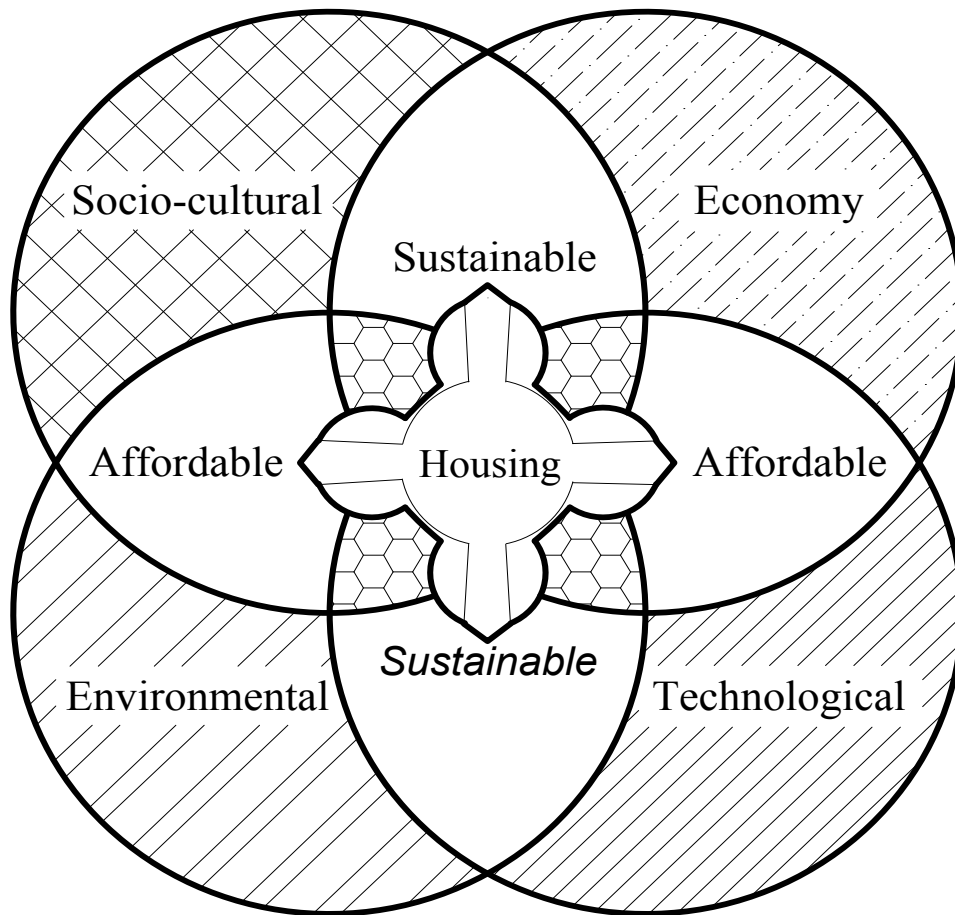


Figure 3. 1. Basic Concept of Dissertation (Sustainable and Affordable Housing Policy and Planning) Source : Author

efforts for the reconstruction of national capital. International donors like JICA also are operating for rehabilitation and reconstruction of the capital Afghanistan. However, there's no common vision and direction of the reconstruction and future development of national capital town, because the town has no operating plan. The absence of a town plan affects the lives of voters and economic activities of enterprises, thanks to the unpredictable standing of their lands and properties for living and business operation. In recent years, quite 3 million refugees came back to the country, with the peoples subsiding within the country's urban centers and primarily within the capital town, Kabul. National capital could be a powerful magnet for Afghans yearning for security and a much better life when decades of

warfare, significantly for refugees strolling back from abroad. Today, the town includes a population of quite four million, with impoverished residents filling war-devastated sections of the town and constructing new dwellings higher and better on the encircling hillsides. It seems that the expansion of national capital can continue intense within the next 10-15 years. speedy urbanization is additionally leading to dangerous pressures on antediluvian infrastructure that can't meet the water, electricity and alternative needs of huge parts of the population, whereas issues of health and hygiene related to high-density settlements are common. However, the \$8 million aid project isn't connected to a water and there are considerations it's too off from national capital for residents to seek out work. so as to beat issues like these, creation of a property and reasonable national housing policy looks to be one in all the clear requirements. This analysis tries to supply a brand-new gate towards creation of such a policy, whereas future analysis can try and produce a skeleton for the policy, within the hope that finally Afghans can have their own property and reasonable national housing policy.

This study starts with an overview of sustainable and affordable housing policy planning in Afghanistan at the national level, which is intended to sketch out some of the issues that may influence action at the lower levels.

Most teachers and government employees in Kabul and other big cities could not find shelter through the construction of shelter made of permanent materials.

There was a harmony between people's wants and therefore the physical characteristics of the house. In urban homes this was principally an equivalent, however, a replacement residential kind appeared, during which living areas were classified in step with their general functions. The arrangement, at the side of arranging layout and proportions, expedited the restricted potential for various lifestyles. within the up to date amount, flat buildings most of that were created by the Russian system name of Makroryan became current. during this new style of residence, the physical characteristics of the house have modified significantly, whereas living habits and lifestyles haven't modified at an equivalent pace, so the habitats ought to be physically harmonious with traditions and lifestyles with privacy and might be to own house with middle cost; otherwise, residents would react and check out to vary the setting in step with their needs. [10] The essential model for

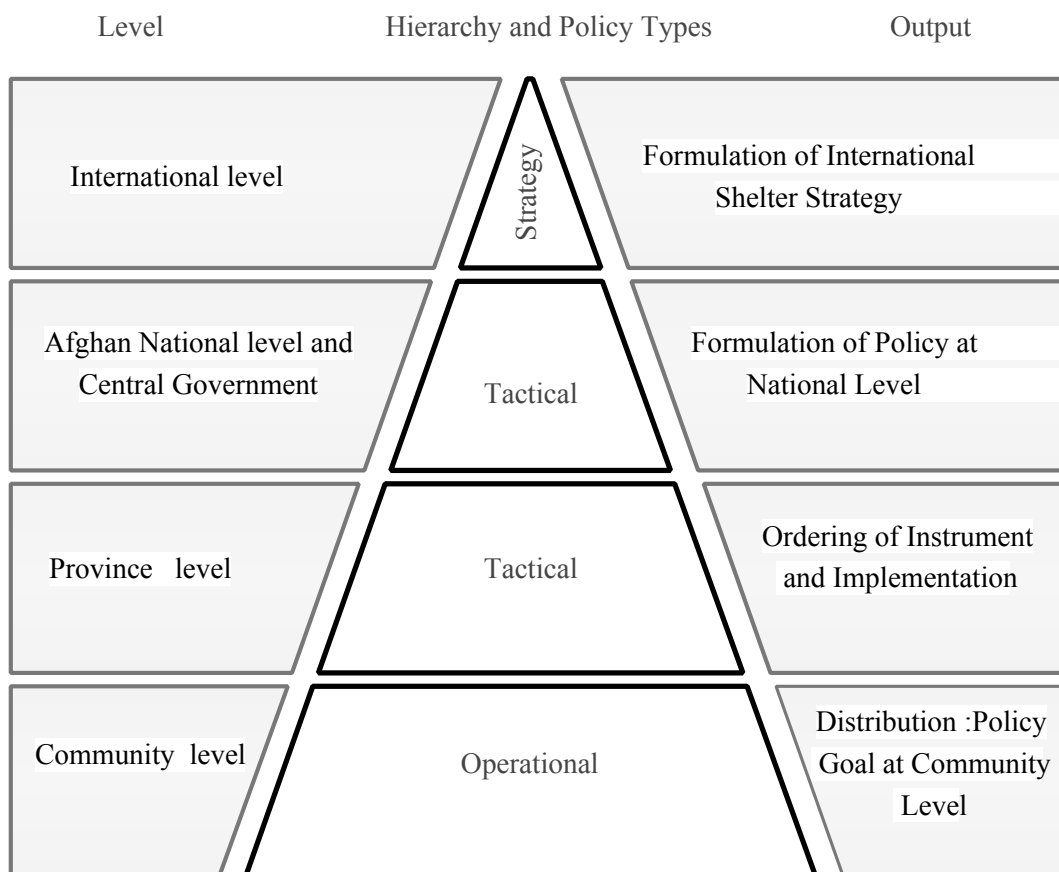


Figure. 3.2. Organization level of Policy(Sustainable and Affordable Housing Policy and Planning) Source : Author

sustainable-affordable housing planned throughout this analysis collectively adopts this principle-based approach supported our definition of sustainable-affordable housing for poor and low-income families and middle income. [2]

Sustainable-affordable development has four major factors, as we'll discuss later, namely, socio-cultural, economic, technological and environmental property. Urbanization and sustainable-affordable housing policy is happening in Afghanistan at a quick pace, however very little info is offered on the topic. This to some extent has been thanks to the very fact that urbanization has been a rather new development within the country, and has so received low priority within the governmental hierarchy development programs. What is more the absence of reliable statistics has restricted any systematic study of the topic. There are solely tiny low variety of scattered documents and papers concerning the topic, Urbanization and technological modification are rather new processes in of Afghanistan. Recent forces of modernization, principally throughout the past Three and half decades, might have

□ Policy Formulation for Afghan Housing

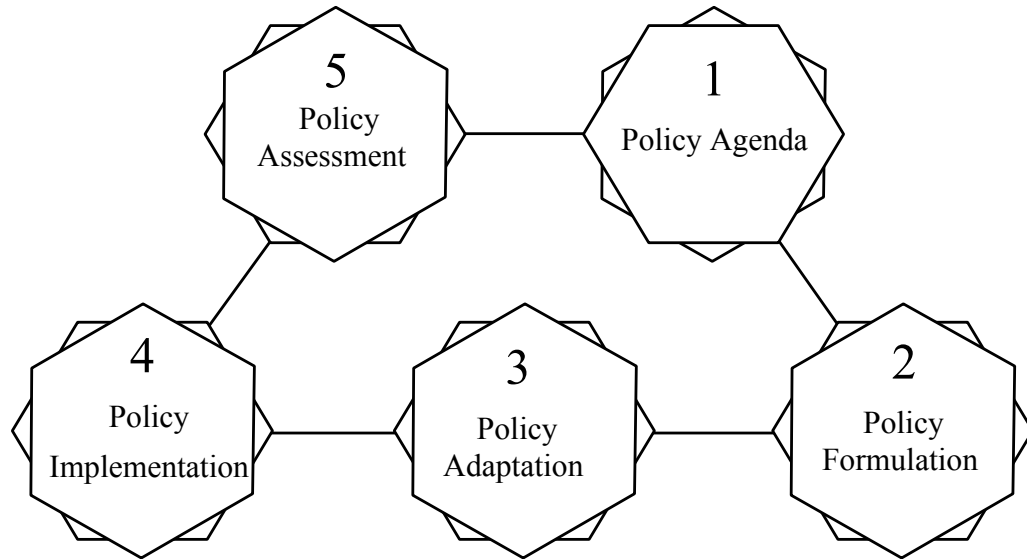


Figure. 3.3. Policy formulation for Afghan Housing

Source : Author

brought new opportunities in major cities, however at identical time they need created new imbalances. [28], [34], [77], [111].

The government-owned housing finance bank was closed mid-2003 as a result of poor performance. whereas the availability of semi-permanent funding remains a challenge, the matter is actually not a finance issue: The matter is instead associate inefficient cash negotiate perform for generating semi-permanent funds, and conjointly the dearth of a legal regime that supports semi-permanent loans, like those for housing. The consequence is that homes are purchased on the associate method of accounting, precluding about the wealthy from participating in the market. A housing finance system could provide benefits to the economy on the so much facet development of a housing market. as an example, instituting a property registration system would alter entrepreneurs to use their property as collateral for business loans. in addition, housing finance would facilitate develop a long finance marketplace for various industries, likewise as infrastructure development. in addition, personal sector disposition for housing would free scarce government resources for various social and economic wishes. [5]

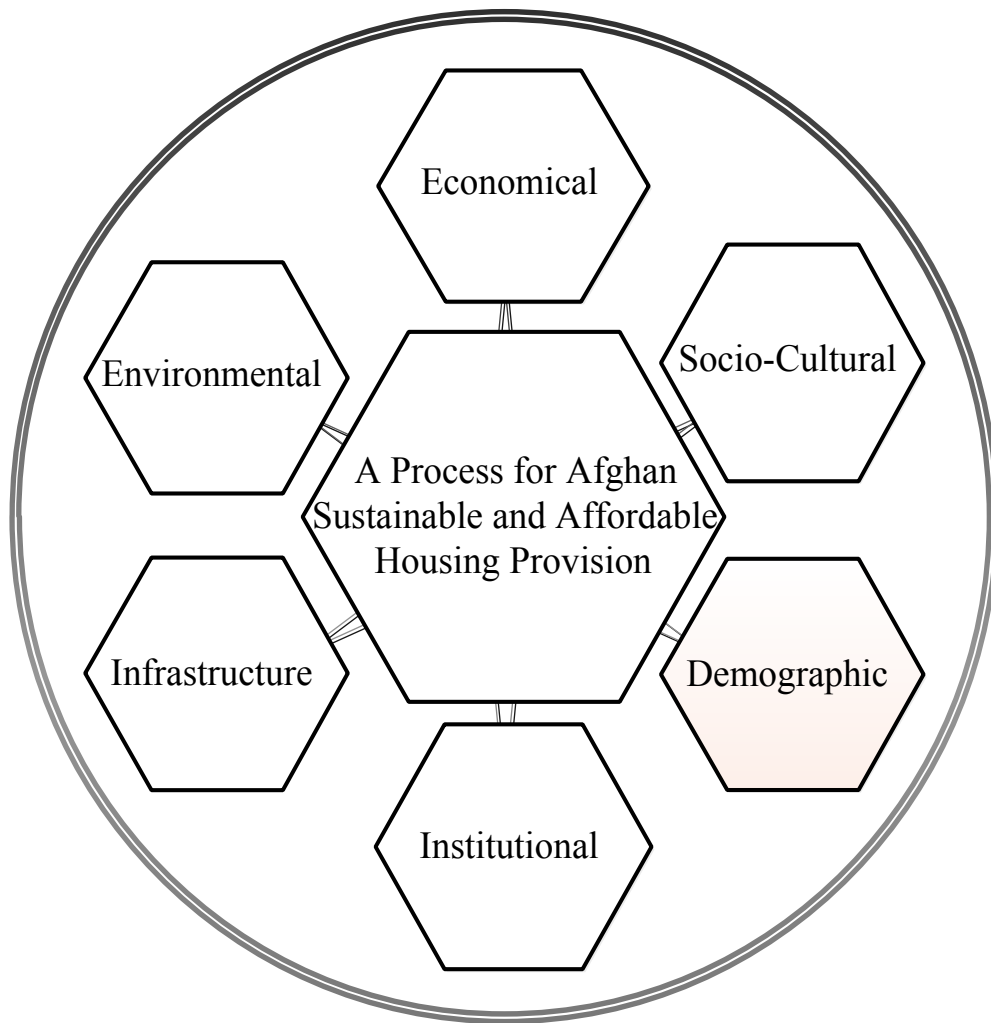


Figure. 3.4. The main Concept and Component of Afghan Sustainable and Affordable Housing Source: Adapted from Boamah, 1997

The main issue behind the growing housing crisis in of Afghanistan particularly in capital town (Kabul) is that the lack of rules, style and national housing policy from the govt. Sector regarding the appliance of property strategies. Enforces the shortage of rules by language that there are not any enforceable building codes, nor square measure there any rules to follow that integrate the principles of property design within the country. many researchers have debated that one in all the foremost vital and efficient ways in which to foster the rife use of property practices is setting an evident set of those codes and standards, policy, specifically with reference to decreasing social unit energy and water consumption. These rules can have to be compelled to follow the laws of Islam and incorporate the conservative monotheism

culture and Afghan culture (Afghan walai) of Afghan residents. Afghanistan could be a conservative Muslim country wherever the territorial base of any act ought to be supported what square measure transcribed within the Holy Quran and therefore the way of life (sayings and living conducts of the prophet Mohammed). additionally, to know the

national economy of Afghanistan, one should comprehend that the national economy is predicated on the Quran and way of life, the accumulated information of monotheism jurisprudence generated by accord (Ijma), analogy (Qiyas) and freelance interpretation (Ijtihad). Understanding the monotheism Economy principles square measure crucial for making associate degree Islam based mostly housing finance, that is that the case in Islamic State of Afghanistan. [41], [64], [37], [11]

3. 2 Objectives and Methods

The analysis is qualitatively conducted within the sort of policy introduction and adaptation. This policy analysis could be a method of analyzing an elementary, social and economic drawback so as to produce policy manufacturers with recommendations to alleviate the matter. This paper was developed in association with the worldwide Housing policy initiated by the Housing policy for national capital, thus cheap housing policy for national capital is reticulated. Therefore, the aim of this study is specially to return up with some policy recommendation on the availability of property and affordable and cheap housing for residents of the Afghan capital and other big cities. Particularly, this analysis aims to look at the present relationship between housing integration policies in Afghanistan, focusing totally on low- and middle-income settlement in urban areas, that isn't effectively applicable and usable. A methodology supported the abstract conceptual framework is employed inside the analysis to understand the matter through a property and affordability perspective, and to research the success and failure factors of public intervention in housing policy. the essential info set utilized throughout this research was collected pattern applicable property and low cost and affordable housing policy principles in development (developing OR developed) countries through governmental authorities or by some international association rather like the International Bank for Reconstruction and Development, UNCHS (on the evolution

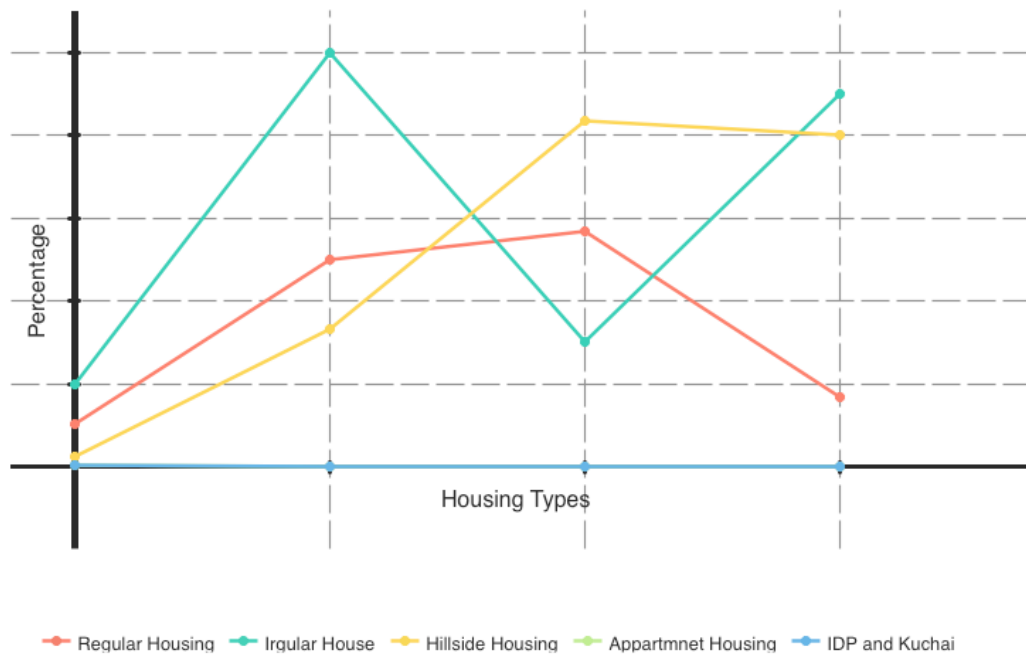


Figure. 3.5. Residential Land use with average share and Afghan Shelter types
Source : MUD

of gift housing policy in developing countries) and (UN-Habitat).The second set of information is native web site data, and a form administered to choose residents by house scale and neighborhood (Gawoond) scale. This analysis has used a quantitative approach with stress on the importance of the analysis variables outlined in terms of the operationalization of every of them. These variables are measured so the information consists of numbers that may be analyzed by applied mathematics procedures. Information assortment techniques during this analysis are divided into two ways that, the gathering of secondary and first information. Some basic information and data collected from survey and field observation, and interviews. Secondary information was collected from the literature and information from many native and international sources. This analysis has adopted each a science and technological approach in reaching completely different objectives and experimental technical analysis has been distributed during this article. Generally, the target of this examination is to involve all main factors having reference to property and cheap housing policy. The economic study on the manage demand for property housing in national capital town in alternative Afghan huge cites to spot the supply and to see the affordability of tight cheap residential housing to the urban poor, to ascertain the

effectiveness of the government's cheap housing schemes in up access to tight, Affordable housing for the urban poor and low-income folks to produce a base for the long run national housing policy. Since housing could be a primary part of surroundings, property development activities will directly contribute to the event of property surroundings. Sustainable surroundings are achieved through promoting development by exploit social progress, enhancing the process, propagating innovative technology at the facet of protecting and protecting the setting and natural resources for future life and development. [141], [124], [137], [121]

3.3. Literature Review and Conceptual Framework

Sustainable housing and sustainable development are linked to a better future and more efficient affordable housing around the world. As a matter of fact, the very real link between the two, as they relate to improving people's lives today and into the following generations is in many cases self-evident (25).

Sustainable affordable Housing: The housing should be market-competitive quality which will mix into its neighborhood.

We have a bent to face live expressly excluding substandard locations, configurations, constructions, and maintenance. Such 'structures,' to use the Kenyan saying, could also be 'shelter' however don't seem to be housing

Affordable: The housing ought to be low-cost for its target market; this implies what the house owner pays. Affordability ought to boot continue throughout the expected life of the residency. Housing quality and housing affordability ought to continue over the housing's expected useful life. . [32]

This means that the housing should absorb enough income to hide its expenditures, as well as capital expenditures. Affordable housing is provided at below market costs, for families. Affiliation to national capital and for those that are unable to afford to get or rent homes typically accessible on the open market Old while not money help, as their solely home.

3.3.1. Housing Policy

House building, forming the fundamental unit of human settlement within the designed setting, is additionally an important part of social development. It plays a vital role in achieving sustainable planning and development.

Social and cultural factors ensure the primary wants of housing especially in so conservative society like Afghanistan. Cash capability or affordability to a private has the immediate impact of reworking this might like or demand into a sound reality. Technology acts as a catalyst to help in realizing this by providing low-cost decisions textile individual wants and changing circumstances, in conjunction with accomplishing gift demands. [2]

The wants and desires of future Afghan generations ought to even be taken into consideration. The importance of property of housing comes inside this context. It embraces four, closely inter-dependent aspects: socio-cultural issues, economy, technology and therefore the setting (Figure 3.1).

A housing policy provides a guide, that delimits action and sets goals however doesn't essentially specify any outlined ways for achieving the goal aside from broad ways. It establishes pointers and limits for discretionary actions by people liable for implementing the set-up of action. Duruzoechi (1999) noted that some housing policy selections (written or implied) categorical the past work of presidency, whereas others are goal statements or prescriptions of elemental rules for the conduct of private or structure affairs. Policies are therefore well reasoned, rigorously articulated and conferred documents. (Olatubara, 2002). Housing policy is actually necessary as a guide or management on the varied actors within the housing sector. The most objectives of housing policy, in line with Duruzoechi (1999), are to get the optimum use of existing housing resources in alternative to confirm adequate housing for the individuals, guide the situation of latest housing, and be tuned in to the housing desires of special individuals. what's the aim of national housing policy?

The aim of a national property housing strategy ought to be creation of associate degree integrated policy framework to guide the country within the development of a property housing sector, whereas conjointly helping with the broader ambitions for impoverishment reduction, socio- economic development, and addressing global climate change. The strategy has to integrate housing programmes that exist already

within the country with a broader framework aimed toward making an additional property and cheap housing sector. The national property housing strategy should:

(1) started out a transparent housing vision for the country over a 10-20-year timeframe and key strategic objectives; (2) Be supported a sound proof base; (3) Started out policies and an in-depth action conceive to implement the vision and objectives, giving details like once, how, wherever and by whom actions are delivered; (4) started out the outcomes expected from the delivery of the actions and also the indicators which will be wont to monitor progress towards them, together with quantified targets; and (5) be fairly concise and accessible to the overall public (UN-Habitat, property Housing) [9] [12], [44], [137], [161]

3.3.2. Sustainability and sustainable housing

For Sustainable and property housing their more definitions, but a wide noted and accepted definition property development means that “meeting wants the requirements the wants of the current while not compromising the flexibility of future generations to fulfill their own needs.”(proposed by the globe Commission on surroundings and Development within their 1987 study normally referred to as the Grant land Commission)or That housing that meets wants the requirements the wants} of members of the family whose incomes don't seem to be decent to permit them to access applicable housing in the market while not help and property development suggests that “meeting of this whereas not compromising the facility of future generations to satisfy their own needs.” The term property has become one in all the foremost overused and all-too-frequently abused terms at intervals the event literature. [4], [36]. [7]

3.3.3. Affordable housing

What is Affordable Housing? The Affordable and reasonable housing is mostly thought of to be housing that meets the requirements of households whose incomes aren't adequate to permit them to access applicable housing within the market while not help.

Affordable and finance assistance helps to low-income families overcome able and achieve favorable debt-to-income ratios that keep monthly payments low. Examples of this type deduction from monthly salary and payment assistance, grants, subsidies, homeownership vouchers, forgivable loans, and soft second mortgage. The current Afghan community economic environment, characterized by slow growth, low income per families especially in general all government low rank sobering challenges to would-be homeowners, then they need a special programme which is practical for long term in Afghan community.

The points below show the effects of affordable housing on economic development of communities. Affordable housing contributes to economic development through its capacities to:

- Stimulate economic growth through housing markets and homebuilding activities;
- Stabilize and reduce volatility of housing markets;
- Improve health conditions and labor productivity through better living conditions;
- Add to the growth of capital assets of the gross capital stock;
- Support regional and urban regeneration, development and growth;
- Contribute revenues to local, regional and national governments (e.g. via taxes) and individual wealth (e.g. via housing markets);
- Generate employment and income through residential and building activities and their multiplier effects in other sectors;
- Strengthen local building industry and enterprise and promote local and traditional building materials and techniques;
- Provide domestic financial mobilization through housing finance institutions;
- Generate additional income by raising collateral for business start-ups and small firm growth as well as through home-based enterprises and renting. (UN-Habitat, Sustainable Housing)

3.3.3.1 Factors Affecting the housing market in Afghanistan

Fluctuations in the housing market influenced by macro-economic structure of a particular model follows. Is. After 1973 in Afghan capital Kabul and other big Afghan cites during this last period and abnormal mass demand, import section. Because short-term housing supply cannot meet the demand, housing prices increased for vault to the surplus of demand over supply disappeared. Followed by the increase in production and investment excretion occurs. This coincides with a sudden drop in demand and stabilize prices due to the low adhesion. [142], [64], [32]

In this research, trends and developments in house prices and factors affecting it have been studied. Among the results, a process affordable housing prices, the effect of liquidity on global equity prices and house prices rise over time to other prices. – If we discuss about shortly about Structural characteristics of Afghan housing It is necessary to analyze the housing market into three main characteristics and structure of the market for. As following features include:

1. The increase of population in capital Kabul and other big cites
2. More than Three melons refugees return to countries Which most of them settled in the urban area.
3. Internally migration and immigrate peoples form rural area for work, education and other facilities.
4. For short term, some people's become cheap and buy more houses.
5. A Stairway growth in house prices
6. There are severe periodic fluctuations in housing production
7. High share of household expenditure

Despite a rising trend of house price inflation and are not linear, but the curve has a staircase that revolves around inflation will fluctuate. The graph shows the price as well. mutation increases and inflation close to a standstill. Both the effective demand

of households and the destructive effects caused severe periodic fluctuations in the production of housing. So, that in the years when the price chart horizontally, production decreased sharply. This reduction was a result of reduced supply and rising prices during the price boom is intensifying. Also, one main effect is the suddenly as non-reality of high cost of land. Another issue that is worth mentioning as a character structure housing sector, the share of the high cost of housing in household expenditure.

Demand-side factors in the housing market can be divided into two categories;

A) real housing demand (Demand caused by the need for households)

B) investment demand (demand for housing to preserve the value of assets)

Accordingly, it is necessary to further analyze this demand. Most households in their portfolios items for the future to save it. These items include; land and housing, gold, foreign exchange, capital market (securities other assets (car, mobile phone, etc.)). Increasing liquidity on these assets affects the community directly. The investigation of the effect of key housing price developments will show. In Afghanistan, especially over the past four decades due to excess liquidity, capital nature such housing has exacerbated the volatility of the market.

The suddenly last 15 year un stable and non-Expectations and expectation prices in the housing market and determining prices are very effective.

Changes in exchange rates and the stock of other factors that affected the housing sector. The lack of efficacy of long-term deposits of the banking system to move these deposits into the market and increase the price of land and housing market and especially non-proper bank system to give lone for housing.

increasing consumer demand; Because of this demand, the ability to pay (income) households in need of housing, and this revenue is not significant, it does not seem revenues increased prices in recent years have played an important role.

increase due to structural economic problems, with regard to the issues raised in the first part, developments in the housing sector. The continuing recession and drop in capital market liquidity of these markets. According to the organization of exchange, the rate of decline in investment in this market is significantly related to the crisis in the housing market.

Reducing the demand for housing (construction permit) as a result of reduced supply. Delay in housing programs due to delays in allocating funds approved.

Politics of smuggling and lack of liquidity absorbed by the underground economy and corruption are the main issues. [155], [154], [37], [99]

Dependence earning some executive agencies has led to residential construction, instead of the consumption tax due to the easy availability, have chosen to levy taxes on production. An obvious example of this claim is that instead provide honest municipalities such as revenues from taxes on property renovation and the like, the main source of income butterfly effects,

The general trend is to discuss factors including the stock exchange, bank deposits and other durable goods on the one hand, and continuation of expansionary budgetary policies can help sustain the trend of rising prices in the housing sector.

Providing adequate housing for citizens, control the housing market and price monitoring is the responsibility of the government. In accordance with Government the Constitution, housing is tailored to the needs of the citizens of the main tasks of state, so that the supply of affordable housing clear mentioned and is considered an essential component of economic independence.

To achieve this goal, governments first they should have a proper policy as it will adopt to improve the market. During recent decades, with increasing population refugees return to country, migration from rural area to cities, increasing urban population the price of house and land become higher.

Meanwhile, over the past 2 years, we have witnessed a sudden decrease in house prices and rents. Correct analysis of market conditions and a true understanding of

the factors that influence and impact each has on the market, can help us in the future market analysis and forecasting the future.

The need for planning and prioritizing sectors with the planners of special importance to the efficient allocation of financial resources to resolve the country's economic priorities. In the meantime, due to the absence of such a view among economic planners, economic resources allocated to have sustainable and affordable shelter.

Affordable and reasonable housing contributes to economic development through its capacities to:

- Stimulate economic process through housing markets and homebuilding activities;
- Stabilize and cut back volatility of housing markets;
- Improve health conditions and labor productivity through higher living conditions;
- Add to the expansion of capital assets of the gross capital stock;
- Support (4) Regional and sustainable regeneration, development and growth
 - Contribute revenues to native, regional and national governments (e.g. via taxes) and individual wealth (e.g. via housing markets);
 - Generate employment and financial gain through residential and building activities and their multiplier factor effects in different sectors;
 - Strengthen native building trade and enterprise and promote native and ancient building materials and techniques;
 - Provide domestic monetary mobilization through housing finance institutions; • Generate further financial gain by raising collateral for business start-ups and little firm growth furthermore as through home-based enterprises and dealing. [9] (UN-Habitat, Affordable property Housing) We will explain in next section the study link between Sustainable residential development and affordable housing. [4]

3.3.4. Sustainable development and affordable housing

Sustainable development - principles of sustainable housing is a pattern of development that mankind needs today without compromising the ability of future generations to meet their needs nature, and economic efficiency. The model should not be disturbed the natural cycle of the earth, in other words, the military should not be any harm to the system.

The move is in line with scientists in the world of architecture is also seeking new ways to provide decent life for human beings. We are sensitive in this regard rests with the architects.

From the perspective of sustainable housing "Kelly Hart":

- 1. Think small: cost-effectiveness, requires less energy, use less resources and ...*
- 2. use the sun's heat: proper orientation to absorb the sun's energy ...*
- 3.rahty and maintain your comfort*
- 4. Renewable energy use*
- 5. save*
- 6. use local materials*
- 7. use of natural materials: natural materials such as stone, glass, lime, plaster, brick, tile, unprocessed wood, cork, paper, plants and natural fibers noted*
- 8. protect forests*

Considering that the principles that "Kelly Hart" according to ecological principles is the field general principles and complete (apart from the above principles) that most architects are nice consensus:

- * Use environment without altering its beauty**
- * Improved social and community relations**
- * Flexibility and the ability to expand or reduce space**
- * Due to the construction of housing for low income earners**
- * Using smart technology to increase performance and security**

As the notions of sustainable development of human settlements and housing have at least four ways:

- 1. Housing should be ecologically sustainable.**
- 2. Housing must be economically sustainable.**

3. Housing must be sustainable socially and with regard to the culture of its inhabitants.

4. Housing need to be physical and to consider its performance is stable.

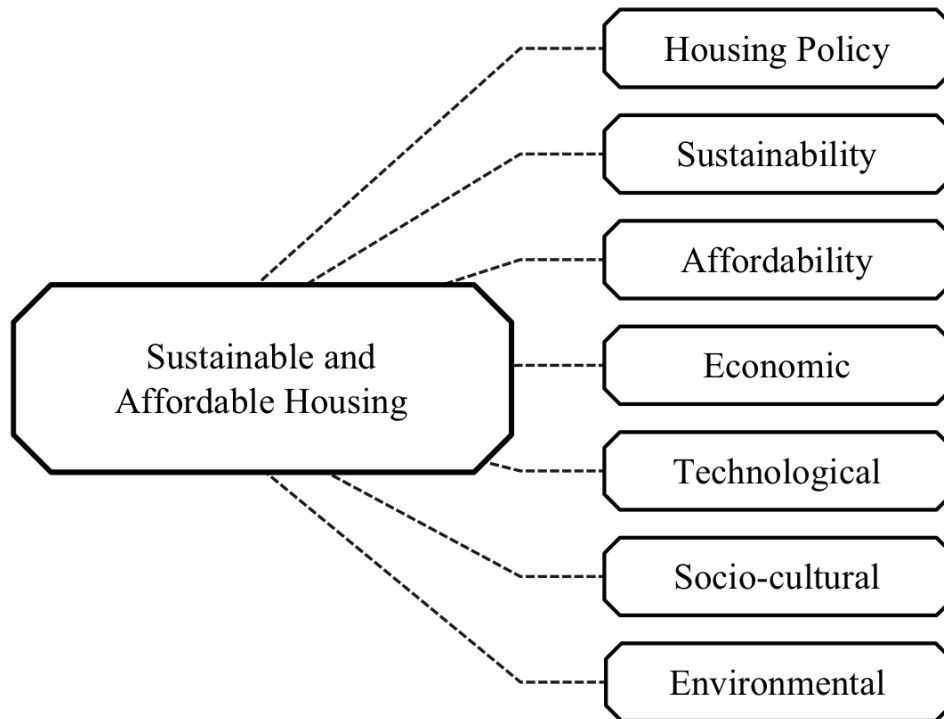


Figure. 3. 6 . Housing Policy Summery Map

Source: Author

Su

sustainable development is often made public as development that meets desires of this whereas not compromising the facility of future generations to satisfy their wants (World Commission for atmosphere and Development, 1987:23). ‘Meeting the requirements of the present’ refers to the event aspects of property, that has economic, social, cultural and political issues. The second section of the definition ‘without compromising the requirements of the future’ mostly refers to environmental issues (Ebsen. C and Ramboll.B, 2000). Human settlements need to be planned, developed associated improved in a passing manner that takes full account of property development principles. [2], [36]

The following is that the small print of Contribution of coming up with to property reasonable Housing:

- Limit populated area and car-dependency by guaranteeing applicable levels of building density and mixed-use developments, organizing transport flows, conveyance and non-motorized (5) Transportation options.
- Deliver comprehensive programmes for rehabilitation and regeneration of slums and alternative problematic areas (e.g. derelict, former industrial) and guarantee higher living and environmental standards within the designed environment.
- Bring along disparate residential developments of town to confirm integrated residential patterns (e.g. re-designing and upgrading slums because the city's neighborhoods)
- Ensure social inclusion and socio-spatial integration, by preventing social segregation and mitigating social imbalances between neighborhoods; (7)
- Transform existing low-density areas towards mixed-use development, supported a method of stimulating polycentricism.
- Ensure the availability of social infrastructure and amenities and accommodating the actual desires of varied social teams through applicable spatial organization, densities and design;
- Preserve associate degree expand an integrated system of inexperienced areas and alternative natural infrastructure;
- Protect cultural and field of study heritage of urban areas and integrate them into the urban tissue;
- Increase utilization infrastructure within the town, install waste-to-energy technologies; promote property material cycles via style control;
- Develop integrated infrastructure for renewable sources of energy, district heat-cooling-electricity systems and waste-to-energy. (UN-Habitat, property Housing for Property Cities) [9]

3.3.5. Goal for Sustainable-Affordable Housing

To Archive goal of Sustainable-affordable housing we should study the four main objectives of property, namely, socio-cultural, economic, technological, and environmental. Since housing could be a primary part of environs, property

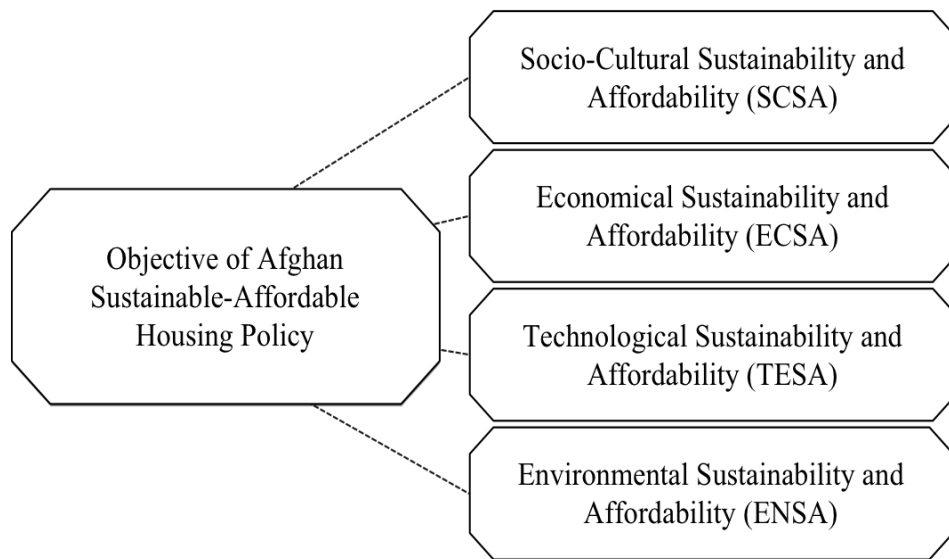


Figure. 3. 7 . Housing Policy Summery Map Source : Author

develop

ment activities will directly contribute to the event of property environs. Sustainable environs will be achieved through promoting development by reconciliation social progress, enhancing economic process, propagating innovative technology in conjunction with protective and protective the atmosphere and natural resources for future life and development. We will study all four parts in next section by details. [133], [122], [13], [13]

3.2.6 Socio-cultural Sustainability

The affordable and reasonable housing that is additional economically sustainable and property conjointly helps to make an additional socially sustainable atmosphere. In affordable and reasonable housing, this provides a way of psychological possession of area to those that could haven't had that before. The conception of shelter differs from individual to individual depending on culture, tradition, profession and technique of living. the planning and materials used for the house have to be compelled to correspond to the user's technique of living and native building traditions (Christel Ebsen and Bjarke Ramboll, 2000). [2]

1) Adaptability:

2) Equality:

3) Integration of amenities and services:

4) Assistance housing and beneficiary participation:

5) **Community Participation:** [2] One of the key social challenges in modern property housing in Afghanistan is achieving privacy.

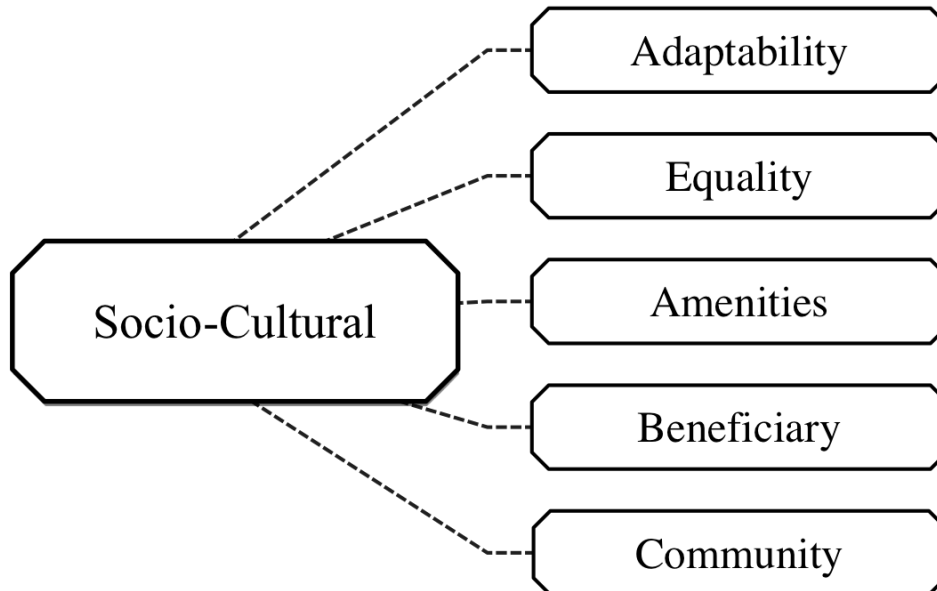


Figure. 3. 8 . Socio-Cultural Sustainable and Affordable Housing Policy Principles Source : Author

Privacy is crucial within the style of an Afghan house, and therefore the idea of privacy is perceived from Three totally different areas as explicit between the neighbors abode moreover because the street, gender and privacy between individual members of the family “The idea of privacy has become a subject matter of growing concern for individuals, architects, urban designers, landscape architects and social scientists concerned in development comes in Afghanistan. [1], [6], [37], [111]

3.3.7 Economic Sustainability or Affordability

Economic growth is that the key to supply the means that to fulfill basic desires, to scale back poorness and to come up with employment, factors that are essential for property development (Veron, R 2001). even supposing housing issues arise as an

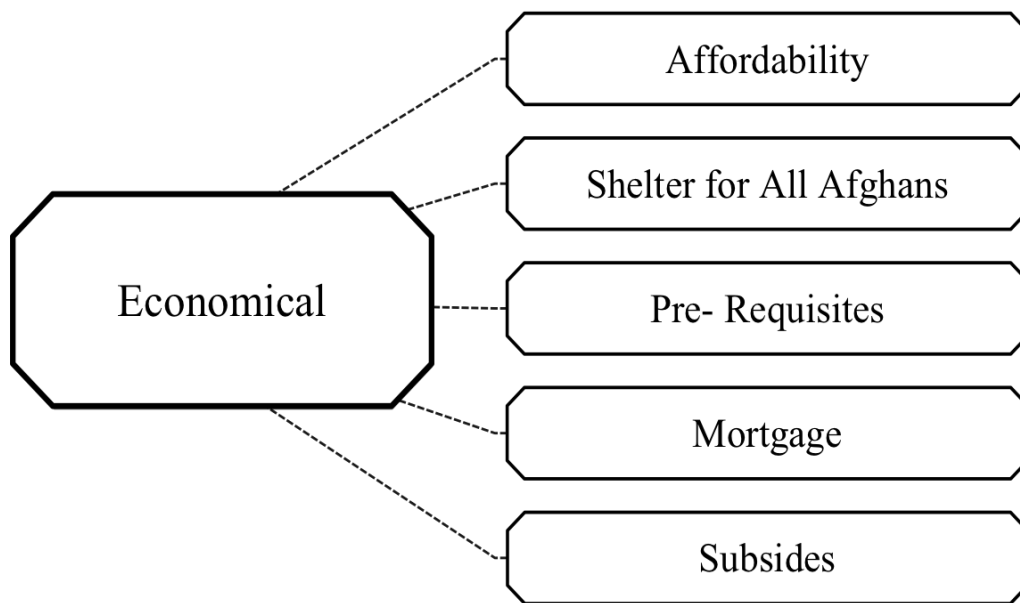


Figure. 3. 9. Economical Sustainable and Affordable Housing Policy Principles Source : Author

emblem of poorness, mere money help typically doesn't facilitate the poor in meeting their housing desires.

- 1) **Affordability.**
- 2) **Pre-requisites.**
- 3) **Shelter needs.**

3.3.8 Technological Sustainability

Technology will be same to be property provided that, it takes advantage of native resources and might be made regionally victimization unskilled labor, utilizing already out their materials while not the requirement for significant capital investment. It ought to profit as many of us as potential and will be versatile and practical additionally, i.e. adjustable to the dynamic desires of the community; at the identical time, it ought to even be environmental friendly. It should be cheap and possible at the community level. Feasibleness, practicality, strength, and responsibility are known because of the basic requirements for the technological property.

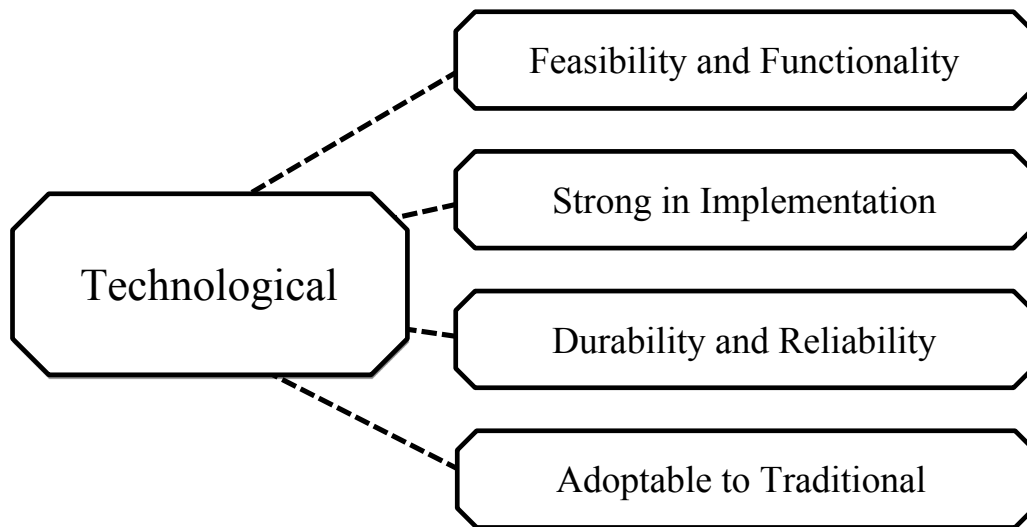


Figure. 3. 10. Technological Sustainable and Affordable Housing Policy Principles Source : Author

1) Feasibleness and Functionality: The technological innovations ought to be possible to the users. Technology that utilizes native resources, unskilled labor, regionally out there and renewable materials will be same to be property. It ought to be able to profit as many of us as potential and will be versatile and additionally practical, adjustable to the dynamic desires of the community; at identical time, it should be cheap and possible at the community level.

2) Strength: The structure design for construction and materials used in housing should be sturdy enough to satisfy the essential strength and safety(8) parameters applicable to the native circumstances.

3) Dependability and Durability:

4) Atmosphere and Environmental friendliness.

3.3.9. Environmental Sustainability

Environmental sustainability and property in housing will be achieved by addressing resource limits of the atmosphere and Environmental through economical consumption of non-renewable resources, minimizing the impact of waste materials and pollution by utilizing applicable technologies and creating use of native work forces. Environmental property needs the alleviation of financial condition if it's to be purposeful

1) Renewable and non-renewable resources: Minimizing or effectively utilizing the resources and promoting the usage of property resources are the most concern during this context.

2) Land conservation and correct planning: trendy development encompasses a major impact on the environmental system.

3) Healthy Environment and Atmosphere: The surroundings yet because the near environment ought to be favorable to the healthy development of inhabitants, each physically and mentally.

4) Infrastructure: Infrastructure will be divided into two parts, social infrastructure and physical infrastructure.

5) Waste management and material efficiency: The processes concerned within the provision and use of housing have a big role within the contribution of solid waste. Manage activities conjointly supplement the buildup of waste, additional polluting the environment. roperty housing developments. It ought to be able to guarantee (Fig. 6):

- a) Basic infrastructure by provision of beverage, evacuation and sanitation, waste disposal, and electricity.
- b) Energy potency by minimizing the utilization of unrenueable energy in daily manage activities, utilizing different solutions for renewable energy.
- c) Water potency by reprocess of water, protective water quality. Rain harvest ways ought to be integrated with housing comes.

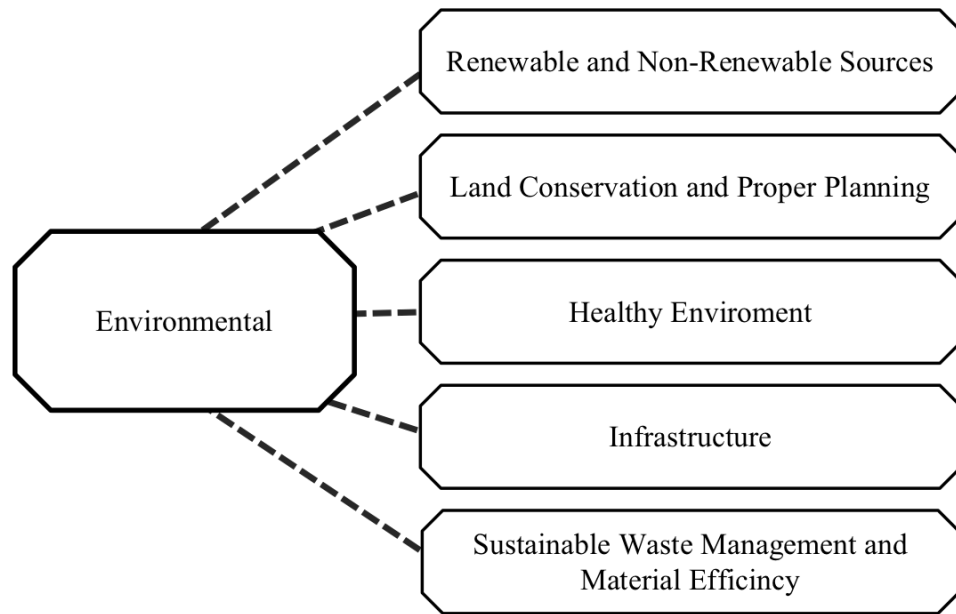


Figure. 3. 11. Environmental Sustainable and Affordable Housing Policy Principles Source : Author

d

) Land management by conservation of agricultural land. Correct restrictive measures ought to be taken against uncontrolled land reclamation for clay mining, housing and alternative development.

e) Indoor Endowment by up air quality and up thermal comfort.

f) Surrounding environment: Up diverseness.

g) Waste management: Correct disposal and employment of manage waste

We can summarize all us on top of discussion concerning Housing and building actions toward property.

- Encourage community and housing developments that are socially cohesive, scale back isolation, foster community spirit, and share facilities and plan and design Islamic clustered type and lees open spaces residential.
- Ensure housing that's affordable and cheap to a spread of financial gain teams inside identical community.
- Encourage a diversity of occupants in terms getting on, social, and cultural teams.

- Choose location of housing areas close to employment centers.
- Encourage use of regenerative energy together with solar-oriented housing
- Ensure use of building materials with low "embodied energy"
- Introduce ways that of waste reduction.
- Formulate and use landscape style standards

3.4.1 Housing Finance Options

Neither formal nor informal housing finance is important. Bank e Millie, a state-owned banking company, has extended mortgage loans however has no set product—each is exclusive. typically biennial loans, they vary in size from \$400 to \$10,000. Most business banks, public and personal, are keen to launch a housing finance product within the close to term. These banks, at the side of microfinance establishments, envision a large vary of housing loan product. A product designed by Bank e Millie would vary from \$10,000 to \$20,000, with a monthly payment of quite \$100 over a 20-year term. Microfinance establishments, with the aim primarily of meeting short-run wants for home repair, envision loans starting from \$100 to \$500, with a monthly payment of concerning \$50 and a most term of 1 year.

To have final results and analysis of all this study and to develop Afghanistan's housing sector, with the general objective of building a primary mortgage market and therefore increasing the provision of reasonable housing, the subsequent future program and policy interventions square measure recommended:

- Strengthen the legal framework and necessary infrastructure, the conditions for developing the housing finance market. These embrace a sound legal surroundings for market participants like money establishments, housing developers, and property patrons and sellers; improved systems for property titling and registration and social control of liens; and institution of a legal and regulative framework for the insurance trade.
- Develop the mortgage market by enhancing capability in business banks, introducing new housing finance merchandise, putting into place a guarantee facility

to mitigate the risks for business banks about property titling and registration or social control of liens.

- Develop housing microfinance by making incentives for microfinance establishments to have interaction in nonmortgage loaning. To form such incentives, the govt. and donors ought to give technical help to microfinance establishments in piloting and rolling out dilated microfinance loaning for the housing sector. [5]

3.4.2 Develop in Mortgage Market

To support the Sustainable development of the mortgage market, the govt. might leverage accessible resources to put into place a guarantee facility to mitigate certain risks for business banks. Conjointly necessary square measure efforts to reinforce capability in business banks and introduce new housing finance merchandise. we must always think about the subsequent however consistent with the variation of Muslim sharia law regulation:

- Create a guarantee facility to stimulate mortgage loaning.
- Build capability in mortgage loaning.
- Perform a market segmentation exercise.
- Ensure finance sources for developers.
- Finance the event of rental housing.
- Form a housing finance task force.

For our analysis and adaptation in Afghanistan (in future might beater) we will conjointly use the foremost common technique of examining housing affordability, the magnitude relation check. The info square measure wont to get the magnitude relation of housing affordability, ratios at the national level are examined, in terms of house value and manage financial gain variations. Specifically, the magnitude relation check approach is understood as follows:

$$\text{Ratio of House Price to Income} = \frac{\text{Total House Price}}{\text{Total Household Income}} \times 100\%$$

Where,

House value = house price \times average household living spaces \times household size
Household Income = per capita household income \times household size

$$\text{Mortgage repayment to income ratio} = \frac{\text{Monthly Mortgage Repayments}}{\text{Household Monthly Income}} \times 100\%$$

Where,

$$\text{Monthly Repayments} = A \times \frac{r(1+r)^n}{(1+r)^n - 1}$$

A = Loan Principal = total house value \times (1-LTV (0.8))

r = monthly mortgage rate;

n = mortgage terms = 360 months

$$\text{Household Monthly Income} = \frac{\text{Annual Household Income}}{12}$$

Source: Liming Yao Nottingham, House Price, [67]-[72]

The state of the strategy is it does not take liquidity constraint into thought. as a result of the quantitative relation approach is completely supported the standardized house quality and manage size, it ought to ineffectual to estimate the housing affordability quantitative relation for all varieties of households and house quantities. At intervals a given manage gain, larger-sized households face extra risky in affording housing consumption than single households, as a result of the previous would like extra floor space than the latter. However, this quantitative relation fails to gift such variations between manage sizes.

Final Potential Target groups and Affordability analysis for housing microfinance concerning 85–90 shares of economic activities in Asian country unit distributed inside the informal sector. in addition, up to eighty, the concerns of the population is rural, and thus the overwhelming majority of Afghan households unit low gain. This

information counsel the massive potential target population for nonmortgage loans for casual and low-cost housing. There unit 2 groups of potential borrowers: The freelance (entrepreneurs, farmers), found in every urban and rural areas, and wage earners (salaried workers), found primarily in urban areas (table 6). to create

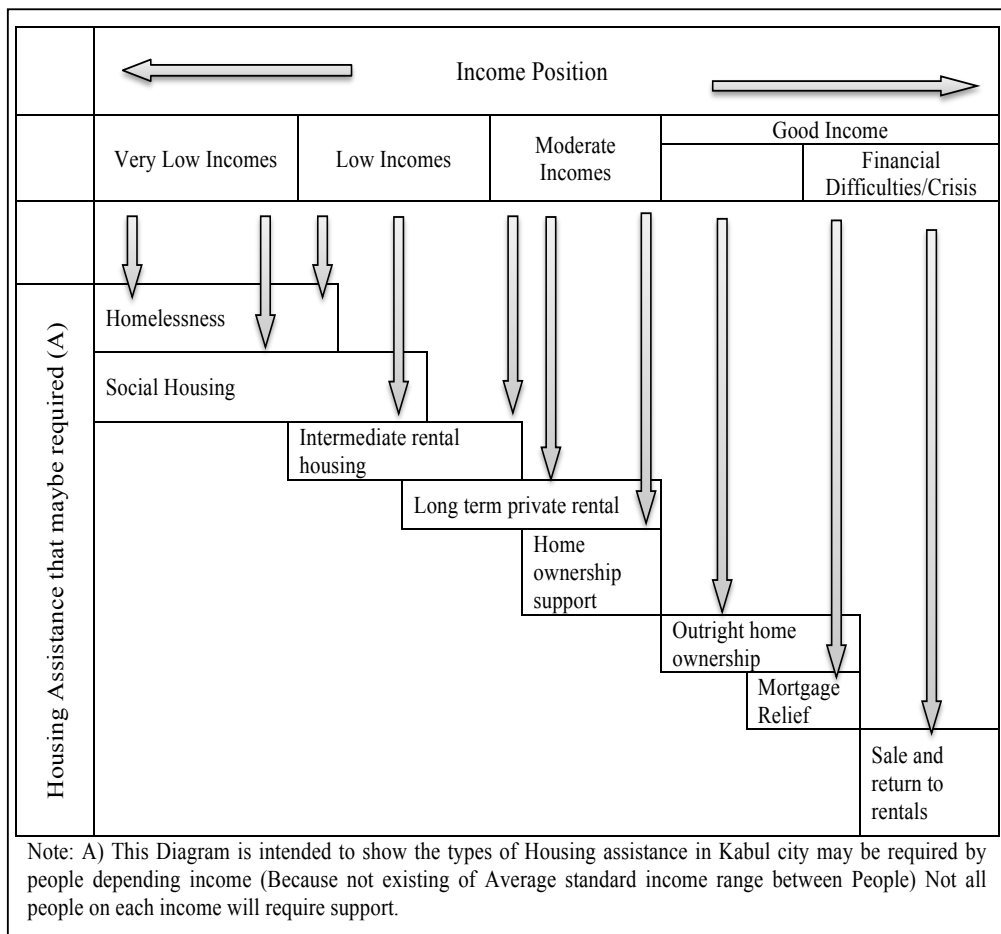


Figure 3.12. Adoptable matching housing assistance level and income position to Afghan needy families

Sources (Housing Sustainability and Affordability for the Future, 2013 – 2015), [67]-[72]

incentives for microfinance institutions to possess interaction in nonmortgage lending, the govt. and donors have to be compelled to provide technical facilitate to microfinance institutions in piloting and rolling out expanded microfinance lending for the housing sector. in addition, it's estimated that ten,000 people or four,000 households sleep in tents. [6]

3.4.3 Adoptable Matching Housing Assistance to Afghan Needy Families

Affordable housing might exist at intervals a time that has numerous varieties of accommodation and housing tenures. This includes crisis accommodation, social housing, dealings within the non-public sector and residential possession. there's typically associate degree assumption that households move during a linear manner,

through a time from government or some International donors backed accommodation to non-public rental to home possession, changing into more and more financially secure and stable in their accommodation. This is often in truth not the case, and households might move anyplace at intervals the time, looking on their explicit circumstances. The diagram below, custom-made from National Shelter 's Policy Priorities, highlights the assorted support choices, that households might need to handle completely different housing wants. the kind of support households in housing stress might need can vary consistent with their explicit circumstances and desires of Afghan community. Some teams square measure wedged additional acutely by the shortage of reasonable housing, together with individuals with War settled disabilities, martyred families, out of work and nil financial gain, seniors (particularly older ladies and different. Figure 13. Adoptable Matching housing help level and financial gain position to Afghan impoverished families Sources (Housing property and Affordability for the longer term, 2013 – 2015), [67]- [72]

3.4.4 HOUSING for the middle and low income

Housing represents one amongst the basic wishes of a human. Maslow's Theory Hierarchy of wishes sees that housing forms the foremost important wishes, in addition to security, food et al., at the bottom of the five levels. Acknowledging this importance, the Afghan government has drawn varied policies to facilitate homeownership. This has resulted at intervals the development business to vastly grow over the last thirty years through provision of housing to associate oversize section of the population guided by the vision of "home owning democracy". the growth of the Malaysian housing sector has been underpinned by the interface between three forces; growing population, high rates of urbanization and growing economy. There ar policies presently in place that assist to handle housing for the poor. However, little is finished to attend to the needs of the middle-income. [7]

Group (MIG). typically this can be} often created worse by the non-existence of the authoritative definition of the term "middle gain household" itself. Against this background, the foremost objective of this study is to investigate the affordability

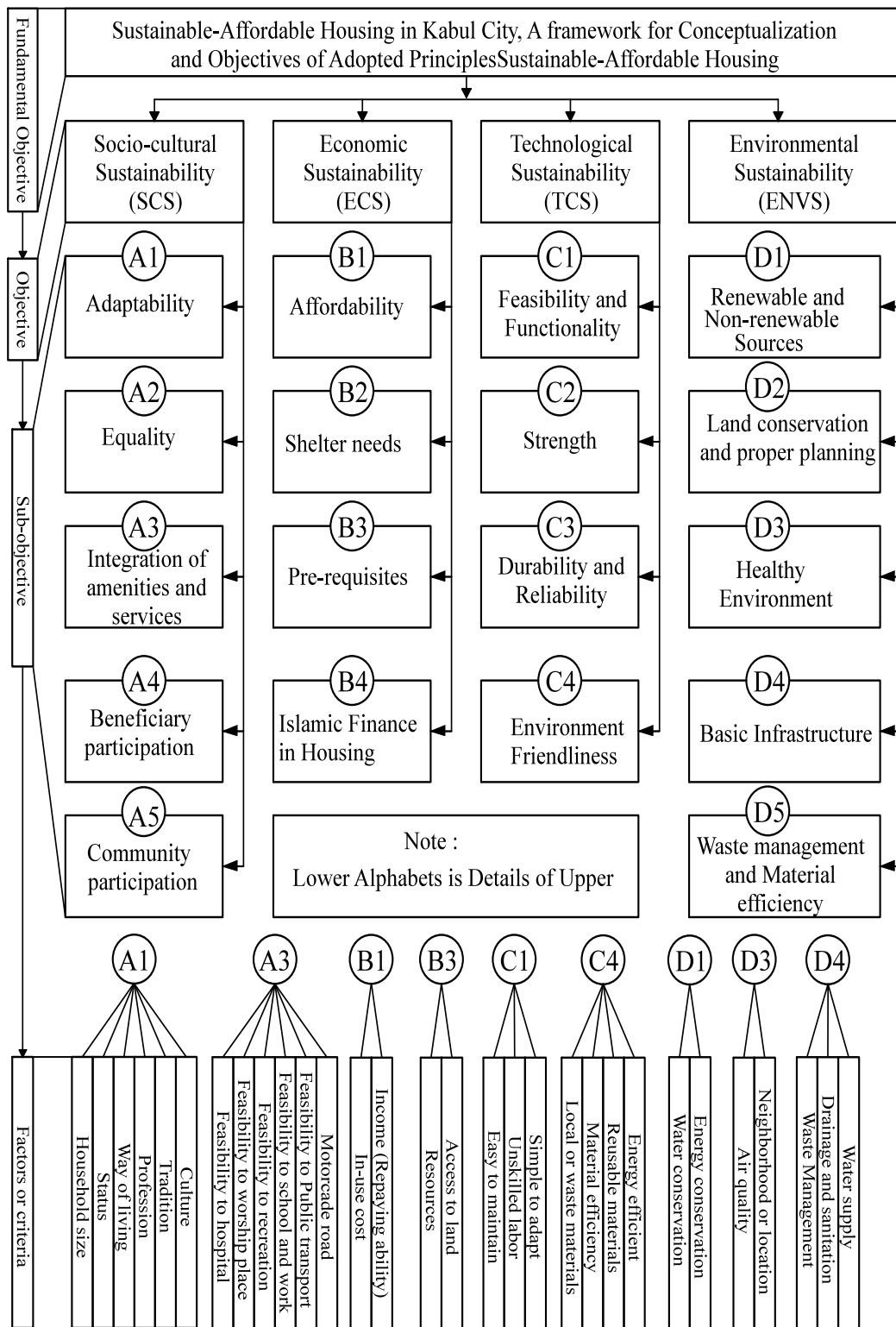


Figure 3.13. Final Conceptual Framework of Kabul city Case study adoptable in All Afghanistan For Sustainable affordable housing Policy

profiles of middle-income earners in each major city to derive the degree of house prices they will afford [16]- [25]. Over the last decade, the housing market has intimate a coiled of house's prices, notably in major cities like national capital, Mzaar-e-Sharif, Jalal-Abad, town and Herat town. This has caused relative inconvenience to housing. The matter of accessibility to housing becomes plenty of essential among the middle gain earners cluster on condition that the lower gain groups' housing needs, notably lecturers, professors and different government employee, are addressed by the governments in developed and developing countries. Professors, lecturers and scientists of this time and in many eras, whereas educating and training the youth of the country, having accepted the deadening and toil of days and nights, are exerting themselves to educate the students and so the youth of the country and to permit them to own the advantage of their educational accumulation. lecturers with the compilation of writings, educational and scientific books have secured their positions among the regional and world scientists. [21], [24], [97], [61]

Our professors and lecturers, in terribly powerful financial and locomotive conditions, are the provision of competent services to the youth of the country and have persisted in doing their sacred responsibilities inside the foremost remote parts of this country cities, villages and cities. but sadly, end of the day economic condition, grouping action, foreign intervention, territorial and unwanted war are all the weather that have unbroken the country far away from development; and significantly the factors of last three decades have inflicted hurt on intellectuals, still as lecturers, inside the complete arena of their economic, academic, cultural and social life. Therefore, it's necessary throughout this era to endow this peoples with amenities for the advance of support, housing as primary and most basic daily wishes of life therefore as for our revered lecturers to carry on their responsibilities with peace of mind and soul and with none inner tension and thus the concerns of lacking shelter, material and non-secular life. These lecturers, despite the visitation and economic condition, labored for schooling and educating the youth of the country and paid attention to remain the sunshine data of information and knowledge lit. throughout this thesis, my specific effort is for the long run of optimum and property

housing for the professors, lecturers and different low gain government employees and to rearrange for them some serene neighborhood and surroundings for living. [7]

The middle-income household's area unit concerned as a result of affordability affects not alone their ability to become a home-owner but put together the dimensions and type of the house they are able to purchase. Affordability problems could also be viewed as an operative at fully completely different levels, ranging from the narrower direct experience of severe problems with the economic condition and standing, through degree intermediate level of risk, to a broader downside of access to the market. many authors argued that the degree and distributions of home prices, family incomes and so the structure of finance costs influence housing affordability [16]- [25]. Housing programs implementing the policy area unit subject to plenty of constant body laws as applied to land policy. the target of the policy is to provide low-cost and adequate housing to the low-income cluster. this housing downside in the Asian nation is, however, revolving plenty of around the issue of inadequate provision of low-cost housing not only for low-income people but most importantly, the middle-income households (MIH). The demand for housing in the land has raised in recent years as a result of migration, movement from villages and increase. This has been supported by a decreasing death rate, the number of persons per family and so the expansion of nuclear families in distinction to extended families, diode by economic development and decreasing state. In spite of that, it had been evident that little analysis has addressed the affordability downside two-faced by the middle-income households [21]

Drawing on case studies in major cities and cities among the country, this study seeks to analysis the affordability profiles of middle-income earners in few major cities in an Asian country to derive at the degree of house prices they could afford. The study, in addition, investigates the profiles of low-cost housing give (both existing and future supplies) in terms of the prices, sorts of homes and their locations. Specifically, this analysis intends to traumatize key issues with relevance middle-income cluster as follows: what's housing – a clear definition of reasonable housing among the native context? What kind of homes {is low-cost is reasonable is affordable} among the city for middle income? wherever did cheap homes get to be equipped or located? what's the quantity of housing affordability with relevance

ethnicity? what's the quantity of housing affordability with relevance activity backgrounds? however, can the governments, alliance and NGOS play their role effectively in crucial the provision of low-cost housing? What policies facilitate the provision of low-cost housing? What unit of measurement the roles of economic institutions in facilitating the provision and demand of low-cost housing among the country? [7] [21], [54], [67], [133]

3. 5. Conclusions

This study geared toward developing a comprehensive innovative approach for work and adopting a Sustainable and affordable housing policy in Afghanistan. Such associate degree approach was supported introducing a replacement paradigm of research: Trends is surface tension as a type of inquiry that crosses the boundaries of various disciplines. Associate degree argument on the impact of trans-disciplinary thinking on understanding property and reasonable housing was developed and placed at intervals the angle of however fashion theories and their underlying ideas is incorporated into a comprehensive inquiring method. In turn, a framework of inquiry was developed that mirrored on reasonable housing data sorts. The projected framework was conceptualized and translated into a survey tool, that was then devised within the type of a form to be enforced within the context of national capital and other big cities. The tool was tested within the three sites. The importance of such associate degree approach lies within the worth of however trans-disciplinary thinking in designed environment-related realms is introduced, wherever the boundaries of various disciplines square measure crossed. In essence, designing and field aspects, social and cultural problems, and value and money problems square measure all incorporated into one mechanism toward a comprehensive inquiry on reasonable housing. [29] Many of the objectives of reasonable housing closely align with the objectives of property, like location near conveyance and social and community facilities, compact style, thought of climate and star orientation. Having same that, there some objectives that are quite opposite to every different, like the very fact that eco-efficient housing is dear, and it's tough to realize affordability while not support from the government despite the fact that housing property is as necessary as housing affordability, it's necessary to administer priority to

affordability for low-income households. Therefore, to create housing property for everybody, property criteria won't be an equivalent across numerous socio-economic

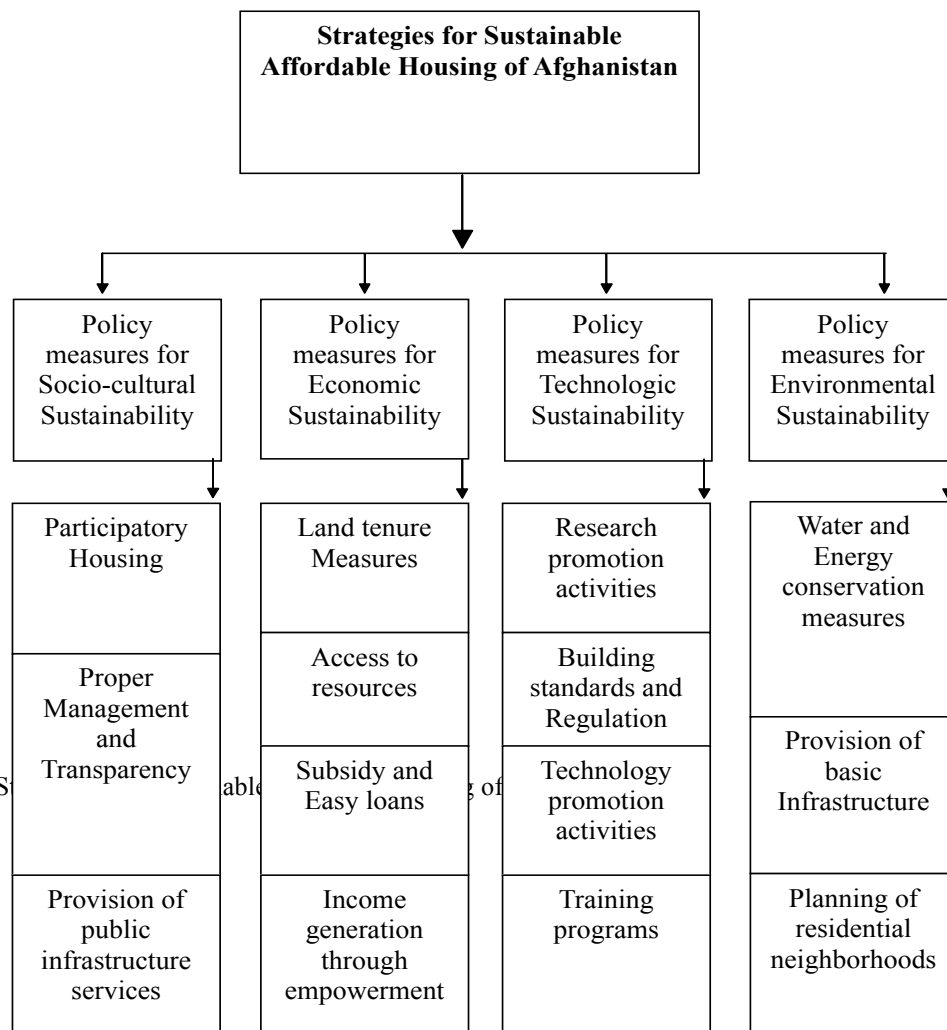


Figure 3.14. Conceptual Strategies for Sustainable Affordable Housing of Afghanistan

teams. Affordable and reasonable housing and social sustainability may simply be achieved by providing higher style within the public realm, however environmental and economic property can be tough to realize attributable to the high value of property housing. Choguill (2007) argues that fifty years of housing policy development has not solved the matter of affordability and each year inadequate housing within the developing world is increasing. Therefore, it's arduous to believe that simply because we have a tendency to label one thing “sustainable,” it'll improve affordability (Choguill, 2007). Even though we have a tendency to tend to consider affordable housing as a definite and distinctive sector, in fact, it's very little quite one

sector of the general development. though we will treat these two problems in isolation, invariably reticulated and that we are unlikely to realize success in one while not succeeding in different. within the same manner, a number of the principles of property square measure aligned with reasonable housing objectives and housing as an entire sector. Therefore, it's quite unlikely that success is achieved in sustainable-affordable housing while not succeeding in housing as an entire incorporating problems with property. However, the size of the social, economic and environmental Sustainability can vary supported the housing affordability of households from place to put. It's unlikely, while not exploitation criterion like the new urbanism idea and therefore the development of a housing policy together with a sustainable and property agenda, and government subsidies to realize property, that it'll be simple to realize property, reasonable housing. [29]

We have a tendency to conjointly think about the four aspects of property of equal significance. The reciprocity and equality of those four factors square measure thought of because the assumptions of this idea in national Afghan capital and other big cities. This analysis integrates completely different views to grasp the housing issues in Afghanistan, particularly in Kabul and to develop improved ways resulting in sustainable-affordable housing. These views combine a technological scan, reasonable and primarily concentrating on building materials, with non-technical aspects just like the socio-cultural scan of the beneficiaries, the economic aspects of the building technique, and policy aspects as seen from a government perspective. [2] This property and reasonable Housing Policy Principles and Formulation adoptable study are the muse of national housing policy within the future in Afghanistan. Stabilized social culture is seen simply in societies that have recent social and stable life, thanks to their antiquity. The design of housing depends on a people's manner of living, perception and understanding and geographical options. usually design represents the expansion of human perception and belief manifested within the building of one's residence. New building principles, thanks to the event of tools, instrumentality and new materials, are additional applied nowadays. The merchandise of this property planning is dependence upon energy, originality, and a scarcity of affordability. the event of technology has affected all aspects of human life, and therefore the irregular commixture of culture has destroyed most helpful

social values. trendy design and Western construction technology can have an effect on our future design, particularly Afghan design, as a result of separation of design from tradition and former expertise has deleted humanism and a spotlight to native human spirit from design. During this scenario, Islam has no impact on the design of housing, and therefore the aware need for western design can increase day by day. The dominant type in Muslim modern designing is that the western pattern that has lost its utility even in industrial nations. These western patterns unit of measurement in a serious confrontation with Islam as a philosophy of life. coordinative the efforts of stakeholders are crucial to place the foundations for the event of every mortgage and nonmortgage housing merchandise. Forming a housing finance task force to facilitate solutions to the larger policy associate degree restrictive challenges facing the housing finance sector would be an appropriate step in this direction. These policy activities, combined with technical facilitate for banks and microfinance institutions and acceptable semi-permanent funding mechanisms, would bring the Afghan housing finance sector nearer to serving the necessities of Afghan voters. [5]

**Investigation of Sustainable and Affordable Housing
Policy and Planning Principles in Afghanistan**

Chapter 4

**A Conceptual Framework for
Sustainable and Affordable Housing
and Housing Layout Planning
Principles Principles in Afghanistan**

Chapter 4

A Conceptual Framework for Sustainable and Affordable Housing and Housing Layout Planning Principles in Afghanistan

4.1.1 Introduction

A little research has been conducted on property usually all told regions, and less for Afghanistan. This research encompasses all exterior and interior coming up with so as to create house usable and cozy. This chapter is a brief study of urbanization and housing planning in Afghanistan which mainly focuses on the problems of the housing and housing layout. Although its primary objective is to deal with the issues of low-income housing in urban area as well discuss about development of rural area, out urbanization issues at the broader national level. The approach is based on the idea that specific problems can only be meaningfully comprehended when seen in broader context. This is particularly important in the case of all Afghan big cites for which considerable amount of general data gathering and documentation is necessary before specific issues can be effectively studied.

The study covers each massive scale-housing pattern as community and Gawoond and also the modern grounds house system. These rules an essential to success, however there's no regular arrange for mapping interior and exterior comfort and welfare. sadly, most land plot homeowners, lacking information and thought of microclimate, social and cultural variations between Afghanistan and neighboring countries, wherever in some cases alternative countries. The derived styles a principally from West Pakistan and that aren't adjustable to Afghanistan's climate and social and cultural desires. [1]-[3]. Houses, wherever we tend to pay most of our lives, an area that meet our accommodation desires and mirror our personalities. supported this determination, the satisfaction of house users is that the 1st priority. For this purpose, six parameters are determined to see the user's comfort within the interior house of homes.

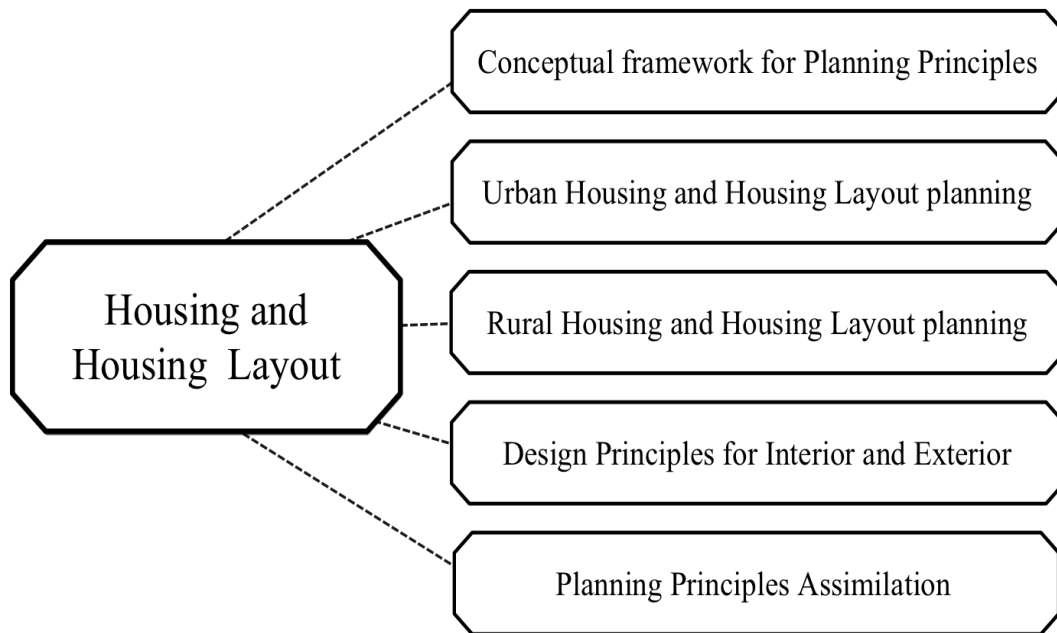


Figure. 4. 1. Afghan Sustainable and Affordable Housing Planning
Summery Map Source : Author

Thermal comfort, visual comfort, acoustic comfort, humidness and wetness management and style quality are the weather thought of to represent interior comfort. Therefore, use of some application of simulation for interior comfort and exterior welfare is taken into thought. In several new cities, it's thought of that enough land should be provided for ample infrastructure and public facilities to fulfill instructional, health, sports, inexperienced house, recreation and alternative social desires. Sustainable life in several new cities is seen because the most significant issue, however it neglected in coming up with and planning these cities. The findings of this analysis show that urban coming up with ways should be totally integrated into the community development method. A sustainable neighborhood arrange ought to highlight the community as an area for all ages, still as an area to measure, work and play. many principles and criteria will be thought of with regard to neighborhood scale, like liveliness, identification, symbolization, diversity, accessibility and convenience. The construct of carrying and its threshold is one among the foremost vital factors moving quality of life at the neighborhood scale. During this method, new approaches in urban style are fashioned around the challenge of enhancing urban environmental quality and street patterns. This approach has been fashioned to critically examine a

contemporary, serene, property neighborhood urbanism custom-made to Afghan native and ancient Islamic cultural patterns, with a stress on the special standing of human gathering. within the current era, urban areas give a serene space for safety and higher management over volunteer activities. Nowadays, this approach is accountable for guiding Afghan new urbanism during a manner that maintains non-secular and cultural values. the first principles of this approach are supported desegregation the normal, humanistic principles of past Moslem urbanism with a mixture of neo-traditional neighborhood criterion [11]- [16]. Not like human creation extremist ideology communism and Western democracy weren't sensible side and weren't adoptable in Afghanistan as a result of their against the social, spiritual and cultural values during this space and unguent issues in country, within the approach unadoptable urbanism and design that are against the faith, Culture and while not property and climatically study simply copy and applied within the space conjointly produce such a lot environmental and security issues within the most Afghan cites for instance Grid Layout hosing and street pattern (Fig.2,A) System that divided our community part that resulted in destroying our greatest traditions associated with collective and volunteer social downside resolution like Hashar and Afghan residential design and mode are confronted with trendy and international design and urbanism that have remodeled Afghan dwellings into unsuitable forms that clash with the Afghan culture and setting. All over the country, over 75% of individuals sleep in curtilage housing. This analyses of Afghan community development principles and compares the abstraction quality of up to date of Sustainable strategy for homes with ancient curtilage homes supported their comparative property. The comparatively natural static heating and cooling system utilized in a curtilage house will give the premise for understanding modifications which will generate air movement by convection. In summer, air temperature drops significantly when sunset as a result of re-radiation to the night sky. The air is comparatively freed from water vapors that may mirror the warmth or actinic radiation back toward the bottom, as happens in heat wet regions like Nangrahar province. to boost thermal comfort, this development has been utilized in the study style of homes by using the curtilage thought. Quantitative



Figure. 4. 2. Sustainable and Affordable Housing and Housing Layout Planning Principles Source : Author

ways of knowledge associate lysis are done victimization an analytical and property model to hold out a comparative study of 2 varieties of ancient and up to date accommodation that represents a major development in up to date housing house, setting and safety. this modification, that is increasing day by day beside the scale of the house, may be a downside that encapsulates the psychological state of up to date housing. This discussion may be recreated as a starting for house to be utilized in up to date housing with comparison to its use in ancient settings. The recreation of house supported the arrangements of ancient design was urged through the strategy of introducing versatile components and areas. supported the survey we tend to elite 3 zones for analysis (Kabul, Nangrahar, city and Heart next chapter case study) The Afghan curtilage served 3 functions. First, it is interior open house with full privacy and security for all members of the family, particularly ladies and youngsters. Second,

the Afghan curtilage (especially the normal one) in summer is shaded by its four walls, inflicting the encompassing rooms to heat slowly and stay cool till late within the day, once the sun shines directly into the curtilage, and in winter the cold wind passing higher than the house throughout the day doesn't enter the curtilage. Third, in each ancient and a few up to date curtilage homes, multiple families settle in one curtilage house to make in rural regions high-density living enclosed by walls for environmental protection and privacy. (Table .1) Yusuf Al Faradaic, the Islamic investigator, defines the house as, the world that every person protects himself from climatically discomforts and feels free and relaxed toward outside of the house [1]. This definition or perform of the home is supported several Qur'anic verses, such as, 'It is Supreme Being who created your habitations homes of rest and quiet' (Qur'an, Su. 16:80) [16]-[25].

As most Afghan population live in suburb, traditional neighborhood and village than this is important to research about that and find best way and solution for the existing challenges. Also, to become basic research for the traditional urbanization in Afghanistan than in this chapter we will discuss about that.

4. 2 Objectives and Methodology

This research is dispensed through observation and studies of the introduction of planning principles for adaptation both in urban community and as well in rural. The role of natural components (Exterior welfare in Afghan neighborhood, Interior comfort in up to date Afghan court housing) within the up to date court homes in humid-warm, dry-cold and dry-warm regions of Afghanistan. To do this, some sustainable principles housing layout with up to date courtyards that square measure sustainably energy economical square measure investigated, that meet physical and social desires of their residents by applying appropriate coming up with so as to use wind and sun energy the target of this analysis is to clarify that considering natural components general in Afghan community , Cites , housing layout and court homes will offer mental and physical convenience for the residents, which can enhance their comfort level . This study applies the design and environmental informative conceptual principles analysis Method. The climate and cultural factors of various square measures in Afghanistan are the freelance variables, whereas differing types of open areas or courts and courtyard morphology square measure among the dependent

variables in each the normal and up to date segments of this analysis. The information assortment strategies used includes each field surveys and documentation, alongside simulation mistreatment the Ecotect application (In Appendix). We tend to surveyed concerning 150 non-public homes in Afghanistan. And for exterior welfare and case study, associate exterior public survey with their neighborhoods. A computer simulation is used to live elite parameters: thermal analysis, star shading, day lighting and flowing patterns, and primarily to work out the general energy reduction (As the This analysis is organized to determine the foremost valid and reliable answers for these queries supported laptop modeling and simulation by victimization Ecotect software package for the primary time for the Afghan community [3]. For all those 3 Gawoonds, elite property criteria were examined by suggests that of case studies and questionnaires. The queries enclosed personal characteristics of the residents and their residential unit, and public knowledge on a section scale. For Afghan, urban area, the identification is found on the idea of continuous interaction between community and setting over time. matters of the identification were evaluated by the study of serious correlations between the “stay length of residence” and “satisfaction” with the identification [1]- [5]. In order to satisfy the analysis demand and eventually have a helpful analysis, we have a tendency to tried to mix survey and case studies, and that we used some adopted patterns, that also are sensible and straightforward. For exterior public survey during this paper, society studies aren't conducted to demonstrate the similarities and variations, however to grasp however the road plays a job in situ creating in numerous cultural contexts.

Comparative urbanism is utilized as a theoretical framework to analysis the roles and challenges on the streets in three (Afghan) cultural contexts. The strength of comparative urbanism is that it goes on the so much aspect identification of similarities and dissimilarities, to seek out-out from varied contexts to spice up discourse issues. A mixed technique strategy of inquiry was accustomed conduct this study (Fig.3). With this, a comparative analysis was conducted on the streets of the chosen case studies thus on grasp access and quality, culture, and thus the science of the road house. [16]

The methodology of this study comes from the aim of this paper, that is to look at the extent of thermal comfort and habitability of the Afghan trendy yard house style as compared to the extent Sustainability and property of house design of Afghan ancient yard homes. This study applies the look and setting interpretive analysis technique.

The climate and cultural factors of various areas in Afghan are the freelance variables, whereas differing types of open areas or yards and courtyard morphology are among the dependent variables in each the normal and modern segments of this analysis. the information assortment ways used embody each field surveys and documentation, as we've surveyed regarding 150 homes across the country, from every of these surveys we have a tendency to elite seven samples to represent the Afghan ancient and modern yard housing. As a pattern at the native scale, the Afghan geographical location, Islamic faith and turbulent history combined to form all major historical cities, together with national capital, city and city, with a yard form with four thick walls and 4 gates following a similar yard pattern. The new abstract pattern for the Afghan home is in the main associate upgraded version of the previous Kala. The objective is to examine to what extent the Afghan government, Un-Habitat and other development agencies and NGO as the working in urbanization and shelter sector to apply as sustainability and the principles that entail the concept, particularly how the principles are embedded in development Planning strategies and policies.

4. 3. A Conceptual framework for Sustainable development planning Principles Adoptable in Afghanistan

Urbanization and Town design can play a very important role in achieving sustainable growth and development by adaptation a 'sustainable development principles' in urban planning strategies, policies, programs and projects. In recent three decades, the sustainable of urban planning has changed significantly because of rapid urban population growth. In Afghanistan, as fast growing cities is urban sprawl, which more peoples come for occupation, education and other facilities usually accompanied

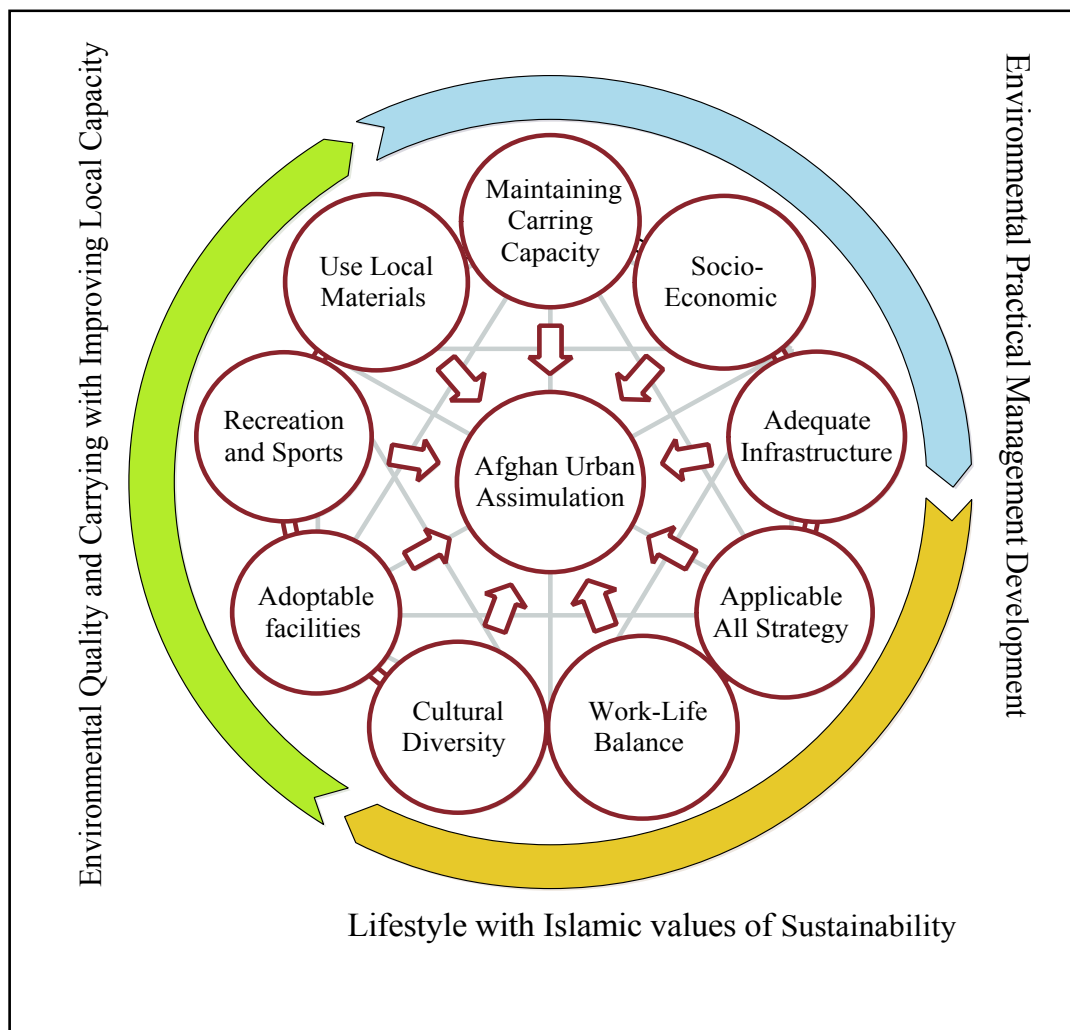


Figure. 4. 3. Discussion about Sustainable and Affordable Housing and Housing Layout Assimilation Source : UN Habitat Adopted by Author

by many serious problems including inefficient land use, high car dependency, low density and high segregation of uses. Coupled with land use speculation, current models of city growth result in fragmented and inefficient urban space where urban advantage and city concept are lost.

Cities of the future should build a different type of urban structure and space, where city life thrives and the most common problems of current urbanization are addressed. UN-Habitat proposes an approach that summarizes and existing sustainable urban planning theories to help build a new and sustainable relationship between urban dwellers and urban space, and to increase the value of urban land. This approach is based on 5 principles that support the 3 key features of sustainable neighborhoods and cities: compact, integrated, connected. There are diverse conceptualization and

understanding regarding sustainability, and there is still no single format of integrating the principles of sustainability into a cohesive and integrated urban planning methodology. Sustainable Urban Development and Redevelopment is a wide topic may research about it in future by details as Afghan pattern be the we have just a glance mention of it as following:

1. Sustainable and Affordable Shelter and Shelter Environment for All Afghans (Author).
2. Sustainable Urban Development Decentralization and Mix use (Author).
3. The Right to Adequate Housing (Un-Habitat Fact Sheet No. 21/Rev.1)
 - The right to be free from arbitrary interference with one's home, privacy and family.
 - The right to choose one's residence, to determine where to live, to freedom of movement and Security of tenure
 - Participation in housing-related decision-making at the national and community levels.
 - Adequate housing must provide more than four walls and a roof like: Security of tenure, Availability of services, materials, facilities and infrastructure, Affordability, Habitability, Accessibility and Cultural adequacy.
4. Sustainable housing for r sustainable cities (Un-Habitat a policy framework for developing countries)
5. Low carbon Cites framework (National Green Technology)
6. Strategies for sustainable urban development (Principles of sustainable development and their application in urban planning in Saudi Arabia Faez Saad July 2013)
7. Actions to achieve strategic goals in planning for urban sustainability (Principles of sustainable development and their application in urban planning

in Saudi Arabia Faez Saad July 2013)

8. Adequate space for streets and an efficient street network. (Un-Habitat)
9. Built-Environment Efficiency (BEE) of cities (CASBEE Comprehensive Assessment System for Built Environment Efficiency)
10.) Allows you to conduct an assessment of your city based on the public statistical information which reduces the time and human resources required to conduct city assessment (introduced in this brochure).and allows you to conduct an assessment of your city from totally comprehensive perspective which helps us to gain a deeper understanding of the city condition. (BEE) of cities (CASBEE Comprehensive Assessment System for Built Environment Efficiency)
11. Protecting and improving the urban environment: towards local and global sustainability (Sustainable Urban Development in the European Union, A Framework for Action)
12. Contributing to good urban governance and local empowerment (Sustainable Urban Development in the European Union, A Framework for Action)
13. Establish open space and farmland protection programs (Sustainable Cities institute at national league of Cites)
14. Manage suitable water supply and Provide for protection of groundwater supplies including well-head protection programs (Sustainable Cities institute at national league of Cites).
15. Neighborhoods should include places for interaction among residents, such as parks, community centers, schools, commercial areas, churches and other gathering places (Sustainable Cities institute at national league of Cites).

The above all principle are International important principle as May study for applying practically for Afghan Urbans and buildings planning and Design.

After 3.5 decades of war, Afghan capital and a number of totally different vast cities' homes have changed dramatically in recent fifteen years. The changes befell in three completely totally different periods at intervals that social, economic, and technological transformations caused physical and morphological modifications. The abstraction characteristics of ancient Afghan homes (as I discuss concerning lots of partly I) mirror natural, geographical, and cultural wishes. There was a harmony

between people's wishes and additionally the physical characteristics of the house. at intervals, the urban homes are mostly constant, however, an innovative residential type appeared, at intervals that living areas were classified in step with their general functions. placement, aboard prepare layout and proportions, fast the restricted potential for various lifestyles. at intervals, the up so far quantity, structure (most those residences were created by Russian system name of Makroryan) buildings became prevailing. throughout this new kind of residence, the physical characteristics of the house have changed considerably, whereas living habits and lifestyles haven't changed at the constant pace. This thesis concludes that habitats have to be compelled to be physically harmonious with traditions and lifestyles with privacy and will be to possess house with middle cost; otherwise, residents would react and take a glance at to change the setting in step with their desires. once the setting itself is not changeable, residents ought to be compelled to adapt themselves to their new conditions; consequently, some valuable traditions would be lost forever [16]- [25]. [10]

There can be entirely totally different vision, why the urban center has steady been ravaged on this era. according to our non-secular and classic literature, the foremost reason of cities decayed on the history was attributable to predomination of corruption in them. If this assumption is also generalized for the urban center city, then presences of torrential confusing factors deteriorate true rather additional. to' architects connect in associate degree elaborate approach the unknown realms, contrary to philosophers, they have not the duty to reveal the entity of matters. However, whereas the physical look of dwellings has changed entirely, the living habits and lifestyles haven't changed at a constant pace. it is a reality in all human societies that authorities can change the external aspects of life, whereas internal, personal elements that originate from the culture cannot be changed as merely. inside the gift thesis, we have a tendency to tend to first review the literature on the link between housing kind, house layout sometimes living setting of Afghan Urban. we have a tendency to tend to then analyze the challenges of the recent house and coming up with of housing in the country, that has taken place step by step over the last 3 decades' unstable government in centuries. Social and cultural characteristics of the society are embodied in the composite elements of residential units. Early in the 20 the century, a forceful change in style befell in many developing countries, as a result of the traditional kind of design was replaced by the trendy vogue. This variation occurred so rapidly that it delineated

replacement rather than adaptation. Thus, native bailiwick forms, that had competent the physical and cultural desires of the people for thousands of years, were neglected absolutely. There unit of measurement some structural conflicts between ancient Islamic concepts and stylish Western and Russian etc. coming up with ways that. Some samples of the conflict unit of measurement entirely totally different concepts of community structure, planning, and bailiwick forms [16]- [25]. Housing makes up the majority of the built setting, even in large cities, and conjointly the approaching housing is ready out shapes tavern. [10], [37] Informal sites and housing has been the primitive and undeveloped consumer of natural resources. Continuation of this procedure might only not evacuate natural resources in short term, but it does not accommodate the developing lifestyle of the dwellers as well. The housing has either been pollutant or destructive of natural environment. [45]- [55], [96]- [100].

One necessary issue is that the layout of housings. There square measure some general principles governing layout of housing that derive from the habits and desires of individuals, which, if not universal, square measure definitely common to most of the individuals within the same country. for instance, 2 needs stand out: want the necessity the requirement} for privacy and also the need for community. The extent to that these desires square measure accomplished can mostly verify whether or not individuals can get pleasure from their setting. however, it's not enough simply to talk of privacy and community normally terms, we tend to should shrewdness privacy is assured by means that of density, distance and pure mathematics, and the way community, on the opposite hand, is decided by the quantity of homes, their relationship with each other – and then forth. associate Introduction to Housing Layout aims to throw light-weight on these crucial matters so designers have a framework on that to proceed [16]- [25]. Most land in urban areas has currently been engineered on, in some cases many times, so the fragile drawback for the designer is a way to insert the new housing into the encompassing town material. In most cases, urban housing is either improvement or smaller-scale pattern wherever it's particularly necessary to relate the new housing to the size and character of the prevailing options. The areas between buildings ought to stimulate the human senses. the standard of every house, whether or not massive, small, high, low wide or slender, has noticeable characteristics which may be associated with human reactions and feelings [16]- [25]. house is consciously designed to supply specific feelings among the user. an outsized urban house tends to form a

grandiose feeling, with man turning into tiny and insignificant – in awe of the house. this inclination of society seems to be toward fairly tiny groupings of dwellings, that produce a sense of intimacy, protection and security still as shaping the residents' territorial boundaries, so making defendable areas. The individuals square measure the necessary element; the areas ought to be scaled for his or her use. the most purpose is however the middle-income cluster is ready to own homes, considering the dimensions of Afghan family and its financial gain, notwithstanding they are doing not have good daily expenditure. Therefore, it's necessary that the government in cooperation with global organization and alternative operative countries and NGOs ought to support MIG through long run loans and subsidies to them [16]- [25] [75]- [85], [100]- [110].

4.3.1 Master plans and development plans

The town program is a guide for public and personal decision-makers concerning the long run physical development of the town. The program consists of documents, or “elements,” that cowl the city’s major geographical areas and its essential wide facilities. These plans give a framework for conserving the city’s distinctive character, making certain its diversity; supporting investment and promoting desired modification. (A program is a political candidate document adopted by an area government to ascertain long vary, general policies for the physical development of the community. the aim of the Land Use component of the town program is to supply data and steerage to town residents, decision-makers, developers, and property homeowners regarding land use coming up with problems that face the town of Kabul and another big Afghan cites).

4.3.2 Zoning

I. Basic Patterns criteria and idea of Zooning: A sectionalizing set up could be an instrument, that establishes the sort of constructions that may be in-built specific components of the town. Zoning could be a device of land-use coming up with utilized by local governments in most developed countries the same as in Afghanistan.

II. Zoning Districts Division: The Zooning division to the subsequent six partitioning Districts:

- A. **Agriculture/Residential District:** AR The Agriculture/Residential District is meant to encourage the longevity of the Borough's agricultural community whereas permitting investment in connected agriculture activities and low-density residential uses that don't impair the essential rural practicality and character of the world.
- B. **Residential District - R- 1:** The community is meant to push versatile various vgt v6fand a pattern of residential development has emerged. The District reduces development price and assures reasonable housing by permitting versatile density necessities.
- C. **Multi-Family community - R-2:** The Multi-Family community is meant to push the event of quality multi-family housing units and assures reasonable housing by permitting versatile density necessities.
- D. **Manufactured Housing Park District – MHP:** The factory-made Housing Park District is meant to push the event of a factory-made Housing Park.
- E. **Business district - B-1:** The Business-Highway Service District is meant to encourage sound development of business institutions on major highways primarily designed to serve the residents of the Borough, and such alternative uses that square measure addicted to main road access and visibility.
- F. **Industrial District – I:** the economic District is meant to encourage the event of land that has each access to blood vessel highways and also the correct infrastructure for the producing, assembly, change of integrity, process or storage of product.
- G. **Boundaries of partitioning Districts:** partitioning Districts' boundaries shall be as shown on the partitioning Map. wherever falteringly exists with relation to numerous partitioning Districts' boundaries, the subsequent rules shall apply: Where a partitioning District boundary just about follows a street or alley the line of such street or alley shall be understood to be the partitioning District boundary. Where a partitioning District boundary just about parallels a street ton line or alley ton line the boundary shall be understood as being parallel to that and at such distance from it as indicated on the partitioning Map.

III. Afghan idea of Zooning: A programme of 1936 the Kabul town was for the primary time mottled when the grid layout thus typical of latest Western cities as we

have a tendency to mentioned the higher than. though villas existed before this point, the concept of one family single dwelling on a personal plot, in distinction to the densely hooked up housing of the previous town, was introduced. The new section was named Shahr-i-Nau, which means the new town. it had been during this amount that the last gate of town, urban center Gate, was torn down. typically, the 1930 were an amount of political orientation within which modification was seen as a gradual method in distinction to the unconventional reforms of the 1920.

4.3 Classification of Afghanistan Traditional Villages Comparative Investigation of Village Traditional mud construction courtyard House

The terms keley (Pashto) are usually used to mean village. but today it is particularly used to compound names to refer to specific villages. e.g. Durani Kalay and Anduro Kala.

The Afghan villages, generally self-sufficient subsistence, typically, a village residence has two , three or four rooms carpeted with rugs, or gelim, if the owner can afford them. Most villages have guest rooms or guesthouses for the traveler. The village mosque often serves this function, as well as being the jirgah meeting place and seasonal school seasonal . [22]- [34] [75]- [85], [89]- [98].

4.3.1 Classification Analysis

Afghan villages have many types with a lot of topology of houses but it has some joint and common characteristic and most afghan Villages usually grew in response to needs for water and defense. In general, there are two types of completely sedentary village settlement-patterns exist: linear and nuclear. The linear type, common in Southeast Asia, occurs along the major rivers, clinging to the watercourses. The nuclear pattern, in which villages cluster about a town, and several village-town clusters surround a city, is more common in Afghanistan. As the four main influences (Topography, Environmental, surrounding local construction material religious and cultural) shaped and classified the afghan rural traditional houses and villages. To find the reason for the existing shape of village in Afghanistan I will shortly explain and analysis those influences as following:

4.3.1.1 Topography Classification

Mountainous terrains with little or no vegetation, typical of an arid country, occupy Two thirds of the landscape of Afghanistan. For this reason, the vegetation in these terrains plays a vital role in the ecosystem. For example, if we consider the role of pistachio (Pistachio Vera, yielding) among hundreds of other floras, we find out that it not only provides climatic and environmental stabilization over the areas of its growth, but also eases the life of thousands of families by providing them with a natural source of income.

Half of the remaining parts of the country's landscape are deserts, which are hostile environments. The rest are farmlands and pastures. At present, only six percent of the fifteen percent of agricultural land in Afghanistan is under cultivation. In the past thirty years, the agricultural areas have been drastically decreased. It is estimated that we lost thirty percent of our farmlands and pastures, either by abandonment or degradation.

The farmlands in the province of Kabul have been lost due to degradation resulting from the expansion of the urban institutions. This led to a drastic change of the previously dominant climatic and environmental factors in this region ⁷.

Topography classification

- a. Flat inside agriculture Villages
- b. Flat inside desert and semi agriculture Villages
- c. Hill side Villages
- d. Mountain Villages

4.3.1.2 Architecture and Planning Characteristic, Environmental and Construction System (APEC) Classification

Architecture and Planning characteristic, Environmental and Construction system (APEC). Afghanistan Traditional architecture takes into account the styles that were popular to an Afghan villages and area. The characteristics of Afghan traditional architecture used by local experimental masons and builders with recommendation, order command and includes a commitment to maintaining a link to the past styles of building, reuse of materials or designing homes and building to stay consistent with the overall building design and construction of the area. This creates a sense of steadiness and connection to the past, which helps the area, maintains its traditional

look and feel for the residents of the afghan rural villages community.

Homes that were built in afghan village communities create the fixed with environment for what a traditional builder and masons seeks to maintain. Particularly those communities that are well over a century, the homes and buildings that are constructed establish the tradition from which traditional architecture seeks to maintain. The structure of doors, windows, building heights and roofing elements are carried forward in new construction in some area and village remain the old traditionally, tying the present to the past and maintaining a community's tradition and as religiously culturally and economically this is good practice. Most villages' houses are made with mud, timber, and clay, which are the local materials, and they are cheap. The Villages traditional houses have been made with mud (Mud brick, Mud Pkasa, Mud stone masonry and Mud with Joint wood) as all those are a good insulation material. In All villages houses the windows are facing south side to gain the maximum amount of sunlight during the winters.

In most village roof is flat because flat roof gives an opportunity for the family to make dry fruits and dry vegetables, and for the males of this house to sleep in summers but some part of country has dome, vaults and wind scope type roof (in northern Afghanistan and south and west). Clustered buildings of this residential area are sharing walls to reduce exposure to cold winds in winter.

The following are main APEC classification & with type of house analysis: Group an ample Village.

4.3.1.3 Group A Kala House (Farm House)

All Afghan villages, Neighborhood and cities base and historical background connected to Kala, Also Kala is the best representative of Afghan traditional architecture and rural, Kala is a big Afghan

Table 4.1. General Architectural and Construction Analysis and Conclusion

| Analysis Fields | | GroupA (usage%) | GroupB (usage%) | GroupC (usage%) | GroupD (usage%) | usage% in all country |
|----------------------|-----|--------------------|--------------------|--------------------|--------------------|--------------------------|
| Walls | W1 | 30-65 | 10-15 | 0 | 2-5 | 60 |
| | W2 | 20-45 | 15-30 | 5-10 | 30-65 | 75 |
| | W3 | 0 | 0 | 50-90 | 0 | 5 |
| | W4 | 10-20 | 5-10 | 5-10 | 40-75 | 20 |
| Roofs | R1 | 40-70 | 20-30 | 20-40 | 30-55 | 50 |
| | R2 | 20-30 | 15-20 | 0 | 0 | 20 |
| | R3 | 0 | 30-40 | 0 | 0 | 15 |
| Doors and Windows | DW1 | 70-95 | 60-80 | 75-90 | 65-85 | 85 |
| | DW2 | 2-5 | 10-20 | 1-2 | 1-2 | 10 |
| | DW3 | 75-95 | 60-85 | 75-90 | 65-90 | 95 |

Table 4.2. Illustration and Specification of symbols table 1

| Items | Symbols | Illustration and Specification Elements |
|-------------------|---------|---|
| Walls | W1 | Paksua Mud and Mud plaster wall W = 60-80 cm H = 240-280cm |
| | W2 | Mud brick and Mud plaster wall (inside the room smooth clay traditional finishing) W= 60-80 cm |
| | W3 | Stone, Mud and wooden mix wall W = 60-80 cm H = 240-280cm |
| | W4 | Stone Masonry ,with Mud wall W = 60-80 cm H = 240-280cm |
| Roofs | R1 | Flat ,Wooden timber with wooden board + Clay and Plastic sheet |
| | R2 | Arched ,dome, vaults by mud bricks with local systems |
| | R3 | Arched , dome , vaults by mud bricks with wind scope in roof with local systems |
| Doors and Windows | DW1 | Rectangular wooden doors and windows window H = 60-220 W = 60-300cm door H = 180-220 cm W = 70-220 cm |
| | DW2 | semi secular for arch opening wooden doors and windows window H = 60-220 W = 60-300cm door H = 180-220 cm W = 70-220 cm |
| | DW3 | Rectangular wooden doors and windows window H = 60-220 W = 60-300cm door H = 180-220 cm W = 70 - 220 cm with a special carving and decoration. |

Table 4.3. General Environmental and Illumination Analysis

| Analysis Fields | | GroupA (usage%) | GroupB (usage%) | GroupC (usage%) | GroupD (usage%) | usage% in all country |
|-----------------------------|-----|--------------------|--------------------|--------------------|--------------------|--------------------------|
| Heating | H1 | 20-60 | 10-12 | 10-12 | 2-5 | 55 |
| | H2 | 14-40 | 15-30 | 5-10 | 30-65 | 70 |
| | H3 | 20-25 | 10-15 | 30-50 | 40-60 | 60 |
| Cooling | C1 | 100 | 100 | 100 | 100 | 100 |
| | C2 | 0 | 40-70 | 0 | 0 | 10 |
| Ventilation and Lighting | VL1 | 45-75 | 30-40 | 50-80 | 30-40 | 45 |
| | VL2 | 15-30 | 20-30 | 25-30 | 10-20 | 85 |
| | VL3 | 100 | 100 | 100 | 100 | 100 |
| | VL4 | 0 | 100 | 0 | 0 | 15 |

Table 4.4. Illustration and Specification of symbols table 3

| Items | Symbols | Illustration and Specification Elements |
|-----------------------------|---------|---|
| Heating | H1 | Tawkhana (Under floor traditional heating system) Plus Sandala and Manqal (Japanese KOTAS) |
| | H2 | Wooden Steel stove Plus Sandalae and Manqal (Japanese KOTAS) |
| | H3 | Wooden Steel stove |
| Cooling | C1 | Natural window cooling |
| | C2 | Natural Badgir (Wind scope chimney) Plus window cooling |
| Ventilation and Lighting | VL1 | Night lighting Kerosene Lamp and candle |
| | VL2 | Gas , Solar lighting and some other |
| | VL3 | Natural windows and doors lighting and ventilation |
| | VL4 | Natural windows and doors and Natural Badgir (Wind scope chimney) |

power and prestige. Usually square some time rectangular in form, it consists of four massive mud walls with before single door but now may two or three doors but one front door present the Kala and that is the main entrance of Kala. The size of Kala varies: a small one might for one or two family and the larger one for more families. afghan kala is similar in concept to the fortress/castle of European ones ¹.

4.3.1.4 Group B Kandahar & Herat Houses (Iwan and wind scope house)

This Afghan Villages and house group we have chosen is a large, baked-brick house, Since the climate in summer is hot and dry, and since there is no mechanical air-conditioning, the south building mass is built over a half-basement, which is used as a place to take siestas. However, the north and east masses are also raised above the level of the court, with the chambers traditionally serving as aiwans through the opening of screens (most of which have now been replaced with brick infill walls). A narrow, deep aiwan in the center of the north building mass contains stairs that connect to the roof, allowing it to be used for sleeping in hot weather.

4.3.1.5. Group C Nuristan Village House (Hillside House)

The traditional timber, clay and stone houses and villages and architecture of Nuristan are one of the most stunning of the many indigenous forms of housing found in Afghanistan. Houses are of post and beam construction. The spaces between the timber frameworks are filled with small stones, and a clay-plaster coating is applied to the area of the stone only, leaving the timbers exposed. Only the solid wooden upper facade, and the interior columns of a home are carved. This facade is made up of wooden beams, sills, window posts and a variety of panels fitted between the supporting members. A typical arcade may be twenty to thirty feet in length, and every section of the facade of a landowner's home may be elaborately carved.

4.3.1.6. Group D Salang and Panjshir Village and Houses (Mountain Villages)

This housing has good harmony with surrounding topography and have direct response of the site. The houses built of the native stone, seem almost to part of the rock cliffs that thrust upward out of the gorge. This type housing reflects little feeling for

community; rather, the needs of the individual. The roof of those type housing is not for access to a neighbor's home but serve as a patio for the private use ¹.

This type housing has close type of plan and the heavy stonewalls are pierced by small wooden windows the entrance, usually from hillside and rear lead to the main living areas. Most of the family activities, however, take place inside the house because of cold weather and climate.

4.3.2. Comparative Investigation Of Village Traditional Mud Construction Courtyard House

The religious, social and physical conditions outlined above set the scene for the constitution of living patterns in Afghanistan. In particular, the tendency of families to become extended (even to tribal units) and for women rarely to go out in public have led to the development of open-air courtyards wherein domestic activities may be pursued most of the year ².

The courtyard house has long served as the setting for all the diversity of living in the traditional Afghan house, a fact borne out by the extension of the word *Kala* or *hawili* (court) to include both house and home. What, then, is the pattern or organization of the diverse activities in such spaces? ².

We will begin our exploration as Comparative Investigation of Separated courtyard Type (SCT) and Center courtyard Type (CCT) Mud construction village in Afghanistan

4.4 Final Chapter Finding, Discussion and Results

1. The difference of Sustainability and property Pattern to Afghan Community:

The overarching theme of property will be seen from the point of view of social, economic, environmental, and technical property. Thus, the conception of property relates broadly speaking to the foremost project theme of coming up with and coming up with for folks, place, and environment. To adopt Afghan community inexperienced Urbanism is by definition interdisciplinary; it needs the collaboration of landscape architects, engineers, urban planners, ecologists, transport planners, physicists, psychologists, sociologists, economists and different specialists, additionally to architects and concrete designers. inexperienced Urbanism makes each effort to attenuate the employment of energy, water and materials at every stage of the city's or district's life-cycle, together with the embodied energy within the extraction and transportation of materials, their fabrication, their assembly into the buildings and,

ultimately, the convenience and worth of their employment once a private building's life is over (Fig.3). Today, urban and subject designs even got to need into thought the use of energy inside the housing layout or within house maintenance and changes in its use; to not mention the primary energy use for its operation, alongside lighting, heating, and cooling. By reintroducing the yard through a study of dwellers' wants and fitted with new necessary health and appropriate necessities, we'll bring back the connection between design and somebody comfort, still as produce a robust relationship between indoor and outside culture. Most Afghan trendy design lacks acutely aware use of passive ways to regulate the indoor setting. Excessive use of recent foreign materials regardless of their potency in regulation the indoor setting has typically resulted in high-energy consumption throughout the cold winter in national capital and therefore the hot summer in another city, resulting in several environmental issues. there's an in-depth affiliation between the energy use in buildings and environmental injury, thanks to the energy-intensive solutions that are needed in buildings to achieve comfort conditions in terms of mechanical heating, cooling and ventilation and artificial lighting. This has caused severe depletion of non-renewable energy resources and environmental degradation. The Afghan internal yard provided in such ancient buildings is found to possess a major role in providing the desired air movement through the building. Thus, the inner yard of the Afghan ancient residential building provides a snug indoor setting, additionally to the natural flowing recorded by electronic sensors. A smoke study was conducted to investigate internal air movement, particularly the air movement that's iatrogenic within the interiors of ancient buildings once there are still conditions outdoors. the end result of the study proves the potency of internal courtyards within the climate-responsive style of Afghan ancient design. The essential kind of a standard Afghan residential building in national capital consists of 4 walls engineered around associate open yard that's typically rectangular or sq. in set up. The walls are in some cases a part of a building however in some others solely is boundary walls, whereas the yard is receptive the sky for material possession air and lightweight within. there's an interior veranda around the yard for defense from rain and sun. A typical summer room foregoes complete walls in favor of pillars, a structure that in summer effectively vents smoke. The Afghan ancient yard house has higher microclimatic conditions than the encircling open areas, and is meant to possess a positive result on the indoor comfort conditions of the enclosure building volume. In some cases, the yard retains a pool of cool air, as

this is often heavier than the encircling heat air in hot areas like city and Jalalabad. the highest layer of the air within the yard gets hotter in daytime and becomes lighter, inflicting the air to maneuver upwards. so, a nonaggressive space develops within the yard, causing air movement from outside, through the encircling areas. additionally, to the present thermal induction, the inner yard helps to induce air movement thanks to the pressure result within the event of fast, external winds that flow higher than the building. The wind flow reduces the pressure at the highest layer of the air column, making a suction result higher than the tiny yard. This produces associate upward movement within the high layer of air within the yard, propulsion the air towards the court through the encircling areas, leading to circulation of air in those areas, particularly in summer. [20]. These factors recommend several ways for coming up with, adopting associated upgrading of an Afghan modern yard house (Table .3). [14]-[18], [21]- [25] [75]- [85], [100]- [110].

4.3.1. Envelope Thermal Properties

The worth derived from the steady-state calculations (U-value) isn't associate acceptable indicator of the thermal performance of building parts by itself; because it is feasible for 2 walls with a similar U-value to absorb and unharness heat at completely different rates [14]. Steady-state analysis is bothered solely with the thermal physical phenomenon of the material; the influence of warmth capability is unnoticed. Intermittent occupancy and associated heating or cooling operation combined with external diurnal variations mean that the building is a lot of typically during a state of flux and, significantly in hot summer conditions, the dynamic behavior of the total building ought to be assessed so as to optimize the choice of envelope materials for greatest combined thermal comfort and energy performance. The material bulk properties of warmth capability (C), density (ρ), and thermal physical phenomenon (λ) play a crucial role within the cyclic performance of the development, that is critical once the out of doors temperature is athletics below and higher than the specified indoor temperature. Materials with useful thermal properties area unit either insulating materials, or materials with thermal mass [15] and therefore the result of thermal mass and thermal insulation that area unit representatives of dynamic and steady state thermo-physical properties of materials should be taken under consideration at the same time [27].

4.3.2. Sustainable Design Principles in Afghan Courtyard Houses

In Afghan courtyard house site and orientation of the building, house between buildings, building kind and optical and thermos physical properties of the building envelope are the foremost vital style parameters moving indoor thermal comfort and energy conservation in building scale. [9] Among parameters building envelope, because it separates the outside and indoor atmosphere, is that the most vital parameter. All of parameters are associated with one another and also the best values of every parameter ought to be determined reckoning on the values of the others and their best combination ought to be determined in step with the climatically qualities of the region. [12] The climate of the southern Afghan is comparatively the same as desert climate. This region represents the new and arid space with a warmth distinction between day and night. Once evaluating ancient fine arts patterns, it may be seen that styles were additional sensitive and that they give the foremost appropriate design and settlement examples for every climatically region. Site and orientation of the building, house between buildings, building kind and optical and thermos physical properties of the building envelope are the foremost vital style parameters moving indoor thermal comfort and energy conservation in building scale. Among parameters building envelope, because it separates the outside and indoor atmosphere, is that the most vital parameter. (1) All of parameters are associated with one another and also the best values of every parameter ought to be determined reckoning on the values of the others and their best combination ought to be determined in step with the climatically qualities of the region. [12]

4.4.2.1. Sites and Orientation of Building

The topography may be a basic parameter that determines the design of the new and arid region in Afghanistan. In Panshir, Nuristan and a few different spaces, homes are placed in step with the slope of a hill of town and that they are all homeward to the Center-East. Principally would like most sunray to bury in house.

4.4.2.2 Space Between Buildings to Provide Shady Areas

In the style of ATCH within the hot and arid space in Afghanistan, there are many precautions taking against the new climate. homes are isolated from the road and enclosed by high walls. throughout the day, external walls of homes give usually shady

areas in slender streets (in ancient cities) and particularly in courtyards. By suggests that of serious and thick walls, heat atmosphere in winter and funky atmosphere in summer can be provided simply. [12]. [16]- [25] [80]- [85], [105]- [110].

4.4.2.3. Form of The Buildings

In Afghanistan, in hot and arid climate, the foremost most well-liked arrange sort is that the court house. So as to scale back the realm suffering from the radiation, compact forms are chosen. Shady areas are often obtained by composing those forms with courtyards. In courtyards, with the assistance of plants and water for physical change cooling, shady areas are often obtained, the ground temperature are often reduced by the high walls close the court, and also the open arras are often used throughout the day water Channels poured out from the pool are vital parts for cooling. [12].

4.4.2.4. Heating and Cooling Afghan Cities and Houses Cheaply and Sustainably

Heating and cooling in Afghan ancient traditionally villages communities will simply be achieved exploitation solely natural energy sources, however the case is totally different in urban areas. Modern analysis and research, which mixes ancient data and ancient strategies with quick computing techniques, shows that passive solar cities square measure a practical choice, letting amazingly high population densities (Fig.6) [1]- [3]. we should always additionally follow however ancient housing are often upgraded to modern and contemporary, particularly by applying some reasonably strategies that may be seen in Modern Japanese House. For instance, exploitation Katsu (Sandaly) for heating that could be a tradition in Afghanistan similarly. In recent years, discipline researchers everywhere the planet have incontestable and researched the utility of buildings heated and cooled on purpose, instead of by fuel energy. What has received a lot of less or no attention, however, is that the risk of applying this approach to entire Afghan urban neighborhoods and cities [17].

Passive solar style needs the data to style and orient buildings in order that the sun will heat them. in addition to alternative low-tech solutions like thermal underclothes and kitchen appliance stoves, passive star style may about eliminate the employment of fossil fuels and biomass for heating buildings throughout massive elements of the globe. Indirectly, a passive house can even cancel the energy necessities for cooling

and ventilation (passive cooling), and for lighting throughout the day. Of course, passive solar buildings are often outfitted with solar water heaters and PV solar panels, additionally reducing the employment of unsustainable energy resources [21]- [26].

Most Afghan contemporary buildings suppose a colossal provide of low-cost fuel for heating, cooling, and lighting. Take the availability of low-cost fuel away, and that they become fully unlivable for many of the year: they're too cold, too hot or too dark in my very own expertise. In most Afghan, rural areas, it absolutely was fairly straightforward to orient one's house towards the sun. In associate degree, urban surroundings, however, building orientation is usually determined by street layout, and that we ought to follow the housing layout, that doesn't enable one to alter the house orientation or boundary wall freely due to the designed layout of the design space (Fig.4.4).

High-rise buildings additional complicate solar access. This doesn't mean that passive solar style couldn't be applied to associate degree Afghan area; it simply takes additional refined designing. Solar access to a private building is decided by solely seven factors: latitude (the distance north or south from the equator), slope, building form, orientation, the four simply mentioned, and the peak of the buildings, the dimension of the streets, and also the orientation of the streets. Providing ventilation in associate degree urban setting is decided by identical factors, with the exception that latitude is replaced by wind conditions [12]- [16].[14].

4.4.2.5. The Solar Envelope, Street Orientation and Street Patterns in a Neighborhood

The size and form of a star envelope is influenced by the orientation of the streets. In "The Orientation of Buildings, or Planning for Sunlight," William Atkinson notes that ". When streets are ordered out at right angles to every alternative in keeping with the board arrange, the most effective distribution of daylight is obtained once one series of streets runs northeast-southwest and therefore the alternative northwest-southeast. A similar go for the roads: In An east-west street the surface of the street receives no daylight in the slightest degree throughout six months of the year, and therefore the buildings on the side of the road are in perpetual shadow [14].

4.4.2.6. From Human Thermal Comfort to Building Thermal Comfort

Comparative Climate Zone Analysis to seek out Comfort Zones: Humans are comfy solely inside a really slim vary of conditions. Our temperature is regarding 37°C, despite the very fact that the body generates heat even whereas at rest, we have a tendency to should lose heat at a similar rate it's created and gains heat at a similar rate it's lost [17]- [26]. Human thermal comfort has 2 components: psychological and physiological. Each are ruled by the processes within the diagram however reach the brain and trigger responses by terribly completely different pathways. Each desire should be met before we have a tendency to feel really comfy [12]. The main factors influencing each physical and psychological human comfort are: Temperature Humidity Air movement (breeze or draught) Exposure to effulgent heat sources Exposure to cool down surfaces to radiate, or conduct to, for cooling. Important triggers for psychological discomfort are radiation, air movement and conductivity. though they're less effective physiologically, they trigger innate saving responses that override our ability to understand physical comfort. till they're met, we have a tendency to don't feel thermally comfy and our behavior will render the most effective of style solutions ineffective. adaptation may be a crucial part of psychological comfort [11], [13]- [16]. Psychological thermal discomfort will create United States of America set the thermostat on heating or cooling systems well on the far side levels needed for comfort. A thermal comfort rating reveals solely the energy performance of a building's style and fabric: It doesn't live alternative areas of energy consumption (e.g. appliance potency, transport prices, embodied energy). In hotter climates, these variables will account for additional energy Consumption throughout the life of a home than the Performance of the envelope. The rating is additionally supported the combined heating and cooling energy needed over a year, But the proportions of heating and cooling needed vary across all three-climate zones. We have a tendency to found the temperature victimization the Ecotect simulation application for all three-climate zones [19].

4.4.2.7. Neighborhood design and street and Housing Layout Afghan Pattern

Neighborhood style and street layout also are vital for a community. The relationships between buildings, streets and open areas kind the urban cloth that helps to convey a district its physical identity. Note that the image contrasts poor porousness to the north of the road and higher porousness to the south. As a consequence of latest changes in Afghan urban structures and also the replacement of former urban Environments with newer urban structures, urban neighborhoods have found substantial significance. Urban society should have such Associate in helping surroundings that characterized by dynamism in life, however most Afghan new cities square measure planned and designed concentrating on physical aspects [4]- [9]. Sustainable neighborhood style and street layout also are vital for Afghan community. The relationships between buildings, streets and open areas kind the urban cloth that helps to convey a district its physical identity. Neighborhood style refers to the size, kind and performance of buildings and open areas (including streetscapes). Street layout refers to the pattern of native streets, as an example as loop and cul-de-sacs forms. each will have a control on generated serene patterns. As we have combative study about Neighborhood style in next chapter.

4. 5. Chapter Conclusion

More than three decades of war, homes within the Afghan capital Kabul and a few alternative huge cities have modified dramatically within the past decade. The social and cultural characteristics of Afghan society square measure embodied within the composition of components of residential units. Early within the twentieth century, a forceful amendment in design passed off in hugest cities, because the ancient vogue style of architecture type was replaced by the trendy style. This alteration occurred thus rapidly that it diagrammatic a pattern of replacement instead of adaptation. The main purpose of this research is to acknowledge long sustainability principles and criteria in freshly created Afghan neighborhoods furthermore as in small-scale patterns in up to date yard housing comfort. The spatial principles of a property neighborhood, investigated and analyzed within the totally different case studies and environmental condition zones, encompass identification, liveliness, diversity, services, street orientation, welfare, security and carrying capability. Architects in climate-responsive

styles rummage around for the foremost applicable style methods to integrate with building styles so as to boost their performance. Victimization each courtyards and atriums in several climates while not considering their performance in several weather conditions causes energy issues, that ought to be eliminated. It's vital for designers to understand however totally different climates have an effect on the energy performance of courtyard housing and atrium buildings and that building kind is a lot of energy acutely aware in several climates. This research is organized to approach the foremost valid and reliable declare these queries supported model victimization Ecotect knowledge and models for the primary for all three climate zones. Architects in climate-responsive styles rummage around for the foremost applicable style methods to integrate with building styles so as to boost their performance, as we have a tendency to planned Associate in adopted a passive interior and exterior style policy for the primary time for an Afghan community and shelter.

Principles in coming up with Afghan ancient homes are to adapt to climate so as to satisfy cultural and physical needs. attributable to the laborious climatically condition of dry cold and desert regions of three elite zones, like superfluous radiation and warmth in summer, high variations between temperatures within the days and nights, low humidness, sandy wind, adaptation of the homes to climate has become one among the crucial problems in style. Due to this, ancient architects and using simple new have utilized easy, passive methods to produce convenient conditions for Afghan up to date curtilage housing. During this short, comparative study our main object was to introduce housing that gives energy-efficient, snug and relaxing shelter for its residents. In recent years, Afghan residential design, construction and architectural style, particularly in big cities, are confronted with modern and international design and urbanism that have remodeled the dwellings of Afghans into unsuitable buildings that clash with the Afghan culture and surroundings. We have a tendency to elite from an outsized survey of shelter over all major cities, as well as samples of each ATCH and ACCH. Most Afghans don't presently insulate their homes. In this research, we try to introduce some easy new methods with combination of traditional. Mud, straw and earth are utilized in ancient design, Rural buildings have a natural thermal inertia tailored to the Afghan surroundings. Unfortunately, modern concrete buildings are getting additional and additional contemporary in major cities as a result of their sturdy and simply and quickly designed. Modern building techniques do, however, additionally understand of energy problems, through their style still because the

insulation material used, whereas the new concrete buildings in Afghanistan (which don't adopt energy-efficient techniques) are uncomfortable and not tailored to the Afghan climate. Their heating and cooling systems are valuable to run and that they consume plenty of energy (e.g. air-conditioning systems) [30]- [40], [51]. Afghan ancient design offers over the symbols and might flip the previous ancient culture into a brand-new culture by victimization native, cheap construction materials. Ancient Architects and local builders in Afghanistan were victimization developed techniques for dominant the climate despite their access to solely restricted resources, still as their lack of contemporary technologies. Creating use of solely natural materials like stone, earth, water, sand and plants, those builders were providing snug solutions. Moreover, wind and sun energy were amongst the foremost utilized resources for them especially in Luy Kandahar zone. They created with restricted alternatives and had to know the environmental components and their options to form the most effective use of them. This section study has relatively analyzed ATCH and ACCH relating to designing, climatically style and passive techniques utilized in these constructions so as to know however these concepts and techniques will offer thermal comfort for inhabitants, victimization natural energy methods and property construction materials and ways. Understanding these problems will create appropriate circumstances for creating novel techniques with a natural technique aiming for energy optimization in construction. Nowadays, families don't seem to be allowed to form use of all potential areas within the homes, attributable to varied conditions. Hence, restorative lost data and techniques, reaching to maximize climate thought and suppleness, and birthing out house organization supported daily wants still as recent needs rank among the vital style problems. Within the past, however, while not surrendering comfort, low energy consumption levels may well be reached simply. However, it ought to be mentioned that the aim now could be to not come to the past within the sort of superficial imitation, however the aim is to know the factors of house style supported accommodative modern, resulting in low energy intense ways of living which may be achieved from the study of vernacular construction and applied in up to date housing. Therefore, we should always investigate any whether or not up to date design has the potential to style homes in unison with autochthonic subject pointers. The overarching theme of sustainability may be determined from the perspective of social, economic, environmental, and technical suitability and property. Thus, the conception of property relates loosely to the key abstract patterns of coming up with and designing for

individuals, place, and also the surroundings. once the conception of sustainability is applied loosely to the standard curtilage house of the Afghan community, it'll be sustaining the project itself. This analysis into geographical region designing and also the analysis of upgrading thermal interior and exterior study aims to form snug Afghan curtilage housing [35]- [45], [55].

Traditional Architecture offers much more than the Study some symbols. As to make old bend with new and kept traditional, culture, use local cheaper construction materials.

The traditional Houses in Afghanistan, as shown, is a four-sided complex of aiwan-ranges and rooms built in a relaxed composition around a court, regulated by the implicit principle of diurnal rotation. However, in keeping with the commentary above, we do not believe the cultural order and meaning of diurnal rotation lie in the imitation of nature.

In the cultural history of Afghanistan, these “exemplary situations” can assuredly also be found in the classic four- aiwan court. Here the primary role of architecture as a symbol of cosmic form is more transparent. And through history, its symbolic role as a privileged receptacle has been exploited in numerous large-scale representations. Two type of houses such building types where these issues are clearly illustrated in Afghanistan villages separated courtyard Type (SCT) and Center Courtyard Type (CCT) Mud construction houses in Afghan villages. We will end this article by discussing an important example of each of that by some important analysis.

**Investigation of Sustainable and Affordable Housing Policy and
Planning Principles in Afghanistan**

Chapter 5

**RESEARCH FINDING OF
SUSTAINABLE AND AFFORDABLE
AFGHAN HOUSING POLICY AND
PLANNING IMPLEMENTATION IN
CONSTRUAL THREE MODEL**

Chapter 5

Research finding of Sustainable and Affordable Afghan Housing, Housing Layout Policy and Planning Implementation in Four Models.

5.1. Introduction

The overall goal of this chapter is to examine and implement the suitability and potential of the policies and planning addressing the sustainability and affordability of housing for returnees, teachers, government low income employee and to determine the impact of this policy and planning on housing delivery for Afghan Low and middle income urgent shelter. Housing is a central component of the settlement experience of refugees. A positive housing situation can facilitate many aspects of integration. Unaffordable, and unsafe housing, however, can cause disruptions in the entire settlement process.

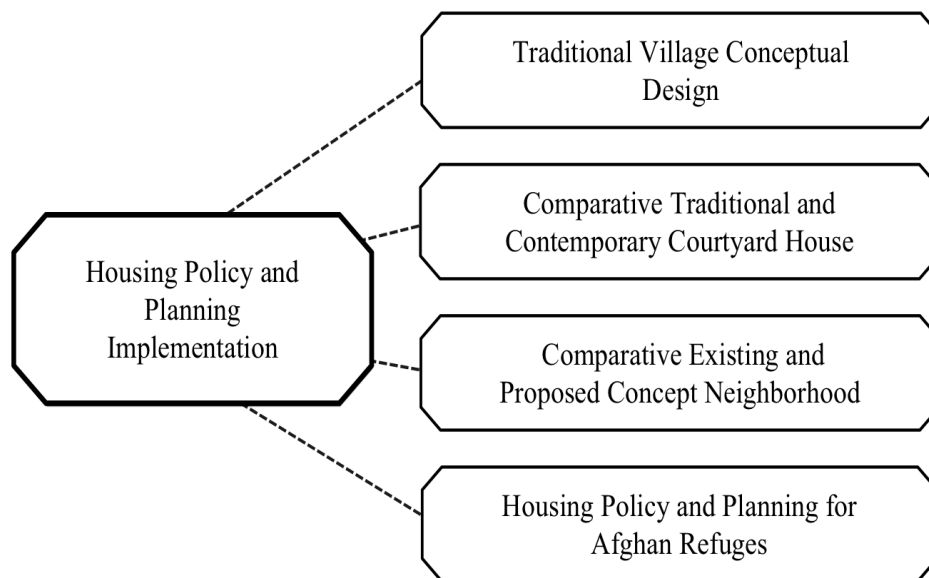


Figure. 5. 1. Summery Map of Implementation Housing Policy and Planning in Four Models

This section aims to identify a suite of built forms for housing that is both affordable and environmentally sustainable for Afghan refugees. The result was the development of a framework that enables the assessment of the overall performance of various types of housing development in all zones of the country. There is very little evidence that the present approach of housing provision to the vagaries of market forces has provided affordable housing, especially for Afghan refugees. There is a need to incorporate social housing into the policy to assist people who cannot afford to have their own houses.

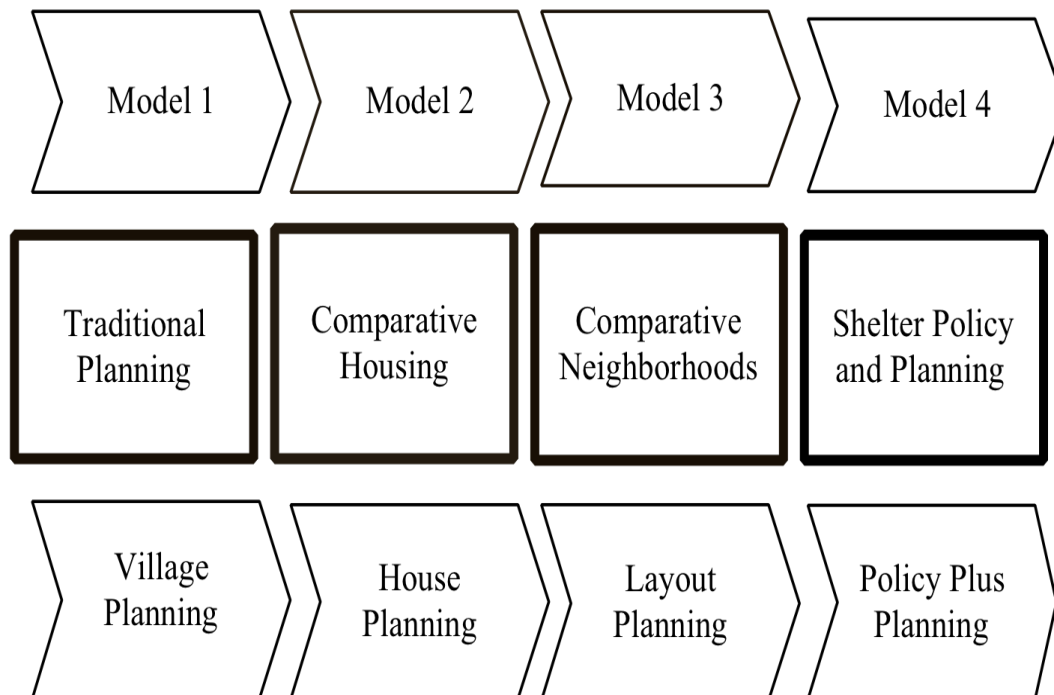


Figure. 5. 2. Research finding for Afghan Housing, Housing Layout Policy and Planning Implementation in Four Models Source : Author

Housing is a basic need for every human being. Housing policy may be defined as government action to achieve housing goals. These goals can improve the quality of housing stock for the home or can deal with homelessness. The other definition of housing policy can be government intervention in the housing field. Housing as a determining factor in social cohesion, is regarded condition for access to employment and realization of fundamental human and social rights. Cheap and sustainable housing is an important part of today's life for returnees, but considering Afghanistan a country which does not have a national housing policy yet, is really 2001 a great number of refugees have returned to Afghanistan where their major problems are: lack of access to land and adequate housing. Access to sustainable, affordable and decent housing plays a critical role in the successful resettlement of refugees in Afghanistan. But the land allocation method and legal system (formal and informal) of Afghan government is not capable to timely supply to the sudden huge demand of housing and land for returnees. Besides, all the existing national and international programs are not able to provide proper shelters and affordable and sustainable housing for all Afghan returnees (Fig. 1). Afghanistan has the largest refugee population in the world. But the return of 5.8 million refugees since 2002 is a challenge that Afghanistan is facing for the first time. Still 3 million Afghan refugees are living in Iran, Pakistan and other countries [1], [8], [9]. Fig. 1 Basic concept for sustainable-affordable housing.

5.2. Objects and Methodology

In a nutshell, this research analyzes the traditional architecture, construction and environment of a traditional village in Afghanistan. The aim is to explain systematically the key concepts and results of the overall research, which examined specific characteristics of selected, war-damaged villages with respect to topography, planning and environment. This paper discusses some new concepts for Afghan war-damaged villages through a comparative investigation, and presents final conclusions.

This research is carried out through observation and studies for we surveyed about one hundred and fifty private houses across both countries (2 zones in Afghanistan and one zone in Pakistan) for the purpose of evaluating Interior comport of the role of natural elements (Exterior welfare in Afghan neighborhood, Interior comfort in contemporary

Afghan courtyard housing) in the contemporary courtyard houses in humid-warm, dry-cold and dry-warm regions of Afghanistan and Pakistan (Fig.3). To do this, some houses with contemporary courtyards that are sustainably energy efficient are investigated, which meet physical and social needs of their residents by applying suitable planning in order to use wind and sun energy (Fig.4). The objective of this research is to clarify that considering natural elements in courtyard houses can provide mental and physical convenience for the residents, which will enhance their comfort level [1].

This study applies the planning and environmental interpretative research method. The climate and cultural factors of different areas in Afghanistan are the independent variables, while different types of open spaces or courtyards and courtyard morphology are among the dependent variables in both the traditional and contemporary segments of this research (Fig 5.4). The data collection methods used includes both field surveys and documentation, along with simulation using the Ecotect application. housing. And for exterior welfare and case study, an exterior public survey with their neighborhoods (Gawoond) in three climatic zones (we have two type survey and questionnaires' exterior in Gawoond scale and interior in house by house scale) is carried out. A computer simulation is utilized to measure selected parameters: thermal analysis, solar shading, day lighting and airflow patterns, and primarily to determine the overall energy reduction (As the limitation of article the Ecotect drawing is in attached Appendix B). This research is organized to ascertain the most valid and reliable answers for these questions based on computer modeling and simulation by using Ecotect software for the first time for the Afghan community (Fig. 5.4) [3]. For all those three Gawoonds, selected sustainability criteria were examined by means of case studies and questionnaires. The questions included personal characteristics of the residents and their residential unit, and public data on a neighborhood scale. [165]- [170] ,[75]- [88], [100]- [110].

For Afghan, new town, the identification is found on the basis of continuous interaction between community and environment over time. The situation of the identification was evaluated by the study of significant correlations between the “stay length of residence” and “satisfaction” with the identification (Fig. 5.3) [1]- [5].

In order to fulfill the research requirement and eventually have a useful research, we tried to combine survey and case studies, and we used some adopted patterns, which are also practical and easy.

For exterior public survey in this paper, cross-cultural studies are not conducted to

demonstrate the similarities and differences, but to understand how the street plays a role in place making in different cultural contexts.

Comparative urbanism is used as a theoretical framework to analysis the roles and challenges on the streets in two (Afghan and Pak) cultural contexts. The strength of comparative urbanism is that it goes beyond identification of similarities and dissimilarities, to learn from various contexts to improve contextual issues. A mixed method strategy of inquiry was used to conduct this study (Fig.3). With this, a comparative analysis was conducted on the streets of the selected case studies in order to understand access and mobility, culture, and the sociology of the street space.

The methodology of this study is derived from the aim of this paper, which is to examine the level of thermal comfort and habitability of the Afghan modern courtyard house design in comparison to the level of planning sustainability of house design of Afghan traditional courtyard houses. This study applies the planning and environmental interpretative research method. The climate and cultural factors of different areas in Afghanistan are the independent variables, while different types of open spaces or courtyards and courtyard morphology are among the dependent variables in both the traditional and contemporary segments of this research. The data collection methods used include both field surveys and documentation, As we have surveyed about one hundred houses across the country, from each of those surveys we selected seven samples to represent the Afghan traditional and contemporary courtyard housing, (Fig. 1) [1]-[4], [9].

As a pattern at the local scale, the Afghan geographical location, Islamic religion and turbulent history combined to shape all major historical cities, including Kabul, Kandahar and Herat, with a courtyard shape with four thick walls and four gates following the same courtyard pattern. The new conceptual pattern for the Afghan house is mainly an upgraded version of the old Kala.

This research is qualitatively conducted in the form of policy introduction and adaptation as a process of analyzing a fundamental social economical problem in order to provide policy makers with recommendations to alleviate the problem. This paper was developed in association with the Global Housing policy initiated by the Housing policy for Afghan refugees who return to their homeland. Affordable housing policy for Afghan returnees and immigrants are interrelated. Therefore, the aim of this study is particularly

to come up with some policy recommendation on the provision of sustainable and affordable housing for Afghan refugees who return to their homeland. In particular, this research aims to examine the existing relationship between housing integration policies in Afghanistan, focusing only on refugees' settlement in urban areas, which is not effectively applicable and usable.

1. How to make Collaboration work between National Sectors and International Partners (UN and NGOs) to have a unique Housing administration model for Afghan Refugees?
2. What could be the best method of returnee's resettlement both in urban and rural areas?
3. Which Architectural model should be selected to provide all returnees sustainable and affordable shelters?

Afghan Government has the vision to provide balanced and harmonious community living through the production of affordable and quality housing for those who will return to country. This strategy is mutually supporting working relationship between Afghan government and International community, through which the shelter program for Afghan returnees can develop and progress in local community [2].

5.3. Model 1: Sustainable and Traditional Village Community Development Conceptual Design and Principles framework

This case study of an Afghan, rural,

traditional war damaged village for planning. Moreover, this will include basic research concepts for war damaged traditional rural area planning in Afghanistan. As more than 75% of the Afghan population live in rural, traditional villages, it is important to conduct research and find the best solution to the existing shelter challenges and determine some concepts for future development programs. In general, Afghan villages are self-sufficient residential groups of each having three to four

rooms with a separate guest room. The other key characteristic of Afghan villages is the expanding nucleus (core) based on the need for water.

5.3.1. Concept 1: Socio-Cultural, Physical, Basic Economic, Architectural Basic Design, and Construction Factors.

The economy of an Afghan traditional village consists of agriculture and raising livestock. Irrigated agriculture has penetrated deeply in such areas, but pluvial agricultural products are seen as better in quality. The principal agricultural products are wheat, followed by rice, barley and corn. The main cash crops are almonds and fruits. Cotton was a major export item until the civil war. Both nomadic and settled people raise livestock. In contrast to these indigenous goods, virtually all industrial products are imported.

Houses in Afghan village communities have environmentally sensitive fixtures. Popular materials for most village houses are mud, timber and clay, which are local in origin and reasonable in price. Mud in particular, used for mud bricks, mud Pakhsa, mud stone masonry and mud with wood joinery, can serve as an effective insulation material. The windows of village house usually face south to maximize the entry of sunlight during winter. In central Afghanistan, typical roofs of village houses are flat. However, in other areas of northern, southern and western Afghanistan, the roof shapes feature domes, vaults and wind scoops. Clustered buildings in these areas share walls to reduce the exposure to cold winds in winter. The most common challenges are health and environmental issues. In most Afghan village houses, livestock and human environments are close or mixed.

Another challenge is structural safety, since traditional buildings do not use earthquake-resistant construction. Based on these facts, we propose some concepts. (Table 5. 2)

Table. 5. 1. Social Demographic Survey of Tourak Kulachi Village

| | | | |
|------------------------------|---|---------------|--------|
| Population | All Village | 650 | 100 % |
| Families No | | 76 | 100 % |
| Ethnic group | Pashtun | 650 | 100 % |
| | Tajiks | 0 | 0 % |
| | Others | 0 | 0 % |
| Tribes | Alakuzai | 40 Families | 52.6 % |
| | Tarakee | 36 Families | 47.4 % |
| Village Agriculture area | 600 Jirib | 8 Jorib /fami | 98 % |
| Age | Average (years) | 45 | 100 % |
| Sex | Male | 310 | 47.6 % |
| | Female | 340 | 52.4 % |
| Occupations | Governmental | 3% | 3 % |
| | Agriculture (Formers) | 96% | 96 % |
| | Others | 1% | 1 % |
| Family size and status | Household up to 5 children | 31 Families | 40.8 % |
| | Household upper to 5 children | 36 Families | 47.4 % |
| | Widow caretaker up 3 children | 9 Families | 11.8 % |
| Health Condition | Healthy | 32 | 42.1 % |
| | Not Healthy | 23 | 30.3 % |
| | Average | 21 | 27.6 |
| Education level | Female Education | 0 | 0 |
| | Male Education up to Elementary school | 45 | 14.6 |
| | Male Education upper than Elementary school | 5 | 1.6 |
| | Un educated Males | 260 | 83.8 |
| Monthly Income Level /Family | Less 3000 Afgani | 60 Families | 80 |
| | 3000 up 10000 Afgani | 12 Families | 15.8 |
| | 10000 Afgani | 4 Families | 5.2 |

During the last war, several villages with thousands of private houses were completely or partially destroyed in the eastern, western and southern Afghan provinces, especially in Kandahar province.

Last year during my research into traditional villages, I read the news about Tarok Kolache Villages. Tarok Kolache, a small settlement in Arghandab District of Kandahar province, has been completely erased from the map after an offensive by the U.S. military. Sometime later, the ruined, sandy village symbolizes the gains and losses of America's longest war. After surveying and discussion with elders of villages, I prepared the current conceptual design for that specific villages (Table .1)

5.3.2. Concept 3: Conceptual Village Zoning Pattern

We suggest introducing the Afghan village zoning pattern to meet at least the minimum requirements for facilities to address the existing local cultural, environmental and health issues (Fig. 1. A).

In general, the village is divided into two main Zones, the Center Zone and the Surrounding Zone. As the propounded village land, has been damaged by bombs, so people can redesign and improve the land easily by applying all the above concepts.

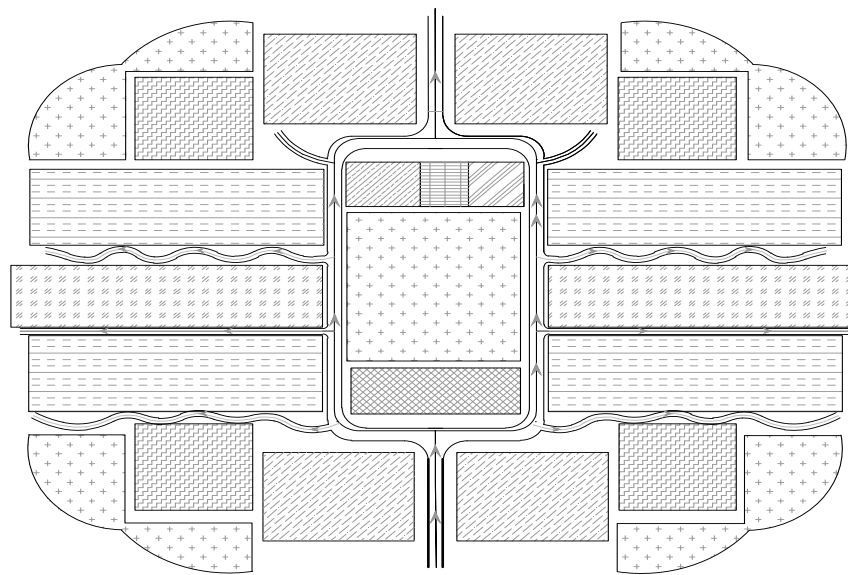
The purpose of the second main zoning pattern is the separation of human circulation and livestock flow to create a healthy environment. With this concept, livestock need to be reduced in number near the center zone. A surrounding village should be planned outside the agricultural area. The local authority (Jergah, Malawee, and Showra) may apply some local zoning regulations for the purpose of health and sustainability (Fig.5.1. B).

5.3.3. Concept 4: Conceptual Village Center

The concept of the Afghan village center connotes a lively, beautiful and significant place for the residents. The Afghan traditional village usually has a village center for the community gatherings. This village center should be developed as the central core of their activities, where all major communal events and institutions are concentrated, e.g. the mosque, marketplace, school, children's' playground, other religious places (Jergah, Showra, Jenaza prayer) and some places for women, such as craft training centers. Moreover, we propose to upgrade the village center zone with

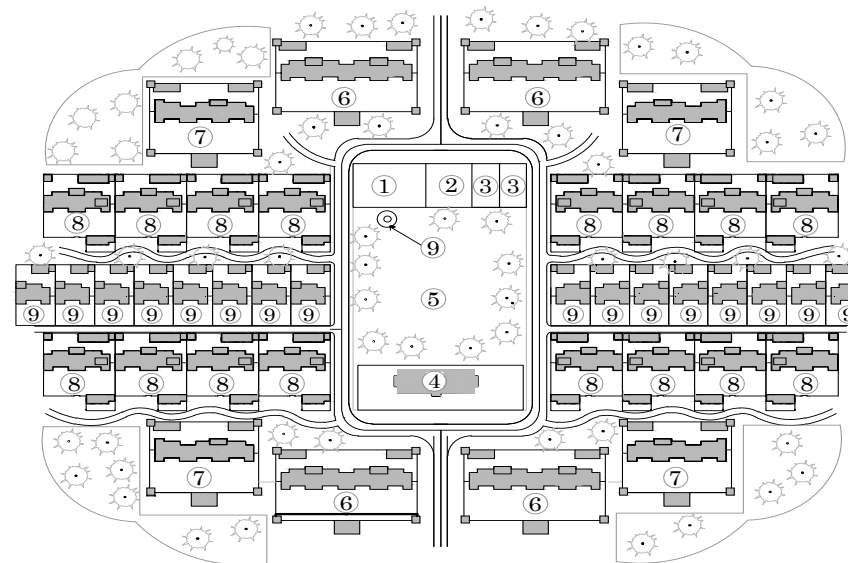
Table. 5. 2. Two Types Shelter Facilities Architecture Characteristic

| Area or facility names | Characteristics | Before % | After % |
|------------------------|-------------------------------|--------------------|-----------------------------|
| Courtyards | Guest courtyard | 1 mix use (00%) | Private 100 % |
| | Living courtyard | 1 mix use (100%) | South Separated |
| | Service courtyard | 1 mix use (100%) | South Separated |
| Rooms sizes | Smaller than 6 m ² | (30%) | (20%) |
| | 6-10 m ² | (40%) | (20%) |
| | More than 15 m ² | (30%) | (60%) |
| Windows | South | (40 %) | (80 %) |
| | North | (10%) | (10%) |
| | East | (40 %) | (5 %) |
| | West | (10%) | (5%) |
| | Materials | Wooden | Wooden |
| Doors | Hinged Arch | (30%) | (30%) |
| | Hinged Rectangular | (70%) | (70%) |
| | Materials | Wooden | Wooden |
| Heating System | Wooden stove | (65%) | (65%) |
| | Taba Khana | (30 %) | (30 %) |
| | Others | (5%) | (5%) |
| Shower Types | Traditional Hamam | (100%) | (20%) |
| | Upgraded Hamam | (0%) | (80%) |
| | Other | (0%) | (0%) |
| Toilet Type | Traditional | (100%) | (0%) |
| | Traditional Sustainable | (0%) | (100%) |
| | Flush system | (0%) | (0 %) |
| Construction Elements | Roofs | (Arch bricks 100%) | (Arch bricks 70 % 30 other) |
| | Walls | (Clay 100%) | (Brick upgraded 100%) |
| | Floors | (Clay 100 %) | Taba khana 30 % 70 stoves) |
| | Foundations | (Clay 100%) | (Stone 100%) |



A. Village Zoning Plan

| | | | |
|---------------------------|--|----------------------|--|
| Residential Single Family | | Health | |
| Residential 2 Families | | Commercial | |
| Residential 3 Families | | Educational | |
| Residential 4 Families | | Recreational | |
| Religious | | Tree Pattern of Path | |



B. Legend of Village site plan

| | |
|---|-------------------------------|
| ① -Mosque | ⑥ -Four families Kalah house |
| ② -Clinic | ⑦ -Three families Kalah house |
| ③ -Shops | ⑧ -Two families Kalah house |
| ④ -Village School (Kaliwal Showanzai) | ⑨ -Single family Kalah house |
| ⑤ -Multi Activities Village center yard | ⑩ -Water well and hand pump |

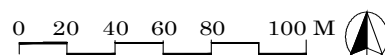


Figure 5.3. (A) Villages Zooning and (B) Village Conceptual Site Plan

different functions, such as a local health and medical center (at least a First Aid clinic) in the mosque, as well as a commercial area and local business area to trade the products of the village. It also would have the facilities for work in the winter and the agricultural off-season.

5.3.5. Concept 5: Conceptual Village Accessibilities

Accessibility is a key factor in the public space of village communities. Because the mixture of human circulation and livestock flow in a traditional village limits people's access to the places where they want to go, human and livestock flow should be separated. The form of the traditional village is determined by several socio-cultural factors, which could be considered primary forces. As a secondary force, there are physical, gender-based differences.

To answer the above questions, we propose to have sustainable and healthy villages. so, we propose to separate livestock flow from the agricultural zone. In addition, the concept of the pattern should keep the center of the village clear of livestock pollution and waste. The width of the main road should be 6 meters, while the width of the streets between houses should be 4 meters for people and vehicles.

5.3.6. Concept 6: Conceptual Design Pattern Criteria of Kala Courtyard House

A Kala is a big Afghan farmhouse. The new conceptual pattern for the Afghan House Figure 5.1. Sustainable and Affordable Housing and Housing Layout Implementation in three models

is mainly an upgraded version of the old Kala. This concept tries to maintain the design in a traditional style, but with new facilities and some changes in construction materials. The upgraded and sustainable items are as follows:

- Sustainability and Health: Separation of livestock and Service Zone from Living Zone.
- Safety: Use brick masonry walls with upgraded wooden roofs for safety, or adopt adobe construction methods.
- Future Expansion: Because of family growth and cultural regulations, there is a need to consider future horizontal and vertical expansion, so the interior construction

Table 5.3. Comparative of Amenities and Planning of old Village and new Village

| Area or facility names | Characteristics | Old Village (OV) | | New Village (NV) | |
|--|---------------------------------|------------------------|--------------------------------------|---------------------------|--|
| | | Data | Problems | Data | Solutions result |
| Residential Housing types and attachment | Single family (Detached) | 15(600 ²) | Un sustainable, and future expansion | 16(509.35 ²) | Sustainable, healthy and safe |
| | Two families (Two attached) | 17(1200 ²) | Un sustainable, healthy and safe | 16(1027.9 ²) | Sustainable, healthy and safe |
| | Three families (Three attached) | 9 (1850 ²) | Un sustainable, healthy and safe | 8(1721.9 ²) | Sustainable, healthy and safe |
| | Four families (Four attached) | 7(2500 ²) | Un sustainable, healthy and safe | 8(2205.6 ²) | Sustainable, healthy and safe |
| Health care, Cultural, Educational and Commercial area | Clinic | No | Big issues of health | 1(4312 ¹) | Solve the health problems |
| | Mosque | 1 (25 ²) | No prayer space for all | 1(30.82 ¹) | To have pray space for all |
| | School | No | Low education level | 1(1588.782 ¹) | Near school for children especially for female |
| | Shops | 1 (15 ²) | Small size | 2(251.8 ²) | Do some other business |
| Road Streets Patterns | Road | 3 m | Un safe | 6 m | Safe and sustainable |
| | Streets | 2 m | Unsuitable and clean | 2.5 m | Safe and sustainable |
| | Path way | 1 m | Use mix | 1.8 m | Safe and sustainable |
| | Livestock way | 1 m | Use mix | 1.5 m | Safe and sustainable |
| Recreational area | Play ground | No | No | 5851 ² | Safe and sustainable |
| | Parks | No | No | No | Future plan |

members (interior partition walls) must not be load bearing.

- **Ventilation:** Similar to the Japanese or Chinese traditional Courtyard houses, the plan has windows on both sides of the house, enabling good natural ventilation.
- **Differences in family size:** Within this concept, there are three to four single-family duplexes in a kala courtyard house.

Recently, because of the economic and social requirements, some changes have occurred in the design of the Kala courtyard house. This Afghan new conceptual pattern house proposes a big guest house for three to four families, with a small guest house for two families. A single-family house does not need to have a dedicated guest house, but can use the living room as a guest room.

The Kala has three main zones:

- I. **Public Commercial Zone:** The main element of this zone is the guesthouse with

courtyard and other facilities. This zone is used as a facility for men's guests and also for cultural and commercial activities because this is to maintain the privacy and also keep the access away from family members.

II. Interior and Private Living Zone: This is the main living and recreation zone, containing and facing the windows of all living rooms, bed rooms, verandas, and the living and family courtyard. The main activities in this zone are sleeping, sitting in the room, and during winter, this could serve as the veranda for sunlight. Nowadays it has a green area of small tree gardens in newly constructed courtyards.

III. Semiprivate or Service Zone: This zone is mainly the livestock area, which contains sheds and feed. These zones also include a wood storage space for heating, a pantry for cooking materials, and a small open court area. The workers, farmers and family members all use this area.

5.4. Model 2: A Study of Indoor Comfort in Affordable Contemporary Courtyard Housing with Outdoor Welfare in Afghan Sustainable Neighborhoods

The main purpose of this research is to recognize indoor comfort in contemporary Afghan courtyard house with outdoor welfare in housing layout and neighborhood design where sustainability is a local consideration. This research focuses on three new neighborhoods (Gawoond) in three different provinces of Afghanistan. Since 2001, the capital Kabul and major cities including Kandahar, which will be compared with Peshawar city in Pakistan, have faced a fast, rough-and-tumble process of urban innovation. The effects of this innovation necessitate reconsideration of the formation of sustainable urban environments and in-house thermal comfort. The lack of sustainable urban life in many newly developed Afghan neighborhoods can pose a major challenge to the process of sustainable urban development. Several factors can affect the success or failure of new neighborhoods in the context of urban life. For thermal analysis, we divide our research into three different climatic zones. This study is an evaluation of the environmental impacts of the interior comfort of contemporary courtyard housing with the exterior welfare of neighborhood sustainable design strategy in dry and cold, semi-hot and arid, and semi-humid and hot climates in Afghan cities.

5.4.1. Introduction

Very little research has been conducted on sustainability generally in all regions, and as well as for Afghanistan. This research encompasses all exterior and interior planning in order to make space usable and comfortable. The study covers both large scale-housing pattern as community and Gawoond and the contemporary courtyard house system. These rules are essential to success, however there's no regular set up for mapping interior and exterior comfort and welfare. Sadly, most land plot homeowners, lacking information and thought of microclimate, social and cultural variations between of Afghanistan and neighboring countries, wherever in some cases different countries architectural discipline styles for housing are traced and enforced in Afghanistan. The copied designs are mostly from Pakistan and they are not adaptable to Afghanistan's climate and social and cultural needs [1]- [3].

Houses, where we spend most of our lives, are spaces that meet our accommodation

needs and reflect our personalities. Based on this determination, the satisfaction of house users is the first priority. For this purpose, six parameters have been ascertained to determine the user's comfort in the interior space of houses. Thermal comfort, visual comfort, acoustic comfort, humidity and moisture control and design quality are the elements considered to constitute interior comfort. Therefore, use of some application of simulation for interior comfort and exterior welfare is taken into consideration. I was making an attempt to sell the house, and therefore the factor recommended that I paint the walls a neutral color because it is additional additionally, victimization 3 neighborhoods' case studies in Asian country, an attempt is created to look at property neighborhood development aspects with regard to out of doors housing through victimization 3 neighborhoods' case studies in Asian country. to potential consumers. She rejected my plan to travel with lime inexperienced, therefore we have a tendency to settled on a honey brown color. it's great! The three cases are newly planned neighborhoods of Monshi Mir Ghulam in Kabul (Fig. 1), Aino Maina in Kandahar province and Hayatabad Town in Peshawar city. In many new towns, it is considered that enough land must be provided for sufficient infrastructure and public facilities to meet educational, health, sports, green space, recreation and other social needs.

Sustainable life in many new towns is seen as the most important factor, but it is neglected in planning and designing these towns. The findings of this research show that urban planning strategies must be fully integrated into the community development process. A sustainable neighborhood plan should highlight the community as a space for all ages, as well as a place to live, work and play. Several principles and criteria can be considered with respect to neighborhood scale, such as liveliness, identification, symbolization, diversity, accessibility and convenience (Fig. 3). The concept of carrying and its threshold is one of the most important factors affecting quality of life at the neighborhood scale. In this way, new approaches in urban design have been formed around the challenge of enhancing urban environmental quality and street patterns. This approach has been formed to critically examine a modern, serene, sustainable neighborhood urbanism adapted to Afghan local and traditional cultural patterns, with an emphasis on the special status of human gathering. In the current era, urban spaces provide a serene area for safety and better control over volunteer activities. Nowadays, this approach is responsible for guiding

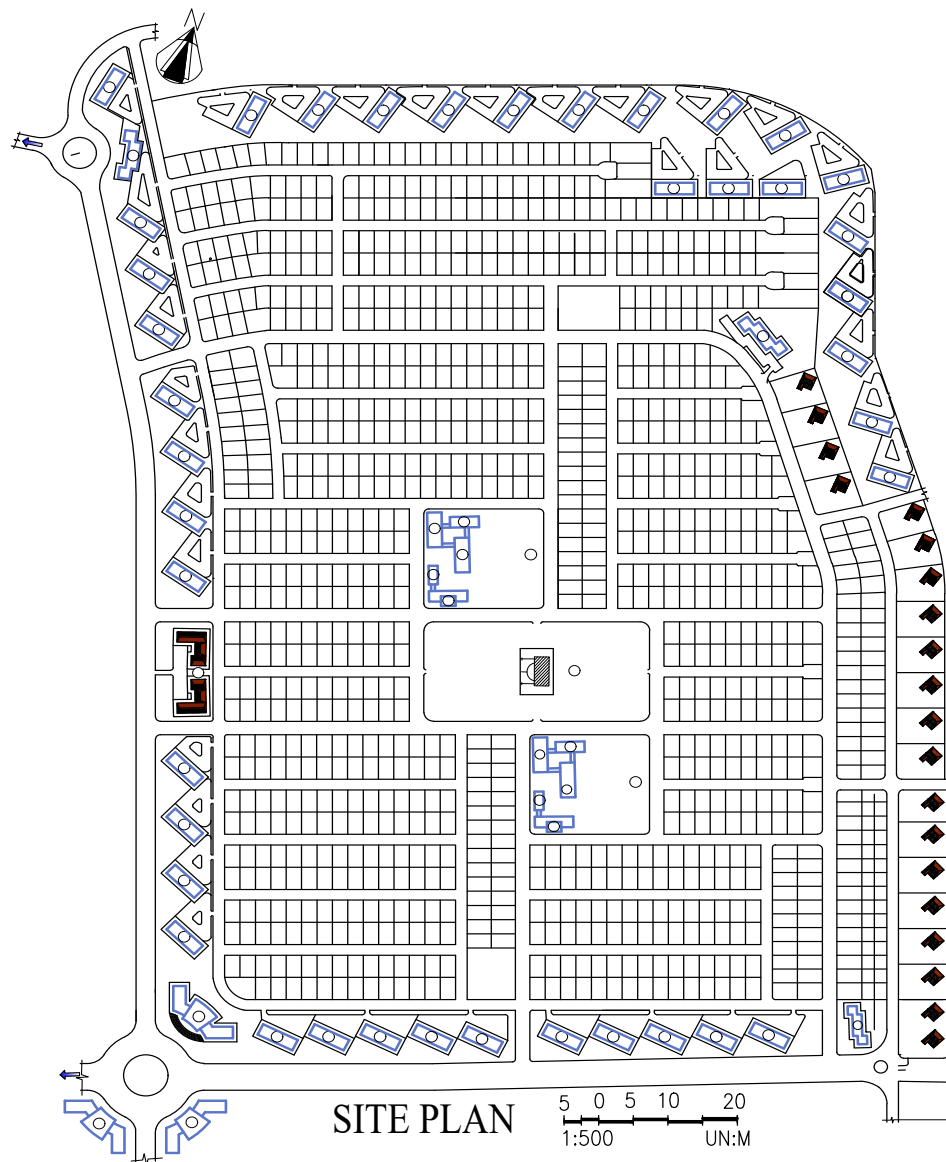


Figure. 5.4: Kabul Zone Neighborhood (Gawoond)
Existing Site plan (Source: Author)

Afghan new urbanism in a manner that maintains religious and cultural values. The primary principles of this approach are based on integrating the traditional, humanistic principles of past Islamic urbanism with a mix of neo-traditional neighborhood design criteria [11]- [16]. Unlike without sustainability and climatically study and research Just copy and applied in the area create so much environmental and security problems in the most Afghan cites and were not adoptable in Afghanistan because they are against the

social, religious and cultural values in this area and create problems in country, In the way unadoptable urbanism and architecture that are against the Culture and create environmental issues For example Grid Layout hosing and street pattern (Fig. 5.2) System which divided our community partially that resulted in destroying our best traditions related to collective and volunteer social problem solving like Hashar and other forgotten customs.

5.4.2. Discussions and Result of Model

1. *The adaptation of Sustainability Pattern to Afghan Community:* The overarching theme of sustainability can be seen from the viewpoint of social sustainability, economic sustainability, environmental sustainability, and technical sustainability. Thus, the concept of sustainability relates broadly to the major project theme of designing and planning for people, place, and environment.

To adopt Afghan Community Green Urbanism is by definition interdisciplinary; it requires the collaboration of landscape architects, engineers, urban planners, ecologists, transport planners, physicists, psychologists, sociologists, economists and other specialists, in addition to architects and urban designers. Green Urbanism makes every effort to minimize the use of energy, water and materials at each stage of the city's or district's life-cycle, including the embodied energy in the extraction and transportation of materials, their fabrication, their assembly into the buildings and, ultimately, the ease and value of their recycling when an individual building's life is over. Today, urban and architectural design also has to take into consideration the use of energy in the district's or building's maintenance and changes in its use; not to mention the primary energy use for its operation, including lighting, heating and cooling (Fig.2) [11]- [16].

By reintroducing the courtyard through a study of dwellers' needs and fitted with new necessary health and suitable requirements, we will bring back the relationship between natures: architecture and inhabitant comfort, as well as create a strong relationship between indoor and outdoor culture [1]- [3].

2. **Heating and Cooling Afghan Cities and Houses Cheaper and Sustainable:** Heating and cooling in Afghan traditional village communities can easily be achieved using only natural energy sources, but the case is completely different in urban areas. Modern research, which combines ancient knowledge and traditional methods with fast

computing techniques, shows that passive solar cities are a realistic option, allowing for surprisingly high population densities (Fig.3) [1]- [3]. We should also follow how traditional housing can be upgraded to modern, especially by applying some kind of methods that can be seen in modern Japanese House. For example, using Kotatsu (Sandaly) for heating which is a tradition in Afghanistan as well.

In recent years, architectural researchers all over the world have demonstrated and researched the usefulness of buildings heated and cooled by design, rather than by fossil fuel energy. What has received much less or no attention, however, is the possibility of applying this approach to entire Afghan urban neighborhoods and cities [17].

Passive solar design requires the knowledge to design and orient buildings so that the sun can heat them. Coupled with other low-tech solutions such as thermal underwear and oven stoves, passive solar design could all but eliminate the use of fossil fuels and biomass for heating buildings throughout large parts of the world. Indirectly, a passive solar house can also cancel the energy requirements for cooling and ventilation (passive cooling) of course, passive solar buildings can be outfitted with solar water heaters and PV solar panels, further reducing the use of unsustainable energy resources [21]- [26].

Most Afghan modern buildings rely on a massive supply of cheap fossil fuel for heating, cooling, and lighting. Take the supply of cheap fossil fuel away, and they become completely uninhabitable for most of the year: they are too cold, too hot or too dark in my own experience.

In most Afghan rural areas, it was fairly easy to orient one's house towards the sun. In an urban environment, however, building orientation is generally determined by street layout, and we should follow the housing layout, which does not allow one to change the house orientation or boundary wall freely because of the designed layout of the planning area (Fig.3). Solar access to an individual building is determined by only seven factors: latitude (the distance north or south from the equator), slope, building shape, orientation, the four just mentioned, plus the height of the buildings, the width of the streets, and the orientation of the streets. Providing ventilation in an urban environment is determined

by the same factors, with the exception that latitude is replaced by prevailing wind conditions [12]- [16].

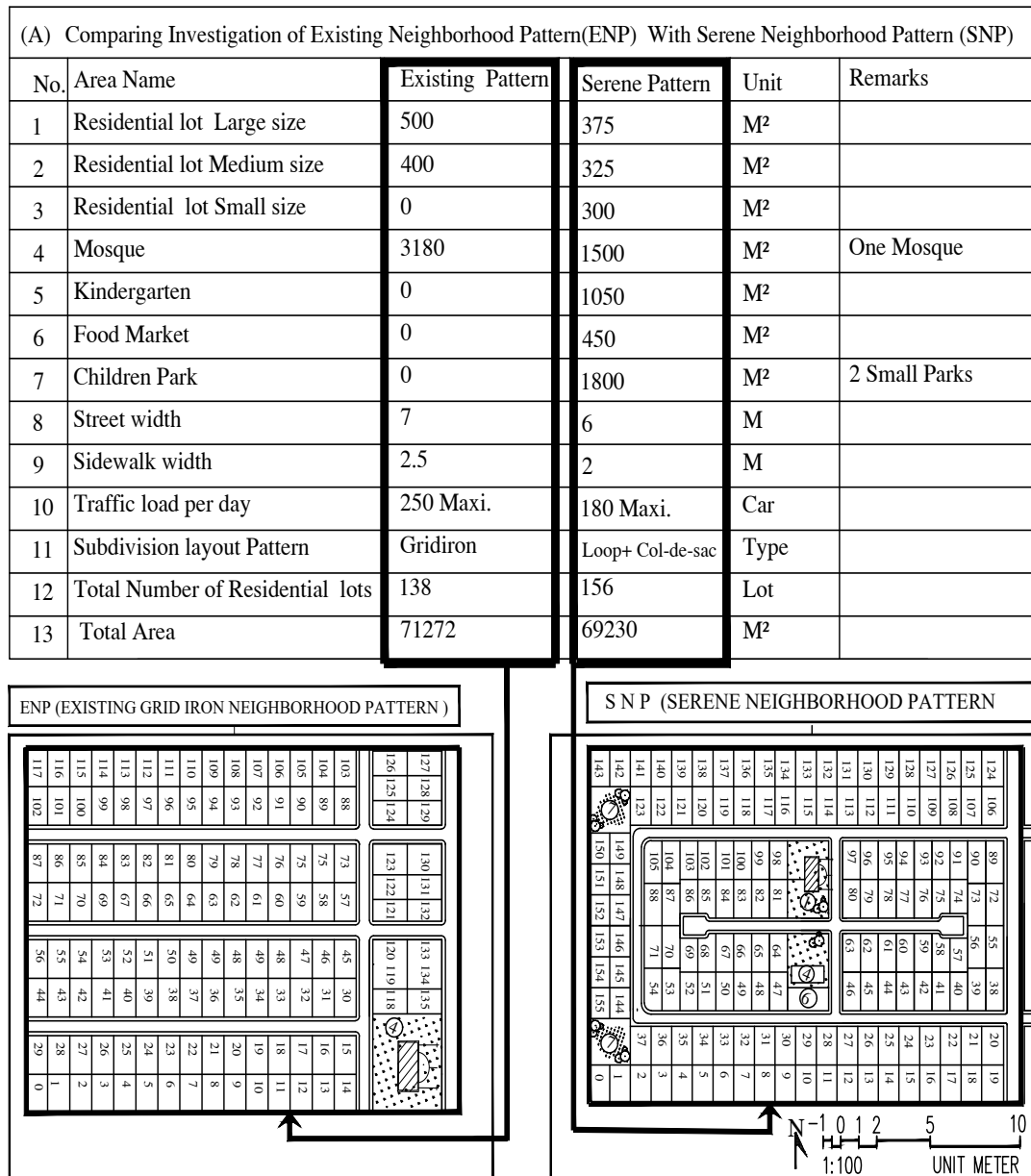


Figure. 5.5: Kabul Zone Neighborhood (Gawoond); Existing Neighborhood Pattern (ENT) and Serene Neighborhood Pattern (SNP) (Source: Author)

3. The Solar Envelope, Street Orientation and Street Patterns in a Neighborhood:

The size and shape of a solar envelope is influenced by the orientation of the streets. In "The Orientation of Buildings, or Planning for Sunlight," William Atkinson notes "[w]

hen streets are laid out at right angles to each other according to the checkerboard plan, the best distribution of sunlight is obtained when one series of streets runs northeast-southwest and the other northwest-southeast. The same goes for the streets: In an east-west street the surface of the street receives no sunlight at all during six months of the year, and the buildings on the south side of the street are in perpetual shadow [16].

4. From Human Thermal Comfort to Building Thermal Comfort: Comparative Climate Zone Analysis to Find Comfort Zones: Humans are comfortable only within a very narrow range of conditions. Our body temperature is about 37°C, despite the fact that the body generates heat even while at rest: we must lose heat at the same rate it is produced and gains heat at the same rate it is lost [17]- [26].

Human thermal comfort has two components: psychological and physiological. Both are governed by the processes in the diagram but reach the brain and trigger responses

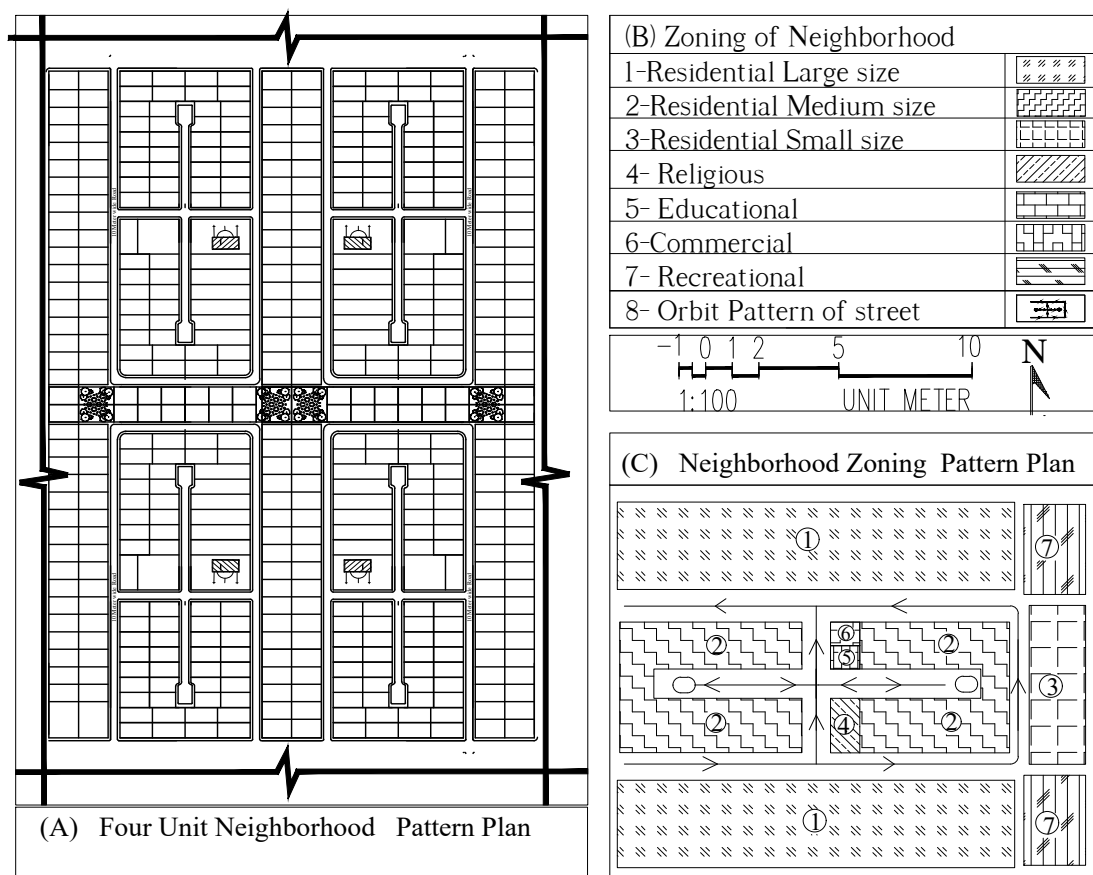
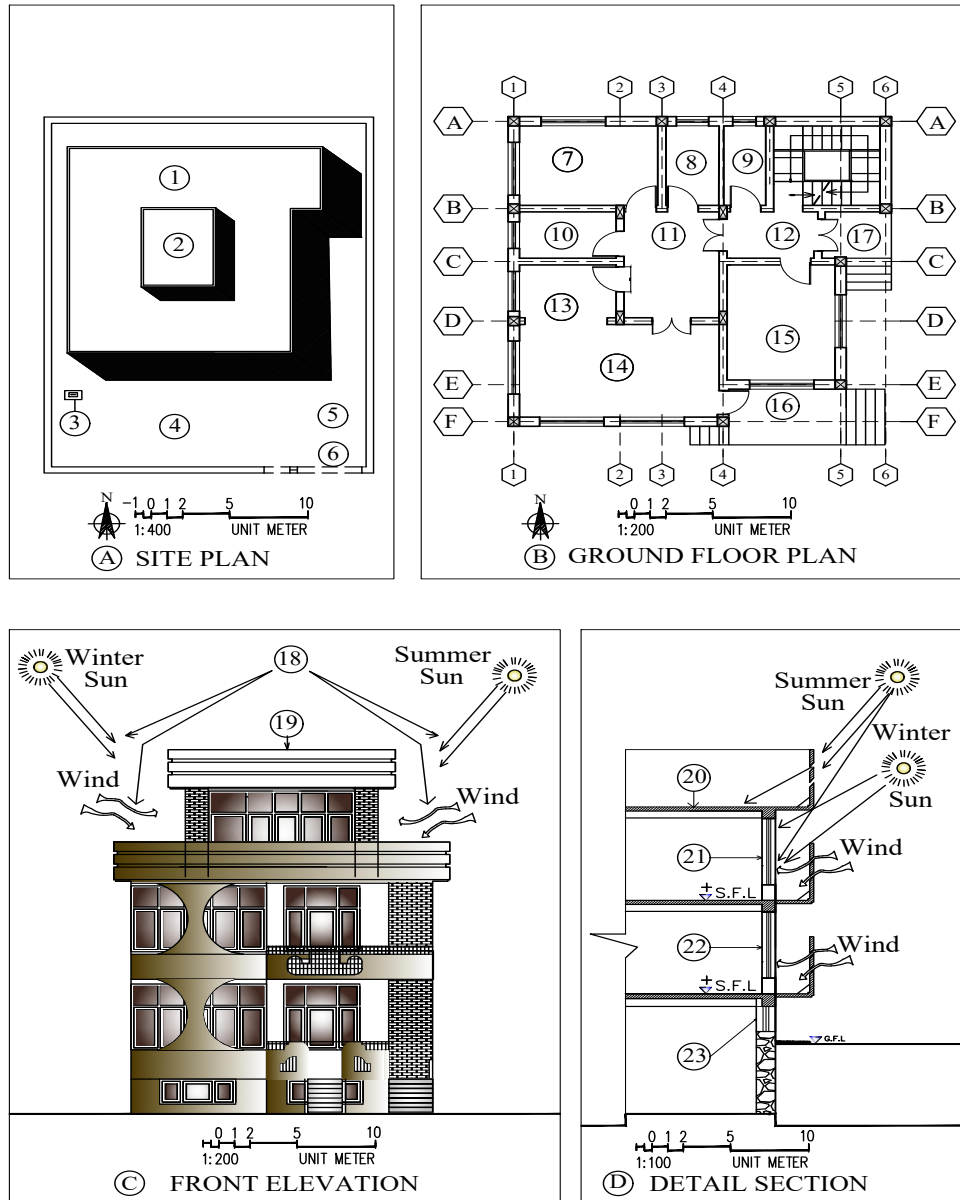


Figure. 5.6: Kabul Zone Neighborhood (Gawoond); Four Units of Neighborhoods and Zoning (Source: Author)



Legend Of Numbers (From Drawing A To Drawing D) As Following:

(1) Main Building Roof Usable As Service Area, (2) Atrium Roof, (3) Water Well, (4): Courtyard, (5) Garage Area, (6) Main Gate, (7) Bed Room, (8) House Bath Room, (9) Guest Bath Room (10) Kitchen, (11) Hall, (12) Foyer, (13) Dining Room, (14) Living Room, (15) Guest Room, (16) Living Room Entrance, (17) Main Entrance, (18) Atrium And Roof Gain Sun And Wind From Mashrabia, (19) Atrium Room Roof Used For Water Tank And Solar Collector, (20) Roof Used As Service Area And Have Privacy, (21) Inside Room Gain Sun Ray , Light And Wind From Mashrabia ,(22) Inside Room Gain Sun Ray , Light And Wind From Mashrabia,(23) Basement Need Less Energy For Cooling And Heating And Have Medium Window For Lighting And Ventilation.

Figure. 5.7: In Kabul Zone Neighborhood 1(Gawoond) Middle cost Cotemporary Courtyard House Architecture Drawing with Atrium and RCC Mashrabia Pattern (Source: Author)

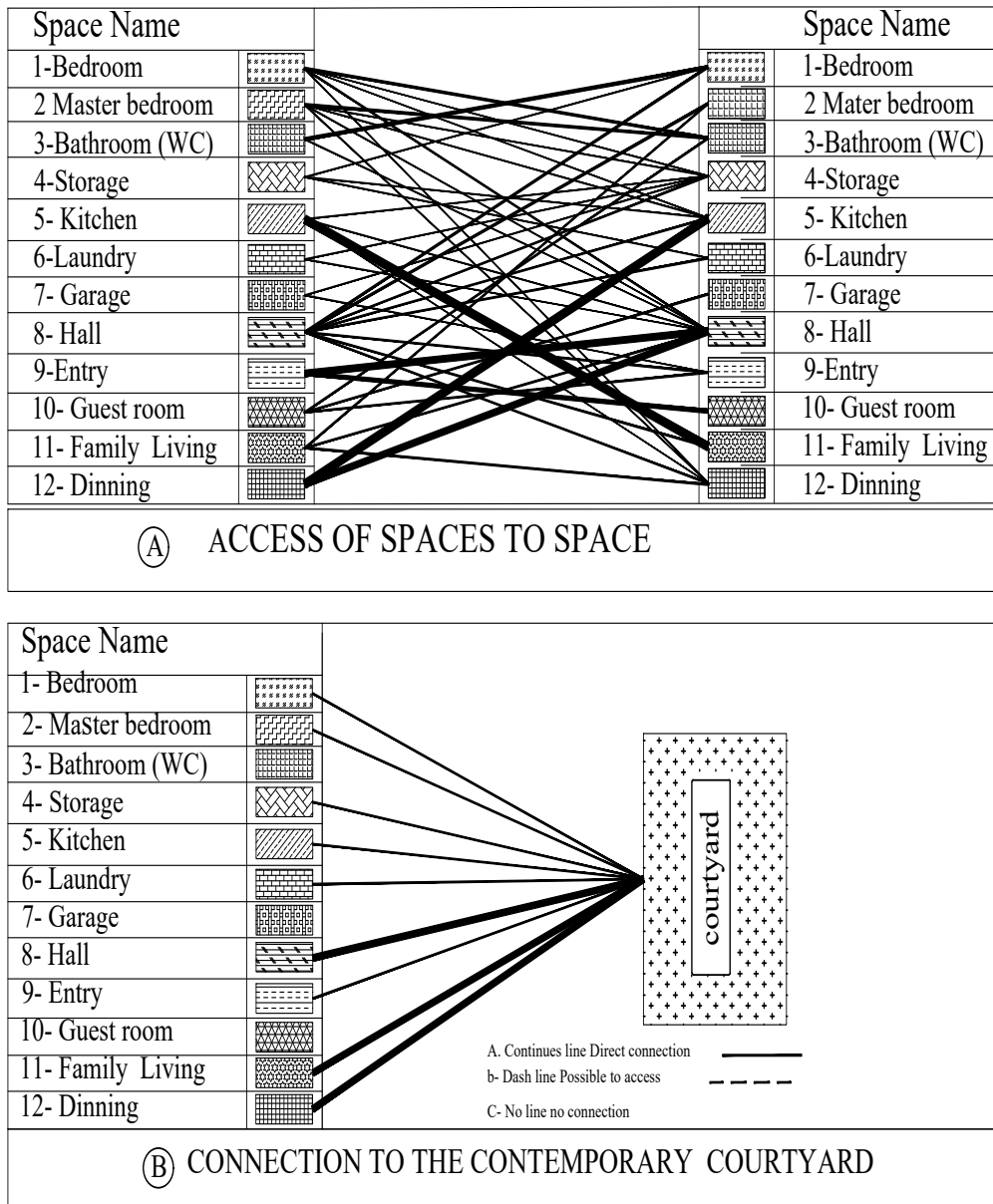


Figure. 5.8. In Kabul Zone Neighborhood 1(Gawoond) Middle cost Cotemporary Courtyard House Access to spaces to spaces and accesses spaces to open courtyard (Source: Author

by very different pathways. Both needs must be met before we feel truly comfortable [12].

The main factors influencing both physical and psychological human comfort are:

- Temperature
- Humidity
- Air movement (breeze or draught)
- Exposure to radiant heat sources
- Exposure to cool surfaces to radiate, or conduct to, for cooling

Important triggers for psychological discomfort are radiation, air movement and conduction. Although they are less effective physiologically, they trigger innate self-preservation responses that override our ability to perceive physical comfort. Until they are met, we don't feel thermally comfortable and our behavior can render the best of design Solutions ineffective. Acclimatization is a critical component of psychological comfort [11], [13]- [16].

Psychological thermal discomfort can make us set the thermostat on heating or cooling systems well beyond levels required for comfort.

A thermal comfort rating reveals only the energy performance of a building's design and fabric: it does not measure other areas of energy consumption (e.g. appliance) efficiency, transport costs, embodied energy). In warmer climates, these variables can account for more energy Consumption during the life span of a home than the Performance of the envelope.

The rating is also based on the combined heating and cooling energy required over a year, but the proportions of heating and cooling required vary across all three-climate zones. We found the comfort zone using the Ecotect simulation application for all three-climate zones.

5: Neighborhood design and street and Housing Layout Afghan Pattern:

Neighborhood design and street layout are also important for a community. The relationships between buildings, streets and open spaces form the urban fabric that helps to give a neighborhood its physical identity. Note that the image contrasts poor permeability to the north of the road and better permeability to the south.

As a consequence of contemporary changes in Afghan urban structures and the

replacement of former urban Environments with newer urban structures, urban neighborhoods have found substantial significance. Urban society must have such an environment that characterized by dynamism in life, but most Afghan new towns are planned and designed concentrating on physical aspects [4]- [10].

Sustainable neighborhood design and street layout are also important for Afghan community. The relationships between buildings, streets and open spaces form the urban fabric that helps to give a neighborhood its physical identity. Neighborhood design refers to the scale, form and function of buildings and open spaces (including streetscapes). Street layout refers to the pattern of local streets, for example as loop plus cul-de-sacs forms. Both can have an impact on generated serene patterns (Fig.4).

The modern grid subdivision layout system, being copied without adaptation, designs of mass building without any suitability and fitting to the local culture (Fig.1). Comparison of serene Housing layout (Mix of Cul-de-Sac and Contemporary Islamic) pattern with Existing Grid some good solutions based on Serene Neighborhood were found for Kabul area (Monshi Mir Ghulam Mina) (Fig.5.1).

We selected 71272-m² areas as an Existing Gridiron Pattern Neighborhoods (ENP) and redesign The Serene Neighborhood Pattern (SNP). Finally, we obtain and conciliate our congenial and desirable result, as we use less than ENP area 69230 m² but we have more plots, safe area as less traffic load, Children Park, food market kindergarten and Serene, sustainable and secure Neighborhood (Fig.5.3).

5.4. Model 3: A Study of Indoor Comfort in Affordable Contemporary Courtyard Housing with Outdoor Welfare in Afghan Sustainable Neighborhoods

The purpose of this research Model is to upgrade a pleasing, sustainable and safe shelter in the Afghan urban community. It also aims to maintain traditional housing, which is fitted to its environment, while attempting to upgrade it with new, traditional standards. The three main objectives of this study are to upgrade the traditional courtyard house to become safe and sustainable today and tomorrow; to fit the contemporary house environmentally and culturally, and to suppress or reduce the broad gap between traditional and contemporary housing. The paper tries to exhibit and analyze the sustainably best practices available in both traditional and contemporary courtyard housing in Afghanistan. For instance, the use of thick walls and Tawa-Khana (floor heating system) shows the best sustainable practice in that context.

5.4.1. Introduction

Afghan residential architecture and lifestyle have been confronted with modern and international architecture and urbanism has transformed Afghan dwellings into unsuitable forms that clash with the Afghan culture and environment. All over the country, more than 95% of people live in courtyard housing. [1]- [4], [8]. This research analyses and compares the spatial quality of contemporary courtyard houses with traditional courtyard houses based on their comparative sustainability. The relatively static heating and cooling system used in a courtyard house can provide the basis for understanding modifications that can generate air movement by convection. In summer, air temperature drops considerably after sunset because of re-radiation to the night sky. The air is relatively free of water vapor that would reflect the heat or infrared radiation back toward the ground, as occurs in warm humid regions such as Nangarhar province. To enhance thermal comfort, this phenomenon has been used in the architectural design of houses by employing the courtyard concept [5]- [7], [9]. Quantitative methods of data analysis will be done using an analytical and sustainable model to carry out a comparative study of two types of traditional and contemporary accommodation is now day a best practice.

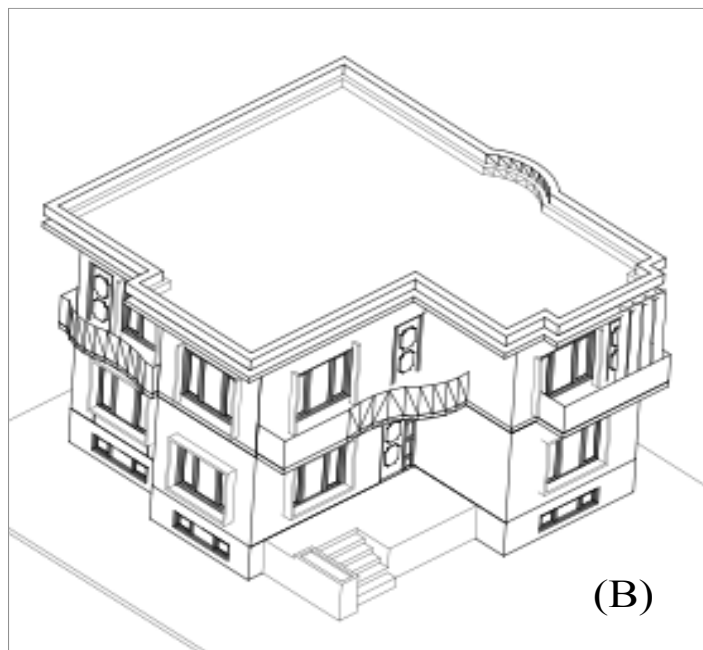
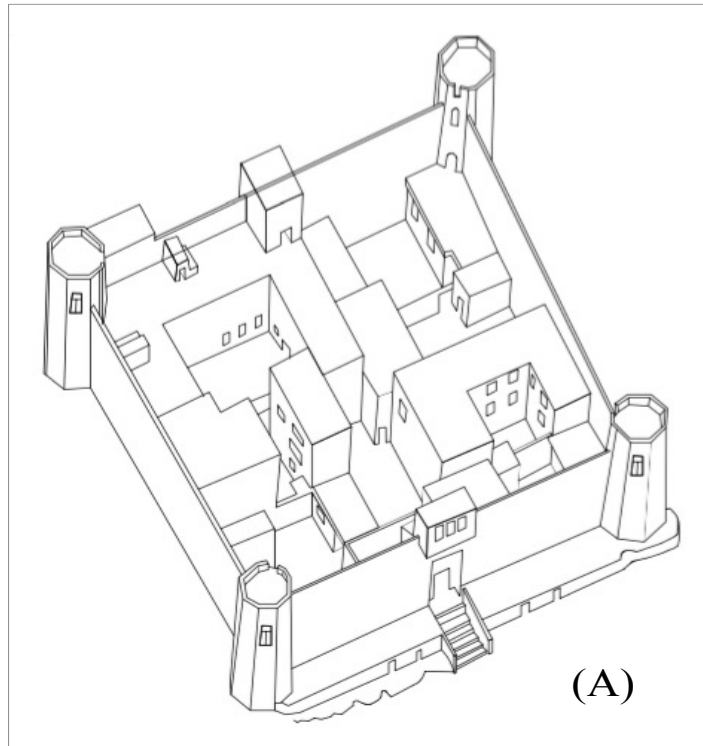


Figure. 5.9. (A) Afghan Traditional Courtyard House (ATCH) also call Kala and
(B) Afghan Contemporary Courtyard House (ACCH) 3D Drawing

Development in contemporary housing space, environment and safety is an urgent requirement for Afghan shelter. This change, which is expanding day by day along with the dimensions of the space, is a problem that encapsulates the identity crisis of contemporary housing. This discussion can be recreated as a beginning for space to be used in contemporary housing with comparison to its use in traditional settings [9]- [11]. The recreation of space based on the arrangements of traditional architecture was suggested through the strategy of introducing flexible elements and spaces. Based on the survey, we selected three zones for research (Kabul, Nangarhar, Kandahar and Herat).

The Afghan courtyard served three purposes. First, it serves as interior open space with full privacy and security for all family members, especially women and children. Second, the Afghan courtyard (especially the traditional one) in summer is shaded by its four walls, causing the surrounding rooms to heat slowly and remain cool until late

in the day, when the sun shines directly into the courtyard, and in winter the cold wind passing above the house during the day does not enter the courtyard. Third, in both traditional and some contemporary courtyard houses, multiple families settle in one courtyard house to create in rural regions high-density living surrounded by walls for environmental protection and privacy (Table I) [1]- [4], [8]. habitability of the Afghan modern courtyard house design in comparison to the level of planning sustainability of house design of Afghan traditional courtyard houses. This study applies the planning and environmental interpretative research method. The climate and cultural factors of different areas in Afghanistan are the independent variables, while different types of open spaces or courtyards and courtyard morphology are among the dependent variables in both the traditional and contemporary segments of this research. The data collection methods used include both field surveys and documentation, as we have surveyed about one hundred houses across the country, from each of those surveys we selected seven samples to represent the Afghan traditional and contemporary courtyard housing, (Fig. 1) [1]- [4], [9].

Table 5.4. Change of Life Pattern in House Type ATCH and ACCH in Afghanistan

| Living Activities | Changes in Space | | .Changes in Methods of Use. |
|-------------------|--|---------------------------------|---|
| | Traditional or ATCH | Contemporary or ACCH | |
| Dining | Living Room | Dining Room Living Room | Establishment of a space reserved only for dining |
| Sleeping | Bedroom and Living | Bedroom | Partial use for living bedroom but modern cases changes most. |
| Family Gathering | .Living room, Parent Room | Living Room and Master bed room | Courts have disappeared in housings, with its function now incorporated into the living room |
| Guest Reception. | Living Room, Guest Room. | Living Room | Spatial division along gender has been discarded |
| Housework | Tanwer Khana, Spacha | Kitchen Dining Room | The traditional kitchen, (Tanowr Khana) previously use as bakery and the same in Summer out side. |
| Ritual Ceremony | Gust room out of court or near to main gate and women inside | Living Room Basement Hall | Through modernization, ritual ceremonies, previously held inside the Gust room for men, are now served in Living Room And high-class house in Basement Hall for Men. |

As a pattern at the local scale, the Afghan geographical location, Islamic religion and turbulent history combined to shape all major historical cities, including Kabul, Kandahar and Herat, with a courtyard shape with four thick walls and four gates following the same courtyard pattern. The new conceptual pattern for the Afghan house is mainly an upgraded version of the old Kala.

5.4.2. Discussions and Result

5.4.21.1. General Discussion

Most Afghan modern architecture lacks conscious use of passive methods to control the indoor environment. Excessive use of modern imported materials, irrespective of their efficiency in regulating the indoor environment has often resulted in high-energy consumption during the cold winter in Kabul and the hot summer in some other cities, leading to many environmental problems. There is a close connection between the energy use in buildings and environmental damage, because of the energy-intensive solutions

that are required in buildings to attain comfort conditions in terms of mechanical heating, cooling and ventilation and artificial lighting. This has caused severe depletion of non-renewable energy resources and environmental degradation [6]- [10]. The Afghan internal courtyard provided in such traditional buildings is found to play a prime role in providing the required air movement through the building. Thus, the internal courtyard of the Afghan traditional residential building provides a comfortable indoor environment, in addition to the natural airflow recorded by electronic sensors. A smoke study was conducted to analyze internal air movement, especially the air movement that is induced in the interiors of traditional buildings when there are still conditions outdoors. The outcome of the study proves the efficiency of internal courtyards in the climate-responsive design of Afghan traditional architecture (Table II) [6], [7], [10].

The basic form of a traditional Afghan residential building in Kabul consists of four walls built around an open courtyard that is generally rectangular or square in plan. The walls are in some cases part of a building, but in some others, only serve as boundary walls, while the courtyard is open to the sky for letting air and light inside. There is an internal verandah around the courtyard for protection from rain and sun. A typical summer kitchen foregoes complete walls in favor of pillars, a structure that in summer effectively vents smoke.

The Afghan traditional courtyard house has better microclimatic conditions than the surrounding open areas, and is supposed to have a positive effect on the indoor comfort conditions of the enclosing building volume. In some cases, the courtyard retains a pool of cool air, as this is heavier than the surrounding warm air in hot areas such as Kandahar and Jalalabad. The top layer of air in the courtyard gets warmer in daytime and becomes lighter, causing the air to move upwards [8]. Thus, a low-pressure area develops in the courtyard, inducing air movement from outside, through the surrounding spaces. In addition to this thermal induction, the internal courtyard helps to induce air movement due to the pressure effect in the event of high-velocity, external winds that flow above the building. The wind flow reduces the pressure at the top layer of the air column, creating a suction effect above the small courtyard. This produces an upward movement in the top layer of air in the courtyard, pulling the air towards the court through the surrounding spaces, resulting in circulation of air in those spaces, especially in summer. These factors suggest many methods for planning, adopting and upgrading of an Afghan contemporary courtyard house (Table III). [14]- [18].

5.4.2.2. Envelope Thermal Properties of Housing

The value derived from steady-state calculations (U-value) is not by itself an appropriate indicator of the thermal performance of building elements, because it is possible for two walls with the same U-value to absorb and release heat at different rates [14]. Steady-

Table 5.5. Comparative Concept and Parameter of Traditional and Contemporary House

| Courtyard Housing Type | | |
|-------------------------------|---|--|
| | Traditional | Contemporary |
| Plan Configuration | Afghan Spatial organization of traditional houses, itself, undertook the comfort supply by considering shadows, putting ponds for surface evaporation as well as observing energy saving elements and Existence of three types of spaces: open, semi-open and closed, with specific ratios for these three spaces proportionate to the climate. | The responsibility and plan for comfort supply of houses are not included in spatial organization of contemporary houses. Amount of participation of spatial organization in providing cold, heat and ventilation seems little. And Change in the amount of utilizing semi- open and mediating spaces (porch, etc.). Leading to decreasing and omitting them as well as changes happening in the ratio of these spaces also the space proper orientation, due the every area should adopted in local climate and sun path. |
| Quality of Space | Space flexibility for lifestyle dynamism, human behaviors, and their status and allocating no space for special operations. | Domination of objects in house special organization, transformation of space into a rigid material resulting from space inflexibility. |
| Thermal Comfort | Comfort providing elements such as wind-catcher, basement, shades, pond and courtyard in a uniform pattern were integrated inside the spatial organization and appeared in architectural displays and Convergence between residents' needs and demands with environment. | Architecture does not have any role in installing of factory packages (cooling and heating devices) in internal spatial organization. These devices are attached to the building as an accessory part. And In the spatial organization, there is no spatial response for achieving adaptation to environment and its changes and space response is replaced by technology in a divergent way. |
| Building Connection to Nature | House was not separated from nature, and existence of some natural representatives was mandatory in internal spatial organization of a house. | The spatial organization of a house does not consider the nature. Its facilities have not been used for providing residents' comfort, and relation of construction with nature in contemporary houses has been minimized to consumption of environment and weakening it. |

state analysis is concerned only with the thermal conductivity of the

material; the influence of heat capacity is ignored. Intermittent occupancy and associated heating or cooling operation combined with external diurnal variations mean

that the building is more often in a state of flux and, particularly in hot summer conditions, the dynamic behavior of the whole building should be assessed in order to optimize the selection of envelope materials for greatest combined thermal comfort and energy performance. The material bulk properties of heat capacity (C), density (ρ), and thermal conductivity (λ) play an important role in the cyclic performance of the construction, which is significant when the outdoor temperature is cycling below and above the desired indoor temperature. Materials with beneficial thermal properties are either insulating materials, or materials with thermal mass [15] and the effect of thermal mass and thermal insulation, which are representatives of dynamic and steady state thermo-physical properties of materials, must be taken into account simultaneously [10]-[14].

5.4.2.3. Sustainable Design Principles in Afghan Courtyard House

In the ACCH, siting and orientation of the building, the space between buildings, building form and optical and thermo-physical properties of the building envelope are the most important design parameters affecting indoor thermal comfort and energy conservation in building scale. [9] Among these parameters, the building envelope, because it separates the outdoor and indoor environment, is the most important parameter. All of these parameters are related to each other; the best values of each parameter should be determined depending on the values of the others and their best combination should be determined according to the climatic qualities of the region. [12] The climate of southern Afghanistan is relatively similar to a desert climate. This region is a hot and arid area with a high temperature difference between day and night. When

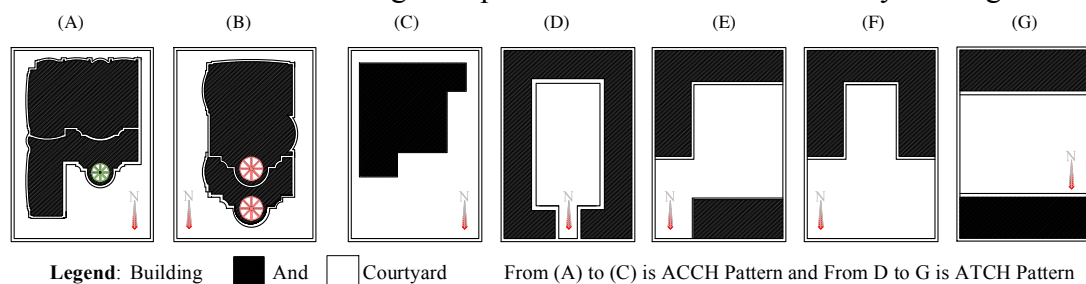


Figure. 5.10. More used Forms of Afghan Traditional Courtyard House (ATCH) and Afghan Contemporary Courtyard House (ACCH)

evaluating traditional architectural patterns, it can be seen that designers were more sensitive to these climatic issues, and they presented the most suitable design and

settlement examples for each climatic region.

Table 5.6. Thermal Comfort of Comparative Analysis Between ATCH AND ACCH in three climatically Afghan Zones

| Climatically Zone Name | | Kabul Central Zone (1) | | | | | | | Heart and Kandahar Zone (2) | | | | | | | Nangrahar Zone (3) | | | | | | |
|--|----------------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------|---------------------|--------------------|------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------|---------------------|--------------------|------------------|-------------------------------|-------------------------------|-----------------------------------|-----------------------|---------------------|--------------------|------------------|
| Main Two Type | Groups | A | B | C | D | E | F | G | A | B | C | D | E | F | G | A | B | C | D | E | F | G |
| | Comparative Level Category | High cost from 3 to 5 stories | High cost from 2 to 3 stories | Medium cost from 2 to 2.5 stories | Medium cost 2 stories | Medium Cost 1 Story | Low cost 2 stories | Low cost 1 Story | High cost from 3 to 5 stories | High cost from 2 to 3 stories | Medium cost from 2 to 2.5 stories | Medium cost 2 stories | Medium Cost 1 Story | Low cost 2 stories | Low cost 1 Story | High cost from 3 to 5 stories | High cost from 2 to 3 stories | Medium cost from 2 to 2.5 stories | Medium cost 2 stories | Medium Cost 1 Story | Low cost 2 stories | Low cost 1 Story |
| Afghan Traditional Courtyard Housing (ATCH), Thermal Comfort comparative analysis | Floor | | | F1 | F1 | F2 | F3 | F3 | | | F1 | F1 | F2 | F3 | F3 | | | F1 | F1 | F2 | F3 | F3 |
| | Wall | | | Wa1 | Wa1 | Wa1 | Wa3 | Wa3 | | | Wa1 | Wa1 | Wa1 | Wa3 | Wa3 | | | Wa1 | Wa1 | Wa1 | Wa3 | Wa3 |
| | Roof | | | R1 | R1 | R2 | R3 | R3 | | | R1 | R1 | R2 | R3 | R3 | | | R1 | R1 | R2 | R3 | R3 |
| | Window | | | W1 | W1 | W2 | W3 | W3 | | | W1 | W1 | W2 | W3 | W3 | | | W1 | W1 | W2 | W3 | W3 |
| | Door | | | D1 | D1 | D2 | D3 | D3 | | | D1 | D1 | D2 | D3 | D3 | | | D1 | D1 | D2 | D3 | D3 |
| | Heating System | | | HS1 | HS1 | HS1 | HS3 | HS3 | | | HS1 | HS1 | HS1 | HS3 | HS3 | | | HS1 | HS1 | HS1 | HS3 | HS3 |
| | Cooling System | | | CS1 | CS1 | CS2 | CS3 | CS3 | | | CS1 | CS1 | CS2 | CS3 | CS3 | | | CS1 | CS1 | CS2 | CS3 | CS3 |
| | Night Lighting | | | NL1 | NL1 | NL1 | NL2 | NL2 | | | NL1 | NL1 | NL1 | NL2 | NL2 | | | NL1 | NL1 | NL1 | NL2 | NL2 |
| | Day lighting | | | DL1 | DL1 | DL1 | DL1 | DL1 | | | DL1 | DL1 | DL1 | DL1 | DL1 | | | DL1 | DL1 | DL1 | DL1 | DL1 |
| | % Of Glazing | | | 50 | 45 | 30 | 25 | 20 | | | 50 | 45 | 30 | 25 | 20 | | | 50 | 45 | 30 | 20 | 15 |
| | % Of Energy | | | 50 | 45 | 35 | 30 | 30 | | | 50 | 45 | 35 | 30 | 30 | | | 50 | 45 | 35 | 30 | 30 |
| Afghan Contemporary Courtyard Housing (ACCH), Thermal Comfort comparative analysis | Floor | F1 | F1 | F1 | F1 | | | | F1 | F1 | F1 | F1 | | | | F1 | F1 | F1 | F1 | | | |
| | Wall | Wa1 | Wa1 | Wa1 | Wa1 | | | | Wa1 | Wa1 | Wa1 | Wa1 | | | | Wa1 | Wa1 | Wa1 | Wa1 | | | |
| | Roof | R1 | R1 | R1 | R1 | | | | R1 | R1 | R1 | R1 | | | | R1 | R1 | R1 | R1 | | | |
| | Window | W1 | W1 | W1 | W1 | | | | W1 | W1 | W1 | W1 | | | | W1 | W1 | W1 | W1 | | | |
| | Door | D1 | D1 | D1 | D1 | | | | D1 | D1 | D1 | D1 | | | | D1 | D1 | D1 | D1 | | | |
| | Heating System | HS1 | HS1 | HS1 | HS1 | | | | HS1 | HS1 | HS1 | HS1 | | | | HS1 | HS1 | HS1 | HS1 | | | |
| | Cooling System | CS1 | CS1 | CS1 | CS1 | | | | CS1 | CS1 | CS1 | CS1 | | | | CS1 | CS1 | CS1 | CS1 | | | |
| | Night Lighting | NL1 | NL1 | NL1 | NL1 | | | | NL1 | NL1 | NL1 | NL1 | | | | NL1 | NL1 | NL1 | NL1 | | | |
| | Day lighting | DL1 | DL1 | DL1 | DL1 | | | | DL1 | DL1 | DL1 | DL1 | | | | DL1 | DL1 | DL1 | DL1 | | | |
| | % Of Glazing | 50 | 50 | 45 | 40 | | | | 50 | 50 | 45 | 40 | | | | 50 | 50 | 45 | 40 | | | |
| | % Of Energy | 50 | 50 | 45 | 35 | | | | 50 | 50 | 45 | 35 | | | | 50 | 50 | 45 | 35 | | | |
| Average Sustainably Level of ATCH | | | | M | M | M | H | H | | | M | M | M | M | H | | | M | M | M | M | H |
| Average Sustainably Level of ACCH | | L | L | M | M | | | | L | L | H | H | | | | H | H | H | H | | | |

5.4.2.4. Site and Orientation of the Building

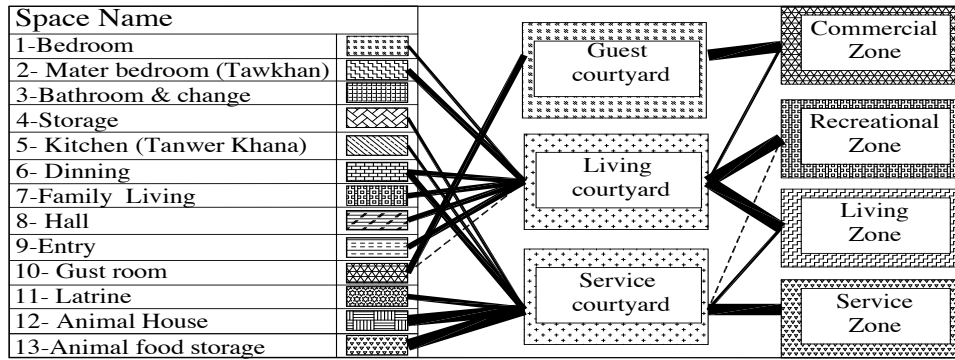
Topography is a basic parameter that determines the architecture of the hot and arid region in Afghanistan. In Panshir, Nuristan and some other areas, houses are situated according to the slope of the hills of the city, and they are all oriented to the center-east, in order to maximize the sunlight that enters the house [6]- [11].

5.4.2.5. Space between Buildings to Provide Shady Areas

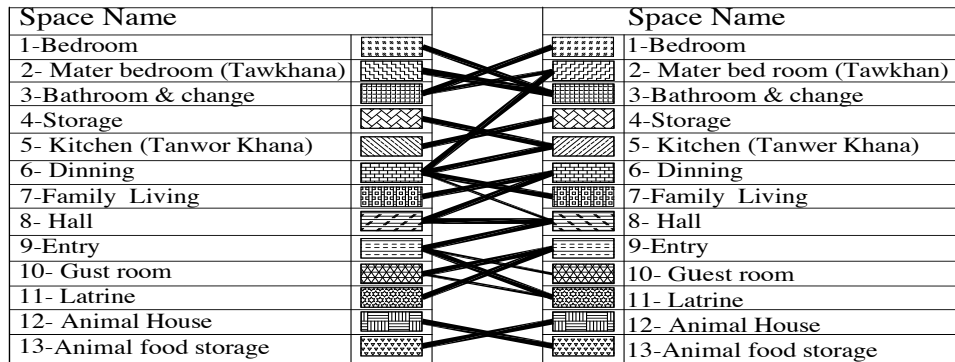
In the design of the ATCH in hot and arid areas in Afghanistan, there are several precautions taken against the hot climate. Houses are isolated from the street and surrounded by high walls. During the day, external walls of houses provide generally shady areas in narrow streets (in traditional cities) and especially in courtyards. By means of heavy, thick walls, a warm environment in winter and a cool environment in summer can be provided easily 5.4.2.6. Form of the Buildings.

Table 5.7. Energy Consumption, Building Components Insulation Analysis and Explanation of Abbreviation Table 5.6

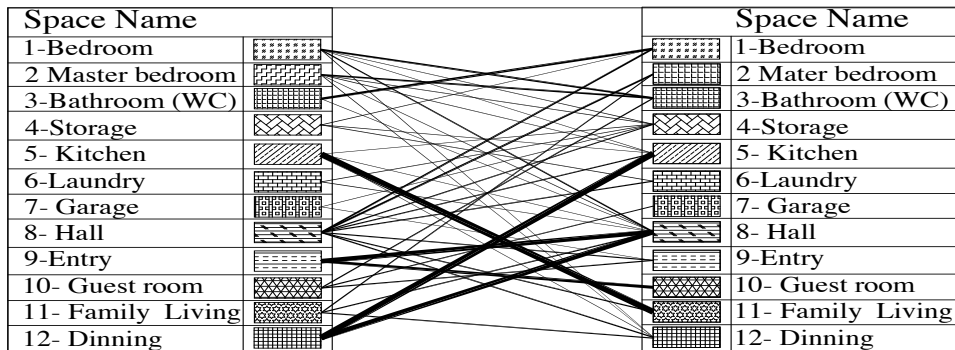
| Symbol of Items | Items Full Name | Specification | Form | Insulation | Average Thickness/m | Unit | Unit Cost /US\$ | Standard ASHRAE Value | |
|-----------------|------------------|------------------------------|---------|------------|---------------------|------|-----------------|-----------------------------|-----------------------------|
| | | | | | | | | R- Value m ² K/W | U- Value W/m ² K |
| F1 | Floor 1 | Reinforcement concrete | A, B, C | Y | 0.3 | M2 | 30-50 | 1.5 | 0.66 |
| F2 | Floor 2 | Plain concrete | D, E | N | 0.25 | M2 | 20-35 | 1.5 | 0.66 |
| F3 | Floor 3 | Compacted earth clay | F, G | No | 0.6 | M2 | 4-8 | 2 | 1 |
| Wa1 | Wall 1 | Fired Clay brick masonry | A, B, C | Yes | 0.45 | M2 | 30-50 | 1.3 | 0.76 |
| Wa2 | Wall 2 | Concrete brick masonry | D, E | No | 0.35 | M2 | 25-54 | 1.2 | 0.55 |
| Wa3 | Wall 3 | Clay brick masonry | F, G | No | 0.45 | M2 | 10-15 | 2 | 1 |
| R1 | Roof 1 | Reinforcement concrete | A, B, C | Yes | 0.3 | M2 | 30-50 | 2.3 | 0.42 |
| R2 | Roof 2 | I beam with fired brick | D, E | No | 0.25 | M2 | 20-35 | 1.5 | 0.66 |
| R3 | Roof 3 | Wooden beam and clay cover | F, G | No | 0.5 | M2 | 5-10 | 1.9 | 1 |
| W1 | Window 1 | Wooden | A, B, C | Yes | 0.2 | M2 | 25-40 | 0.35 | 2.7 |
| W2 | Window 2 | PVC and Aluminum | D, E | Yes | 0.07 | M2 | 20-40 | 0.38 | 2.8 |
| W3 | Window 3 | Steel | F, G | No | 0.1 | M2 | 15-30 | 0.2 | 2 |
| D1 | Door 1 | Wooden | A, B, C | Yes | 0.2 | M2 | 25-40 | 0.35 | 2.7 |
| D2 | Door 2 | PVC and Aluminum | D, E | Yes | 0.07 | M2 | 20-40 | 0.38 | 2.8 |
| D3 | Door 3 | Steel | F, G | No | 0.1 | M2 | 15-30 | 0.2 | 2 |
| HS1 | Heating System 1 | AC Air heating and cooling | A, B, C | | | Year | 500-700 | 0 | 0 |
| HS2 | Heating System 2 | Combined gas and Electricity | A, B, C | | | Year | 250-420 | 0 | 0 |
| HS3 | Heating System 3 | Traditional Wood stove | D, E | | | Year | 180-200 | 0 | 0 |
| CS1 | Cooling System 1 | AC Air heating and cooling | A, B, C | | | Year | 200-300 | 0 | 0 |
| CS2 | Cooling System 2 | Electrical fan | A, B, C | | | Year | 150-200 | 0 | 0 |
| CS3 | Cooling System 3 | Natural | D, E | | | Year | 0 | 0 | 0 |
| NL1 | Night lighting 1 | Electrical | A, C, D | | | Year | 200-300 | 0 | 0 |
| NL2 | Night lighting 2 | Oil light | D, E | | | Year | 30-40 | 0 | 0 |
| DL1 | Day lighting 1 | Natural from window | All | | | Year | 0 | 0 | 0 |
| | | | | | | | | | |



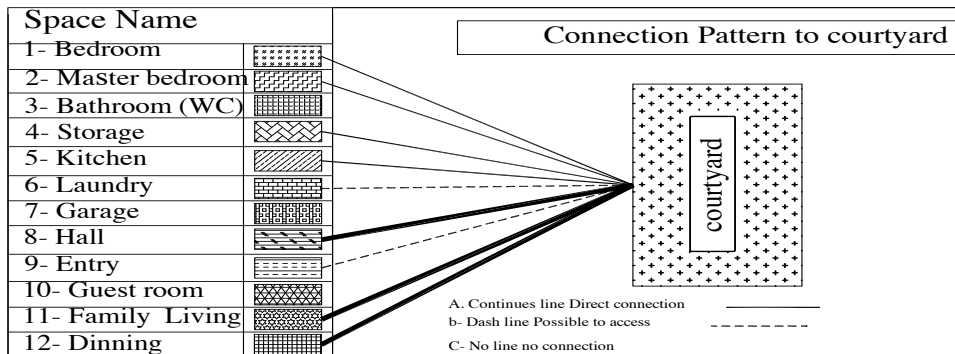
A. Connection to Traditional courtyards and Zoning



B. Access of Spaces to Traditional courtyard house



C. Access of Spaces to Contemporary courtyard house



D. Connection to the contemporary courtyard

Figure. 5.11. Afghan Traditional Courtyard House (ATCH) and Afghan Contemporary Courtyard House (ACCH) Accesses and connection of spaces

in Afghanistan, in hot and arid climate, the most preferred plan type is the courtyard house. In order to reduce the area affected by the solar radiation, compact forms are chosen. Shady areas can be obtained by arranging those forms with courtyards. In courtyards, with the help of plants and water for evaporative cooling, shady areas can be obtained, the floor temperature can be reduced by the high walls surrounding the courtyard, and the open areas can be used during the day [15] water Channels poured out from the pool are important elements for cooling (Fig. 5) [1]- [5]

5.5. Model 4: Principles of Sustainable and Affordable Housing Policy and Planning for Afghan Refugees Returning to Afghanistan

The overall goal of this Model is to examine the suitability and potential of the policies addressing the sustainability and affordability of housing for returnees, and to determine the impact of this policy on housing delivery for Afghan refugees. Housing is a central component of the settlement experience of refugees. A positive housing situation can facilitate many aspects of integration. Unaffordable, and unsafe housing, however, can cause disruptions in the entire settlement process. This paper aims to identify a suite of built forms for housing that is both affordable and environmentally sustainable for Afghan refugees. The result was the development of a framework that enables the assessment of the overall performance of various types of housing development in all zones of the country. There is very little evidence that the present approach of housing provision to the vagaries of market forces has provided affordable housing, especially for Afghan refugees. There is a need to incorporate social housing into the policy to assist people who cannot afford to have their own houses.

5.5.1. Introduction

Housing is a basic need for every human being. Housing policy may be defined as government action to achieve housing goals. These goals can improve the quality of housing stock for the home or can deal with homelessness. The other definition of housing policy can be government intervention in the housing field. Housing as a determining factor in social cohesion, is regarded a condition for access to employment and realization of fundamental human and social rights. Cheap and sustainable housing is an important part of today's life for returnees, but considering Afghanistan a country which does not have a national housing policy yet, is really annoying.

After 2001 a great number of refugees have returned to Afghanistan where their major problems are: lack of access to land and adequate housing. Access to sustainable, affordable and decent housing plays a critical role in the successful resettlement of refugees in Afghanistan. But the land allocation method and legal system (formal and informal) of Afghan government is not capable to timely supply

to the sudden huge demand of housing and land for returnees. Besides, all the existing national and international programs are not able to provide proper shelters and affordable and sustainable housing for all Afghan returnees (Fig. 1). Afghanistan has the largest refugee population in the world. But the return of 5.8 million refugees since 2002 is a challenge that Afghanistan is facing for the first time. Still 3 million Afghan refugees are living in Iran, Pakistan and other countries [1], [8], [9].

5.5.2. Discussions and Result

Most returnees are not willing to return to their provinces and villages. This concerns managing the rapidly growing urban areas, access to livelihood opportunities for newcomers, and the ability to provide durable housing solutions for displaced people. Most returnees have settled in Kabul in search of better life condition and facilities. Both affordable housing and sustainable development are major challenges globally. Housing affordability has once again emerged on the policy agenda of Afghan government and International and National partners. House prices have risen in response to booming demand and constraints on the supply of dwellings. Shortage of housing dwellings is especially due to a shortage of planned land in capital Kabul and other big cities. Many low-income households and returnees are unable to gain access to home ownership and are not able to afford private rental housing. To finalize our discussion and get our result that is based on the introduction of PSAHPA, (Fig. 2) which has the following principles:

5.5.2.1. Administrative and Financial Conceptual Principle

Sticking to the previously mentioned facts related to the return of 5.7 million (UNHCR report 2013 and [1]) returnees to Afghanistan, lead us to the first aid reintegration, UNHCR, follows a model called Shelter Construction Program, which supports the beneficiaries to make their accommodations. The program was designed for the widest geographic coverage focused on rural areas, which are the back up, while the extra effort made to target areas for future possible returnees [1]. Our model for the United Nations Office and all other partners, relevant government agencies and national and international NGOs is to work in an office for administrative and financial sector to regulate and control all other sectors from one source. That means

a central office (Kabul Central office) and 5 zonal offices and in every province in the Department of Refugees there will be a survey team. To prevent corruption, administrative procedures should be adjusted and beneficiaries and representatives of the people should be involved in the process [3], [7].

5.5.2.2. Resettlement Conceptual Principle

UNCHCR regulation for the resettlement of Afghan returnees that can be defined as follows: resettlement of Afghan refugees to their respective provinces is based on the condition to meet the most basic humanitarian needs, including food, shelter, protection, water and sanitation, health, and basic education [1]. Moreover, to reach a certain field of work and employment as measured and later become self-sufficient in the field of shelter and its location and their daily job. The model will be adoptable globally and it will be applicable both on urban and rural resettlement, it is illustrated shortly in Urban and Rural Resettlement.

A. Urban Resettlement

Based on my survey more than 70 % returnees want to settle in urban areas. The reasons respondents stated for staying in cities are mainly the job opportunities and educational/health facilities available in urban areas. International organizations have undertaken some initiatives to provide shelter for returnees, but did not pay full attention to the reason refugees consider for staying in the city thus having very low efficiency. As an instance a project of \$8 million, being far from city center for residents to commute to work and find jobs has turned into ruins [4].

B. Rural Resettlement

In Afghanistan, more than 75 percent of the population is settled in rural areas and their living conditions are more self-sufficient [2]. It is believed that returnees should be encouraged to resettle in their original villages, which will solve the issue of land supply. The government can subsidize rural areas higher than urban areas to

encourage returnees resettle in their original villages [5]. In addition, the organization should focus on restoring basic needs of each village, such as employment, health and education improvements, in coordination with the Ministry of Rural Rehabilitation and Development.

5.5.2.3. Concept of Sustainable Development and Affordable Housing Design and Construction Process

Design and Construction process of Sustainable and affordable housing is an essential part of this Research. Sustainable development and affordable housing is a broad planning concept. World Commission on Environment and Development in states the sustainable development as: (Sustainable development means meeting "the needs of the present without compromising the ability of future generations to meet their own needs") [5].

Sustainable housing as housing "that contribute to community building, social and economic justice at the local level"[6].

One of the biggest problems today's low-income families face is to find affordable and appropriate housing. Affordable housing refers to housing that could be affordable for low and middle-income families. This includes owner-occupied housing and rental housing owned by the government, nonprofit organizations, companies, or individuals [5]. To conclude the above discussion, shelters for returnees should be planned in a manner that should provide basic needs of current and future generation in cities and countryside we summarized our result as following:

- A. The design team must design cities, villages (Fig. 3) and residential units (Fig. 4) for each zone, with respect to all matters, including local Architecture, building materials, local, cultural issues, transportation and access to employment.
- B. The existing refugees Towns (Fig. 6) should be studied. A capacity development program is important for skilled workers in construction field; each zone should have capacity development programs for their construction unit that is responsible for quality control of work and building materials. At the end of every capacity, development program participants should be awarded working license permits.
- C. The work should be phased, and payment should be done

When every phase is completed shelter units can be provided to returnees on short and long-term loans.

5.5.2.4. Sustainable Refuges Serene Neighborhood and Village Conceptual Design and General Passive Design Strategies

The Afghan, village's shape is generally central and with nuclear organization pattern of self-sufficient subsistence. The nuclear pattern, in which villages cluster like a town and several village-towns cluster surrounding a city, is the most common in Afghanistan [10]-[15].

We follow the concept of the shape (Fig. 3) of village also the Kala houses for one family to four families. In an urban dictionary neighborhood is defined as: an area walk able by any person, and is tied together by some common thread. It could be architectural, historical, cultural, functional... a hill, lake, pond, ditch, creek, school, shopping district, tower or other landmark the neighborhood is centered around, or a neighborhood association. Neighborhood design and street layout are also important for Afghan community. The relationships between buildings, streets and open spaces form the urban fabric that helps to give a neighborhood its physical identity. Neighborhood design refers to the scale, form and function of buildings and open spaces. Street layout refers to the pattern of local streets, for example as loop plus cul-de-sacs forms. Both can have impact on generated serene patterns. Sustainability focuses on decreasing transport planning inside the residence and community area and increasing pathway and bicycle connection routes as 'places' as well.

The traditional Afghan Courtyard House presents numerous energy efficient cooling/heating methodologies, which could be adapted into the contemporary houses with slight changes and improvement.

A. Typology/Shape

The shape of Afghan contemporary courtyard houses consists mainly of a rectangular, detached house without any party walls shared with adjacent buildings. Energy demand in a building is highly affected by the shape and typology of the building. In fact, building typology and shape is a significant component in

absorption, storage and release of heat during the day and night, and thus is a key factor for heating and cooling demands in the building. Moreover, building typologies can be ranked by a parameter called "compactness," which is defined as the ratio of the building volume to its exterior wall area. The higher compactness contributes to lower heating and cooling energy demands and consequently higher energy efficiency.

A. B. Orientation

For all Afghan shelters, especially in cold climate areas such as Kabul, the glazing areas should be maximized in order to reduce required energy for heating in winter. On the other hand, in hot climate areas such as Kandahar and Nangrahar, the glazed areas should be equipped with proper shading devices in order to block solar gain and prevent overheating during summer.

B. Shading

Solar shading devices such as overhangs, awnings and blinds should be designed in an effective way in order to allow solar radiation to reach the building in winter and block it in summer. A variety of movable and permanent shadings can be utilized. The different solar radiation angles during summer and winter make up a critical factor in designing permanent solar devices such as overhangs. This leads to energy saving by reducing cooling demand in summer as well as heating demand in winter.

C. Thermal Mass

Thermal mass is a term to explain a material with high thermal capacitance, which absorbs and stores thermal energy. Afghan Masonry walls are examples of thermal mass in buildings. Indeed, thermal mass acts as a thermal battery; in winter, it stores the heat absorbed from the sun or heaters in daytime and releases it at night. During summer, thermal mass can be cooled through nighttime ventilation and used for lowering cooling demand the following day. The cooling effect of thermal mass in combination with night ventilation is appropriate for climates with considerable fluctuations in ambient temperatures during day and night. Thermal mass in the

village returnees housing is not a big issue, but most examples of urban housing lack this feature which needs attention [10]-[15].

D. Natural Ventilation

The main function of the ventilation system is to provide exceptional indoor air quality. During summer, a ventilation system can be used as a part of cooling system by venting the indoor warm air to the outside. The selection between different types of ventilation systems depends on the climate, building air tightness, the value of heat recovery and inhabitants' preferences. The most common methods are: Single-sided ventilation, Stack ventilation and Cross-flow ventilation.

E. Night Ventilation

In summer, when nighttime temperatures drop, cool air can be used to pre-cool the internal fabric of the house for the following day.

The airflow paths together with appropriate thermal mass provide adequate cooling. Automatic vent openings can also be applied to regulate both the airflow rate and the temperature inside the building.

F. Evaporative Cooling

The cooling capacity of evaporating water has been utilized to cool hot air in the southern province of Kandahar, west Herat and southern Nangarhar Provinces. Indeed, flowing in contact with water and transferring its heat to water, which makes the water evaporate, cools hot air. The rate of evaporation and the airflow through ventilation openings should be controlled to avoid over-humidification and achieve a desirable performance [10]-[15].

G. Wall Insulation and Materials

The average heat flow through the wall construction can be reduced by wall insulation, which consequently reduces both heating and cooling energy demands in buildings. Proper insulation of walls decreases heat losses in winter and contributes to energy saving and thermal comfort. During summer, thermal insulation reduces the

heat transfer from the outside to the inside and thus decreases the cooling demand in the building [10]-[15].

H. Roof, Floor Insulation and Materials

During summer, roofs are generally more exposed to solar radiation than walls due to different angles of solar beams in winter and summer. Inadequate roof insulation results in heat transfer from the roof into the building, and consequently undesirable hot indoor air during summer. In traditional Roba Khana was used on the ground floor, but now most modern have basements. Roofs account for 40% of heat loss, so they are the first part of a building to insulate. Insulation is also recommended for summer comfort, as it prevents overheating (high solar gains in Afghanistan).

I. Natural Lighting

Good lighting was a very important design decision for us. We wanted to use as much diffuse daylight as possible. To facilitate this, we propose that both floors be wrapped with windows towards the ceiling. This would provide diffuse light, but also opens up the thermal envelope but is expensive; an alternative is Polycarbonate, while providing a slightly lower light transmission than glass provides much greater insulation and is also less expensive. What does this mean for the component of lighting in architectural design? Lighting, if at all treated, is in most cases reduced to the very last stages. For artificial lighting this can seem completely justified. However, natural lighting includes a wide range of aspects that can affect design.

5.6. Chapter Conclusion (All four models)

Village through an empirical analysis of these areas. According to this empirical analysis and study of a traditional village, we discuss the fundamental characteristics of an Afghan village and its components, which we will preserve and upgrade while maintaining the main cultural and traditional characteristics. The methodology and objectives of this research elucidate the fundamental, traditional architecture and environment of the inside traditional courtyard house with the outside village in Afghanistan and also its proper introduction in planning for destroyed villages. We

explain the conceptual patterns, approaches and results by logical steps with existing patterns, summarize the critical issues and define environmental solutions for some architectural and village plans. When the concept of sustainability is applied broadly to the traditional courtyard house of the Afghan community, it will sustain the project itself. This research has resulted in an approach that provides shelter for the war affected area, and can also be used as a basis for future development programs.

After three decades of war, houses in the Afghan capital and some other big cities have changed dramatically in the past decade. The changes took place in three different periods in which social, economic, and technological transformations caused physical and morphological modifications. The social and cultural characteristics of Afghan society are embodied in the composition of elements of residential units. Early in the 20th century, a drastic change in architecture took place in biggest cities, as the traditional architectural style was replaced by the modern style. This change occurred so rapidly that it represented a pattern of replacement rather than adaptation.

The main purpose of this research is to recognize long-term sustainability principles and criteria in newly constructed Afghan neighborhoods as well as in small-scale patterns in contemporary courtyard housing comfort.

The spatial principles of a sustainable neighborhood, investigated and analyzed in the different case studies and climatic zones, consist of identification, liveliness, diversity, services, street orientation, welfare, security and carrying capacity.

Architects in climate-responsive designs look for the most appropriate design strategies to integrate with building designs in order to enhance their performance. Using both courtyards and atriums in different climates without considering their performance in different climatic conditions causes energy concerns, which should be eliminated. It is important for designers to know how different climates affect the energy performance of courtyard and atrium buildings and which building type is more energy conscious in different climates. This research is organized to approach the most valid and reliable answer for these questions based on computer simulation using Ecotect data and models for the first for all three-climate zones. Architects in climate-responsive designs look for the most appropriate design strategies to integrate with building designs in order to enhance their performance, as we proposed and adopted a passive interior and exterior design policy for the first time for an Afghan community and shelter.

For exterior welfare in this paper, cross-cultural studies are conducted not to demonstrate the similarities and difference, but to understand how the street plays a role in place making in different cultural contexts. Comparative urbanism is used as a theoretical framework to analyze the roles and challenges of streets in two cultural contexts. The strength of comparative urbanism is that it goes beyond identification of similarities and dissimilarities to learn from various contexts to improve contextual issues. A mixed method of inquiry was used to conduct this study. With this, a comparative analysis was conducted of the streets of the selected case studies in order to understand access and mobility, culture, and the sociology of the street space and street pattern.

Principles in designing Afghan traditional houses are to adapt to climatic conditions in order to fulfill cultural and physical requirements. Due to the hard climatic condition of dry cold and desert regions of three selected zones, such as unnecessary solar radiation and high temperature in summer, high differences between temperatures in the days and nights, low humidity, sandy wind, adaptation of the houses to climate has become one of the critical issues in design. Because of this, traditional architects have utilized simple, passive strategies to provide convenient conditions for Afghan contemporary courtyard housing.

In this short, comparative study, our main object was to introduce housing that provides energy-efficient, comfortable and restful shelter for its residents. In recent years, Afghan residential architecture and lifestyle, especially in big cities, have been confronted with modern and international architecture and urbanism that have transformed the dwellings of Afghans into unsuitable buildings that clash with Afghan culture and environment. We selected from a large survey of shelter over all major cities, including examples of both ATCH and ACCH. Most Afghans do not presently insulate their homes. Mud, straw and earth are used in traditional architecture. Rural buildings have a natural, thermal inertia adapted to the Afghan environment. Unfortunately, modern concrete buildings are becoming more and more popular in major cities because they are robust, and easily and quickly built. Genuine modern building techniques do, however, also take account of energy issues, through their design as well as the insulation material used, whereas the new concrete buildings in Afghanistan (which do not adopt energy-efficient techniques) are uncomfortable and

not adapted to the Afghan climate. Their heating and cooling systems are expensive to run and they consume a lot of energy (e.g. air-conditioning systems).

Afghan traditional architecture offers more than mere symbols; it can transform the old, traditional culture into a new culture by using local, reasonable construction materials. Traditional builders in Afghanistan were using developed techniques for controlling the climate, despite their access to only limited resources, as well as their lack of modern technologies. Making use of only natural materials such as stone, earth, water, sand and plants, these builders were providing comfortable solutions. Moreover, wind and sun energy were among the resources most utilized by these builders. They built with restricted alternatives and had to understand the environmental elements and their features to make the best use of them. This current study has comparatively analyzed ATCH and ACCH regarding planning, climatic design and passive techniques used in their construction in order to understand how these ideas and techniques can provide thermal comfort for inhabitants, using

Natural energy strategies and sustainable construction materials and methods. Understanding these issues can make suitable circumstances for making novel techniques with a natural method aiming for energy optimization in construction. Nowadays, families are not allowed to make use of all potential areas inside the houses, due to various conditions. Hence, reviving lost knowledge and techniques, planning to maximize climate consideration and flexibility, and laying out space organization based on daily needs as well as recent requirements rank among the important design issues. In the past, however, without surrendering comfort, low energy consumption levels could be reached easily. However, it should be mentioned that the purpose now is not to return to the past in the form of superficial imitation. Rather, the aim is to understand the criteria of house design based on adaptive lifestyle, leading to low energy consuming methods of living which can be achieved from the study of vernacular construction and applied in contemporary housing. Therefore, we should investigate further whether contemporary architecture has the potential to design houses in accord with indigenous architectural guidelines. The overarching theme of sustainability can be determined from the viewpoint of social, economic, environmental, and technical sustainability. This research into urban area

planning and the analysis of upgrading thermal interior and exterior study aims to create comfortable Afghan courtyard housing (Fig. 3) [1]-[5], [7], [9]-[11].

This study could be used as a prototype model, which could support the beneficiaries to build their own facilities. The focus of the proposed model covers both urban and rural areas. The model attempts to resettle the returnees in their former villages. A practical concept design of sustainable and affordable housing in urban and rural areas is a good option. Many studies established affordable housing goals closely based on sustainability goals, such as proximity of housing to public transport and provision of social and community facilities, compact design, taking into account the weather and solar orientation. However, some of the goals are quite opposite to each other like an eco-efficient home is expensive, and it is difficult to achieve price without financial support from the government. Even if the proposed housing is stable, but the price of housing is unaffordable and it is necessary to prioritize the price for returnees. And returnees will not be able to afford sustainable housing proposed based on sustainability criteria Affordable housing and social stability can easily provide better design which could also be environmentally and economically sustainable. While there has been excellent research accounting for the barriers and challenges that Afghan returnees face in securing housing, there is a gap in the documentation of what strategies, policies and projects are effective in assisting refugees to overcome these many challenges. This study will be the first step and the next phase in research will be to capture the effective practical design and construction approaches to addressing and approach sustainable and affordable housing with a clear procedure and order to understand what factors led to success and how these approaches could be replicated or developed further in government policy and in practice in all Afghanistan.

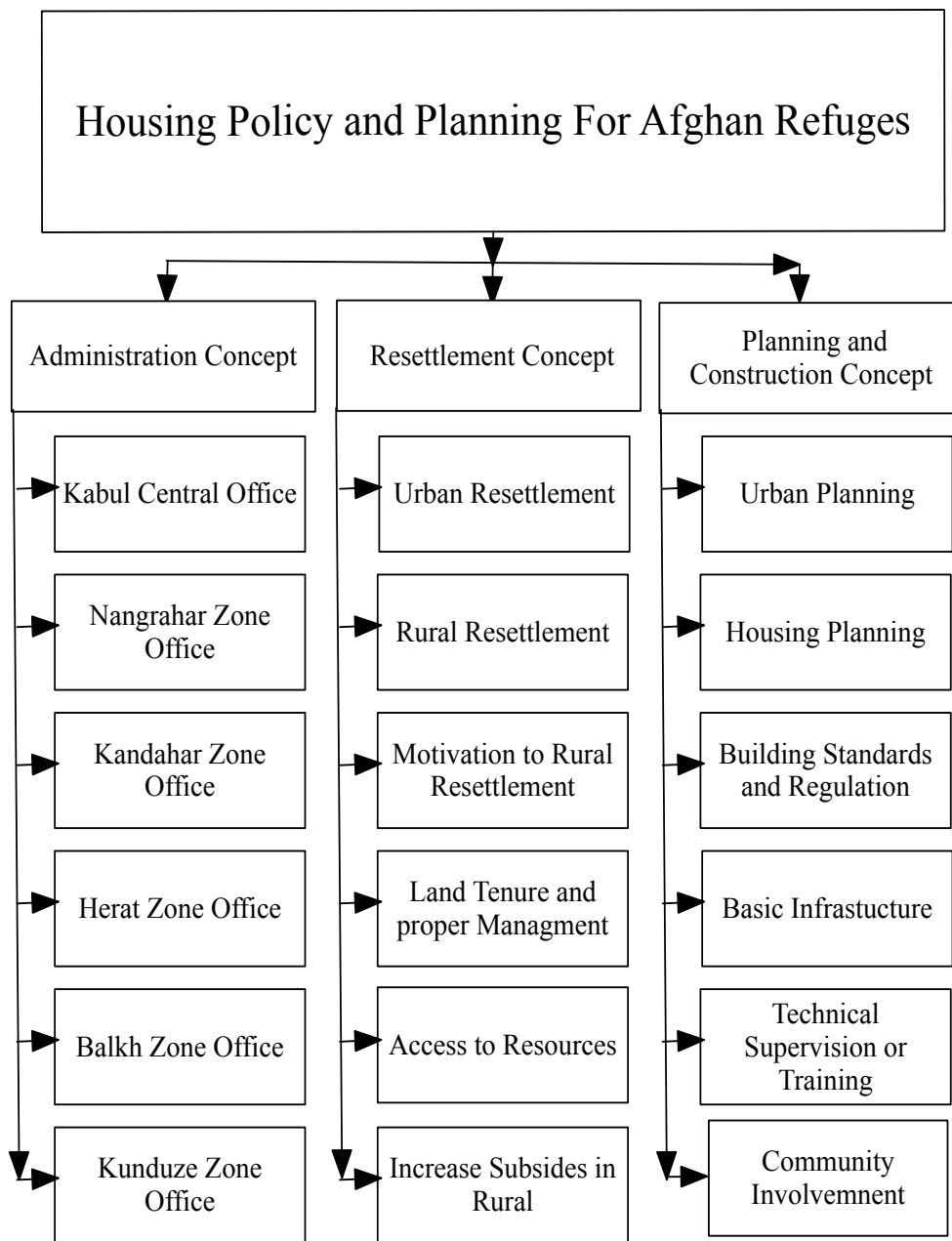


Figure. 5. 12. Summery map of Module Four Principles

**Investigation of Sustainable and Affordable Housing Policy
and Planning Principles in Afghanistan**

Chapter 6

CONCLUSION

Chapter 6

Conclusion

6.1. Chapter Introduction

In this chapter I will present a summary of the research in order of the dissertation, findings and results, and draw a conceptual framework map for sustainable Afghan community. This consists of Affordable housing policy, housing and housing layout planning, and sustainable shelter architecture -strategy.

As for the future study, I will show the main conceptual framework for Afghan National Housing Policy National Housing planning, and some baselines for foundation of Afghan shelter sustainable strategy.

Sustainable development should meet the needs of the present generation without compromising the ability of future generations to meet theirs. (Our common future Brundtland et al.1987). This dissertation draws much influence from the common and useful definition of Brundtland.

I have divided this chapter into three sections to explain shortly in two dimension methods (Theoretically and Graphically), and to provide a glance at the scope and results of this study. The three sections are:

1. Summary of Dissertation.
2. Final Objective, Results and the Conclusion of Dissertation.
3. Future Research Plan.

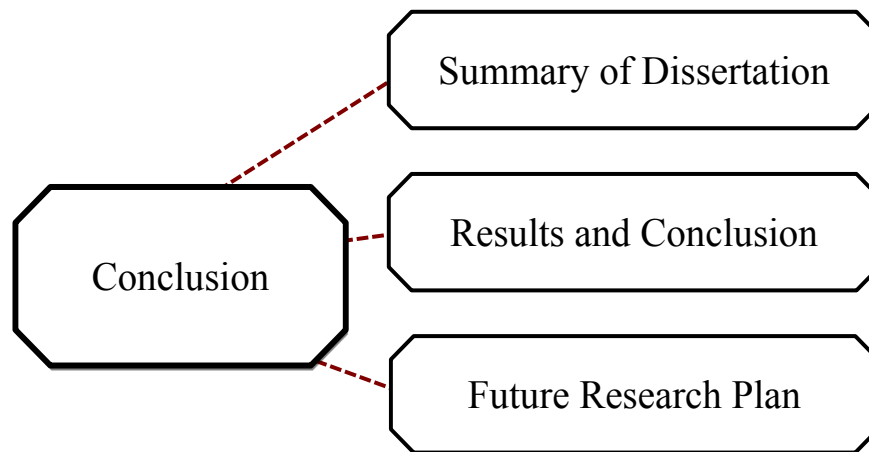


Figure. 6. 1. Conclusion, Final Result and Summary

Source : Author

6.2. Summary of Dissertation

This Dissertation has three main parts and one supplementary Part (which contains definitions, surveys, Ecotect simulations of main Afghan cities, and other similar data in appendix-format)-in the following sequence:

1. Part one: Cover title with abstract of dissertation and other two chapters which are, Theory, Introduction of research and Literature background.
2. Part Two: The main Body of research including three chapters in which investigation and adaptation of affordable housing policy, planning and sustainable Architecture strategy as general conceptual framework for a sustainable Afghan community are discussed.
3. Part Three: Summary of Dissertation, Final Objective, Results, Conclusion of Dissertation and Future Research Plan.
4. Part Four, the Appendixes: This part contains the following appendixes:
 - A. Definitions and research terminology.
 - B. Site Survey Data.
 - C. Site analysis and Ecotect Simulation data.

D. Case study sites, topology of existing housing, and statics data maps.

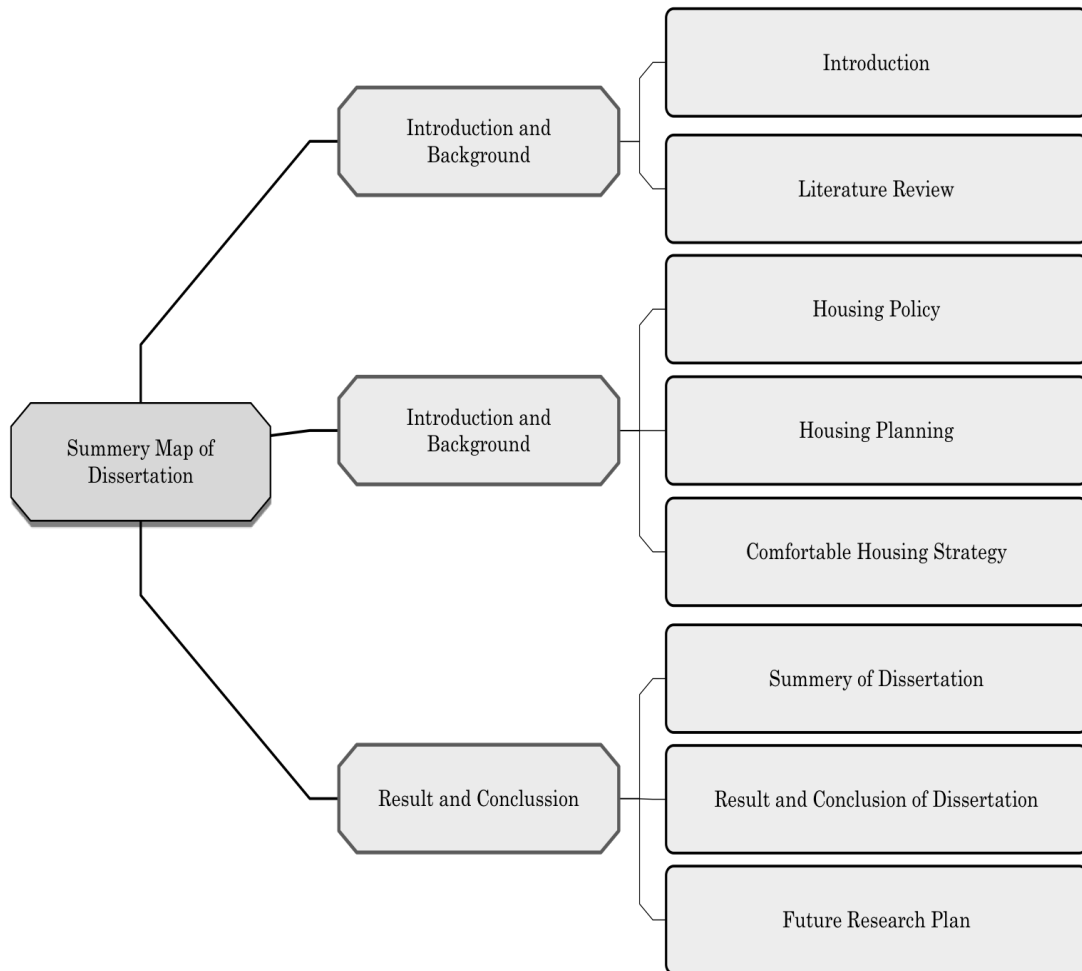


Figure 6.2. Summery Map of Dissertation

As short chapter-by-chapter summary Presented as following:

Chapter one: Chapter one is the introduction of the dissertation. A short background review outlined the current Afghan housing situation, identified the main problems concerning low-income Afghan housing. The main goal, Methodology and Approach were discussed as well, along with the research aim, research questions, significance of the research and the structure of the research. This chapter also highlighted alternative solutions for the problems of Afghan government institutions regarding Housing.

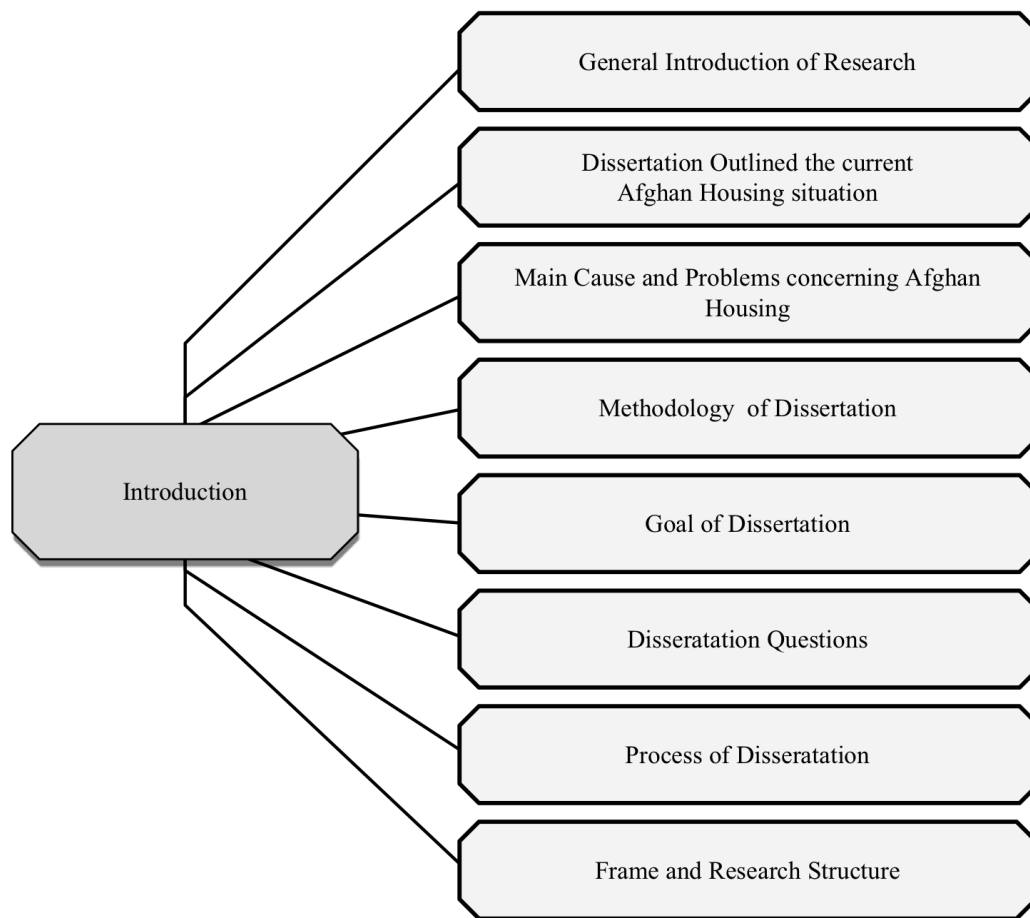


Figure 6.3. Summary of Chapter one

Chapter Two: As is common in PhD dissertations, the second Chapter provides a wide conceptual formwork of the literature in the housing sector, particularly adaptation of the Un–Habitat concept to the local level, and the pattern for adaptation. Different approaches adopted globally are examined, and a conceptual framework for sustainable and affordable housing Policy, planning and strategical action plan is provided.

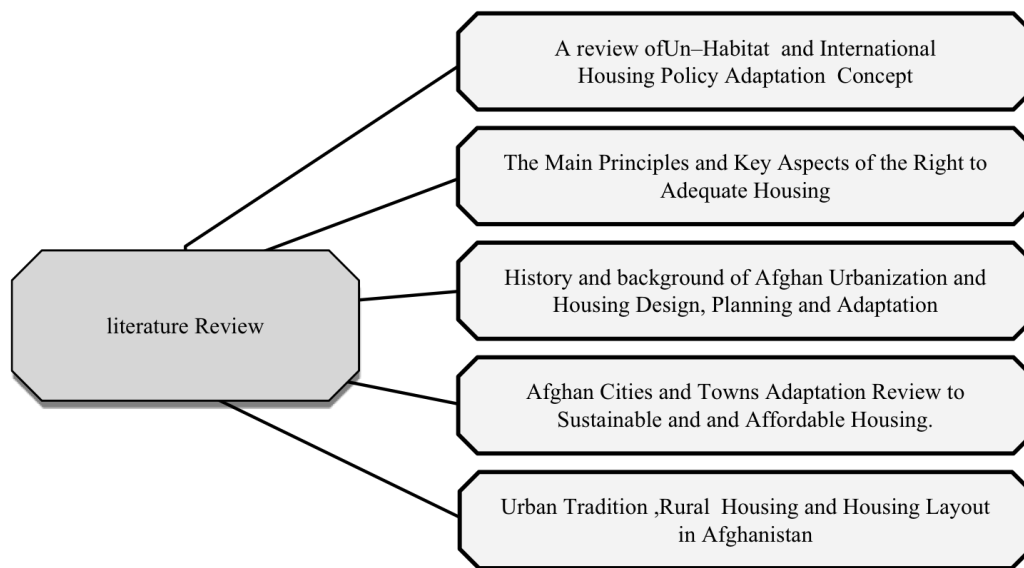


Figure 6.4. Summary of Chapter Two

Chapter Three: This chapter attempts to develop a conceptual framework of sustainable-affordable housing policy for Afghanistan. In this chapter the Afghanistan

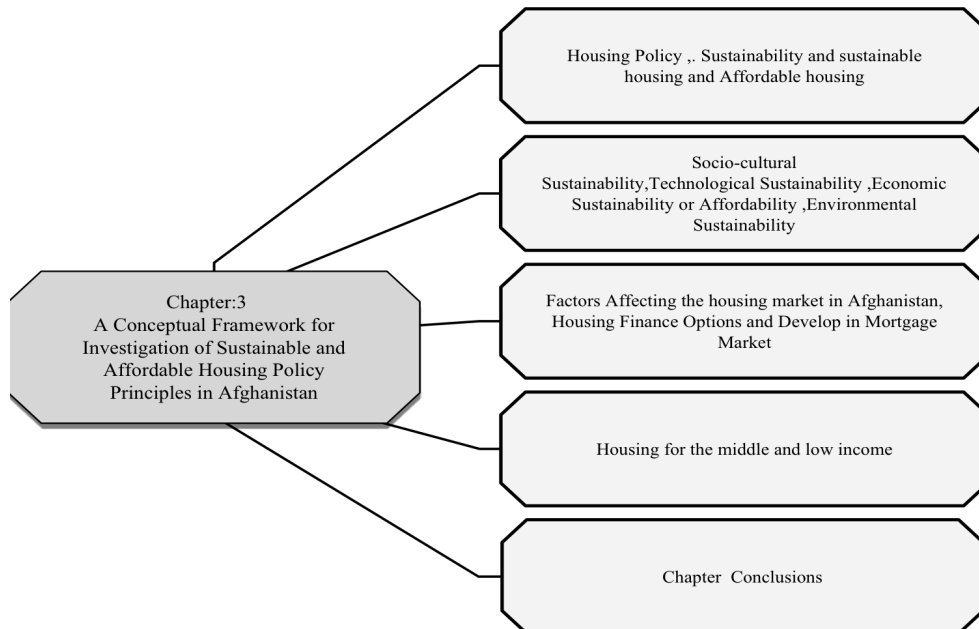


Figure 6.5. Summary of Chapter Three

national housing policy is used as a base and foundation for future work. Affordable and sustainable housing for all Afghans, Goal of Sustainable-Affordable Housing,

Socio-cultural Sustainability, Technological sustainability and Environmental sustainability are the main topics of this chapter.

Chapter Four: This chapter is about the investigation, analysis and conceptual design of interior and exterior housing layout planning in Afghanistan. Chapter four presents the current Afghan city planning, housing layout classification, the spatial structure classification, development action plan, and the urban development strategy. Arguments for upgrading more and more of the infrastructure in of existing settlements and legalizing tenure, developing an adequate primary infrastructure network which might accommodate the expansion of capital of Afghanistan, basic idea of zoning, Housing for the middle and low income classes, as well as both Neighbourhood design and street-layouts in Afghanistan are also presented.

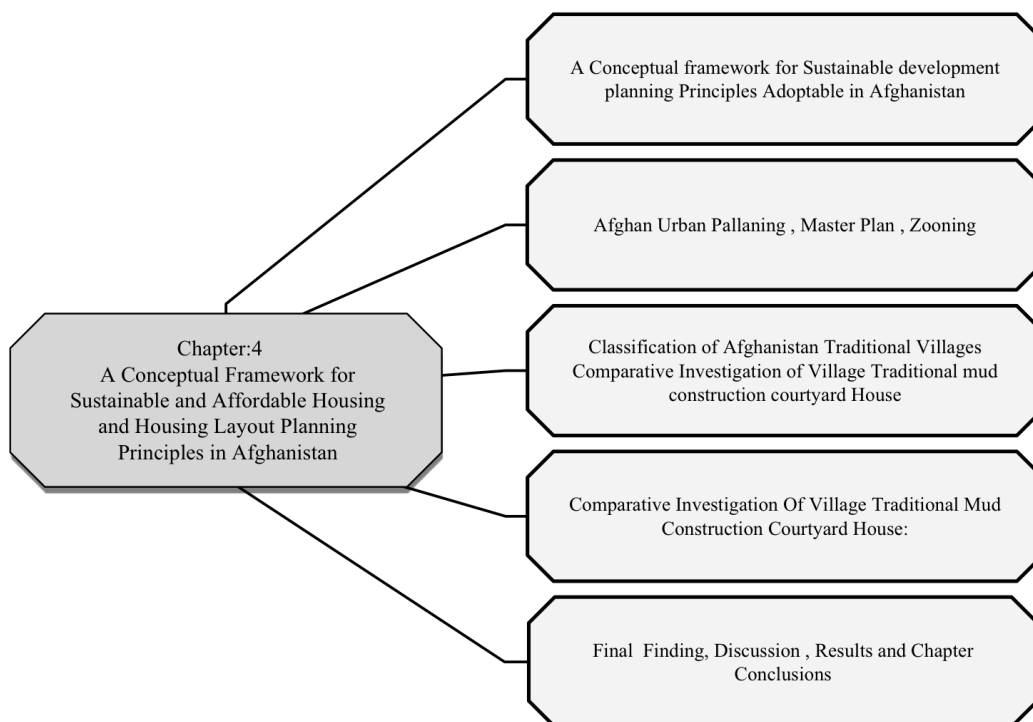


Figure 6.6. Summary of Chapter Four

Chapter Five: To prove the findings of the research as a practical concept, three models for implementation are proposed as following:

- 1) A Conceptual Design Model for development of War Damaged Villages to

Sustainable and Traditional Village Communities; a case study.

- 2) Indoor Comfort in Affordable Contemporary Courtyard Housing and Outdoor Welfare in Afghan Sustainable Neighbourhoods; a case study.
- 3) Principles of Sustainable and Affordable Housing Policy for Afghan Refugees Returning to Afghanistan. This chapter is the final chapter of the main analysis, and presents the whole study in three conceptual Models for urgent needy groups families (War effected villagers, Government teachers with low income, and returnees to the country). First in Rural areas, second in urban areas, and third one is a mix of both-rural and urban areas. Finally, this chapter analyzed the traditional courtyard housing, contemporary courtyard housing, housing layout and conceptual housing policy situation in the country. As

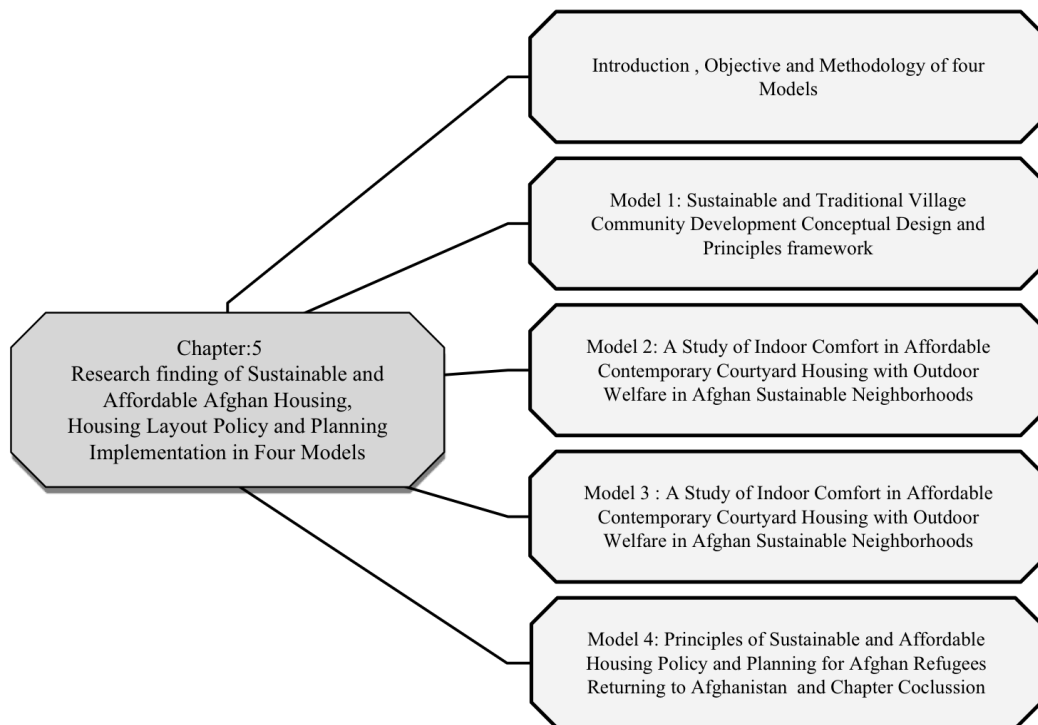


Figure 6.7. Summary of Chapter Five

- 4) proposed some conceptual design and the the reform of institutions (Ministry of Housing and Urban development, Ministry of Rural Rehabilitation and Development, and local municipalities) to consider in future.

Chapter sixth: The current chapter as the main sections are Summary of Dissertation, Final Objective, Results, Conclusion of Dissertation, and Future Research Plan.

6.3. Summary OF Final Objective, Results and Conclusion of Dissertation

Shelter is one of the essential basic needs of a human being in every community, House as a shelter (Jungara) has been a special place from the first days of humanity; every culture, community and race has grown up underneath this shelter. Lodging has therefore been forever a fusion of living habits, environmental conditions and cultural boundaries. Accordingly, dwellings have been studied from many various views like psychological, phenomenological, social science or environment-behavioristic.

In older traditional Afghan residences, the courtyard was the focal point of the house. It is an architectural form of major importance in traditional houses in hot, dry and dry cold climates. Most, if not all, rooms of the house had a direct connection with the courtyard. Courtyards served privacy where they decreased interior-exterior connections but increased interior-interior connections; they maximized interior relationships and openness while keeping the outside separate. Courtyards helped create an interior garden while respecting privacy values of the culture by having no exterior or street view from the courtyard itself. Not only were courtyards used as social family gathering spaces; they were also a source of airflow and thermal comfort to the residence. A fountain was usually located in the centre of the courtyard as an artistic element as well as to control climate. Courtyards are convenient outdoor spaces that positively affect microclimate and indoor thermal conditions. The main purpose of this research is to recognize long term Sustainable and Affordable Housing Policy Principles, Planning and Formulation for Afghan Government, and criteria in human-constructed new Afghan neighborhoods as well in small-scale contemporary courtyards. The spatial principles of sustainable neighbourhoods were investigated and analysed in the different case studies and climate zones, consisting of identification, liveliness, diversity, services, street orientation, welfare, security and carrying capacity.

Architects in climatic responsive designs look for most appropriate design strategies that can be integrated in building designs in order to enhance their performance. Using both courtyard and atrium in different climates without considering their performance in different climatic conditions causes energy concerns, which should be eliminated. It is important for designers to know how different climates affect energy performance of courtyards and atriums, and which building types are more energy conscious in different climates. This research is organized to approach the most validate and reliable answer for these questions based on computer simulation “Ecotect” data and models, that were made for the first time for all Afghan climate zones. Architects in climatic responsive designs look for most appropriate design strategies to integrate them with building designs in order to enhance their performance.

The most important result this study has revealed in my opinion, is that adaptation is the cheapest and easiest way for applying the concept of sustainability in a country like Afghanistan. The adaptation of urban and rural sustainability along with conceptual projects and planning efforts will bring the best result as in this research is investigation concepts of policy. Planning process of UN-Habitat before, , modern countries like Japan, and some surrounding developing country like India.

The purpose of this study is to assess the character of the Afghan traditional villages through an empirical analysis of these areas. According to this empirical analysis and study, we discuss the fundamental characteristics of an Afghan village and its components, which we will preserve and upgrade while maintaining the main cultural and traditional characteristics. The methodology and objectives of this research elucidate the fundamental, traditional architecture and environment of the traditional courtyard house with the outside village in Afghanistan and also its proper introduction and Planning for destroyed villages. We explain the conceptual patterns, approaches and results by logical steps with existing patterns, and we summarize the critical issues, and define some architectural and village plans with environmental solutions.

When the concept of sustainability applies broadly to the traditional courtyard house of the Afghan community, it will be sustaining the project itself. So, this research has resulted in an approach that beside providing shelters for the war affected areas, it can

also be used as a basis for future development programs.

Afghan Housing affordability summarizes housing difficulties, referring to some key factors that restrict housing demand, and some area mortgage requirements. This issue manifested in several ways, including inability to access owner-occupied market, pay for the down payments, maintain the basic living standard after paying for housing, and even facing risks of falling into deep debt. The combined external circumstances resulted in this situation, including changes in interest rates, employment status, size of family and life cycle stages. However, housing affordability issues are mainly caused by house price appreciation and sluggish income growth. Most plots in the big cities of Afghanistan are occupied by the powerful people and high income groups, but more and more extremely poor households are facing risks of becoming homeless (Scholl teachers, government ordinary employee, refugees and so on). To some extent housing affordability becomes an important policy issue as it is closely related with social equality and security. Afghan Government is expected to enact housing policy, especially to extend housing welfare to those facing housing difficulties. Even though some small housing policies have been put into effect, such as 'teacher and refugees housing' project, the policies are not effective in terms of existing affordability difficulties. It is clear that a larger proportion of households are not able to gain owner-occupation without assistance, and this situation is spreading to medium income households. Financial assistance is necessary for medium income households to solve the liquidity constraints. Those in lowest income groups should be given primary consideration in allocating social welfare, so that they might better save income for housing consumption. The Afghan empirical examinations of housing affordability are as significant as theoretical discussions of the definitions. By considering the importance of empirical investigations, further research will carry on empirical tests by employing household survey data from all areas of Afghanistan, and implement some practical projects.

Afghan Affordable and sustainable Housing Policy and Planning in urban and rural areas is a good option. Many studies established affordable housing goals to be closely based on goals of sustainability, such as proximity of housing to public transport and provision of social and community facilities, compact design, taking into account the

weather and solar orientation. However, some of the goals are quite opposite to each other; an eco-efficient home is expensive, and it is difficult to meet the price without financial support from the government and returnees will not be able to afford sustainable housing based on sustainability criteria. Affordable housing and social stability can easily provide better design which could also be environmentally and economically sustainable. While there has been excellent research accounting for the barriers and challenges that Afghan returnees face in securing housing, there is a gap in the documentation of what strategies, policies and projects are effective in assisting refugees to overcome these numerous challenges. To present this section in short paragraphs, and to answer my research questions, I will bring a comparative example; we can think of the dissertation as a conceptual design and construction of sustainable and affordable house:

- Now we have Conceptual design with consideration of all international and traditional sustainable and affordable norms, standards and policy for that house (A Conceptual Framework for Sustainable Community Development: Affordable and Comfortable Housing Policy and Planning).
- We Mention the construction company as the adoption and build the house (Reform the institution as have one unique authority for National Housing policy, National Urban planning policy and sustainable architecture building strategy).
- How can such a company be made? Where to get skilled staff? for those questions, ~~answer~~ we have an answer in future research section.

Finally, of this section I summarize in short sentences the final objective, results and conclusions of the research as following:

- Start research with academic base about affordable and sustainable shelter for All Afghan.
- Starting for the first-time a country-wide research on Housing Policy and planning.
- Begin Investigation to remove the long gap between rural and urban shelter.

- Establish a sustainable shelter architecture strategy for design and construction of shelters in Afghanistan.
- Prove academically to Use traditional and sustainable construction materials, and renewable sources, such as the sun and the wind.
- Find the site analysis data of big cities by simulation of Ecotect
- makes substantial use of locally available materials and local means of transport.
- Uses the available materials to satisfy a general demand, and not to damage the environment.
- Use-and training of Afghan skills that can be realistically developed in the near community can be afforded within the local socio-economic context.
- Design and planning responds to and resists the negative effects of the local climate and culture.
- Provides flexibility in Architecture building strategy to adapt to local habits and needs.

6.4. Future Research Plan

This is such a wide, multidiscipline topic, that the research should be continued for best possible results. This requires a plan. As a result of my long experience of about 10 years of working and teaching in Afghanistan and near 7 years in Japan, I have the following Proposal

- A. Start Programme for training professional architects and planners as well as educated staff for institutions of National Housing policy and Planning.
- B. This program should bear a name of Sustainable Architecture, Urbanization and-Technology,
- C. The program should at least be started Kabul University in the capital of Afghanistan, and should have 2 students from every big provincial Universities like, Nanagrhar, Mazar-e-Sharif, Kandahar and Heart 2 Students.
- D. The final project of Bachelor students should be a research into regional

housing, provincial policy, Sustainable and affordable shelter for All Afghan and Planning.

- E. Those continuing as master students should study the same Fields in some modern country like Japan.
- F. Students may request the finance and technical support for those research programs from the Un-Habitat and JICA, for example.
- G. Meanwhile, the National Housing Policy, National Urban policy, Sustainable Architecture strategy and so on should all be completely reformed.

As students graduate from the program, they will be able to make the reform happen, and create a Sustainable National Planning Policy. Bar serious health conditions or death, I will fully support such education and research program.

Text Box. 6. 1 . Results and Conclusion

1. General Introduction and observation of **history of Urban Planning and Housing Architecture in Afghanistan**.
2. **Characteristics of sustainable and affordable housing:** uses and activities, public space and circulation. Selection of some **typological features** of architecture for criteria and reference.
3. **Conceptual framework** of sustainable and affordable **housing policy** for all Afghan residence (especially low income groups).
4. The conclusions: **methods and plans** for solving the problems articulated through each chapter; an overview of findings regarding the conceptual and proposed plan, as well as recommendations for **future research**.

Text Box Figure. 6. 2 . Future Research Plan

1. **Training Program** for professional architects and planners.
Educational courses for Department members and staff (National Housing Policy and Planning) .
2. **1st and 2nd year Students** should practice in hand sketching, calligraphy, modelling as well as studying **Traditional/Local Architecture**.
3. **3rd and 4th year Students** should study **Complex Project Design** and use high-tech for the **Drafting and Modelling**.
4. **5th year Students** should study **Urban + Architecture Design**, use high-tech **Drafting/Modelling** techniques and experiment with practical and experimental **research project/dissertations**.

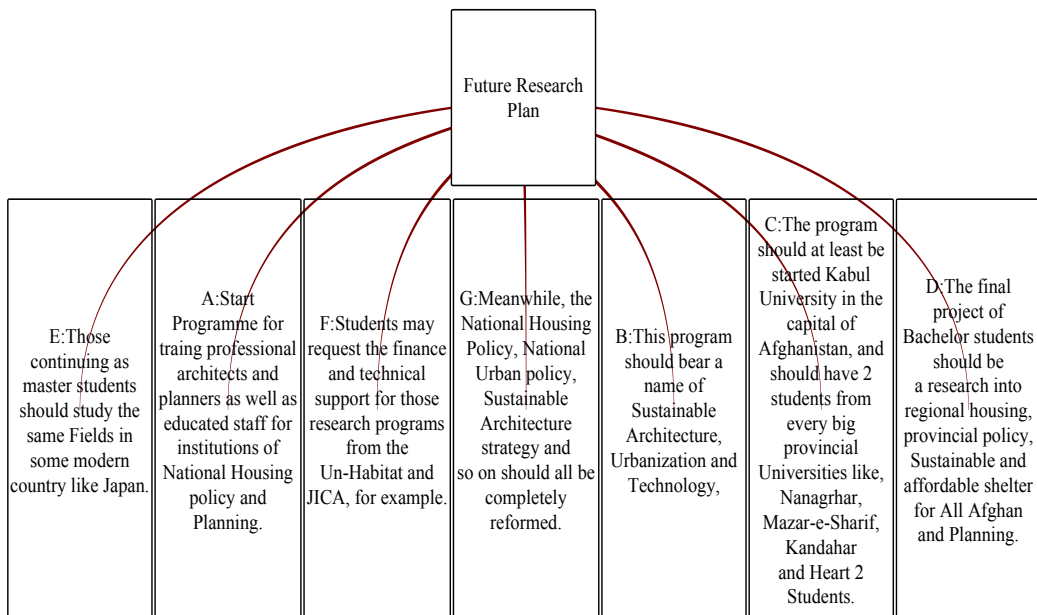


Figure. 6. 8. Summery Map Of future Research Plan (Implementation of Sustainable Architecture Education in Afghanistan Universities) Plan

Source : Author

All Dissertation References

References

- [1] Stanley Ira Hallet and Rafi Samizay. (1980) *Traditional Architecture of Afghanistan*, Garland STM Publishing.
- [2] Rafi Samai Zai. (1981) *Islamic Architecture in Herat: A Study Towards Conservation*, Research Section of International Project for Heart Monuments, Ministry of Information and Culture, Democratic Republic of Afghanistan.
- [3] Jennifer Brick. (2008) "The Political Economy of Customary Village Organizations in Rural Afghanistan." Paper prepared for the Annual Meeting of the Central Eurasian Studies Society, Washington, D.C., September 2008.
- [4] Bashir A. Kazimee. "The Role of Environmental and Cultural Heritage in Rebuilding The Afghan Cities." In *Instant Cities: Emergent Trends in Architecture and Urbanism in the Arab World*. Edited by A. Moustafa, J. Al-Quawasmi and K. Mitchell, School of Architecture, American University of Sharjah, UAE, CSAAR Press, 2008: pp. 537-548.
- [5] World Bank (2005), "Kabul: Urban Land Crisis, A Policy Note", World Bank.
- [6] RECS International and Yachiyo Engineering Co., Ltd. (2011), "Draft Kabul City Master Plan". Japan International Cooperation Agency 2011.
- [7] Bashir A. Kazimee and James Mcquillan. (2001) "The Living Traditions of the Afghan Courtyard and Aiwan," *Traditional Dwellings and Settlements Review* 13.2, pp. 23-34.
- [8] Andrew, H., Buchanan, Honey, B, G., 1994. Energy and carbon dioxide implications of building construction, *Energy and Buildings*, 20, pp 205-217.
- [9] Ankara, 1976. Studies of black silica produced under varying conditions, PhD Thesis, University of California, Berkeley (cited in Bui, 2001).
- [10] Debnath, A., Singh, S, V ., Singh, Y , P ., 1995. Comparative assessment of energy requirements for different types of residential buildings in India, *Energy and Buildings*, 23, pp 141-146.
- [11] Keeney, Ralph L. 1988. "Structuring objectives for problems of public interest" in: *Operations Research*, Vol. 36, No. 3 May-June pp.396-405.

- [12] Asian Development Bank (ADB), 2000. Report and recommendation of the president to the board of directors on four proposed loans to the housing and urban development corporation, National housing bank, Housing Development Finance corporation, and ICICI for the housing finance II project in India. RRP: IND 30204. <http://www.adb.org/Documents/RRPs/IND/rrp-1758-ind.pdf>
- [13] Chani, P, S., Najamuddin, Kaushik, S, K., 2003. Comparative analysis of embodied energy rates for walling elements in India. IE (I) Journal- AR, 84, page 47-50. (<http://www.ieindia.org/publish/ar/1003/oct03ar3.pdf>, last accessed on 28/08/2006)
- [14] AKTC) The Aga Khan Trust for Culture, (2008), Afghanistan-Project Brief.
- [15] (AKTC) The Aga Khan Trust for Culture, (2005), Urban Conservation and Area Development in Afghanistan, Kabul.
- [16] ArezG. J. and Dittmann A., (2005), Kabul: Aspect of Urban Geography, Peshawar.
- [17] Arez G. J. and Dittmann A., (2008), Urban Geography of Kabul- Changing Face of the Central and Western Parts of Kabul city, Kabul, Afghanistan.
- [18] Barry R., (1999), The Construction of Buildings, Blackwell Science.
- [19] Bertaud A., (2005), Kabul Urban Development, current city structure, spatial issues, recommendations on urban planning, Kabul, The World Bank.
- [20] Biddulph M., (2007), Introduction to Residential Layout, Elsevier.
- [21] Biggam J., (2008), Succeeding with Your Master's Dissertation-a step-by-step handbook, Mc Graw Hill Open University Press.
- [22] Chen, T,Y., Burnett, J., Chau, C,K., 2001. Analysis of embodied energy use in the residential building of Hong Kong. Energy, 26, pp 323–340.
- [23] Erguden, S 2001. Low cost housing, Policies and constraints in developing countries. Spatial information for sustainable development, International conference, Nairobi, Kenya.
- [24] Boulder straw bale code, Ordinance No: 5891, An ordinance amending chapter 10-5, BR.C.1981, Concerning alternative building materials, including adobe and Straw bale construction and recycled lumber,

(http://www.dcat.net/resources/Boulder_Straw_Bale_Code.pdf, last accessed on 28/08/2006)

- [25] CIB (International Council for Research and Innovation in Building and Construction) and UNEP-IETC., 2002. Agenda 21 for Sustainable construction in Developing countries, a discussion document, Published by the CSIR building and construction technology, South Africa.
- [26] Dreze and Sen, A., 1988 cited in Kannan, K, P., 1999. Poverty alleviation as advancing basic human capabilities: Kerala's achievements compared, Centre for Development Studies, Thiruvananthapuram.
- [27] Bhattacharya, K, P 1994. Affordable housing, Infrastructure and urban development. Habitat International 18 (2), 99-101.
- [28] Glaeser, B (1995). Housing, Sustainable Development and the Rural Poor A study of Tamil Nadu. SAGE Publications, New Delhi.
- [29] UNCHS – GSS 2000, The global strategy for shelter to the year, HS/185.
- [30] Islam, N (1996). Sustainability issues in a low-income country: Bangladesh. Habitat International 20 (3) 377- 388.
- [31] Calogero P. A., (2011), Planning Kabul: The Politics of Urbanization in Afghanistan, University of California, Berkeley.
- [32] Carmona M. and Tiesdell S., (2007), Urban Design Reader, Elsevier.
- [33] Chiranthanut Ch. and Funo Sh. (2008), Considerations on Spatial Formation and Transformation of Kaloeng House in Mukdahnn Province, Thailand, J. Archit. Plann., AIJ, Vol.73, No.633, 2285-2292.
- [34] Correa Ch., (1989), The New Inndscape-Urbanisation in the Third World, A Mimar Book, Butterworth Architecture.
- [35] Courtyard House (<http://en.wikipedia.org/wiki/Courtyard-house>).
- [36] Detached House (<http://en.wikipedia.org/wiki/Single-family-detached-home>).
- [37] Frederick R. Steiner and Kent Butler, (2007), Planning and Urban Design Standards, John Wiley & Sons, Inc., Hoboken, New Jersy.
- [38] Ferriss A. L., (2010), Approaches to Improving the Quality of Lde-How to Enhance the Quality of Lift, Springer.

- [39] Ebsen, C and Ramboll, B (2000). International review of low-cost sustainable housing projects. Proceedings: Strategies for a Sustainable built environment.
- [40] Veron, R (2001). The new Kerala Model: Lessons for sustainable development. *World Development* 29 (4) 601-617.
- [41] Barakat, S. and Ellis, S. (eds.) (1996) Towards Improved Shelter and Environment for Refugees and Displaced Persons within the Post-Yugoslav Countries. University of Luton and IOASS, University of York.
- [42] Amisi, B. (2006) 'An Exploration of the Livelihood Strategies of Durban Congolese Refugees,' UNHCR Working Paper No.123, New Issues in Refugee Research, UNHCR, Geneva.
- [43] Beer, A., Kearins, B., Pieters, H. (2007) Housing Affordability and Planning in Australia: The Challenge of Policy Under Neo-liberalism, *Housing Studies*, vol. 22 (1), pp. 11-24.
- [44] Berry, M. (2006) Housing affordability and the economy: A review of macroeconomic.
- [45] Audenaert, A., De Clyen, S. H., Vankerckhove, B. (2008). Economic analysis of passive houses and low-energy houses compared with standard houses. *Energy Policy*.
- [46] Beer, A., Kearins, B. & Pieters, H. (2007) Housing Affordability and Planning in Australia: The Challenge of Policy Under Neo-liberalism, *Housing Studies*, vol. 22 (1), pp. 11-24.
- [47] Al-Temeemi, A.S. (1995). Climatic design techniques for reducing cooling energy consumption in Kuwaiti houses. *Energy and Buildings*.
- [48] Dewit, M and Schenk, H., 1989. Shelter for the poor in India; Issues of low cost housing, Published by Ramesh Jain, Manohar publications, 2/6 Ansari Road, Daryaganj, New Delhi-110002.
- [49] Ebsen, C., and Ramboll, B., 2000. International review of low-cost sustainable housing projects, Proceedings: Strategies for a Sustainable built environment.
- [50] Bülow-Hübe, H. (2001). Energy-efficient window systems: Effects on energy use and daylight in buildings.

- [51] Turner, J.F.C (1976). Housing by people towards autonomy in building environments. Marion Boyars, London.
- [52] Tiwari, P 2001. Housing and development objectives in India. *Habitat international* 25, 225-253. Dimson, B (1996). Principles and challenges of sustainable design and construction.
- [53] *Environment* 19 (2) Reddy, B, V, V and Jagadish, K, S 2001. Embodied energy of common and alternative building materials and technologies. *Energy and Buildings* 35, 129–137.
- [54] Spence.R and Mulligan.H, 1995. Sustainable Development and Construction industry. *Habitat international* 19 (3), 279-292.
- [55] Agenda 21 for sustainable construction in developing countries, a discussion document. The international council for research and innovation in building and construction CIB and United Nations Environment Programme International Technology Centre UNEP-IETC.
- [56] Samuel research and consulting company, Full report of the UNHCR Shelter Assistance Programme 2013.
- [57] D. Turton and P. Marsden, Taking Refugees for a Ride? The Politics of Refugee Return to Afghanistan, Kabul, Afghanistan Research and Evaluation Unit, 2002.
- [58] Lohse, U., 2002. Housing finance-overview. In UN Habitat (Ed.), *Financing adequate shelter for all*. UN Habitat, Nairobi: Addressing the Housing Finance Problem in Development Countries. pp: 41-47.
- [59] Department of Housing, 2003. A Social Housing Policy for South Africa Towards an enabling environment for social housing development, revised draft July 2003.
- [60] Department of housing, 2004. United Nations Commission for sustainable Development twelfth session 14-30 April 2004, South Africa's progress report Human settlement.
- [61] Department of Housing, 2005. <http://www.housing.gov.za/Content/Strategic%20Statement.htm>, Strategic Statement from the Director General Ms MZ Mpofu.

- [62] World Commissions for Environment and Development, 1987:23 Jansen, L 2002. The Challenges of sustainable development. *Journal of Cleaner Production* 11, 231–245.
- [63] Yuen, B. (Eds.) *Sustainable cities in the 21st century*, Singapore: National University of Singapore, pp. 131-142. Choguill, C. L. (2007) 'The search for policies to support sustainable housing', *Habitat International*, vol. 31, pp. 143-149.
- [64] Gerard Meszaros and Jim Doble. “MetaPatterns: A Pattern Language for Pattern Writing”. http://st-www.cs.illinois.edu/patterns/Writing/pattern_index.html.
- [65] Chakrabarthy, B, K., 1993. National Shelter strategy: A model based approach, *Habitat international* 17, pp 31-54.
- [66] Dorst, M, J., and Duijvestein, C, A, J., 2004. Concepts of Sustainable Development, Proceedings of the 2004 International Sustainable Development research conference on 29-30 March, University of Manchester, UK.
- [67] Choguill, C, L., 1996. Ten Steps to Sustainable Infrastructure, *Habitat International*, 20, (3), pp 389-404.
- [68] Mr. Adam, Mr. L.M. Austin, et al. (2000) *Guidelines for Human Settlement , Planning and Design, Volume 1*. Compiled under the patronage of the Department of Housing by CSIR Building and Construction Technology.
- [69] Editorial, Learning from the past: international housing policy since 1945- an introduction. *Habitat International*, 27 (2003) 163-166.
- [70] Eldmery, I, M., 2002. Towards a participatory loan-supported housing scheme, *Helwan New Community, Egypt, Cities*, 19, (6), pp 401–408.
- [71] Elizabeth, L., Adams, C., 2000. Alternative construction- contemporary Natural building Methods, pp 209-235.
- [72] Emmanuel, R., 2004. Estimating the environmental suitability of wall materials: preliminary results from Sri Lanka, *Building and Environment*, 39, pp 1253 – 1261.
- [73] Ashkenas, R., Ulrich D., Jick, T., Kerr., S. (1995) *The Boundaryless Organization: Breaking the Chains of Organizational Structure*.

- [74] DIAC (Department of Immigration and Citizenship). 2007b. Settlement Database – Refugee and Humanitarian Entrants 1 July 2006 to 30 June 2007 by Local Government Area. Canberra: DIAC.
- [75] Krishan, A., Baker, N., Yannas, S., & Szokolay, S. V. (2001). *Climate Responsive Architecture: A design handbook for energy efficient buildings*. New Delhi: Tata Mcgraw-Hill.
- [76] Ghobadian, V., Taghi, N. & Ghodsi, M.(2008). Tehran: A hot arid climate. In Hyde, R. (Ed), *Bioclimatic Housing: Innovative designs for warm climates* (pp.173-193). UK & USA: Earthscan.
- [77] Berry, M. (2006) *Housing affordability and the economy: A review of macroeconomic impacts and policy issues*, Australian Housing and Urban Research Institute.
- [78] Afghanistan, Islamic Republic. 1382 Hijra Solar (2004 Anno Domini). *Constitution of the Islamic Republic*. Kabul.
- [79] Agamben, Giorgio. 1998. *Homo sacer: Sovereign power and bare life*. Stanford, CA: Stanford University Press.
- [80] Agency Coordinating Body for Afghan Relief (ACBAR). 2002. “Concerns related to housing rents in Afghanistan.” Open letter to Ashraf Ghani, then head of the Afghanistan Aid Coordination Authority.
- [81] Ahad, Wahid. 2007. Personal interview. Kabul: Ministry of Urban Development. AlSayyad, Nizar. 2004. “Urban informality as a ‘new’ way of life.” introduction to *Urban*
- [82] *informality*. Lanham, MD: Lexington Books. Appadurai, Arjun. 2002. “Deep democracy: Urban governmentality and the horizon of politics.”
- [83] *Public culture* 14:21-47. Arendt, Hannah. 1998[1958]. *The Human Condition*. 2nd ed. Chicago: University of Chicago
- [84] Press.
- [85] Arez, Ghulam Jailani, and Andreas Dittmann. 2005. Kabul: Aspects of urban geography. Peshawar, PK: self-published, p.30.
- [86] Aristotle. 1934. *The Nicomachean Ethics*. New and rev. ed. Cambridge, Mass: Harvard University Press.

- [87] Bauer, Catherine. 1934. *Modern housing*. Boston: Houghton Mifflin Company.
- [88] Baviskar, Amita. 2003. "Between violence and desire: space, power and identity in the making of metropolitan Delhi." *International social science journal* vol.55, no.175:89-98.
- [89] Baviskar, Amita. 2006. "Demolishing Delhi: World-class city in the making." *Mute* 2:88-95.
- [90] Bayat, Assef. 2000. "From 'dangerous classes' to 'quiet rebels': Politics of the urban subaltern in the global South." *International sociology* 15:539-557.
- [91] BBC News. 2007. "Clashes at Pakistan refugee camp." May 16. http://news.bbc.co.uk/2/hi/south_asia/6662367.stm
- [92] Bearak, Barry. 2002. "Kabul Journal: In the Afghan capital, rents go through the roof." *New York Times*, May 14.
- [93] Bechhoefer, William. 1977. "The role of squatter housing in the urbanization of Kabul." *Afghanistan Journal*. Kabul: [unknown publisher].
- [94] Belousov, V. 1989. "Contemporary problems of settlement and urban-planning in the USSR." in
- [95] *Soviet planning in the 1980s: A collection of original planning papers from the Soviet Union*, edited by Patrick Whitehead. Berwick-on-Tweed: How & Blackhall.
- [96] Benevolo, Leonardo. 1967. *The origins of modern town planning*. Cambridge, Mass.: M.I.T. Press.
- [97] Berman, Marshall. 1988. *All That Is Solid Melts into Air: The Experience of Modernity*. New York: Viking Penguin.
- [98] Bourdieu, P. (1986) 'The forms of capital', in: J.G. Richardson (Ed) *The Handbook of Theory and Research for the Sociology of Education* (New York, Greenwood Press), pp. 241- 258.
- [99] Bramely, G. and Power, S. (2009). Urban form and social sustainability: the role of density and housing type, *Environment and Planning B: Planning and Design*, 36, 30-48.
- [100] Burke, T., Pinnegar, S., Phibbs, P., Neske, C., Gabriel, M., Ralston, L. & Ruming, K. (2007).

- [101]Experiencing the housing affordability problem: blocked aspirations, trade-offs and financial hardships, Australian Housing and Urban Research Institute. Burns, L. (2008) Housing Costs and Affordability in Australia, RBA Economics Competition.
- [102]Reazul Islam Sr. Private Sector Development Specialist, Housing Finance in Afghanistan: Challenges and Opportunities July 2008.
- [103]Deepa Gopalakrishnan Nair Master of Science in Habitat Technology, Birla Institute of Technology and Science (India) Sustainable-Affordable Housing for the Poor in Kerala.
- [104]Dewit, M and Schenk, H., 1989. Shelter for the poor in India; Issues of low cost housing, Published by Ramesh Jain, Manohar publications, 2/6 Ansari Road, Daryaganj, New Delhi-110002.
- [105]Erguden, S., 2001. Low cost housing, Policies and constraints in developing countries. Spatial information for sustainable development, International conference, Nairobi, Kenya.
- [106]Liming Yao Nottingham Trent University, School of Architecture, Design, and the Build Environment, Nottingham, NG1 4BU, United Kingdom House Price Appreciation And Housing Affordability In Chinese Housing Market.
- [107]Barnett, R., & Lowe, S. (1990). Measuring housing need and the provision of social housing. *Housing Studies*, 5(3), 184-194.
- [108]Note 72. Himmelberg, C., Mayer, C., & Sinai, T. (2005). Assessing high house prices: Bubbles, fundamentals, and misperceptions (No. w11643). National Bureau of Economic Research.
- [109]F. Van Der Hoeven and H. J. Rosemann, (2006), *Urban Transformations and Sustainability*, IOS Press.
- [110](http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/eMndex.html)
- [111](ICT) Intercontinental Consultants and Technocrats, (2007), Consulting Services for Preparation of Development Plan for Kabul City, Afghanistan Ministry of Urban Development, Kabul, Afghanistan.

- [112](ICT) Intercontinental Consultants and Technocrats, (2008), Kabul Development Plan : Challenges and Priorities.
- [113]Inheritance (<http://en.wikipedia.org/wiki/Inheritance>).
- [114](JICA) Japan International Cooperation Agency, (2009), The Study for the Development of the Master Plan for the Kabul Metropolitan Area in the Islamic Republic of Afghanistan RECS International Inc., Yachiyo Engineering Co., Ltd., CTI Engineering International Co., Ltd., Sanyu Consultants Inc.
- [115]Kabul (<http://en.wikipedia.org/wiki/Kabul>).
- [116]F. Van Der Hoeven and H. J. Rosemann, (2006), Urban Transformations and Sustainability, IOS Press.
- [117](http://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/index.html)
- [118](ICT) Intercontinental Consultants and Technocrats, (2007), Consulting Services for Preparation of Development Plan for Kabul City, Afghanistan Ministry of Urban Development, Kabul, Afghanistan.
- [119](ICT) Intercontinental Consultants and Technocrats, (2008), Kabul Development Plan: Challenges and Priorities. Inheritance (<http://en.wikipedia.org/wiki/Inheritance>).
- [120] (JICA) Japan International Cooperation Agency, (2009), The Study for the Development of the Master Plan for the Kabul Metropolitan Area in the Islamic Republic of Afghanistan RECS International Inc., Yachiyo Engineering Co., Ltd., CTI Engineering International Co., Ltd., Sanyu Consultants Inc. Kabul (<http://en.wikipedia.org/wiki/Kabul>).
- [121]Kanazawa Sh. and Jun Ch., (2002), Comparative Study on Residents' Perception and Activities in Their Outdoor Spaces -Cases of Traditional Blocks and a New Housing Project in Beijing, Journal of Asian Architecture and Building Engineering, Vol. 1, No. 1, 228.
- [122] Makachia P. A. (2005), Influence of House Form on Dweller-Initiated Transformations in Urban Housing, World Congress on Housing, Transformation Housing Environments through Design, XXXIII IAHS. South Africa.

- [123] Mirmoghtadaee M., (2009), Process of Housing Transformation in Iran, Journal of Construction in Developing Countries, Vol. 14, No. 1. Penerbit University Sains Malaysia.
- [124] (MoUD) Ministry of Urban Development and Housing, (2008), Strategic Development Plan Report of Kab ul C ity, Kabul, Afghanistan.
- [125] Mumtaz B. and Noschin K., (2004), Development of Kabul, Switzerland, 10th Architecture & Behavior Colloquium.
- [126] Muradi S., (2000), Civil and Cultural Formation: Kabul in the Course of History, Dushanbe.
- [127] Kanazawa Sh. and Jun Ch., (2002), Comparative Study on Residents' Perception and Activities in Their Outdoor Spaces -Cases of Traditional Blocks and a New Housing Project in Beijing, Journal of Asian Architecture and Building Engineering, Vol. 1, No. 1, 228.
- [128] Makachia P. A. (2005), Influence of House Form on Dweller-Initiated Transformations in Urban Housing, World Congress on Housing, Transformation Housing Environments through Desig;n, XXXIII IAHS. South Africa.
- [129] Mirmoghtadaee M., (2009), Process of Housing Transformation in Iran, Journal of Construction in Developing Countries, Vol. 14, No. 1. Penerbit University Sains Malaysia.
- [130] (MoUD) Ministry of Urban Development and Housing, (2008), Strategic Development Plan Report of Kab ul C ity, Kabul, Afghanistan.
- [131] Mumtaz B. and Noschin K., (2004), Development of Kabul, Switzerland, 10th Architecture & Behavior Colloquium.
- [132] Muradi S., (2000), Civil and Cultural Formation: Kabul in the Course of History, Dushanbe.
- [113] Ander, G. D., and M. Navvab (1983). Daylight Impacts of Fenestration Controls. Proceedings of the 8th National Passive Solar Conference. Boulder, CO: American Solar Energy Society.
- [114] Ardalan, Nader and Bakhtiar, Laleh. (1979). The Sense of Unity: the Sufi Tradition in Persian Architecture. Chicago: University of Chicago Press.

- [115] Beall, Christine. (1997). *Masonry Design and Detailing: For Architects, Engineers, and Contractors*. 4'th ed. McGraw-Hill, New York.
- [116] Bentley, Ian, Alcock, Alan, Murrain, Paul, McGlynn, Sue, and Smith, Graham. (1994). *Responsive Environments: A manual for Designers*. Hartnolls Ltd, Bodmin, Cornwall, London, Great Britain.
- [117] Brown, G. Z. and DeKay, Mark. (2001). *Sun, Wind and Light*. John Wiley and Sons, Inc. Canada.
- [118] Canizaro, Vincent (Ed.). (2007). *Architecture Regionalism: Collected Writings on Place, Identity, Modernity, and Tradition*. New York: Princeton.
- [119] Ching, Francis D.K. (2003). *Architectural Graphics*. John Wiley and sons, Inc., New York.
- [120] Ching, Francis D.K. (2007). *Architecture: Form, Space, and Order*. 3'rd ed. John Wiley and Sons, Inc. USA.
- [121] Coates, Gary J. and Seamon, David. (1993). "Promoting a Foundational Ecology Practically Through Christopher Alexander's Pattern Language: The Example of Meadowcreek". In *Dwelling, Seeing, and Designing: Toward a Phenomenological Ecology*. David Seamon, ed. Albany, NY: SUNY Press. (pp. 331-54).
- [122] D. Frank, Lawrence, Engeleke, Peter O., and L. Schmidt, Thomas. (2003). *Health and Community Design: The Impact of the Built Environment on Physical Activity*. Washington, DC: Island Press.
- [123] Dodge, Jim. (1981). *Living by Life: Some Bioregional Theory and Practice*. *CoEvolution Quarterly* 32 winter. (pp. 6-12).
- [124] El Khoury, Pierre. (2000). *Contemporary Architecture for the Lebanon and the Middle East*. Beirut, Lebanon.

- [125] Erikson, Tom and John Thomas. (1997). Putting It All Together: Toward a Pattern Language for Interaction Design Summary Report of the CHI '97 Workshop. Online Article.
- [126] Ernst J. Grube... [et all.]. Edited by George Michell. (1978). Architecture of the Islamic World: Its History and Social Meaning. London: Thames and Hudson.
- [127] Faryad, Aashoqullah. (2011). Strategies for Minimizing Thermal Energy Transfer in Traditional Brick Masonry Bearing Wall Construction in Kabul, Afghanistan. Master of Science in Architecture Summary Research Paper, (unpublished). Department of Architecture, Kansas State University.
- [128] Fathy, Hassan. (1986). Natural Energy and Vernacular Architecture. Chicago and London: University of Chicago Press.
- [129] Calvino, Italo. 1974. Invisible cities. New York: Harcourt Brace Jovanovich. Chadwick, Edwin. 1842. Report on the sanitary condition of the labouring population of Great
- [130] Britain. London: W. Clowes and Sons. Chakrabarty, Dipesh. 2000. Provincializing Europe: Postcolonial thought and historical
- [131] difference. Princeton: Princeton University Press. Chatterjee, Partha. 1986. Nationalist thought and the colonial world: A derivative discourse?
- [132] Totowa, N.J.: Zed Books for the United Nations University. Chatterjee, Partha. 2004. The politics of the governed: reflections on popular politics in most of
- [133] the world. New York: Columbia University Press. Cloud, David. 2005. "Rebuilding Kabul: Reprising his role as mayor, Noorzad has big plans."
- [134] Wall Street Journal, March 3, Eastern edition, A1.
- [135] Comte, Auguste. 1998 [French original, 1822]. "Plan of the Scientific Work Necessary for the Reorganization of Society." in Early political writings, Cambridge texts in the history of political thought, edited by H. S Jones. New York: Cambridge University Press.

- [136] Constable, Pamela. 2002. "Kabul swamped by tide of returnees." *Dawn*, May 23, Internet edition: <http://www.dawn.com/2002/05/23/int15.htm>
- [137] Constable, Pamela. 2002. "Afghan vice president slain: Assassination of ethnic Pashtun in Kabul shakes new government." *Washington Post*, July 7.
- [138] Constable, Pamela. 2003. "Land grab in Kabul embarrasses government." *Washington Post*, September 16, A-13.
- [139] Le Corbusier. 1927. *Towards a New Architecture*. New York: Payson & Clarke, Ltd. Crile, George. 2003. *Charlie Wilson's war: The extraordinary story of the largest covert operation in history*. New York: Atlantic Monthly Press. Crow, Ben, Henry Bernstein, and Hazel Johnson. 1985. *Third World Development*. New York: Grosvenor Press.
- [141] Daley, Elizabeth and Mary Hobley. 2005. "Land: changing contexts, changing relationships, changing rights". London: Rural-urban exchange team, Department for International Development.
- [142] Engels, Friedrich. 1995 [1872-3]. *The housing question*. New York: Co-operative Publishing Society of Foreign Workers.
- [143] Erlanger, Steven. 2001. "A nation challenged: The talks; Delegates meet in first step towards post-Taliban rule." *The New York Times*, November 27.
- [144] Erlanger, Steven, and John Kinfer. 2001. "A nation challenged: The politics; Afghan talks stall in Bonn on comments from Kabul." *The New York Times*, December 1.
- [145] Erlanger, Steven. 2001. "A nation challenged: After the Taliban; After arm-twisting, Afghan factions pick interim government and leader." *The New York Times*, December 6. D'Errico, Peter. 14 September 2010.
- [146] Faludi, Susan. 2008. *The Terror Dream: Myth and Misogyny in an Insecure America*. New York: Picador.
- [147] Fawaz, Mona. 2009. "Hezbollah as urban planner? Questions from and to planning theory." *Planning Theory* 8:323-334.
- [148] Ferguson, James. 2006. *Global Shadows: Africa in the Neoliberal World Order*. Durham, N.C.: Duke University Press.
- [149] Foucault, Michel. 1979. "Omnes et singulatim: Towards a criticism of

- ‘Political Reason’.” The Tanner lectures on human values 2:223-254.
- [150] Jo Beall and Daniel Esse. Shaping Urban Futures: Challenges to Governing and Managing Afghan Cities. 2005. AREU
 - [151] Roula Katkhouda. Affordable Housing in the Suburbs of Beirut: Prospects in Post-War reconstruction. 1998. McGill University
 - [152] Ira Peppercorn and Claude Taffin. Social housing in the USA and France: Lessons from convergences and divergences. 2010
 - [153] Sasha Tsenkova. Provision of affordable housing in Europe, North America and Central Asia: policies and practices. 2008. United Nations-HABITAT
 - [154] Campbell Tickell. BME Housing Associations and Stock Transfers. 2008 Pietro Calogero. Planning on Contested Ideological Terrain: Kabul. 2007. University of California, Berkeley
 - [155] Nicholas Pleace. Immigration and Homelessness. 2010. Centre for Housing Policy, University of York, England, UK
 - [156] Anne d’Orazio. Towards a “third” sector housing in France. 2010. Conference on economic de growth
 - [157] RICS Research. European Housing Review. 2012
 - [158] Wahid A Ahad. Kabul Municipality and Issues of Kabul city. 2010. Kabul Municipality
 - [159] Jie Ying Wu and Michael K. Lendell. Housing reconstruction after two major earthquakes: the 1994 Northridge earthquake in the USA and the 1999 Chi-Chi earthquake in Taiwan. 2004
 - [160] Clive Gilbert. Prefabs: a solution to a housing crisis. 2011 World Bank. Kabul Urban Policy Notes. 2004
 - [161] Peter J. Larkham and Leslie Ginsburg. Planning for reconstruction after the disaster of war: lessons from England in the 1940s. University of Central England, UK
 - [162] Christine Whitehead and Kathleen Scanlon. Social Housing in Europe. July 2007. London School of Economics and Political Science
 - [163] Dina K. Shehayeb. Informal Housing in Cairo an Overview. 2009 Judith Allen. European Journal of Housing Policy. 2007. University of

Westminster, London, UK

- [165] Barthold, Thomas, and Takatoshi Ito. 1992. Bequest Taxes and Accumulation of Household Wealth: US-Japan Comparison. In *The Political Economy of Tax Reforms*, ed. T. Itō and A. O. Krueger. Chicago: University of Chicago Press.
- [166] Hayashi, Fumio, Takatoshi Ito, and Joel Slemrod. 1988. Housing Finance Imperfections, Taxation, and Private Saving: A Comparative Simulation Analysis of the US. and Japan. *Journal of the Japanese and International Economies* 2 (3): 215-38.
- [167] Homma, Masaaki, and Masumi Atoda, eds. 1990. *Empirical Research on Tax Reform*. Tokyo: Toyo Keizai Shinpo sha.
- [168] Hirayama Yosuke (1988) "Fundamental research on the relation between local authority housing policy and social welfare policy", Doctoral thesis, Kobe University (Japanese)
- [169] Mimura Hiroshi and Ogino Takeshi et al (1989) "History and perspective for local authority housing and tenants movements" *Horitsubunkasya* (Japanese)
- [170] Ministry of Land, Infrastructure and Transport (1991) "Housing Construction Statistics", *Kensetsu Bukka Tyousakai* (1996) "Housing Construction Statistics", *Kensetsu Bukka Tyousakai* (2002a) "Housing policy for new century", Gyosei (Japanese) (2002b) "Housing Construction Statistics", *Kensetsu Bukka Tyousakai* (2003a) "New Concept of Housing Policy" (2003b) "Housing Construction Statistics", *Kensetsu Bukka Tyousakai* (2004) "Interim Report for the Institutional Framework of New Housing Policy" (2005) "Reference materials for underlying issues for the direction of whole concept of public rented housing" (Japanese) Sumimoto Yasushi (1997) "Clause-by clause explanation for new local authority housing" *Shyoji-Homu Kenkyukai* (Japanese)

Appendix
Climatic Analyzing Drawing from Ecotect And
Site Survey

Drawn By: Author

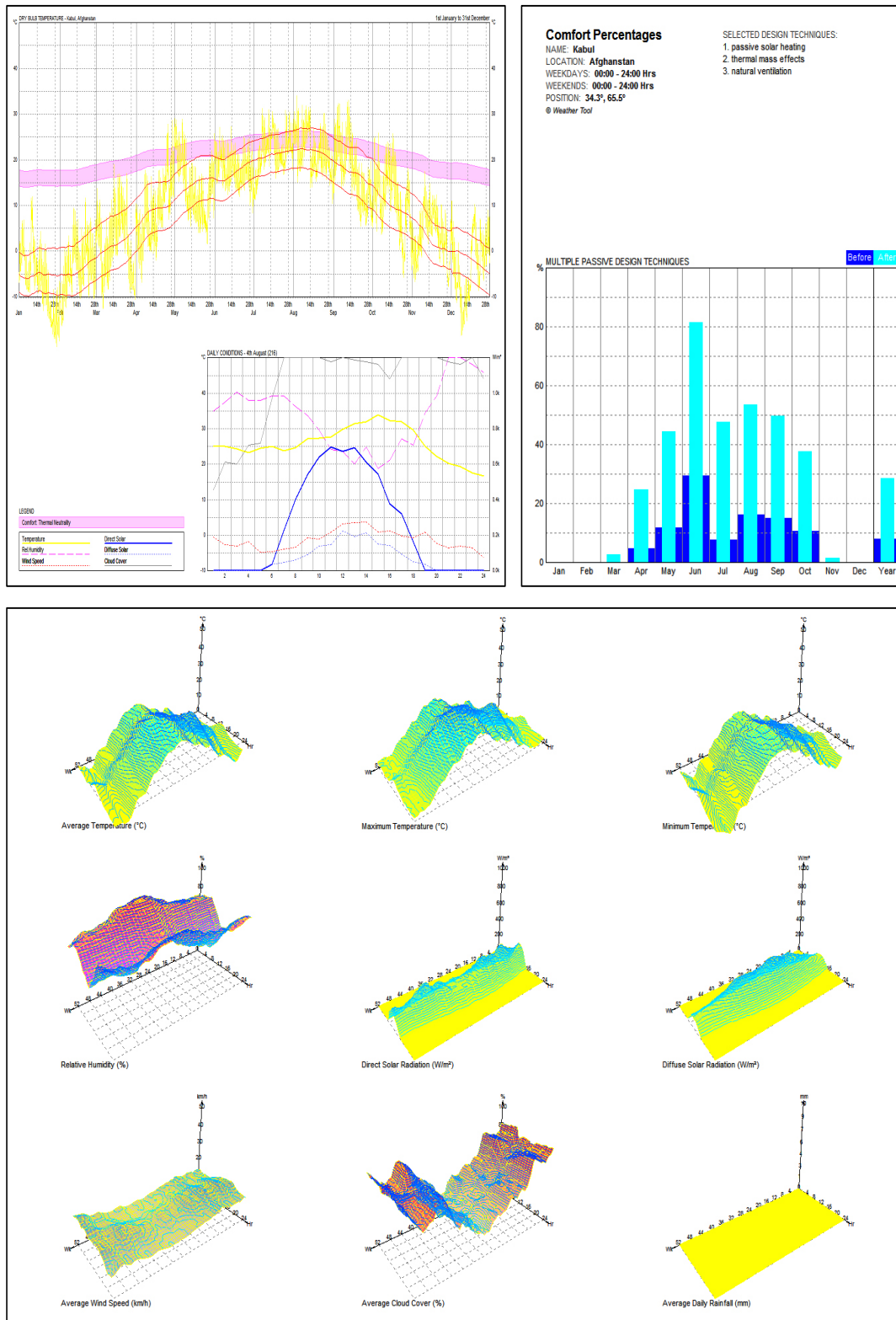


Figure .7.1 Climatic Analysis of Kabul Zone (Source : Ecotect 2011)

Comfort Percentages

NAME: Kabul

LOCATION: Afghanistan

WEEKDAYS: 00:00 - 24:00 Hrs

WEEKENDS: 00:00 - 24:00 Hrs

POSITION: 34.3°, 65.5°

© Weather Tool

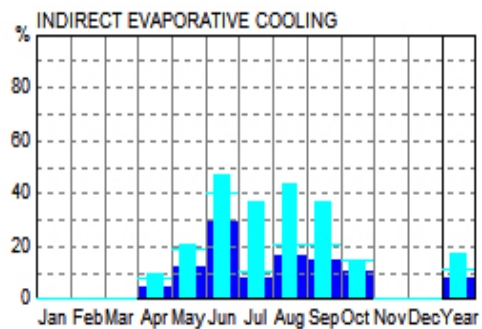
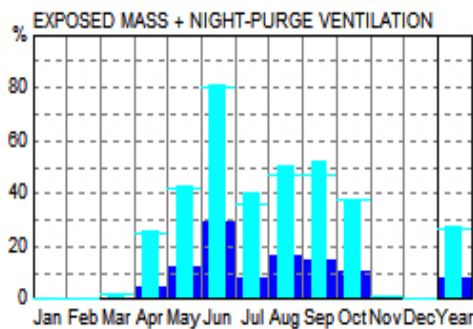
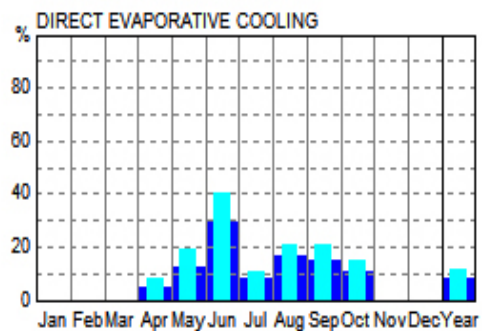
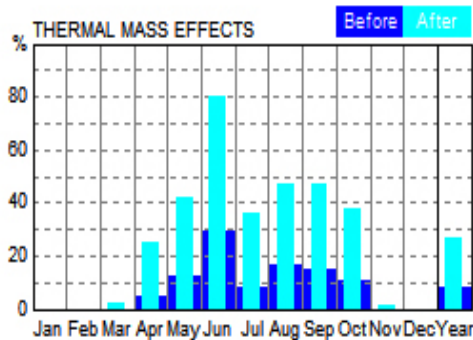
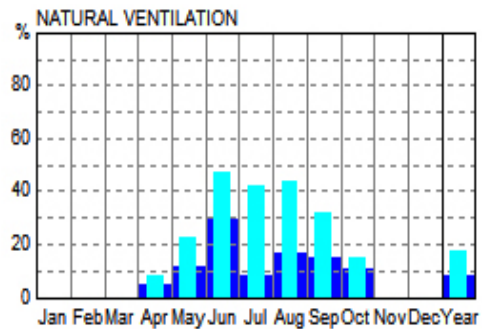
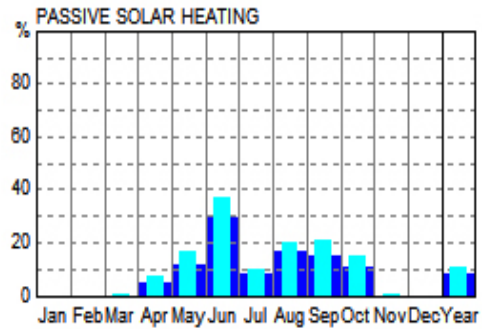


Figure.7 .2. Climatic Analysis of Kabul Zone (Source : Ecotect 2011

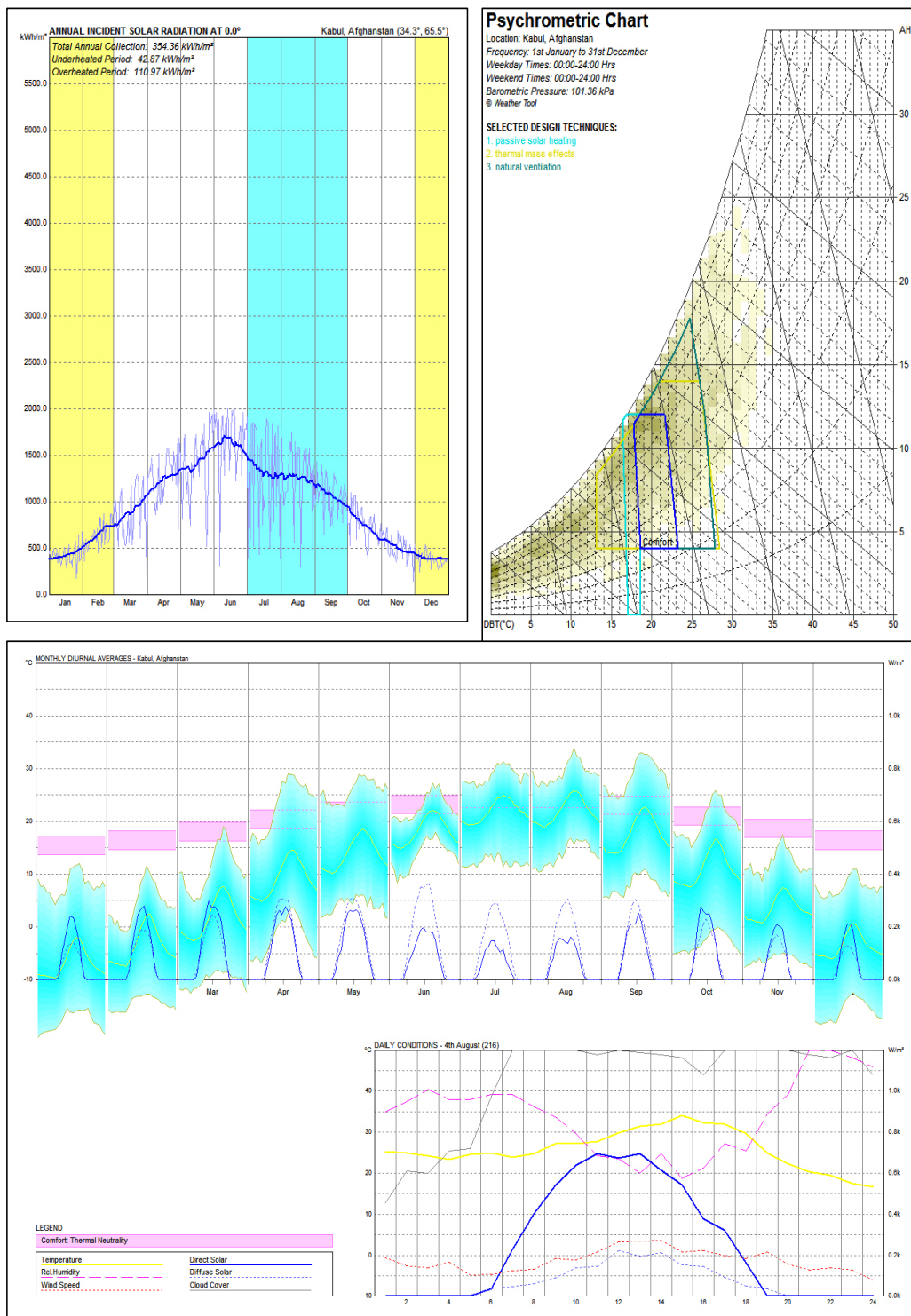


Figure 7.3 . Climatic Analysis of Kabul Zone (Source : Ecotect 2011)

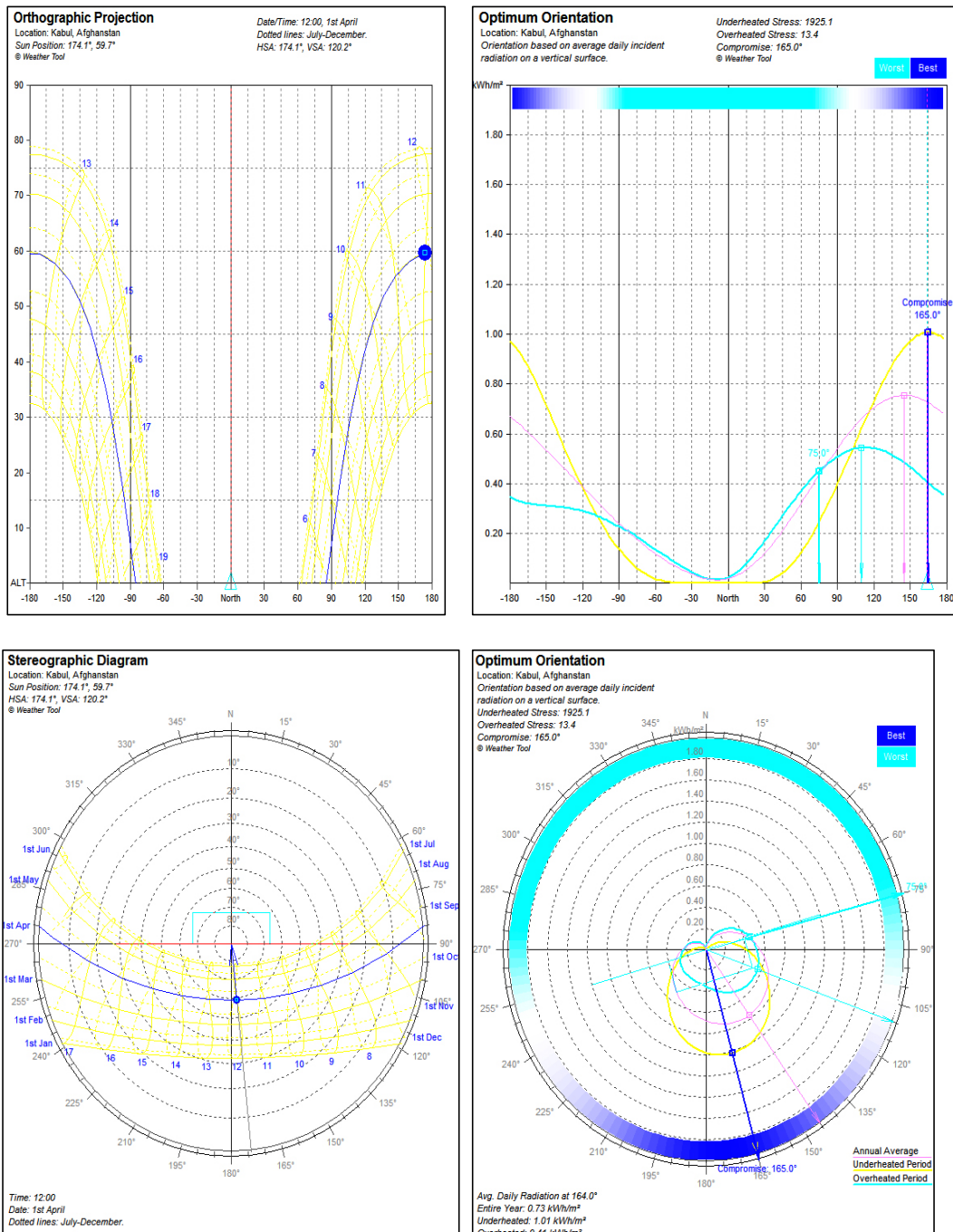


Figure .7.4. Climatic Analysis of Kabul Zone (Source : Ecotect 2011)

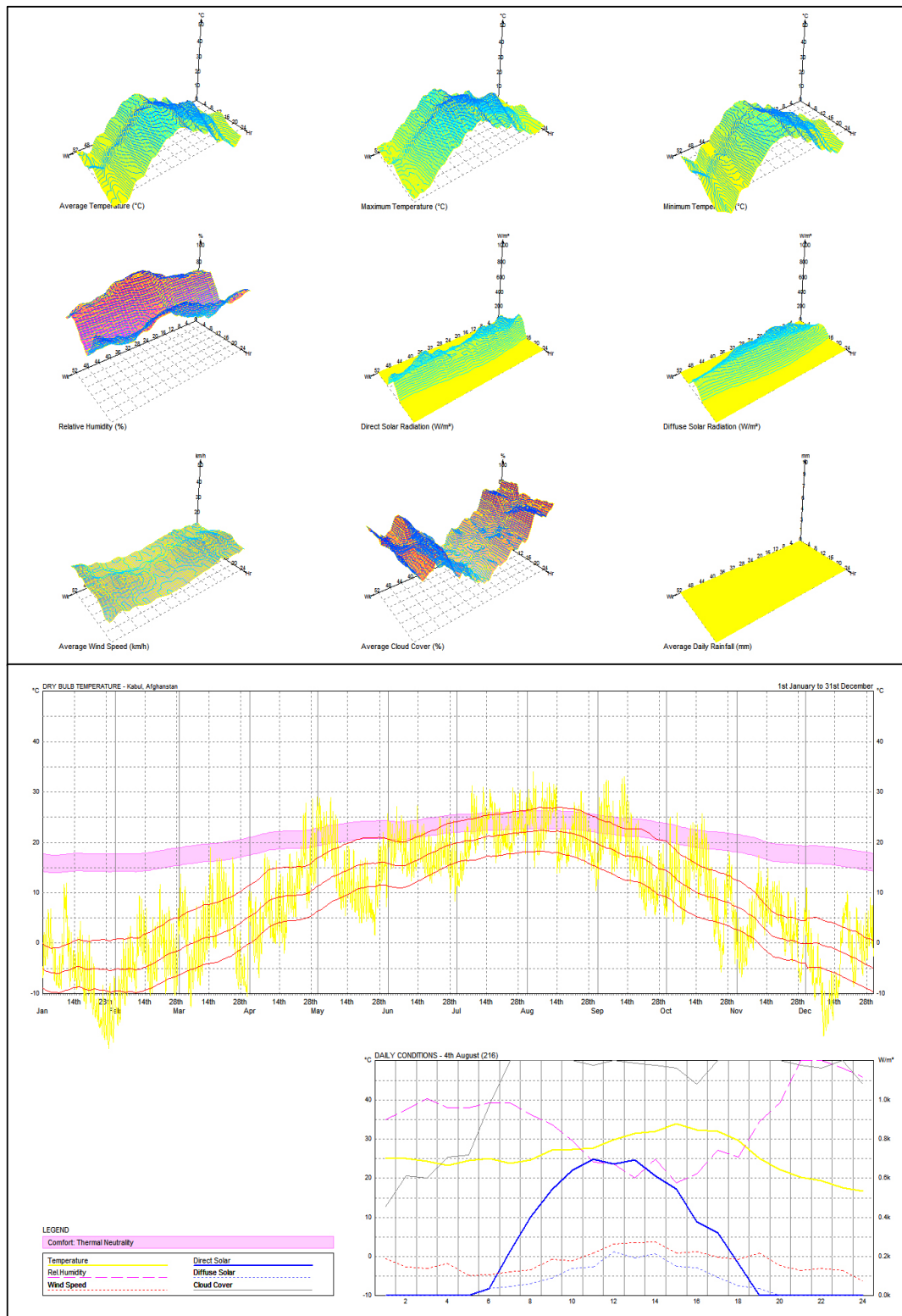


Figure .7.5. Climatic Analysis of Kabul Zone (Source : Ecotect 2011)

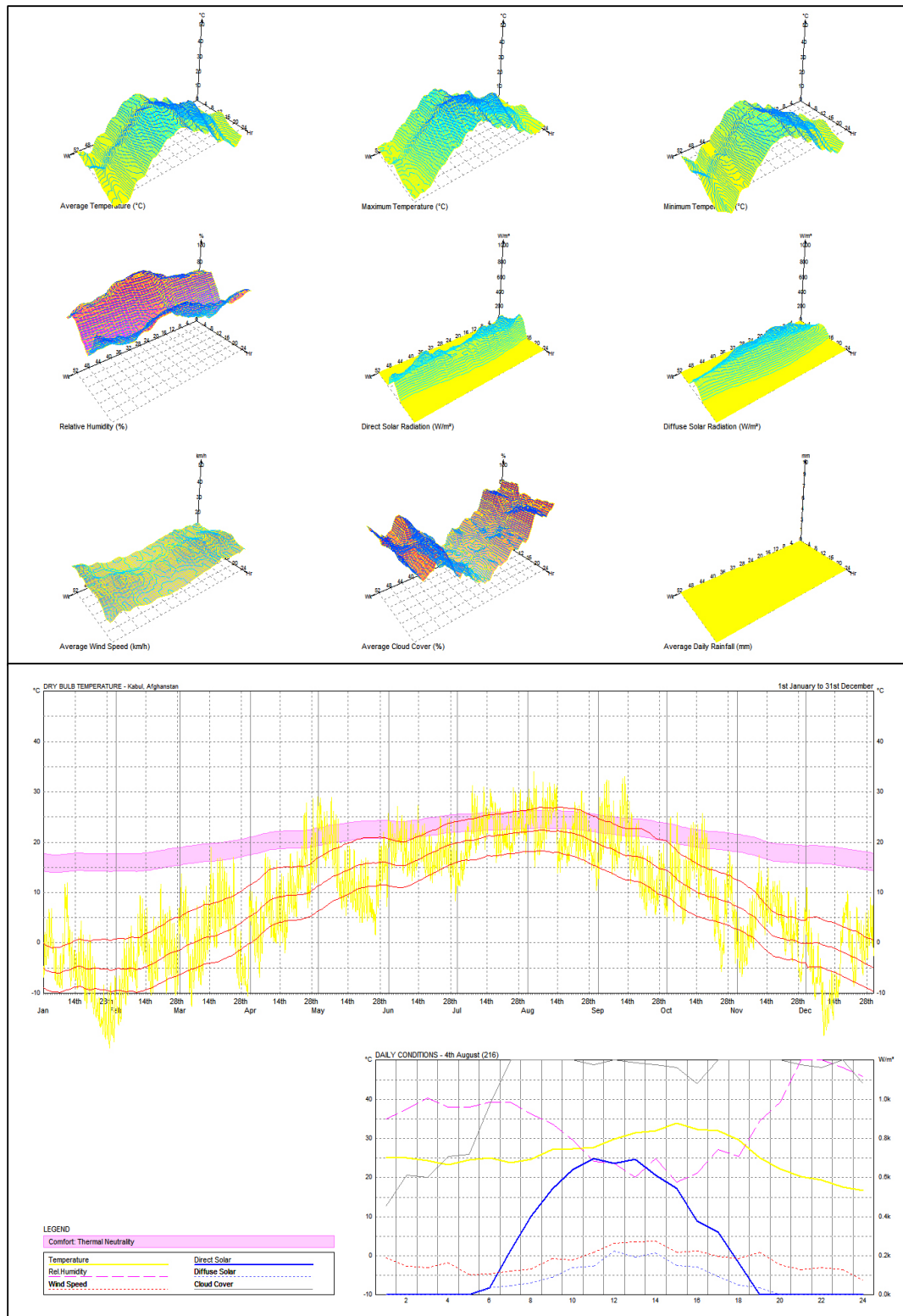


Figure .7.6. Climatic Analysis of Kabul Zone (Source : Ecotect 2011)

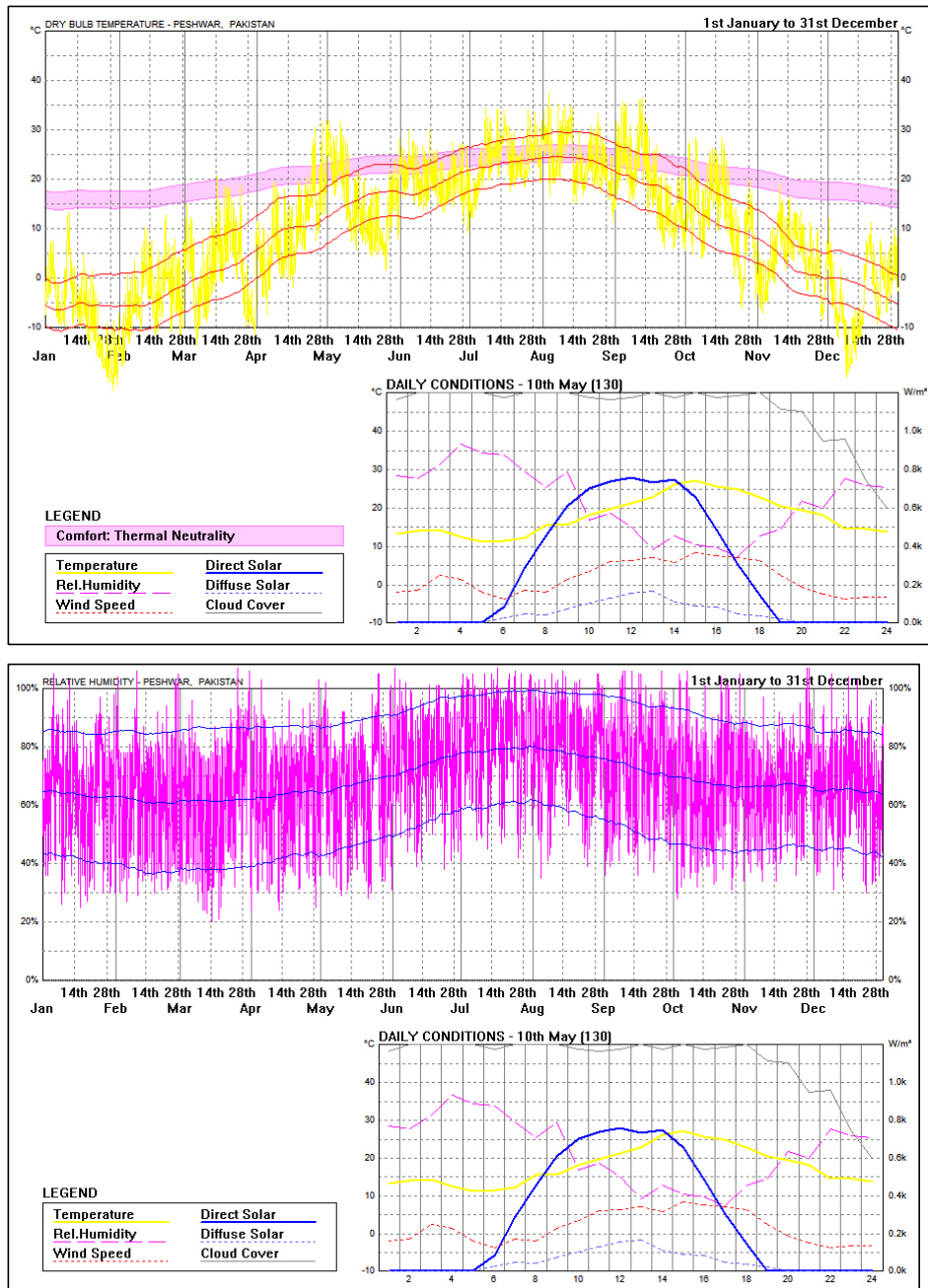


Figure 7.7. Climatic Analysis of Kabul Zone (Source : Ecotect 2011)

Table. 7.1. Socio-environmental and demographic survey of 60 houses

| NO | Specifications | | Zone 1 | Zone 2 | Zone 3 | |
|----|--|------------------------------|--------|--------|----------|----|
| | | | G1 | G1,G2 | G1,G2,G3 | |
| | | | Total | Total | Total | |
| 1 | Plot Area | (100-299) m ² | 7 | 1 | 0 | |
| | | (300-599) m ² | 16 | 10 | 10 | |
| | | (600-900) m ² | 0 | 6 | 3 | |
| | | more than 900 m ² | 0 | 4 | 5 | |
| 2 | House Age | Less than 10 Years | 22 | 7 | 4 | |
| | | 10-20 Years | 0 | 4 | 1 | |
| | | 21-30 Years | 0 | 4 | 5 | |
| | | 31-40 Years | 0 | 1 | 4 | |
| | | 41-50 Years | 0 | 1 | 2 | |
| | | 51-60 Years | 0 | 4 | 1 | |
| | | More than 60 Years | 0 | 1 | 1 | |
| 3 | Period of Stay | Less than 10 Years | 6 | 11 | 6 | |
| | | 10-20 Years | 11 | 4 | 4 | |
| | | 21-30 Years | 4 | 3 | 2 | |
| | | 31-40 Years | 0 | 0 | 3 | |
| | | 41-50 Years | 2 | 1 | 1 | |
| | | 51-60 Years | 0 | 3 | 1 | |
| 4 | No. of Floors | More than 60 Years | 0 | 0 | 1 | |
| | | 1 Floor | 12 | 9 | 2 | |
| | | 2 Floors | 4 | 7 | 13 | |
| | | 3 Floors | 3 | 5 | 1 | |
| 5 | No. of Family | 4 Floors | 3 | 1 | 2 | |
| | | 1 family per house | 10 | 11 | 5 | |
| | | 2 families per house | 8 | 6 | 9 | |
| | | 3 families per house | 2 | 2 | 2 | |
| | | 4 families per house | 3 | 3 | 2 | |
| 6 | No. of Family members | More than 4 families | 0 | 0 | 0 | |
| | | Below 9 years | 78 | 55 | 41 | |
| | | 10-19 years | 80 | 73 | 47 | |
| | | 20-39 years | 62 | 61 | 67 | |
| | | 40-59 years | 46 | 43 | 38 | |
| 7 | No. of Rooms | Above 60 years | 8 | 13 | 11 | |
| | | 2- 4 Rooms | 1 | 6 | 1 | |
| | | 5-7 Rooms | 12 | 6 | 12 | |
| | | 8-10 Rooms | 5 | 2 | 3 | |
| 8 | Type of ownership | More than 10 Rooms | 5 | 8 | 2 | |
| | | Owner | 18 | 16 | 15 | |
| 9 | Ethnicity | Rental | 5 | 6 | 3 | |
| | | Pashtun | 10 | 20 | 17 | |
| | | Tajik | 8 | 2 | 1 | |
| 10 | Social Group | Hazara | 7 | 1 | 0 | |
| | | Gov. employee | 9 | 7 | 9 | |
| | | Per. sector employee | 4 | 5 | 3 | |
| | | Unemployee | 11 | 10 | 6 | |
| 11 | Do you feel comfortable with your house? | Living space | YES | 22 | 15 | 18 |
| | | | NO | 1 | 7 | 0 |
| | | No. of rooms | YES | 23 | 15 | 17 |
| | | | NO | 0 | 7 | 1 |
| | | Services | YES | 23 | 16 | 15 |
| | | | NO | 0 | 5 | 3 |
| | | Privacy | YES | 15 | 10 | 16 |
| | | | NO | 6 | 12 | 2 |
| | | Height | YES | 21 | 16 | 15 |
| | | | NO | 1 | 5 | 3 |
| | | Daylight | YES | 23 | 19 | 18 |
| | | | NO | 0 | 3 | 0 |
| | | Orientation | YES | 19 | 16 | 16 |
| | | | NO | 2 | 6 | 2 |
| | | Sound | YES | 8 | 7 | 14 |
| | | | NO | 14 | 15 | 4 |

| NO | Specifications | | | Zone 1 | Zone 2 | Zone 3 | |
|---------|---|-------------------------------------|--------------------------------------|----------|--------|----------|----|
| | | | | G1 | G1,G2 | G1,G2,G3 | |
| | | | | Total | Total | Total | |
| 12 | Energy Sources | What System do you use for heating? | Cen. Heating System | 0 | 0 | 0 | |
| | | | Gas | 9 | 6 | 12 | |
| | | | Fuel | 1 | 4 | 4 | |
| | | | Wood | 15 | 17 | 14 | |
| | | | Sandali | 17 | 2 | 4 | |
| | | | Taba-Khana | 0 | 0 | 1 | |
| | | | Electricity | 15 | 18 | 12 | |
| 13 | | What system do you use for cooling? | Fan | 16 | 17 | 15 | |
| | | | A.C | 7 | 9 | 7 | |
| | | | Natural | 19 | 15 | 9 | |
| 14 | | Constructed Materials | Foundation | Concrete | 12 | 5 | 2 |
| | | | | Stone | 11 | 17 | 16 |
| | | | Main structure | Concrete | 11 | 7 | 2 |
| | Brick | | | 11 | 15 | 16 | |
| | Ext. walls | | Brick | 22 | 22 | 18 | |
| | | | Brick | 22 | 21 | 18 | |
| | Int. walls | | Wood | 0 | 0 | 0 | |
| | | | Concrete | 8 | 8 | 4 | |
| | | | Metal | 9 | 5 | 4 | |
| | Roof | | Wood | 6 | 11 | 10 | |
| | | | Wood | 20 | 17 | 18 | |
| | | | PVC | 3 | 4 | 0 | |
| | Doors | | Wood | 12 | 16 | 18 | |
| | | | PVC/ Double glass | 11 | 6 | 0 | |
| | | | Windows | YES | 21 | 16 | 13 |
| | NO | | | 0 | 5 | 4 | |
| 15 | The families living together are relatives? | | YES | 3 | 12 | 7 | |
| NO | | | 19 | 9 | 10 | | |
| 16 | The families living together are from different ethnics? | | YES | 1 | 9 | 6 | |
| NO | | | 22 | 12 | 11 | | |
| 17 | Are the families living together using from separate access ways? | | YES | 4 | 9 | 5 | |
| NO | | | 19 | 13 | 13 | | |
| 18 | Do you have separate guest house? | | YES | 16 | 13 | 12 | |
| NO | | | 6 | 9 | 6 | | |
| 19 | Do you have separate storage?(Pyada-khana) | | YES | 21 | 10 | 7 | |
| NO | | | 2 | 12 | 11 | | |
| 20 | Do you often use from flat roof? | | YES | 4 | 9 | 9 | |
| NO | | | 19 | 13 | 9 | | |
| 21 | Are you satisfied with: | Sidewalk condition | YES | 17 | 14 | 13 | |
| | | | NO | 6 | 8 | 5 | |
| | | Road condition | YES | 18 | 12 | 12 | |
| | | | NO | 5 | 10 | 6 | |
| | | Water Condition | YES | 20 | 15 | 12 | |
| | | | NO | 3 | 7 | 6 | |
| | | Electricity Condition | YES | 22 | 16 | 17 | |
| | | | NO | 1 | 6 | 1 | |
| | | Green Area | YES | 7 | 9 | 9 | |
| | | | NO | 16 | 13 | 9 | |
| | | Playground | YES | 6 | 6 | 8 | |
| | | | NO | 17 | 16 | 9 | |
| | | Parking | YES | 5 | 9 | 9 | |
| | | | NO | 18 | 13 | 9 | |
| | | Kindergarten/School | YES | 16 | 13 | 15 | |
| | | | NO | 6 | 9 | 3 | |
| | | Shops | YES | 21 | 20 | 17 | |
| | | | NO | 2 | 2 | 1 | |
| | | Mosque | YES | 22 | 22 | 16 | |
| | | | NO | 0 | 0 | 1 | |
| | | 23 | Which electricity source do you use? | | Public | 22 | 22 |
| Private | 1 | | | | 0 | 0 | |
| 24 | Which water source do you use? | | Public | 21 | 12 | 12 | |
| | | | Private | 2 | 10 | 6 | |
| 25 | What improvement have you brought in your house? Why? (date) | | | | | | |