PHYSICAL ENVIRONMENT OF CHILD FRIENDLY SPACE (CFS) AS AN INTERVENTION OF CHILD PROTECTION: IN CASE OF FORCIBLY DISPLACED ROHINGYA CHILDREN IN COX'S BAZAR

By

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A thesis submitted to the Department of Architecture in partial fulfillment of the requirements for the degree of Master in Disaster Management

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Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.
5. I would like to request the embargo of my thesis for 12M from the submission date.

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Approval

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Ethics Statement

The whole study was conducted with an ethical competence and integrity in terms of conscious decision making and responsibly acting considering of legal standards as well as social, economic and ecological consequences.

While conducting field survey, at first and foremost, consent was taken from each authority to survey their facilities. All the actions such as taking photographs, talking with staff and volunteers were conducted with permission. The field survey was conducted with Beneficence-Do not harm manner. While surveying the child protection facilities, their privacy and dignity was fully respected without interrupting their regular activities like playing and learning.

One of the major ethical points followed in this study is to maintain the anonymity and confidentiality in data collection procedure and analysis to respect the law and policy of Child Protection Sector. All the respondents are kept anonymous as well as CFS samples studied in the research are presented with different identification numbers throughout the data analysis and findings. Wherever any intellectual property is used for the purpose of this study, they are given proper credits with proper citation.

The whole research is conducted with full objectivity starting from determining the research questions to research findings. The overall research design, data analysis and representation are carried out regardless any bias and inclination.

Abstract

Child friendly Space (CFS) has been introduced worldwide as an effective Child Protection response to the affected children in emergency to restore their resiliency and normalcy of life through psychosocial support programs. An effective physical environment is the primary need to accommodate the psychosocial activities of a CFS. The aim of this study is to explore the condition of physical environment of10 selected CFSs in Cox's Bazar built for the forcedly displaced Rohingya children. The study assesses the minimum standards and the impact of varying local factors on them using both qualitative and quantitative method. Major findings revealed that several standard criteria were compromised due to hilly region and acute land scarcity of study area while the building material and technique, climate and culture largely characterise the physical environment of CFSs in Cox's Bazar. The study helps to understand the challenges of local factors in planning and designing CFSs.

Keywords: Child Development; Child Friendly Space; Child Protection; Crisis; Displacement; Physical Environment; Protection Risks; Psychological distress; Psychosocial Support.

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List of Acronyms

CFS	Child Friendly Space
UNICEF	United Nations International Children's Emergency Fund
UNHCR	United Nations High Commissioner for Refugees
ISCG	Inter Sector Coordination Group
INEE	Interagency Network on Education in Emergencies
IASC	Inter-Agency Standing Committee
CPIE	Child Protection in Emergency
CPWG	Child Protection Working Group
ACAPS	Assessment Capacities Project

Chapter 1

Statement of Problem

1.1 Introduction

The term “Child protection in emergency” has become one of the most crucial aspects in the ground of humanitarian activities as the children constitutes a great number of the population affected by any natural or manmade disaster. Along with the deprivation of their basic rights (food, shelter, education etc.) the conflicts and disasters make devastating impact on their physical, emotional and psychosocial well-being. The child protection risks range from physical injury, psychosocial distress, separation from family to sexual abuse and different forms of child exploitation (The Alliance for Child Protection in Humanitarian Action, 2019).The Child Protection Working Group (CPWG) defined child protection as “the prevention of and response to abuse, neglect, exploitation and violence against children” (The Child Protection Working Group (CPWG), 2012, p.13). Among many child protection responses, Child Friendly Space (CFS) has been introduced as one of the most effective responses in many emergency situations worldwide to protect the affected children (UNICEF, 2004). According to main principles of a Child friendly space, it requires a stimulating social and physical environment for the protection as well as restoration of the normalcy of the distressed children in an emergency (Davis & Iltus, 2008). This study will focus on the aspects of physical environment of CFSs in case of Rohingya crisis in Bangladesh.

1.2 Background:

Child friendly space (CFS) can be described as a response of humanitarian agencies to the distressed children in emergency settings to protect them from both physical and mental harm. UNICEF defined CFS as places designed and operated in a participatory manner, where

children affected by natural disasters or armed conflict can be provided with a safe environment with an integrated programming including play, recreation, education, health, and psychosocial support (Davis & Iltus, 2008).

Initially CFS was established as a requirement of an integrated support system for children in both natural and manmade emergencies. Specifically, they were established in an absence or weakness of other support systems. CFS was started using widely by different agencies since 1999 as an intervention of safe space with structured activities in a broad scale. They adopted community-based approach addressing the risks to children in emergency and mobilized community to create a protective environment. For the first time, UNICEF established CFS in Albania, Kosovo armed conflict, in April 1999, as a response to the crisis and supported other organizations in establishing safe spaces. CFS there played very effective role in providing basic social services to a large number of displaced children and women. On the same year, CFS was again used as a response to Turkey earthquake and received wide acceptability as an emergency response for the survivors. Gradually CFS became popular and was built in numerous emergencies such as in Angola, Chad, Colombia, East Timor, El Salvador, Gujarat - India, Bam - Iran, Lebanon, Liberia, Northern Caucasus - Russia, Occupied Palestinian Territories, Pakistan, Somalia, and Syria. Many humanitarian agencies made hundreds of CFS after the tsunami in 2004 in Aceh, Indonesia, Sri Lanka, and Southern India. They ranged from short term temporary type to community based CFS (Davis & Iltus, 2008; UNICEF, 2004).

In addition, with the above-mentioned conflict areas, Myanmar very recently has witnessed a deadly armed conflict in between the Myanmar militant and Rohingya community in August 2017. The sudden hostility of Myanmar militant resulted into a forced displacement of millions of Rohingya citizen to Cox's Bazar district, Bangladesh. However, Bangladesh has received several phases of Rohingya displacements since 1978 and onwards (ACAPS, 2017).

According to a JRP by UNHCR, this recent exodus has added 617,000 people; newly joined this time with the previous 213,000 Rohingya refugees settled in Cox's Bazar over the past several years (UNHCR, 2018a).

Children constitute 60 percent of these total displaced nationals where 21 per cent of children are under five years old (UNICEF, 2017). These displaced children have faced different protection risks such as unaccompanied and separated children, child labour, mental and psychosocial distress, child exploitation, gender-based violence etc. To protect them, numerous children focused humanitarian agencies has formed Child Protection Sub Sector (CPSS). In association with The Ministry of Social Welfare (MoSW) and Department of Social Services (DSS), the CPSS has established community-based child protection mechanisms (CBCPM) (Inter-Sector Coordination Group (ISCG) et al., 2020).

Child Friendly spaces in Cox's Bazar are provided as main psychosocial support intervention where the children can stay in a safe environment under adult's (volunteers) supervision. The facilitators arrange different structured activities with basic learning and playing which helps to normalize children from different psychosocial issues (Protection Cluster UNICEF, 2018).

1.3 Rationale of Research

The Govt. of Bangladesh along with numerous national and international agencies have established child protection sub sector to protect the forcedly displaced children of Myanmar nationals by providing protection services. Among the child protection services, Child friendly spaces (CFS) are the most established one as a safe space for Rohingya children in Cox's bazar camps. These CFSs are mainly providing protection and psychosocial support to the affected Rohingya children to reduce the physical and emotional stress due to the barbaric violence upon them (Protection Cluster UNICEF, 2019).

There are some specific guidelines to establish a CFS given by different international organizations specially working for children, who have promoted the concept of Child friendly space as a humanitarian response to children in emergency situations.(Davis & Iltus, 2008; Global Education Cluster et al., 2011; Save the Children, 2008; Snider & Ager, 2018) These guidelines include the objectives and principles of CFS, planning and programming of psychosocial activities, physical design and implementation, operations and capacity building, monitoring and evaluation etc. A major portion of these guidelines have focused on more ensuring a social environment through scheduling structured psychosocial activities, CFS management, ensuring quality staffing, staff-children ratio and interactions etc.

In case of physical design and implementation the guidelines have stated minimum standards for site selection, design and construction, indoor –outdoor facility, materials and equipment etc. which are mostly based on safety and security aspects. UNICEF have mentioned that there is no such specific design layout that all the implementers around the globe have to follow. The design and implementation may depend on the variety of disaster; natural or manmade, and on varying local factors such as local policy, cultural influence, climate, construction technique, building material, professional practice etc. For example, different emergency may demand innovations of different ideas about physical space such as adaptation of existing abandoned buildings, makeshift structure with temporary materials, tents or just a space under a tree can be considered. If a tent structure is considered for a CFS, then the climatic consideration should be addressed as it can produce unbearable heat in tropical or desert area whereas become cold in high altitude such as in hilly regions. (Davis & Iltus, 2008)

Therefore, there is a vast scope of exploring the physical environment of CFSs built in Cox's Bazar considering its varying local factors for Rohingya children.

1.4 Research Objective

Objectives of this paper can be summarized as follow:

- To find out the minimum standard of physical design and implementation of Child Friendly Space.
- To assess the physical environment of Child Friendly Space (CFS) in Cox's Bazar according to the minimum standards.
- To explore that impact of varying local factors on physical environment of CFSs of Cox's bazar.

Research questions:

- What are the minimum standards of physical design and implementation of a CFS?
- Are the CFSs in Cox's Bazar following those minimum standards?
- What are the impacts of local factors on physical environment of CFSs in Cox's bazar?

The study will try to find out the answers to these questions following a certain methodology and therefore will represent the findings on physical environment of CFSs in Cox's Bazar.

1.5 Research Methodology

At First, seven Rohingya camps from Ukhiya and Teknaf have been selected based on size of the camps, topography and convenience. After that, ten CFSs among the seven camps were selected based on the convenience sampling. The checklist for assessing the minimum standard of selected CFSs has been developed from the literature review which are elaborately discussed in chapter 3. The study has followed a mixed method; both qualitative and quantitative to fulfill the purpose of the study.

Quantitative approach has been used to assess the minimum standards of the physical design and implementation of the selected CFSs according to the checklist while the qualitative approach has been used to find out the impact of local factors on physical environment of CFSs. The survey tools used for quantitative and qualitative approach are key informant interviews (structured and semi structured), observation, photographic analysis, focused group discussion and several informal discussions. Details of the methodology are discussed in chapter five.

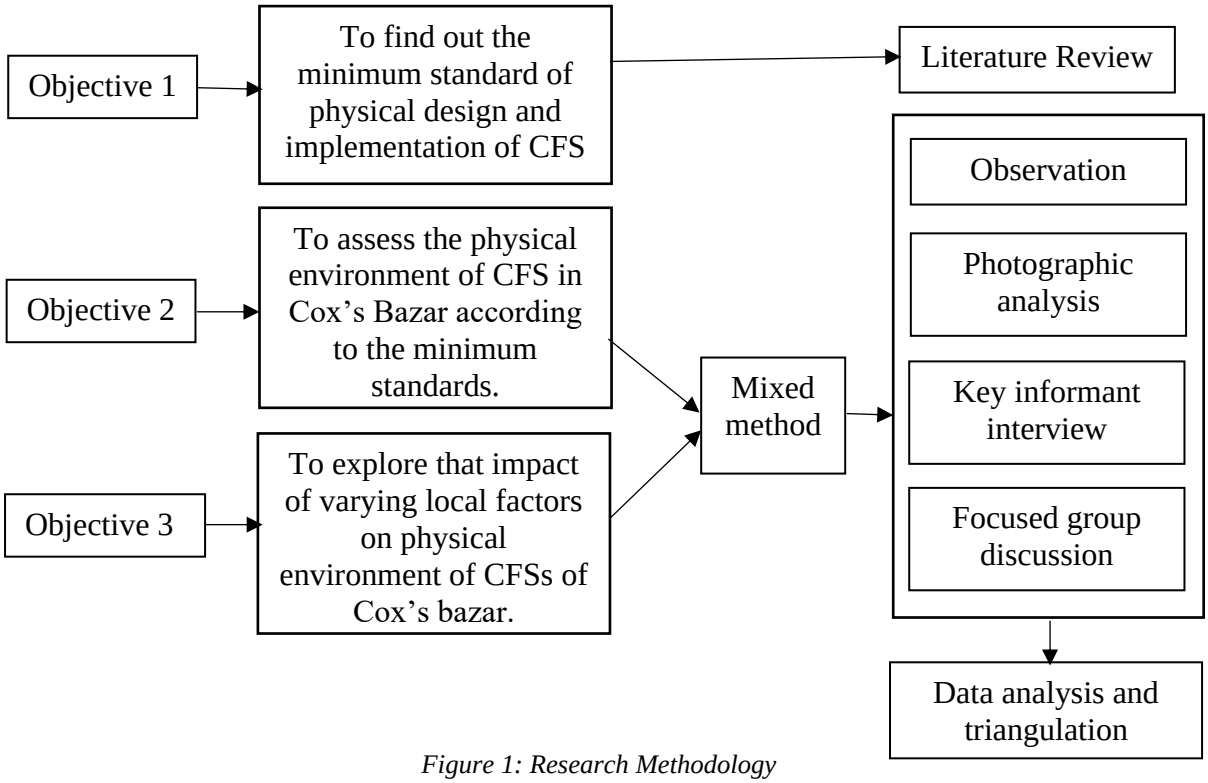


Figure 1: Research Methodology

1.6 Scope of the Research

The purpose of the research is to explore the physical environment of CFSs in Cox's Bazar. This exploration of physical environment is conducted based on two aspects:

- If the CFSs of Cox's Bazar follow the minimum standards and
- How the local factors of Cox' influence their physical environments.

The study represents both international and local guidelines given by different international child focused organizations and the child protection sub sector working in Cox's Bazar respectively. Next, the study has assessed 10 CFSs of Cox's Bazar if they have followed these minimum standards. Also, the impact of varying local factors such as the availability of material, construction technique, climate, culture etc. on physical environment of those CFSs has been explored.

Therefore, the study can contribute to-

- Partners and implementers as a compilation of minimum standards of physical design and implementation of CFS.
- Formulating local guideline for CFSs building and design considering the local factors.
- Field staffs to understand the varying challenges of local factors while building a CFS in a particular context.

1.7 Limitation of the Research

The study has significant scope in the field of Child Protection in Emergency; however, the scope of the study is limited to the following aspects:

- One of the limitations of this study was the convenience sampling. Due to the high restriction on accessibility to the camp area, it was difficult to make a random selection of CFSs. Due to the pandemic situation the accessibility to the site was made even more difficult. Therefore, the study is limited to selection of 10 CFSs.
- There are 27 camps in total in Ukhiya and Teknaf with different population density and topography. There are 370 CFSs in Cox's Bazar camps.(Child Protection Sub-Sector, 2018) The study is limited to 10 CFSs from 7 camps selected from both Ukhiya and Teknaf.

- There are around 20 partners working in child protection subsector in Cox's bazar. (Child Protection Sub-Sector - Bangladesh, 2021) The study is limited to CFSs built by 4 agencies among them.
- Additionally, the data collection was also very challenging due to the high confidentiality of Protection Sector of Rohingya crisis.

Therefore, the findings of this research might not generalize the conditions of physical environment of CFSs of Cox's Bazar for a wide range of sampling with more variety and diversity of the context.

1.8 Research Design

This study is organized into seven chapters. Chapter one describes the context, objectives, rationale, scope and limitations of the research. Next, chapter two and three elaborates the background, definitions of key words and relevant literatures of the study. Chapter four presents the context of the study; the Rohingya crisis in Cox's Bazar, Bangladesh. This chapter is followed by how the study has been conducted; the methodology in chapter five. Chapter six represents the findings of the study obtained from data analysis and triangulation. The study is concluded with a comprehensive discussion in the chapter seven.

Chapter 2

Child Protection in Emergency

This chapter will discuss about the concepts and definitions of key terms of the research statement from a vast range of secondary sources- articles, studies and reports of different humanitarian agencies relevant with the statement of the problem. The author has discussed the existing knowledge of the subject matter in a chronological way which is presented in the theoretical framework at the end of the chapter 3. The purpose of this chapter is to find out the knowledge gap of the research and rationalizing the objectives of the study.

2.1 Child Displacement

From the past several decades, the disagreement and dispute on political affairs, act of suppression on the minority by the majority, desecration of basic human rights have made internal and external displacement as a very distressed phenomenon. Consecutive armed conflicts, civil and international wars cause billions of people being refugees to the next boundary which further put that state into an emergency to host the victims, deprived and damaged. One of the most vulnerable groups among this forcibly displaced people are the children. These ongoing conflicts and violence around the world are continuing to scar the children's lives. Their childhood turns in to a miserable chapter in quest of survival instead of a bright and joyful part of life.

According to the recent data by UNICEF, at the end of 2020, more than 33 million children have been forcibly displaced which includes nearly 11.8 million child refugees and 1.3 million asylum-seeking children. Additionally, due to violence and conflict, around 20.4 million have become displaced within their own countries whereas natural disaster contributes another 2.9 million internal displacement (UNICEF, 2021).

According to a report by UNICEF in 2016, number of children migrant is 31 million living outside their birth country which constitute 11 million child refugees and asylum-seekers. Two countries, Syria and Afghanistan is responsible for the half population of children refugee under UNHCR's mandate in 2015 whereas the three quarter of it comes from another ten countries of the world. Over the ten years, in between 2005 and 2015, the number of child refugee has become doubled. Around 10 counties of Asia and Africa are hosting the most of the world child refugees and turkey contributes the most among them (Garin et al., 2016).

2.1.1 Impact of Displacement on Children

Over the past several decades, the nature of conflict has changed dramatically, targeting civilians, principally women and children. Emergency situations like armed conflict, civil unrest or war make sustained impact on children's life. Such conflict situations mostly cause displacement, leads the children and their family to flee from their own places towards an unknown situation. These conflicts associated with violence, death, terror, destruction of communities and institutions causes the ultimate failure of social protection networks. In such circumstances where a sense of security and trust are badly threatened, children face various protection risks. According to UNICEF, The Alliance for Child Protection in Humanitarian Action and Save the Children, child protection risks in an emergency are the followings:

- separation from family;
- physical harm;
- sexual abuse and exploitation;
- trafficking;
- stress disorder, post-traumatic stress disorder;
- psychosocial distress;
- gender-based violence; and
- recruitment into armed forces (Garin et al., 2016; The Alliance for Child Protection in Humanitarian Action, 2019; UNICEF, 2003; Wedge, 2007).

For example, according to UN agencies' estimation in 2000, there were more than one million children separated or orphaned by emergency situations (Wedge, 2007). In Sudan alone, more than 50,000 children have been orphaned, while another 170,000 have no information about their biological parents (Watchlist on Children in Armed Conflict, 2003, as cited in Wedge, 2007). Additionally, different unintentional wounds and injuries causes death to children. For example, road-traffic, drowning and fire burning causes 50% of child death globally. Explosive remnants of war (ERW) and landmines are the main contributors to child death in a conflict situation (The Child Protection Working Group (CPWG), 2012).On the other hand, between 250,000 – 500,000 women were raped during the genocide in Rwanda, while 94% of displaced households in Sierra Leone experienced sexual assaults, including rape, torture or sexual slavery (Rehn & Sirleaf, 2002).

One of the most harmful impairments occur to children in any crisis is psychosocial distress. This close relationship between the children and their surroundings which contributes the psychological and social aspects of child development gets affected during any conflict situation. During a conflict situation a child may experience death or separation from loved ones, destruction of neighborhoods, losing of home and belongingness form where they used to get a sense of security and reliability. Under such circumstances, children find themselves unable to express their grief and inconsolable sorrows. Their mental torment and emotions remain unseen and untold as everyone else also become distressed by the situation and are not in a state to look after their wounds. In such situation the children feel lost and lonely.

This hidden misery come out with several psychological and behavioral symptoms like fear, denial, anger, sadness, aggression, anxiousness, hyperactivity, withdrawal, inability to concentrate, flash back of stressful events, nightmares. They often lose their developmental gains, experience such as speech and bladder/bowel control(Wedge, 2007).

2.2 Child Protection in Emergency

Children in any war or conflict area face deprivation of their basic rights (food, shelter, education etc.) including their physical safety and security, emotional and psychosocial well-being. Life threatening risks such as physical injury, exploitation and abuse, recruitment into armed forces make them extremely vulnerable to long term physical illness or permanent disabilities, psychological abnormalities and sometimes to death. The concept of Child Protection in humanitarian ground is focused to save these children, to restore their rights and normalcy of life.

Both UNICEF and CPWG uses the term 'Child Protection' as to preventing and responding to violence, exploitation and abuse against children – including commercial sexual exploitation, trafficking, child labour, child marriage etc. during an emergency caused by natural and man-made disasters. Their target group of children is those who live without parental care due to an emergency (The Child Protection Working Group, 2014; Unicef, 2006).

Priority areas of child protection in emergency

According to the Minimum Standards for Child Protection in Humanitarian Action and Save the Children, the priority areas for child protection in emergencies are the followings (The Child Protection Working Group (CPWG), 2012; Wedge, 2007).

- protection from Dangers and injuries;
- protection from Physical and emotional maltreatment;
- protection from Sexual and gender-based violence;
- protection of Mental health and psychosocial distress;
- protection of Children associated with armed forces or armed groups;

- protection from Child labour; and
- protection of Unaccompanied and separated children (The Child Protection Working Group (CPWG), 2012; Wedge, 2007).

2.3 Child Friendly Space

A child friendly space provides the protection and cares to the children that a family and community are supposed to deliver to them during an emergency. For example, the homeless parents can keep their children in CFS when they have to go out to collect food, rebuild their house or other life surviving activities.

According to Operational Guidance for Child Friendly Spaces in Humanitarian Settings by IFRC and World Vision International, CFS is a safe place for children where they can play, learn and relax without any discrimination. The children get basic education and lessons on dealing risks they usually face in a crisis. CFS stands on the principle of inclusion and equality which includes girls and boys of different ages, ethnic and religious backgrounds (Snider & Ager, 2018).

According to Save the Children, the activities of Child Friendly Space are programmed according to children's natural coping mechanism. Children participation in different activities helps them to regain their social life. It provides a child-focused environment which can contribute to their cognitive development and learning skills in different levels. Above all a CFS helps children to reduce the disruption of their learning and development process due to the violence and conflict(Save the Children, 2008).

2.3.1Objectives of CFS

From the definitions mentioned above, it can be identified that the primary objective of a CFS is to create a child friendly environment where they will get protection from every risk aspect of child protection as well as psychosocial support. According to IFRC and World vision, following are the objectives of a CFS:

- protection of child protection risks such as protection of separated children from family, physical harm, abuse, exploitation and violence;
- promotion of psychosocial well-being: to reduce the emotional and psychological distress through structured psychosocial support; and
- strengthening of community child protection capacities: strengthening and mobilizing communities and local mechanisms to protect the children in long term (IFRC, 2017; Snider & Ager, 2018).

On the other hand, Save the children has identified two specific objectives outlined the following support aspects of CFS:

- psychosocial support aspect of CFS; and
- protection aspect of CFS (Save the Children, 2008).

2.3.2 Psychosocial Support Aspects

The term “psychosocial support” refers to a combination of factors which is responsible for people’s psychosocial well-being. This combination includes biological, cultural and social aspects which are inseparable to each other. The term not only focuses on the physical or psychological aspects well-being but also emphasizes their experiences in within the extended context of family and community (INEE, 2016; Stavrou et al., 2009).

Psychosocial support can be described as "a process of facilitating resilience within individuals, families and communities. By respecting the independence, dignity and coping mechanisms of individuals and communities, psychosocial support promotes the restoration of social cohesion and infrastructure" (Hansen, 2014).

The aim of psychosocial support in a CFS is to restore the social, emotional and cognitive development of distressed children by offering socializing and structured play activities with peers. According to a handbook by Save the Children, the psychosocial support facilitates the following aspects to distressed children:

- to reduce the mental stress received from the harmful events through play activities;
- to learn coping mechanism through socializing with other children and caregivers; and
- to learn lifesaving and personal safety information to save them from possible risks in an emergency (Save the Children, 2008).

Several aspects should be maintained while programming for psychosocial support activities in a CFS. The activities should be age- appropriate for different age groups, participatory and interactive. Stimulating activities that involve children into solving problems develop creativity as well as communication skills are recommended to use. CFS must be inclusive by its principle; therefore, boys and girls can play and express their opinion freely there. The activities should be culturally appropriate based on the culture to which the children belong to. The psychosocial program must consider the inclusion and participation of children with disabilities (Davis & Iltus, 2008; Global Education Cluster et al., 2011; Save the Children, 2008; Snider & Ager, 2018).

Following is an example of activity schedule for psychosocial support in a CFS given in a guideline by Save the Children (Save the Children, 2008) :

Time	Pre-school	School-age	Youth
09:00-09:15	Registration /meet and greet	Registration /meet and greet	Registration /meet and greet
09:15 – 10:30	Psychosocial games and activities	Psychosocial games and activities	Service learning
10:30 – 10:45	Snack	Snack	Snack
10:45 – 12:00	Puzzle, games, centers	Puzzle, games, centers	Life skills/conflict resolution training
12:00 – 12:30	Lunch	Lunch	Lunch
12:30 – 13:00	Story time	Reading circle	Reading circle
13:00 – 15:00	Arts and Crafts	Exam preparation	Exam preparation
15:00 – 16:00	Outside time/ parachute game	Outside time / Sports	Outside time/ Sports
16:00	Parent/guardian pick up	Parent/guardian pick up	Parent/guardian pick up

Morning	Shift 1: Children ages 5-10				
09:00 – 09:15	Registration/meet and greet				
9:15 – 10:30	Psychosocial and local games and activities				
10:30 – 10:45	Snack break				
10:45 – 11:45	Monday Active games & sports	Tuesday Health promotion	Wednesday Arts & crafts	Thursday Active games & sports	Friday Reading, math, school work
11:45 – 12:00	Shift 1 parent/guardian pick up				
12:00 – 13:00	Lunch for Child Friendly Spaces staff				
Afternoon	Shift 2: Children ages 11 – 18 years old				
13:00 – 13:15	Registration/meet and greet				
13:15 – 14:30	Psychosocial and local games and activities				
14:30 – 14:45	Snack break				
14:45 – 15:45	Monday Active games & sports	Tuesday Health promotion	Wednesday Arts & crafts	Thursday Community service projects	Friday Reading, math, school work
15:45 – 16:00	Shift 2 parent/guardian pick up				

Figure 2: CFS Psychosocial support activity schedule. Source: (Save the Children, 2008)

2.3.2.1 Music for Healing

Music has been applied as a remedial to heal anxiety, depression, and trauma; called music therapy. According to Helen Lindquist Bonny, 1986, “Music therapy may be defined as the systematic application of music as directed by the music therapist to bring about changes in the emotional and/ or physical health of the person”. She has identified the characteristics of music which contribute to its therapeutic use.

Music is non-verbal, universal and meaningful in multi-dimensions; stimulate emotional-psychological and sensory responses which are the attributes to use it as a therapy of psychological wellbeing (Bonny, 1986).

Music has been widely used to heal the trauma of affected children due to war and conflict worldwide. For example, music has applied as a therapy to reduce the Post-Traumatic Stress Disorder of children in Kosovo war and of Syrian refugee children (Abdulbaki & Berger, 2019; Agopian, 2018; Gerber et al., 2014).

On the other hand, different forms of rhythmic Chanting; speaking of sounds and phrases either vocally or mentally is practiced for strengthening community, healing psychological and emotional difficulties in many cultures around the world (Perry et al., 2021). Alfred Tomatis, a researcher of the French Academy of Science and Medicine(as cited in Routhan & Ruhela, 2014) has discovered the therapeutic impact of chanting sounds on body. He found out that chanting helps to sooth the human body activating the natural healing mechanism. Another research of Cleveland University, USA (as cited in Routhan & Ruhela, 2014) has identified that chanting helps to produce curative chemicals in brain by producing a Neuro-linguistic effect (NLE) and Psycholinguistic effect [PLE] on the body. These are produced due to the recitation and understanding the meaning of rhythmic tones in chanting. A study by Dr Alan Watkins (as cited in Routhan & Ruhela, 2014) of the Imperial College of Science & Technology has revealed that chanting can low down the blood pressure and heart bit. Chanting also helps to develop empathy and and social connectedness (Perry et al., 2016).

2.3.3 Protection Aspects

Apart from the psychosocial aspects of CFS, the space and program also consider the protection aspects of children in emergencies. According to Save the Children, following are the key tasks that a CFS addresses in protection aspect:

- providing a supervised and monitored environment giving safety and security;
- disseminating life-saving information as well as training of life skills (lessons on first aid, managing anger or aggression) to children and community members;
- referring immediate medical support and following up if needed;
- registration of separated children and referral for family tracing;
- sharing information and awareness about gender-based violence;
- strengthening the family and community protection structure; and
- encouraging links to existing protective community structures, such as child protection networks or committees; or local social workers (Save the Children, 2008).

2.4 Practice Principles of CFS

Respecting the above mentioned aspects of a CFS, following are the six inter-agency principles which promote best practice in planning, developing and operating a CFS (Davis & Iltus, 2008; Global Education Cluster et al., 2011; Snider & Ager, 2018):

- CFS is secure and safe environments for children.
- CFS provides a stimulating and supportive environment for children.
- CFS builds on existing structures and capacities within a community.
- CFS uses a fully participatory approach in CFS design and implementation.
- CFS provides or support integrated services and programs.
- CFS is inclusive and non-discriminatory.

Chapter 3

Physical Environment of CFS

3.1 Physical Environment

The concept of environment is quite enormous in scope, ranging from the physical to the biophysical and from the natural to the social environments. According to Basorun and Ayeni, “the environment is the totality of all external-physical or social resources available to the satisfaction of human needs, where man resides and all his activities take place” (Basorun & Ayeni, 2013, p.186).

According to Saravanan, Ramachandran and Baskar, “the term Environment can be broadly defined as one’s surroundings. To be more specific we can say that it is the physical and biological habitat that surrounds us, which can be felt by our physical faculties (seen, heard, touched, smelled and tasted.)” (Saravanan et al., 2005, p. 3). They divided environment in two major classifications: Physical Environment and living environment. Physical Environment refers to the external physical factors like Air, Water, and Land etc. which is also called the Abiotic Environment. On the other hand, living Environment refers to all living organisms around us such as plants, animals, and microorganisms are called the Biotic Environment (Saravanan et al., 2005).

According to Nona Stiltner, “A physical environment can be described as anything we can physically experience through our senses- touch, smell, sight, hearing, and/or taste. The physical environment includes both the natural environment and the human-made environment. For example, the physical environment of a house can include the human-made structures such as the walls, the pipes, and the appliances, as well as the natural environment,

such as the air circulating in the house, the water flowing through the pipes, and the trees, plants, and animals that exist in the yard" (Stiltner, 2019).

In this study the physical environment of a CFS refers to

- Physical structure of CFS (column, beam, wall, ceiling, floor, window, door, roof etc.)
- Elements of indoor space (play materials, furniture and equipment)
- Outdoor space (site surrounding, approach road, playground, fencing etc.)
- Natural elements (water, vegetation, air, light etc.)

3.2 Role of Physical Environment in Child Development

The children's cognitive, social, emotional and physical development guided by the interaction, exploration, and experience with the surrounding environment finally make them an individual, a persona. Environmental and social psychologists as well as educational theorists and practitioners have stated that the physical environment has a significant effect on children's cognitive development, social learning and behavior. (Gur, 2014; Maxwell, 2007; G. Moore et al., 2003; G. T. Moore, 1986, 1987, 2007; Pairman, 2012). The physical environment that a child can sense, explore and examine has a great influence on both of their behavior pattern and learning capacities. The child development agents are exploring, discovering, testing, and experimenting, imitating, fantasizing the surroundings. With these agents, the children not only interact with their social environment but also with the physical environment such as architecture, equipment, play materials around them (Moore, Lane et al., 1994, as cited in Gur, 2014).

According to Evan, the quality of the physical environment has been linked to positive learning outcomes, with a small body of research illustrating how the design of interior (e.g., room size, layout, furniture, lighting, noise) and external (e.g., outdoor spaces, nature, play equipment) space in an early learning childcare environment may enhance children's learning and development (Evans, 2006).

On the other hand Maxwell has emphasized on the children's competency of using a space and discussed the control, privacy, complexity, exploration, personalization, and legibility as the attributes of a physical environment which enhance children's competency and learning (Maxwell, 2007).

Three specific physical environment design attributes has been identified by Berris and Miller as the most efficient in early learning for children:

- space encouraging exploration, independence and development (a child's sense of self and willingness to play);
- spatial quality (through space, color, light, noise and materials); and
- Integration of outdoors and the indoor environment (Berris & Miller, 2011).

3.3 Importance of Physical Environment of CFS

According to CFS practicing principle, a stimulating and supportive environment must be ensured in a CFS for psychosocial and cognitive development of distressed children, to restore their childhood and normalcy of life. A stimulating and supportive environment for the child development comprises of a wide range of activities and a physical environment to accommodate those activities.

Therefore, a CFS has to provide a child friendly-

- physical environment and
- social environment

An effective well- designed physical structure is very important to carry out a range of psychosocial support activities for affected children. The previous section has already discussed about the role of a physical environment in child development. Most of these findings are related to importance of physical environment in early childhood learning facilities or childcare centers. Here, "Child development" is the common aspect whereas the main difference in between the CFS and other child centered facilities (childcare center, pre-school etc.) are the "emergency" issue. A CFS in a crisis is more crucial to child development as it deals with the affected children due to various form of disaster who have lost the normalcy of their life.

To normalize their mental and physical development, different child focused international organizations have given much more priority to form a well-structured psychosocial support program, activity types, CFS operations and capacity building, monitoring and evaluation criteria etc. On the other hand, regarding the design and implementation of a physical structure of a CFS, there are few guidelines or minimum standards given by different humanitarian agencies like UNICEF, Save the Children etc.

At the same time, it is mentioned that there is no fix layout of CFS that can be applied in all emergencies. Following the minimum standards they can vary with different context and local factors such as climate, culture, building material, technology etc. (Davis & Iltus, 2008).

At this point the implementers have the scope to think about how the site and entrance of a CFS will be, the lighting and ventilation of the space, the interior size and color of different activity spaces, what will be the play elements, their form, colors and textures etc.

3.4 Minimum Standard of Physical Design and Implementation of CFS:

This section will discuss about the minimum standards of physical design and implementation of CFS, presented in table format following the guidelines of different organizations. The minimum standards are discussed some key steps. Followings are the key steps for physical design and implementation of a CFS:

- site Selection;
- space requirement and planning;
- selection CFS typology;
- space organization (Indoor and outdoor);
- selection of Materials and Equipment; and
- WASH facilities (Davis & Iltus, 2008; Global Education Cluster et al., 2011; Save the Children, 2008; Snider & Ager, 2018)

3.4.1 Site Selection

During an emergency, site selection becomes one of the most critical decisions while implementing a CFS. The minimum standards for selection of a site for CFS according to IFRC, World Vision and UNICEF are given in the following table (Davis & Iltus, 2008; Snider & Ager, 2018):

Site selection	Standards
Accessibility	• Easily accessible to children and communities (including differently able children),
Size	• Size is sufficient for the expected number of beneficiaries.
Location	• Close to other complementary services like schools, hospitals etc. to facilitate referrals. • location is convenient for other service providers and NGOs who will be participating in the activities

Site selection	Standards
Topography	• Enough flat ground for a tent or temporary structure with WASH facilities.
Safety	• Free from any hazardous material and toxic substance. • Safe from natural hazards such as flood land slide etc. • Safe from armed conflict, risk and exploitation. • At a safe distance from traffic.
Security	• Secured with a fence or barrier around the site.
Privacy	• Sufficient privacy so that children are not watched by outsiders.

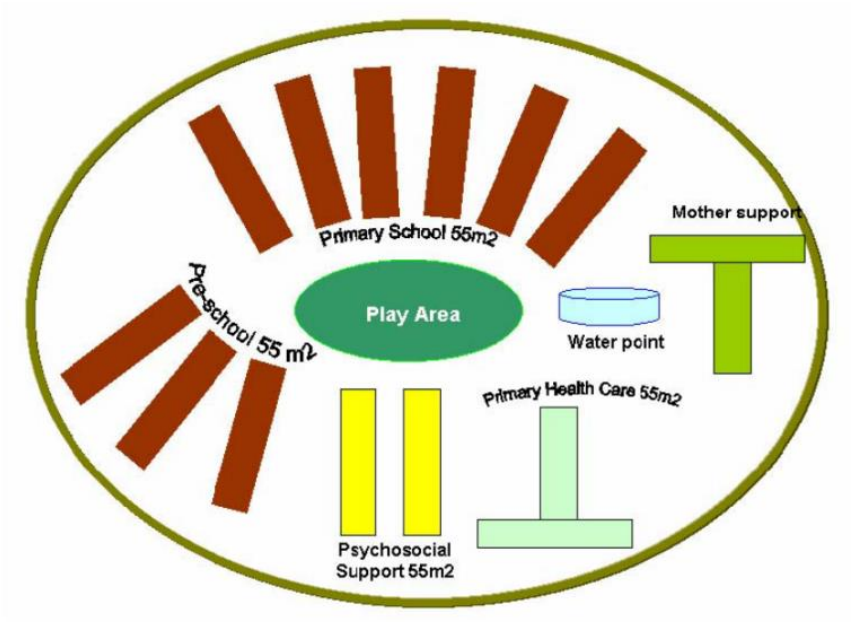
Table 1: Minimum standards of site selection according to IFRC, World Vision and UNICEF (Davis & Iltus, 2008; Snider & Ager, 2018)

3.4.2 Space Requirement and Planning

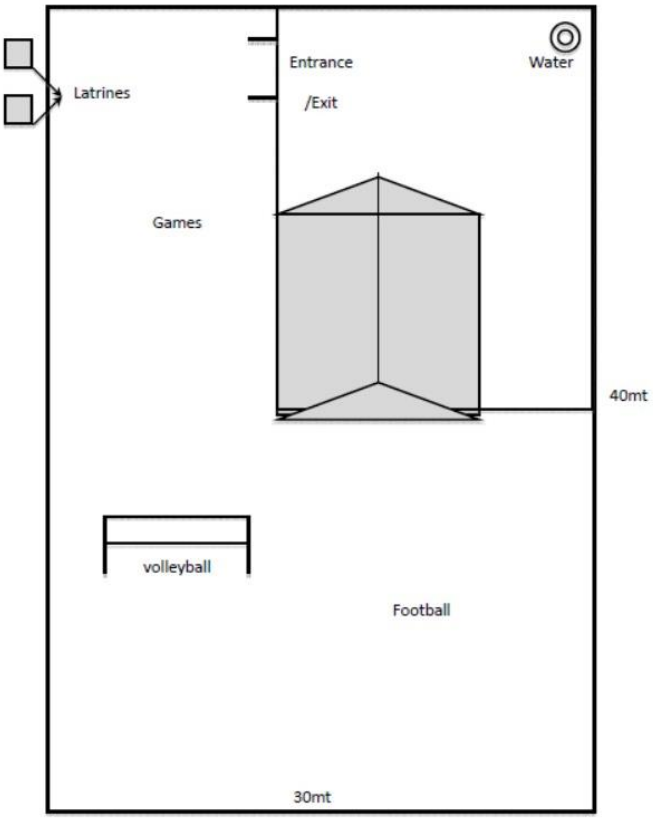
The size of a CFS depends on the numbers, need of children (protection and psychosocial) and the range of activities that will be performed in the CFS. For example, both indoor and outdoor spaces can be required for group activities, sports, and education purposes. The planning will indicate the type of physical structure; the geographic placement, layout/design and construction materials. The following questions will contribute to design the CFS effectively:

Space Planning	Design questions
For whom	Who will use this space?
Number of beneficiaries	How many will use the space?
Types of activities	What types of children activities will take place in this space?
Services	What are the services that a CFS will deliver?
Typology	What type of CFS will be established (mobile, temporary, static)?
Building material	What are the materials available?
Funding	What will be the cost of a CFS?

Table 2: Space requirement and Planning for CFS according to the guideline of UNICEF (Davis & Iltus, 2008).



(a)



(b)

Figure 3:Layout examples of CFSs. (a) A CFS built after the Earthquake in Turkey. Source: (UNICEF, 2004). *(b) CFS in Mozambique flood response Source:* (Save the Children, 2008)

3.4.3Selection of Types of CFS

Considering the above mentioned local factors, types of emergency and response CFS can be categorized as Temporary, Static/Fixed and Mobile CFS (IFRC, 2017; Snider & Ager, 2018).

Temporary CFS: Temporary CFs is for short-term support, a quick response with few resources and materials followed by a rapid assessment of need of children and families. For example, large tents can be used which are not so expensive and can be set-up quickly. It may be phased out after the emergency phase and can be transformed into early recovery and development activities such as childcare centers, kindergarten schools, and vocational training space for adolescents.

Static CFS: Static CFS is usually for longer term, for several months or years and for greater range of services such as community centers, services for children and adults, including women friendly spaces, youth clubs, early child development activities, and literacy or vocational training initiatives etc.

Mobile CFS: Mobile CFS is usually run by the child protection in emergencies (CPiE) mobile team when they have to response to a high number of newly displaced children. Sometimes mobile CFS is used for the people hard to reach and where space is limited within the camp to set-up a CFS.

3.4.4 Space Organization

The activity spaces and facilities provided by a static CFS can be divided into two parts, Indoor and outdoor. There are some minimum standards of designing indoor and outdoor spaces which are prescribed to be followed to ensure a safe and simulative environment for the affected children(Catholic Relief Services, 2018; Davis & Iltus, 2008; Global Education Cluster et al., 2011; IFRC, 2017; Save the Children, 2008; Snider & Ager, 2018).

Indoor facilities: The indoor facilities are provided according to the activity and service provided by the CFS. Following table represents the minimum standards of indoor and outdoor facilities according to Catholic Relief Services, UNICEF, IFRC, World Vision International and Save the children (Catholic Relief Services, 2018; Davis & Iltus, 2008; Global Education Cluster et al., 2011; IFRC, 2017; Save the Children, 2008; Snider & Ager, 2018):

Indoor Space	Standards
Size	• The CFS rooms or activity spaces comply with the standard of having a minimum of 1 square meter per child (per shift)
Ventilation	• There should be adequate ventilation in the CFS
Light	• There should be adequate light inside the CFS (windows or lamps)
Color	• The space should be welcoming; bright and colorful
Accessibility	• Should be easily accessible to all and provide access for children with disabilities
Safety	• Should be clear of all rubbish and trash or harmful sharp items
Activity space	• Indoor play areas should include areas that accommodate dramatic play, interactive play and education, art activities, gross motor skills activities and a quiet area.
Space organization	• The spaces can be divided into separate areas or zones by marking out areas for different activities, or, be separated into different groups with ropes, curtains, etc. so to conduct different activities can be conducted at the same time. • Child Friendly Spaces can be divided according to ages, gender specific areas. • The children's artwork, drawings, sculptures and other crafts should be prominently displayed in the CFS.
Medical Facilities	• Each CFS should have space for the treatment of any injury with a well-equipped first aid box.
Storage	• Spaces need a secure storage area for the materials and equipment.

Table 3: Minimum standards of indoor facilities. Source: (Catholic Relief Services, 2018; Davis & Iltus, 2008; Global Education Cluster et al., 2011; IFRC, 2017; Save the Children, 2008; Snider & Ager, 2018)

Outdoor facilities: The outdoor facilities mostly include an outdoor play area, a proper entrance and WASH facilities. The standard criteria for outdoor facilities according to Catholic Relief Services, UNICEF, IFRC, World Vision International and Save the children are given in the following table (Catholic Relief Services, 2018; Davis & Iltus, 2008; Global Education Cluster et al., 2011; IFRC, 2017; Save the Children, 2008; Snider & Ager, 2018):

Outdoor space	Standards
Playground	• The CFS should have as large an outdoor play area as space permits, which allows sufficient space for team sport and other recreation activities.
Safety	• The play area should be demarcated and enclosed on all sides.
Entrance/ exit	• Should have specific entrance(s) through which people can enter and exit, to facilitate monitoring the movement of children, staff and others into and out of the CFS
Age appropriateness	• Separate outdoor play areas should be provided for infants and toddlers with age- appropriate equipment. • The equipment in the outdoor play areas should be at a height suitable for the age and height of the children who use it.
Shading	• There should be shaded areas available (i.e. trees; building; awning; umbrellas; etc.) in and around the outdoor play areas,
Ground surface	• If possible, a variety of ground surfaces available in the outdoor play areas to encourage a range of activities • Areas under and around climbing structures/slides/swings, there should be cushioning or sand to avoid any accident or falling off.

Table 4: Minimum standards for outdoor space of CFS .Source: (Catholic Relief Services, 2018; Davis & Iltus, 2008; Global Education Cluster et al., 2011; IFRC, 2017; Save the Children, 2008; Snider & Ager, 2018)

The CFSs should have proper WASH facilities. The WASH facilities include toilet facilities, hand wash and drinking water facilities. Minimum standards for WASH according to Catholic Relief Services, UNICEF, IFRC, World Vision International and Save the children are given in the following table are given in the following table (Catholic Relief Services, 2018; Davis & Iltus, 2008; Global Education Cluster et al., 2011; IFRC, 2017; Save the Children, 2008; Snider & Ager, 2018) :

WASH facilities	Standards
Toilet Facilities	• Wherever possible, the CFS should have toilet/latrine facilities that are conveniently located and easily accessible to the children. • There is a minimum of 1 toilet per 30 girls and 1 toilet per 60 boys • 1 toilet per 20 staff, separated from the children's toilets • There should be child friendly toilet because adult-size squatting plates often pose a threat to children • There should either be separate facilities for boys or girls, or a mechanism to ensure that girls and boys do not use the toilets at the same time.
Hand Wash	• CFS should have hand-washing facilities, including soap.
Water facility	• 3 lts/child/day clean drinking water • Water treatment and regular testing in place
Signage	• There should be signage at entrance, activity areas and WASH areas. • Child-focused warning signage for relevant threats up should be displayed (hygiene, UXO – unexploded ordinances, evacuation).

Table 5: Minimum standard for WASH facilities. Source:(Catholic Relief Services, 2018; Davis & Iltus, 2008; Global Education Cluster et al., 2011; IFRC, 2017; Save the Children, 2008; Snider & Ager, 2018)

3.4.5 Selection of Material and Equipment

Selection of material and equipment is very important in a child friendly space; should be culturally appropriate and consider the safety and security issue. The minimum standards are given in the following table according to guideline given by UNICEF, Save the Children, IFRC and World Vision (Davis & Iltus, 2008; Save the Children, 2008; Snider & Ager, 2018):

Materials and Equipment	Standards
Cultural appropriateness	• Materials in Child Friendly Spaces kits can vary depending on culture and context. • Wherever possible, use play items made by children themselves or local artwork that is culturally appropriate and familiar to children and their caregivers.
Age appropriateness	• The equipment in the outdoor play areas should be at a height suitable for the age and height of user group • The equipment has to be appropriate for the ages of children who are using the safe play.
Safety	• Equipment should be spaced with other pieces of play equipment to allow for minimum risk of injury such as falling from one structure and striking another structure • Equipment should be without bolt ends, edges, or other protrusions that extend beyond 0.5 inches • Metal products should be treated, so that they do not rust and produce sharp edges that will injure the children.
Ground surface	• Equipment should be surrounded by a use zone that includes appropriate ground surfacing (e.g. sand)
Heat resistance	• Equipment should be constructed of a material that does not absorb excessive heat from sun exposure.
Environment friendly	• Materials should be age-appropriate and, if possible, also environmentally friendly.

Table 6: Minimum standards for material and equipment selection for CFS.
Source: (Davis & Iltus, 2008; Save the Children, 2008; Snider & Ager, 2018)

3.5 Impact of Local Factors on Physical Environment of CFS

The minimum standards are the basic criteria that a CFS should follow regardless different context and emergency situations. As the guidelines have stated that there is no fixed layout to set up a CFS, it can be varied depending on varying local factors or what the situation demands(Davis & Iltus, 2008). Different types of disaster; manmade or natural, climate, existing infrastructure, availability of building materials and technique, culture etc. can influence the physical design as well as the environment of a CFS to a great extent.

A field manual of starting up the CFS in different emergency situations has presented impact of different local factors on establishing a CFS. For example, In Afghanistan, UNICEF provided tents to establish CCS (Child Centered Space) during a cold season where heat and more secured shelters were required. The community people participated into site selection to set up those tents and provided 24-hour security to CCS activities. In some cases, courtyards, porches of mosques were adapted to organize CCS activities. Some ruined buildings due to bombing were also repaired to accommodate safe spaces for children. On the other hand, establishing CCS in Chad was very challenging due to strong sun, high wind and sandstorms. Concrete structures were required instead of tents as they couldn't stand the storm wind. Abandoned buildings were adapted in East Timor after cleaning the glass and other hazardous materials for CFS while shaded trees were used for recreational activities for children in Gambia(Christian Children's Fund, 2008).

A Handbook for Save the Children Staff has discussed that what factors should be considered while taking a decision of building a CFS(Save the Children, 2008):

Existing infrastructure: The first task before building a CFS is to find out if any existing building can be used as a child friendly facility. It has been also suggested in the guideline that existing buildings can be used if it is safe for children to reduce the cost and time for an emergency response. If any building is available, then the followings must be followed:

- **Safety survey:** If any building is available, the site and building must be surveyed by a qualified specialist to ensure the safety aspects of it. The site must be free from hazards and easily accessible to the children.
- **Sufficient budget and time for ensuring minimum standards:** The implementers should have enough budget, time and human resources to maintain the minimum standards of a CFS such as providing quality materials, water and sanitation facilities, outdoor play areas, proper entrance, fencing and guard.

Climate: Climate plays an important role for decision making of building any structure. Any structure that is decided to be built should stand the weather and climate. For example, if tent is decided for temporary CFS structure, then they will not be suitable for hot-dry climate; if installed, need shading. On the other hand, tent can collapse in cold climate due to heavy snowfall. It may need reinforcing and heating system which is risky. In wetlands, tent may require a raised floor or sandbags and plastic sheets as weatherproofing for not being washed away by heavy rainfall.

Locally/ Culturally appropriate structure: Structures should be familiar to the beneficiaries. Locally appropriate buildings or structures mean those which are built with locally available material by the local masons and respecting the culture, lifestyle and values of user groups. The following aspects should be in mind:

- **Time, cost and risk assessment:** The implementers have to assess the time, cost and risk aspects of building locally appropriate structure.
- **Sourcing local material and labour:** Availability of material is a matter of concern as it may require in a large amount to respond the crisis. Sometimes the construction labour can be found out from the affected community who can work to build the structures.
- **Appropriate design by the professionals with community participation:** The need of children and family should be assessed before designing the facility. The affected community can participate in the design process.

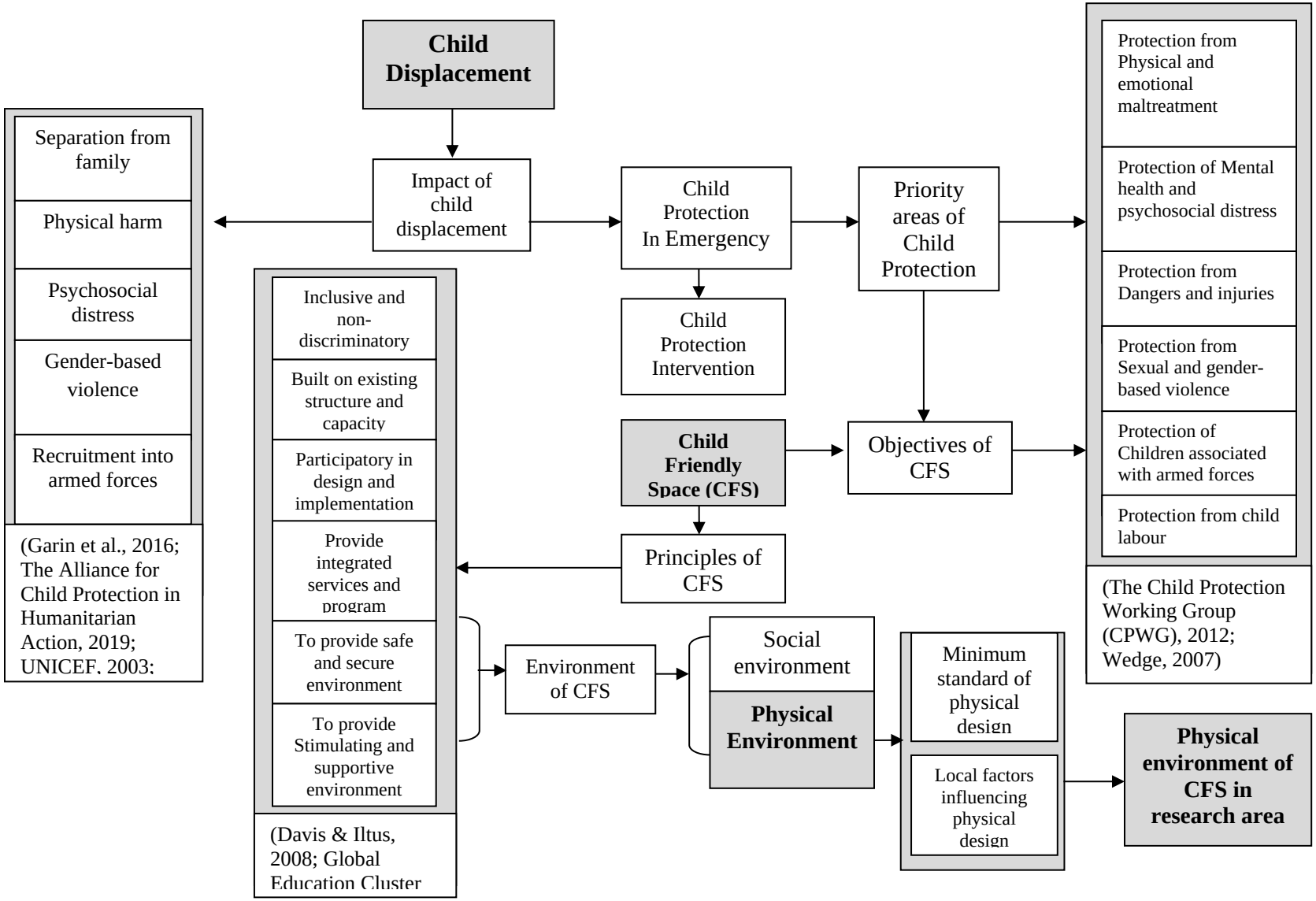


Figure 4: Theoretical framework. Source: Author, 2021

Chapter 4

Context of Study: Rohingya Crisis

4.1 Rohingya Crisis in Bangladesh

Bangladesh has received several waves of displaced Myanmar citizens, the minority Rohingya people from Rakhain state since 1978 and onwards. The most recent displacement happened in August 25, 2017 to Cox's Bazar Bangladesh when the violence broke out in Rakhain state due to long term suppression and deprivation of civic rights of Rohingya people. Around 617,000 people newly joined this time with the previous 213,000 Rohingya refugees settled in Cox's Bazar over the past several years; 1978, 1991-92, 1997, 2016 and onwards. The government of Bangladesh has referred this population as "forcedly displaced Myanmar Nationals" according to the existing policy (ACAPS, 2017).

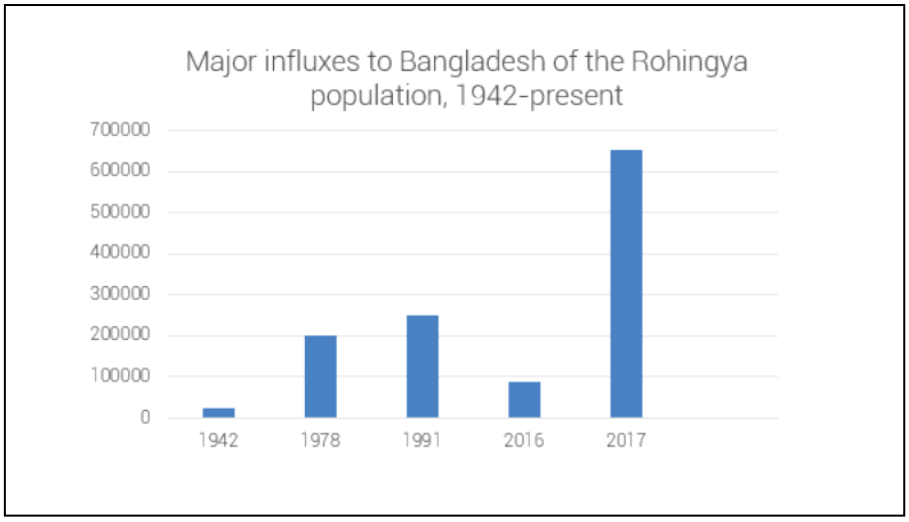


Figure 5: Major influxes to Bangladesh of Rohingya population, 1942-present. Source: (ACAPS, 2017)

These displaced nationals have been given 4,800 acres of undeveloped forest land to settle down all of a sudden which has subsequently become the most dense and largest refugee camp in the world with a population of 602,400 called Kutupalong- Balukhali expansion site in Ukhiya, Cox's Bazar(ACAPS, 2017; UNHCR, 2018a).

The arrival of this huge population has exposed themselves to multiple risk factors such as food security, health, nutrition, shelter, water-sanitation-hygiene, education, protection etc.In the camps the displaced people are living in the makeshift shelters mostly made of bamboo, rope and tarpaulin within a space of $8m^2$ per person, much below than the humanitarian standard of $45m^2$. The tropical monsoon climate with heavy rainfall and tropical cyclone has made their living condition even more critical exposing towards natural disasters like flood and landslide. The dense and poor living conditions in the camp as well as lack of food, water and sanitation, exposed the displaced people to diseases like diarrhea, cholera, diphtheria, respiratory infections, and measles etc. which are vaccine preventable(UNHCR, 2018b)**.**

Protection risk has become the core component of this Rohingya crisis. Being the victim of targeted violence, most of the Rohingya men, women and children have experienced the fierce violence and genocide. Most of them were in dire need of health care and psychosocial support. Women and children are at the front line of protection issues. Thousands of adolescent girls and women have experience severe sexual violence during the barbarity of Myanmar militant over them. The forced displacement further exposed them to various forms of gender based violence such as domestic violence, forced marriage, trafficking for commercial sexual exploitation etc. due lack of scope of income generation, skill development, education etc. (Inter-Sector Coordination Group (ISCG) et al., 2020; UNHCR, 2018a).

4.2 Rohingya settlements in Cox's Bazar

Cox's Bazaar district lies in the southeast coastal line of Bangladesh contain the longest unbroken beach of Bay of Bengal. It has become the largest refugee settlement for the displaced people from Rakhain State, Myanmar as it is adjacent to the east boarder of Cox's bazaar. Before the recent huge influx of Rohingya people in 2017, there were two registered camps in Ukhiya and Teknaf sub districts; Kutupalong and Nayapara refugee camps where 33,000 Rohingya people resided. However estimated additional 200,000-500,000 Rohingya individuals were living in informal settlements (makeshift camps) and with host communities who came to Cox's bazar prior 2017, since 1978 to 2016 (ACAPS, 2017).

Ukhiya: Ukhiya is surrounded by Ramu upazila on the north, Teknaf upazila on the south, Arakan state of Myanmar and Naikhongchhari upazila on the east and the Bay of Bengal on the west. The new arrival of 671,000 Rohingya people has been absorbed to the previous population after August 2017 to January 2018. The largest refugee camp in the world has been formed in Ukhiyaupzilla; the Kutupalong- Balukhali expansion site with a population of 602400 displaced Rohingya people after the 2017 Myanmar exodus, laid on the 4800 of forest acres of undeveloped forest land of Ukhiya allocated by the Govt. forest department of Bangladesh to host the new arrivals of August 2017(UNHCR, 2018a). The Kutupalong-Balukhali expansion site consists of 23 camps; camp 1-13, 17-20 including Kutupalong RC, camp 4 extensions and camp 20 extensions. Apart from it, Ukhiya has camp 14-Hakimpara, camp 15-jamtoli, camp 16 Bagghona/Potibonia and camp 21-Chakmarkul (Inter Sector Coordination Group - Bangladesh, 2020).

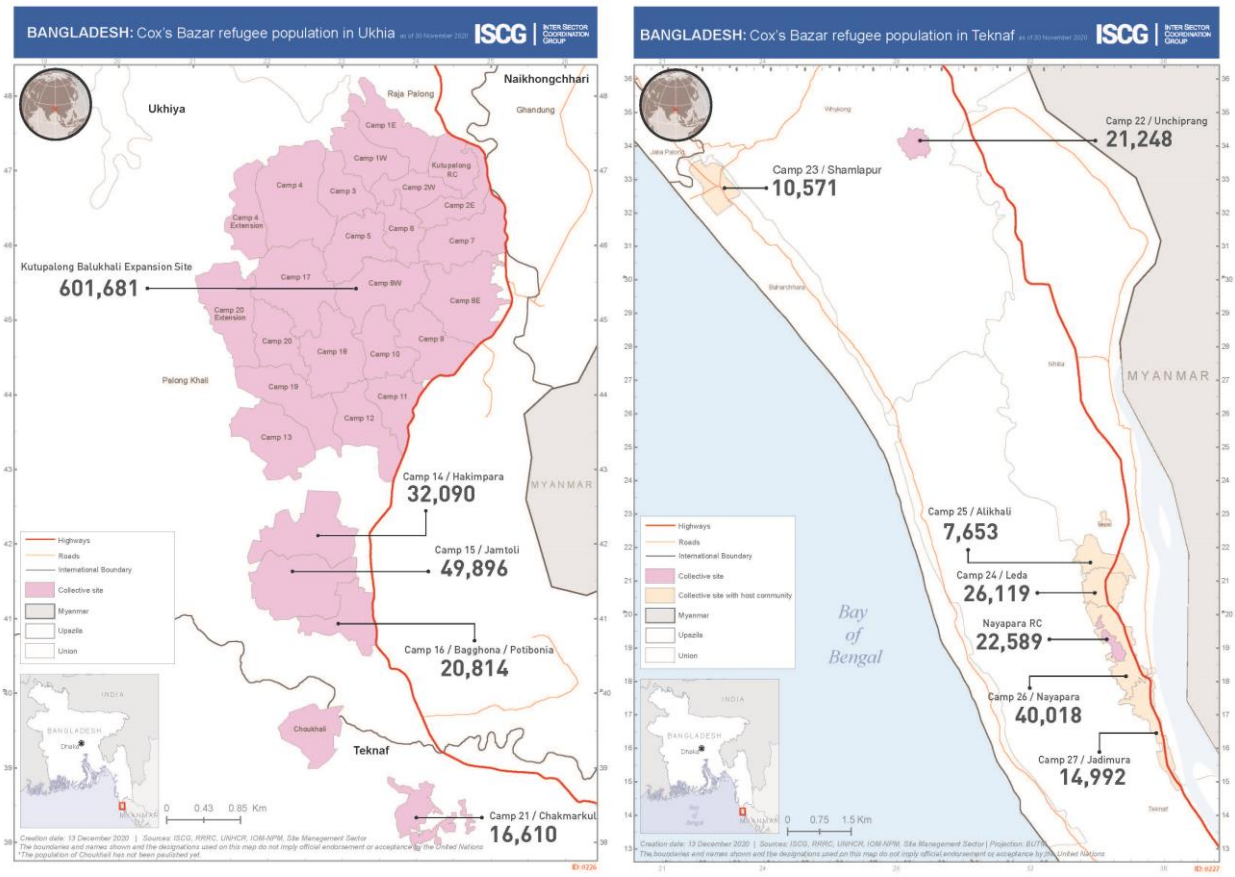


Figure 6: Cox's Bazar Refugee population in Ukhiya and Tecknaf.
Map Source:(Inter Sector Coordination Group - Bangladesh, 2020), https://www.humanitarianresponse.info/en/operations/bangladesh/infographic/bangladesh-cox%E2%80%99s-bazar-refugee-population-30-november-2020

Teknaf: Another destination of Rohingya displaced people, Teknaf is the southernmost point of mainland of Bangladesh, which is bounded by Ukhiya on north, Bay of Bengal on south and west, Naff River and Myanmar on east. Teknaf has the oldest and largest reserved forest of Bangladesh, which is called Teknaf Wildlife Sanctuary, a home of Asian elephants in Bangladesh. Nayapara camp in Teknaf is one of the registered camps of Govt. of Bangladesh which was established in 1992. After the 2017 arrival, the settlements of Nayapara and Leda camp in Teknaf has become an accommodation of more than 88,300 displaced Rohingya people(ACAPS, 2017; UNHCR, 2018a). After the recent influx of 2017, now Teknaf consists of six more camps; camp 22- Unchiprang, camp 23- Samlapur,camp 25- Alikhali, camp 24- Leda, camp 27- Jadimura (Inter Sector Coordination Group - Bangladesh, 2020).

4.3 Impact of Forced Displacement on Rohingya Children, Cox's Bazar

While hundreds of thousands of Rohingya have fled dreadful violence in August 2017, the little fearful eyes have seen the horrifying atrocity and brutality beyond description. It was a complete catastrophe for the children who constituted almost 55 percent of the total displaced Myanmar citizen, some fled by their own; some became totally separated from family. All of a sudden, they discovered themselves to an utmost uncertainty without shelter, food and other basic needs of life.

Protection risks: The hundreds of unsettled camps in the forest land of Cox's bazar became a threat for thousands of unaccompanied children in terms of child trafficking, exploitation and abuse. By September 2019, 8,596 unaccompanied and separated children (UASC) were identified who are facing multiple protection risks. These children became highly vulnerable to abuse and exploitation including sexual violence. Additionally, they face other protection risks like child marriage, child labour, abduction and trafficking. For example, 5-10% of Rohingya households are practicing it where two third of that practice it normally and one third has adopted it as a way of strategy to protect girls or to reduce economic burden of the family (Plan International, 2018). 49% and 44% households are at fear of kidnapping their boys and girls respectively. In case of child labour, 3% children aged of 3-17 years are involved in child labour in which 51% are exposed to the extreme level of child labour (UNHCR, 2019; ISCG, 2019, as cited in Inter-Sector Coordination Group (ISCG) et al., 2020).

According to Education & Child Protection in Emergencies- Joint Rapid Needs Assessment, 2017, the highest risk for girls is early marriage which is 46.5%. Trafficking, sexual harassment and violence also scored high for girls that are of 34.6, 34.6 and 33.5% respectively. For boys the risk of road accidents, getting lost, physical violence, trafficking and kidnapping is higher than other risk factors(Education Cluster et al., 2017).

Psychosocial distress: Due to experiencing horrific violence such as killing families and neighbors, burning homes, brutal exploitation of human beings etc. children are suffering from various forms of psychological disorders. It has been reported that memories of sudden assail, brutal violence and loosing families before running away of home causes the psychological misery for boys while for girls, it was mostly exposure to sexual violence and exploitation (UNHCR,2018).

According to Joint Rapid Needs Assessment 2017, for both girls and boys, the common behavioral changes that were reported are crying/sadness, dis- respectful behavior, unwillingness to participate in everyday activities, preference on staying alone and increased aggression. The charts show that sadness, depression and grief, constitutes higher percentages, 67.4%, in case of distress behaviors for girls. On the other hand, boys mostly are suffering from memories of violence, lack of recreational activities, fear of missing family members and not being able to return home. Both girls and boys have showed unwillingness to go to school (Education Cluster et al., 2017).

4.4 Child Protection in Emergency in Cox's Bazar

Child Protection actors started responding to save the distressed Rohingya children from abuse, violence and exploitation since October 2017 in Cox's Bazar. The Child Protection Sub-Sector (CPSS) was formed to prevent and respond to the protection risks of Rohingya children. CPSS is a coordination body with a combination of national and international agencies working under the umbrella of the Protection Sector Working Group. (HumanitarianResponse, n.d.)

The CPSS prioritizes the access of all children at risk including the children without any family trace. The have started the case management program to identify the girls and boys facing high protection risks of abuse and exploitation. The separated and unaccompanied children will be taken cared by their identification and documentation, tracing their family and managing

alternative family. The major interventions to build up resilience and coping mechanism among the distressed Rohingya children and adolescents are the Child Friendly Spaces (CFS) and Adolescent clubs. The CFS are built to provide psychosocial support through structures recreational activities while the Adolescent clubs are focused on developing life skills and resilience as their secondary education was hampered. The protective environment has been made sustainable and effective by developing Community-Based Child Protection approach. Community-Based Child Protection Committees has been formed and training in child protection will be provided to assist the child protection services (UNHCR, 2018a).

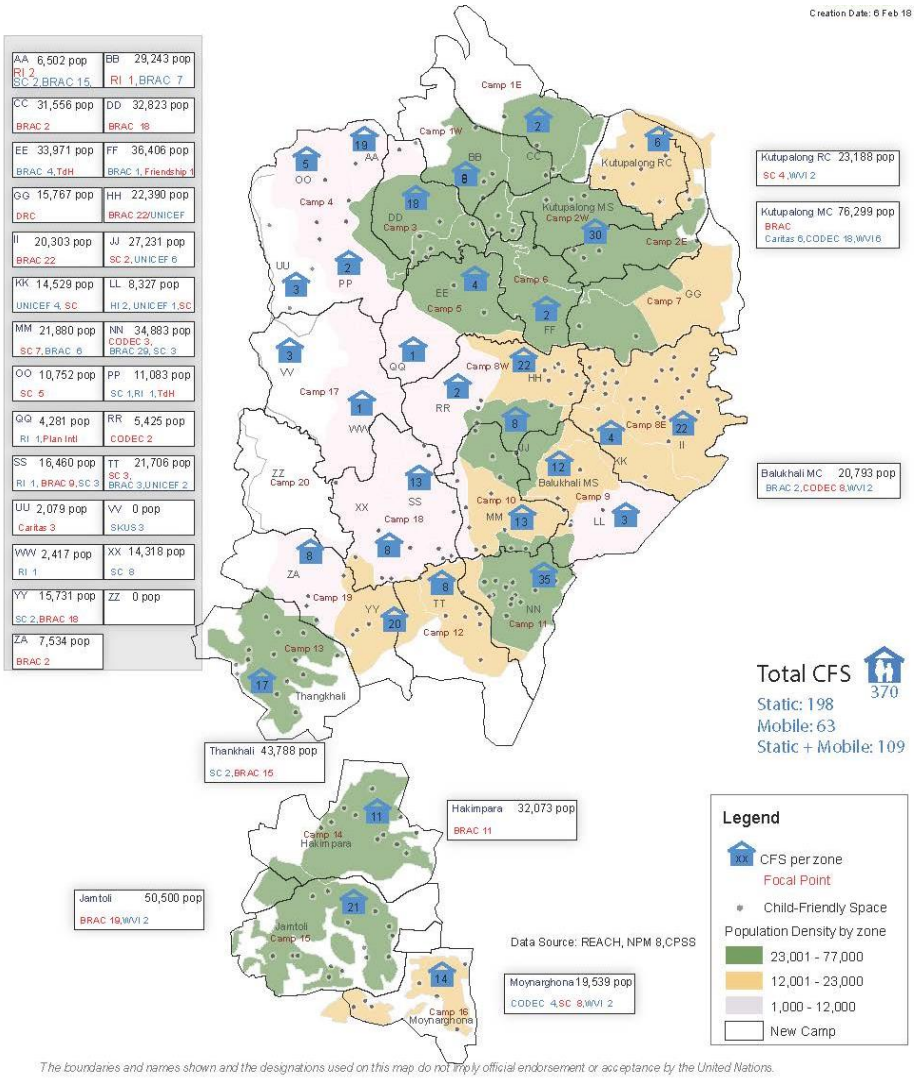


Figure 7: Cox's bazar CFS by Partners and by Camps. Map Source:(Child Protection Sub-Sector, 2018), https://reliefweb.int/map/bangladesh/bangladesh-cox-s-bazar-child-friendly-space-partners-and-camps-february-2018

Different organizations; local and international NGOs such as UNICEF, Save the Children, Plan International, Relief International, BRAC, World Vision international, CODEC, TdH etc. as child protection partners have implemented 370 child friendly spaces both in Ukhiya and Teknaf sub-district camps (Child Protection Sub-Sector, 2018). Majority of them are static; for long term, while very few of them are mobile in nature. These CFSs vary into size, shape and design from one to another due to the variation of topography, availability of land, accessibility and design approach taken by individual partner organizations.

(a)

(b)

Figure 8: (a) and (b) CFSs built in Rohingya camps. Source: Site survey by Author, 2021

(a)

(b)

Figure 9: Indoor of CFS in Cox's Bazar (a) Children playing inside a CFS, (b) Case management room of a CFS and display of CFS activity schedule and other information. Source: Site survey by Author, 2021

4.5 Minimum Standards of CFS in Cox's Bazar

Semi-permanent structure with static approach CFSs is recommended to build in Cox's bazaar Rohingya Camp. The semi-permanent structure can be made of bamboo and tarpaulin with walls and a floor, or a prefabricated container according to the UNICEF/Ministry of Social Services standard design. A static approach is defined as a space where a regular full-time activity will take place every day with one team.

Following criteria are recommended by child protection sub sector, Cox's for establishing a CFS (Protection Cluster UNICEF, 2018, 2019).

Selection of Site and preparation:

- To establish a new CFS, the agencies have to follow all procedures on space allocation including finding eligible space and receiving permission from the child protection sub sector to use that space.
- Safety and security of area should be ensured by ensuring safe access to the site, removal of hazards, access to safe water, etc.
- The parents and community leaders should be acknowledged about the purpose and function of CFS to encourage their participation and gain their support.
- The process should be participatory by involving the boys, girls, women and men and people with disabilities in planning level of establishing a CFS.
- A phase-out or transition plan in broader aspect like and acknowledge the community about that from the beginning, should be developed.

Activity Planning and Scheduling:

- To introduce culturally and age- appropriate activities to the children is recommended by the child protection sub sectors. For example, using locally available play materials, traditional games, handicrafts, and cultural activities such as drama, dance and singing whenever possible.
- To introduce activities such as art and craft, different types of sports and stimulating activities to increase their creativity, communication skill and physical activities.
- To divide children into small groups before distribution play materials to avoid fighting among children and introducing the use and norms of games such as ECD materials.

- To monitor small group activities to make sure all members in the group are participating with a feedback mechanism.
- Children should attend CFS at least 2 shifts week on different days for three months.
- To organize separate CFS sessions or group activities for girls and boys according to different age groups, such as 0-3 years old children will be accompanied by caregiver whereas 4-7, 8-11-, and 12-15-years old children will attend CFS for a minimum of 1.5 hours.
- There should be activities for children of age group16-18 such as learning basic literacy and numeracy, vocational training etc.
- To make a schedule of activities compatible with the daily life or family life routine of girls and boys in the camp.
- Schedule should be clearly visible and available in relevant languages so that parents, children and community can see it.

Staffing

- Staff should be selected from both the Rohingya communities and the host communities considering the social cohesion and s language barriers.
- The children and staff ratio should be minimum 2:25. Attendance of 2 staffs in a CFS is mandatory regardless the number of children.
- CFS staff or workers should be trained on multiple sectors including how to facilitate children with age- appropriate activities, how to use ECD materials, how to identify and register vulnerable children, how to use referral, child safeguarding and reporting mechanisms etc. Also, they will be trained on knowledge of child rights, psychosocial support, child protection in emergencies etc. Basic First Aid training is highly recommended.

- They should be trained on identification of unaccompanied and separated children and how to conduct case management issues including family tracing and reunification.
- Following the organization's Code of Conduct and child safeguarding policy is mandatory.

Inclusion

- CFSs should be accessible and inclusive for boys and girls to all activities.
- Children who need extensive support for Post-Traumatic Stress Disorder (PTSD) will be excluded as they need tailoring activities to meet their distinctive needs and capacities.
- CFSs should be accessible to adolescents with children or younger siblings.

Physical structure

- Minimum 80 sq. m should be provided for a CFS according to UNICEF/Ministry of Social Services design standards. A Static CFS will allow no more than 125 children per shift.
- The site will be safe, free from hazards, clean and tidy. The area will be marked with fencing around the site with a proper entrance.
- The CFSs will be rain and cyclone proof responding the climate of Cox's Bazar.
- The indoor space should facilitate small group activities simultaneously and can be divided by rope or string, tape or bamboo.
- The children's work such as drawings and art works will be displayed on the walls. Also posters and illustrations on basic information of CFS, schedule and programs,
- There should an outdoor area of dimension 5mX10m for play and recreational activities whenever possible.
- Confidential areas like case management or PSS should be provided within a private room.

- The WASH facilities such as water for drinking and hygiene purpose, toilets for boys and girls, water and soap for hand washing etc. should be provided and maintained properly.
- Toilet dimension will be minimum 3mX1.5m. 1pit/30 girls and 1 pit/ 60 boys should be provided with hand wash facility according to sphere standard.

Safety and Security

- CFS facilitators should carry identifications such as organization ID cards and must keep it visible.
- First aid box will be available in every CFS and should be kept in a safe distance from children access.
- Emergency contacts details (police, ambulance, fire) are on display in the CFS.
- All actors will be responsible for the security and safekeeping of CFS assets.
- The CFSs management should assign a night guard for static CFS's to protect the all the materials and assets during nighttime.
- Visitors should not be let inside the CFS without prior authorization from management.

Chapter 5

Methodology

5.1 Introduction:

The chapter will discuss the overall research methodology followed in this study. It includes the details of selection of study camps, selection of CFSs and the use of different survey tools to data collection and analysis.

5.2 Selection of Study Area: Rohingya Camps

Seven Rohingya camps were selected as the study area based on the settlement size, pattern, topography and convenience. Five camps (Camp 4, 17, 18 20, 20- extension) were selected form the largest settlement- Kutupalong-Balukhali expansion site, Ukhiya hosting a population of 581,831(UNHCR, 2020). To reside the newly added forcedly displaced Rohingya people in August, 2017, 4,800 acres of undeveloped forest land were allocated for the Kutupalong–Balukhali expansion site. (UNHCR, 2018a) This expansion site was particularly hilly area with dense vegetation which is now totally deforested. The settlement followed the terrain of the hilly land. Nearly 102,000 people are at direct risk of landslides and flood. Rest of the two camps (camp 24, 25) are selected from Teknaf where the settlements are comparatively small in size and on flat land. However, several canals can cause river flooding during monsoon(International Organization for Migration, 2018).

It is to be noted that all the Rohingya camps in Cox's bazar are treated strongly as a restricted area for the outsiders due to the security issues by the Govt. of Bangladesh. Due to this protection and security issues, these seven camps were selected based on convenience and the attachments of the resource persons working in protection sectors of Rohingya crisis in Cox's Bazar.

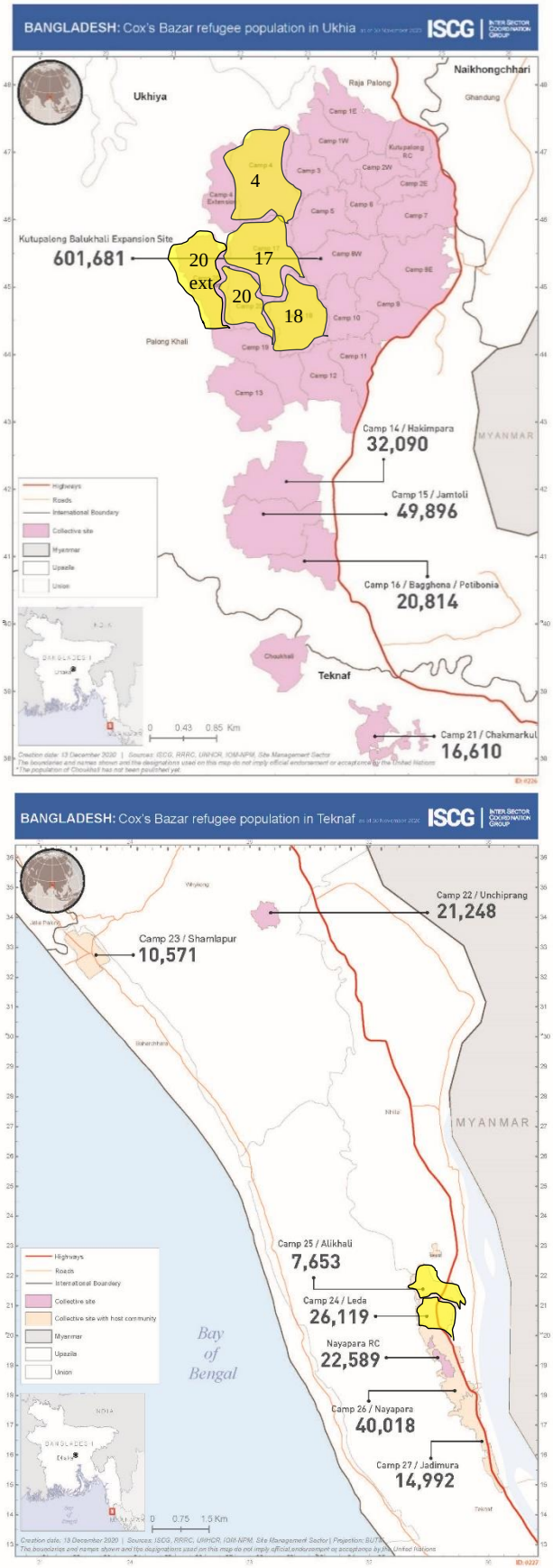
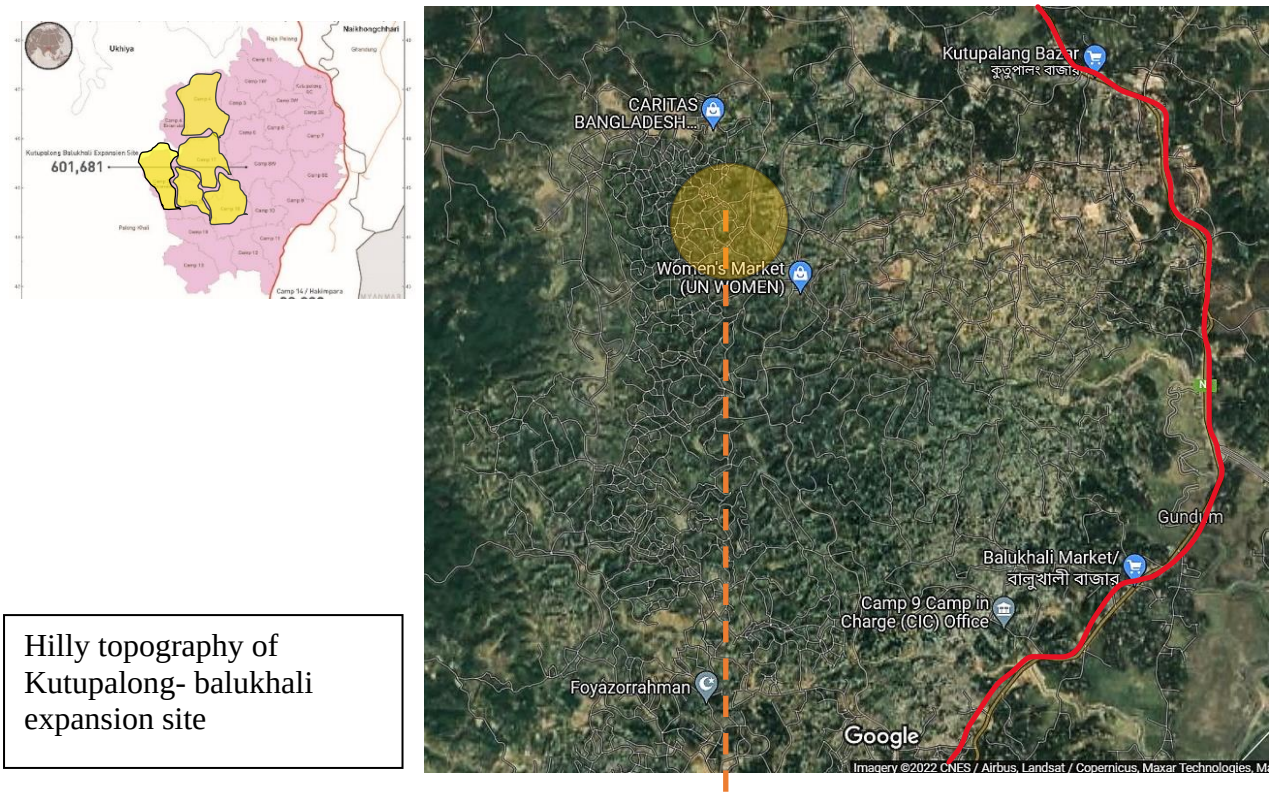


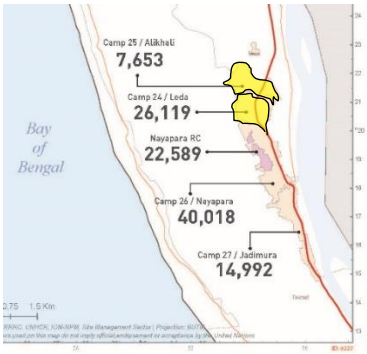
Figure 10: Rohingya Camps selection from Ukhiya and Teknaf. Map source: (Inter Sector Coordination Group - Bangladesh, 2020), https://reliefweb.int/map/bangladesh/bangladesh-cox-s-bazar-child-friendly-space-partners-and-camps-february-2018



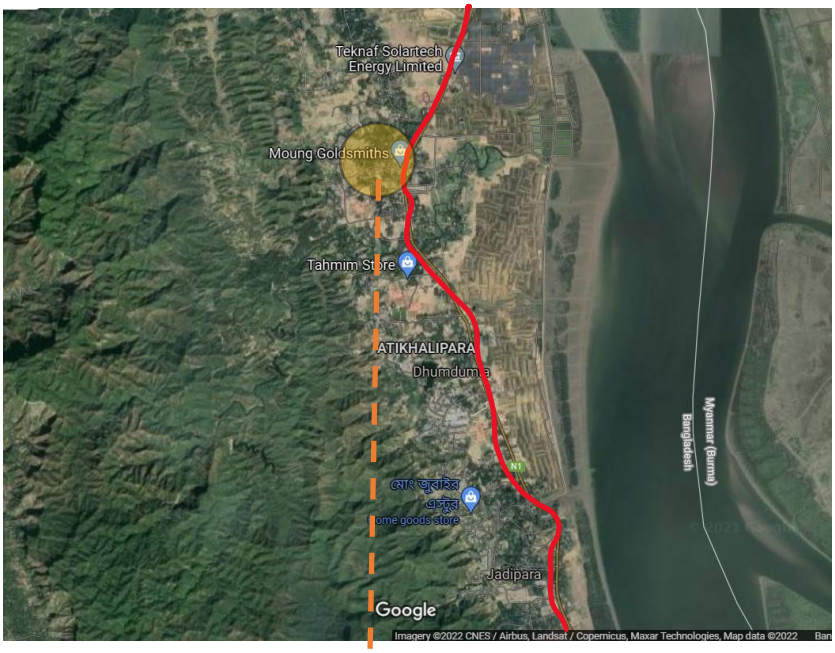
Hilly topography of Kutupalong- balukhali expansion site

Very dense settlement pattern of Camp – 4 on the terrain of hilly land of Kutupalong- Balukhali expansion site, prone to flood and landslides.

Figure 11: (a) Kutupalong- balukhali expansion site, Ukhiya, (b) settlement pattern of camp-4, Kutupalong- balukhali expansion site, Ukhiya. Source: Google map.



Rohingya camps in Teknaf on flat land alongside the river Naf.



(a)

Settlement pattern of Camps -24, Leda, in Teknaf on flat land.

(b)

Figure 12: (a) Camps in Teknaf, (b) settlement pattern of camp-24, Teknaf Source: Google map.

5.3 Selection of Child Friendly Space (CFS):

Different international and local child- focused organizations are working in Child Protection Sub Sector in Rohingya crisis led by UNICEF and UNHCR such as Save the Children-International, Plan International, Relief International, World Vision International, TDH, BRAC, CODEC, Caritas etc. Currently 464 child protection facilities are established by these organizations including CFSs (Child Protection Sub-Sector - Bangladesh, 2021). Different agencies have their own working procedure and principles. All these agencies maintain high restrictions in terms of accessibility and information sharing as the protection sector is considered as one of the most sensitive and confidential sectors in any humanitarian crisis due to its working principles.

Due to these restrictions, ten CFSs of four humanitarian agencies were selected based on the convenience sampling. Convenience sampling has been widely used in studies on emergency or crisis. For example, several researches on emergency facilities of refugee or displaced people in USA, Germany and in Bangladesh have been used convenience sampling (Doherty et al., 2020; Inci et al., 2020; Rahman et al., 2020; Yalim et al., 2019).

The author had to go through the following steps for selection of CFSs:

- Primary research and literature review about Rohingya crisis and camp settlements in Cox's Bazar.
- Selection of seven camps from Ukhiya and Teknaf considering variation of camp size, topography and convenience.
- Research on Cox's Bazar child protection sub- sector partners and implementers in the selected camps.

- To establish contact with resource persons from several humanitarian agencies of Child Protection sub sector of the selected camps to get access for survey.
- Finally, ten CFSs from four agencies were selected based on the convenience.

5.4 Research Methodology

Most of the study related with Child Friendly Space or equivalent facilities in emergency context evaluating the effectiveness of CFS have followed the cross-sectional mixed methods; both qualitative and quantitative. For example, structured or semi structured questionnaire survey, Focused group discussion (FGD), Key informant interview (KII), technical visit, Observation, monthly report analysis etc. have been adopted as evaluation tools in several studies (Ager et al., 2012; Eyber et al., 2014; IFRC, 2017).

Following the above-mentioned references, this study has been conducted using a mix method; both qualitative and quantitative. The purpose was to fulfill the objectives of the study; to find out the condition of physical environment of CFSs in Cox's bazar. The quantitative method was adopted for an assessment of physical conditions of CFS in Rohingya camps according to the minimum standard checklist. On the other hand, the qualitative approach was adopted to understand the impact of local factors on physical environment of CFSs of Cox's Bazar. The tools used for both approaches are key informant interviews (structured and semi structured), observation, photographic analysis, focused group discussion and several informal discussions.

5.5 The Survey

The selected ten CFSs were surveyed in total two visits to the camps of Cox's Bazar from Dhaka. The first visit was in January 2020, consists of two days. It included a pilot visit to the camp of Ukhiya and survey of two CFSs of Agency D in camp 18. The next was a 3-days visit on March 2020. During the first two days, the CFSs of agency C and A were visited in camp 17, 20 and 20-extension in Kutupalong-Balukhali site, Ukhiya. On the third day, the CFSs of agency A and B were surveyed in Teknaf in camp 24 and 25 respectively.

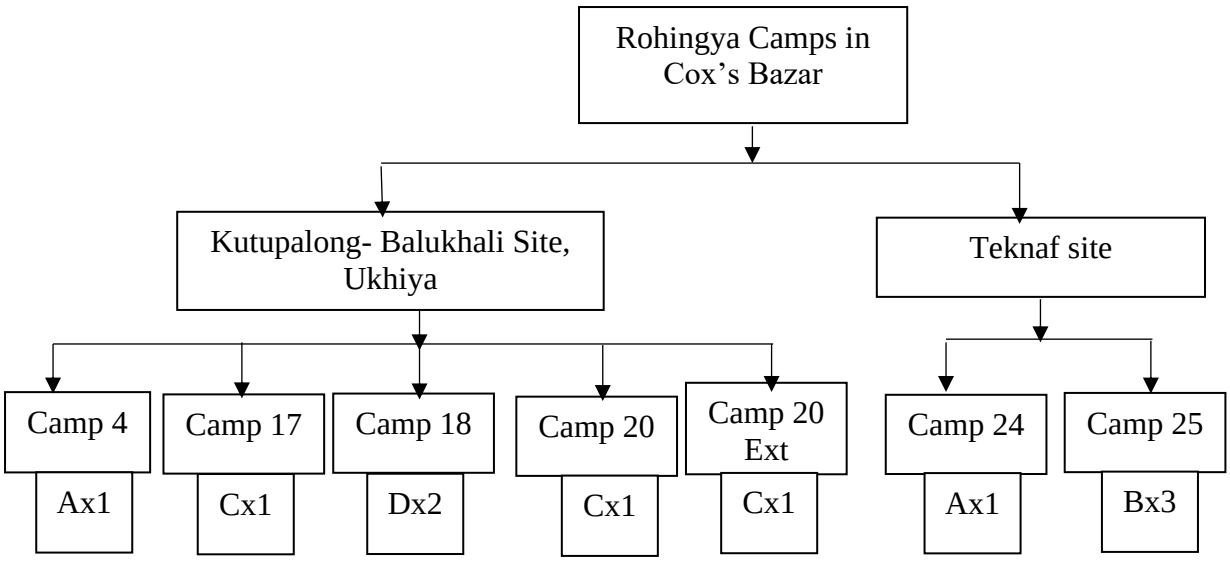


Figure 13: Selection of CFSs

5.6 Tools of Survey and analysis

5.6.1 Observation

Observation has been used as an effective survey tool in researches related to assessing physical environment of any activity space; such as child care centers, primary schools, nursing homes etc. (Cutler et al., 2006; Gubbels et al., 2011; Nathan et al., 2013).

In this study, observation was used in overall field survey. Specifically, the observation was focused on observing the criteria of design and implementation according to the checklist of minimum standards (see chapter 4); the condition of site, size of the CFS, condition of indoor and outdoor of CFS, use of equipment and material and WASH facilities. Apart from that, the impact of local factors such as use of building material and technique, space- use pattern, climate responsiveness, cultural influences and any additional design features beyond the minimum standard that were adopted in selected CFSs, were observed.

5.6.2 Photographic Analysis

Photography or imagery analysis has been widely used in different researches specially related to physical environment evaluation; ranges from urban physical or built environment to nursing homes and kindergartens for children(Chen, 2018; Chow et al., 2014; Holmgren, 2017).

An extensive photographic documentation has been done during field survey. These photographs have become one of the primary sources of the developments of drawings in the chapter 6. They have provided more clarity and validity of the observation during data analysis and triangulation.

5.6.3 Key Informant Interview

Key informant interviews have been suggested as a major research tool in studies regarding evaluating Child Friendly Spaces (Eyber et al., 2014; Lilley et al., 2015). In this study, four key informant interviews were conducted by the author both during and after the field survey. Two architects working in design and construction team of CSFs in two different agencies D and A, one project manager and one construction team engineer from agency D and one case management officer of CFS of agency B were interviewed. Both structured and unstructured interviews were conducted in these cases.

The architects and construction engineer were considered to query about the physical design process, construction details and considerations of building CFSs (see questionaries in Annex). The project manager of agency D started working since the beginning in child protection sector and provided information regarding how they started responding to the distresses children from the beginning (2017), the gradual evolution of CFS as a response and the challenges they have faced while establishing CFSs. The case management officer provided valuable information about the assistance they provide to the children who need special attention and care.

Survey tool	Key informants	No	Agency	Information
KII	Architect	2	A & D	Physical design in implementation of CFS
	Construction engineer	1	D	Physical design in implementation of CFS
	CFS Project manager	1	D	Overall Emergency response of child protection sector since 2017 and evolution of CFS
	CFS case management officer	1	B	Assistance provided to the children of special need and care

Table 7: Details of Key informants and types of information collected.

5.6.4 Focused Group Discussion

Focused group discussion is widely used in qualitative research to explore the research problem throughout the experiences of a group of people from the similar background or context(Mishra, 2016). This data collection tool has been significantly used in studies related to disaster contexts, both pre and post disaster situations (Islam, 1972; Jamshed et al., 2018; Welton-mitchell et al., 2018). As this study has addressed the mixed method, as a qualitative research tool, two focused group discussions were conducted in CFSs run by two different agencies. The author acted as the moderator in both FGDs. The topic was focused on how they organize different activities (group play, music, art and craft, basic literacy and numeracy) within the physical space (indoor and outdoor) of a CFS.

The first FGD is conducted in CFS of Agency D in camp- 18. The participants were the CFS-in- charge and two volunteers, who are responsible for conducting different activities with children in CFS. Due to the long distance in between the CFSs of one camp to another and difficulties of accessibility, it was not possible to gather professionals of similar position. However, the participants share similar work experience and environment. The conversation was conducted in the office room of CFS-in- charge. The second FGD was conducted with four volunteers of two CFSs of agency C, responsible for conducting CFS activities with children. The conversation was held in a veranda of a CFS in camp 17. In both FGDs, all the participants were found comfortable (male and female) to share their work experience from one platform.

	Location	Participants	Gender	Topic
FGD 1	CFS of Agency D, Camp-18, Kutupalong-Balukhali expansion site	CFS in charge	Male	Use of physical space (indoor and outdoor) of a CFS to organize different activities for children.
		Volunteer1	Male	
		Volunteer 2	Female	
FGD 2	CFS of Agency C, Camp-17, Kutupalong-Balukhali expansion site	Volunteer 1	Male	
		Volunteer 2	Male	
		Volunteer 3	Male	
		Volunteer 4	Female	

Table 8: FGD composition and information collected.

5.6.5 Informal Discussion

Along with the observation, several informal discussions were conducted during the field survey with the resource persons such as with the volunteers, caregivers, managers of CFSs, construction engineers, stuffs of child protection sector from different agencies. These informal discussion topics varied person to person according to their work experience. Most of the discussions were recorded and were useful during data triangulation and cross check.

(a)

(b)

(c)

(d)

Figure 14: (a), (b), (c), (d) Discussions with staffs and volunteers during CFS survey.
Source: Site survey by Author, 2021

5.6.6 Data Analysis and Triangulation:

The data and information collected from the above- mentioned survey tools were triangulated to justify their authenticity and presented in next chapter as findings. The relevant quantitative as well as the qualitative data from observation, photographic analysis, KII, FDG and all informal interviews were extracted and cross checked. The quantitative findings assessing the minimum standards of physical design and implementation of selected CFS are presented in charts while the qualitative data regarding impact of local factors are discussed and analyzed in several sections in the next chapter.

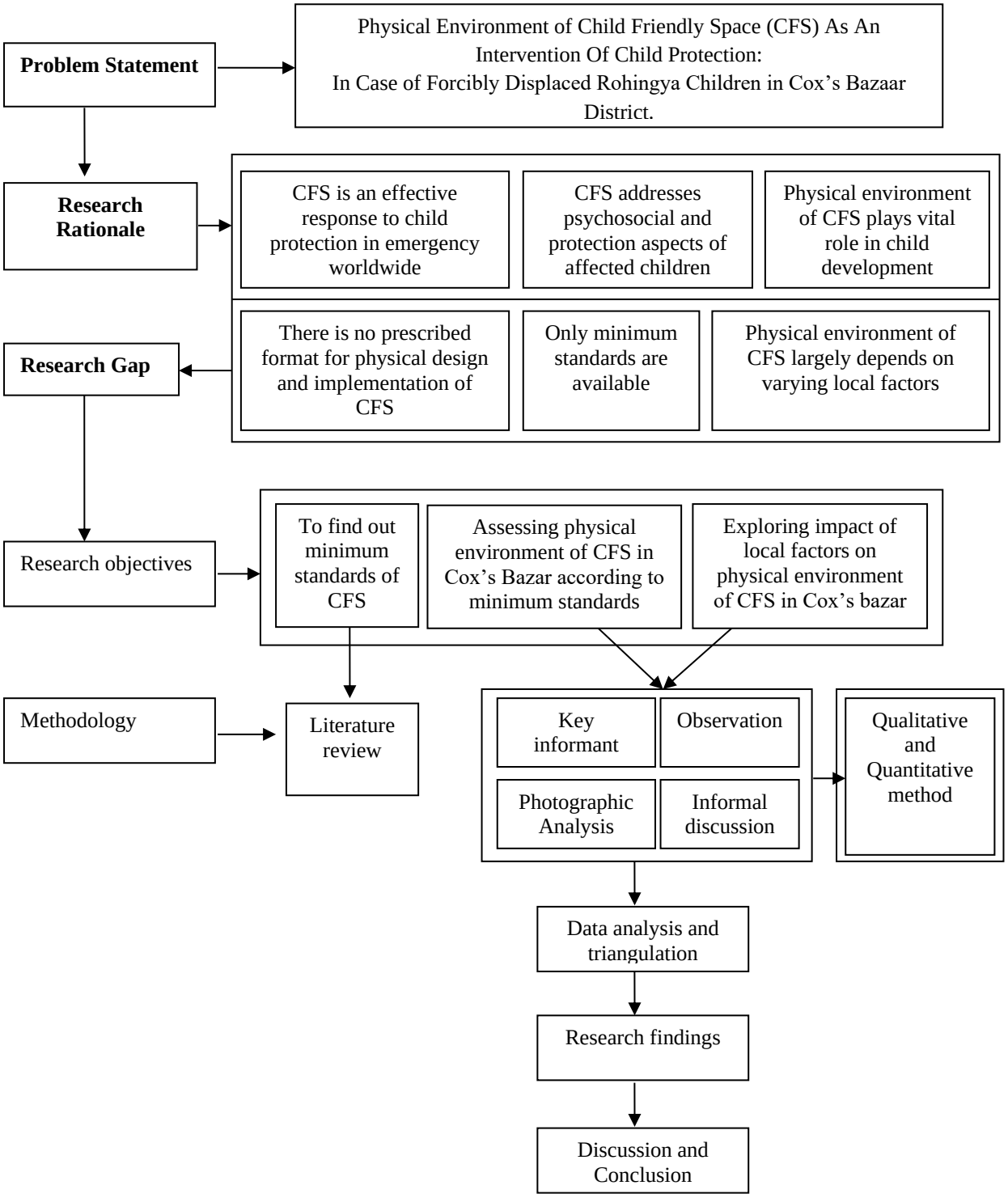


Figure 15:Research Framework. Source: Author, 2021

Chapter 6

Child Friendly Space: Factors and Issues

This chapter represents the findings of the research questions. All the data collected from different survey tools were triangulated and cross checked. The charts and bars represent the findings of quantitative method while the narrations of different aspects are the findings of qualitative methods conducted in this research.

6.1 Sites of CFSs:

The following table represents the condition of sites of selected CFSs following the minimum standards. The checklist of minimum standards of site selection is provided in Table 1.

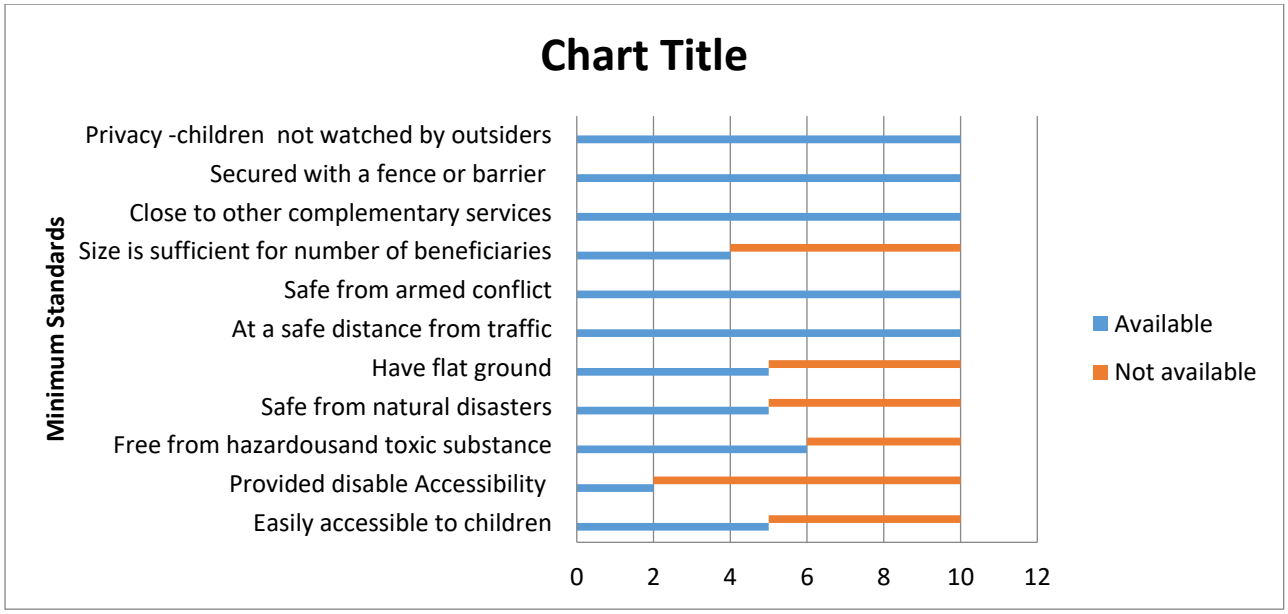


Figure 16: Physical Condition of sample CFSs according to minimum standards

The table shows that all the surveyed CFSs were safe from hazardous material, secured with a fence, in safe distance from traffic and any armed conflict. Regarding flat ground, half of the CFSs in Teknaf were on flat grounds and others were on hilly area of Kutupalong-Balukhali-expansion site, Ukhiya. In case of natural hazard, it is seen that all five CFSs in Ukhiya were found vulnerable to landslide and flood. Cox's Bazar as a south-eastern coastal region is highly

prone to tropical cyclone and the hilly regions are within the risks of landslides and flash flood due to the heavy rain in monsoon season. In case of accessibility, it is highly noticeable that only two CFS's sites were accessible to differently able persons. CFSs on flat ground were easily accessible for children and rests of the sites were not due to their location on hilly land. Most of them were accessible by long flight of steep stairs made of sand bag and bamboo, which are not safe for children. They become more dangerous during the monsoon time because of heavy rain. Regarding size of the sites, six of the ten selected CFSs had insufficient site area. They had very minimum set back from the site line and lack of minimum outdoor space.

Figure 17: Images of accessibility of three sample CFSs. Source: Field Survey by Author,2020

6.2 Building Material

Building material plays an important role on physical environment of any built structure. For CFS, there is no standard or guideline on selection of building material as depends on the availability of material and construction technique in any locality. Moreover, certain local policies or guidelines on building physical structures in any emergency situation also can determine the types of structure and building material.

For example, since the beginning, the Bangladesh Govt. has expected a quick repartition of Rohingya people to their own land (Ministry of Foreign Affairs Bangladesh, 2017); they planned for a temporary settlement in the camp. The following restrictions were imposed on any built structure:

- Restriction on building any permanent structure inside the camp.
- Only temporary structures are permitted to build.
- If the floor is even casted, reinforcement (RCC) cannot be used. Only neat cement finishing is allowed.
- Brick wall only up to 750mm is allowed.
- Materials such as CI sheet which can be hazardous due to cyclone are prohibited to use.

6.2.1 Availability of Building Material

As an emergency response for Rohingya people, focus has been given on availability of building material which can be sourced out in large scale and also are temporary in nature according to the local policy. Therefore, the main building material has become bamboo. Bamboo woven sheet and panels are used for walls while bamboo strip and thatch are used for roof covering. Among different species, Borak and Muli bamboo are used in large scale in Rohingya camps, sourced from mostly central, northern to northwestern parts of Bangladesh, from forests of Sylhet, Chittagong Hill Tracts and Tetulia of Panchagar. The rapid re- growth rate of bamboo makes it a potentially more sustainable building resource than many other products(Hodgkin & Prideaux, 2018).

6.2.2 Use of Building Material

Following charts are showing the use of temporary materials for physical structure of selected CFS samples from Ukhiya and Teknaf:

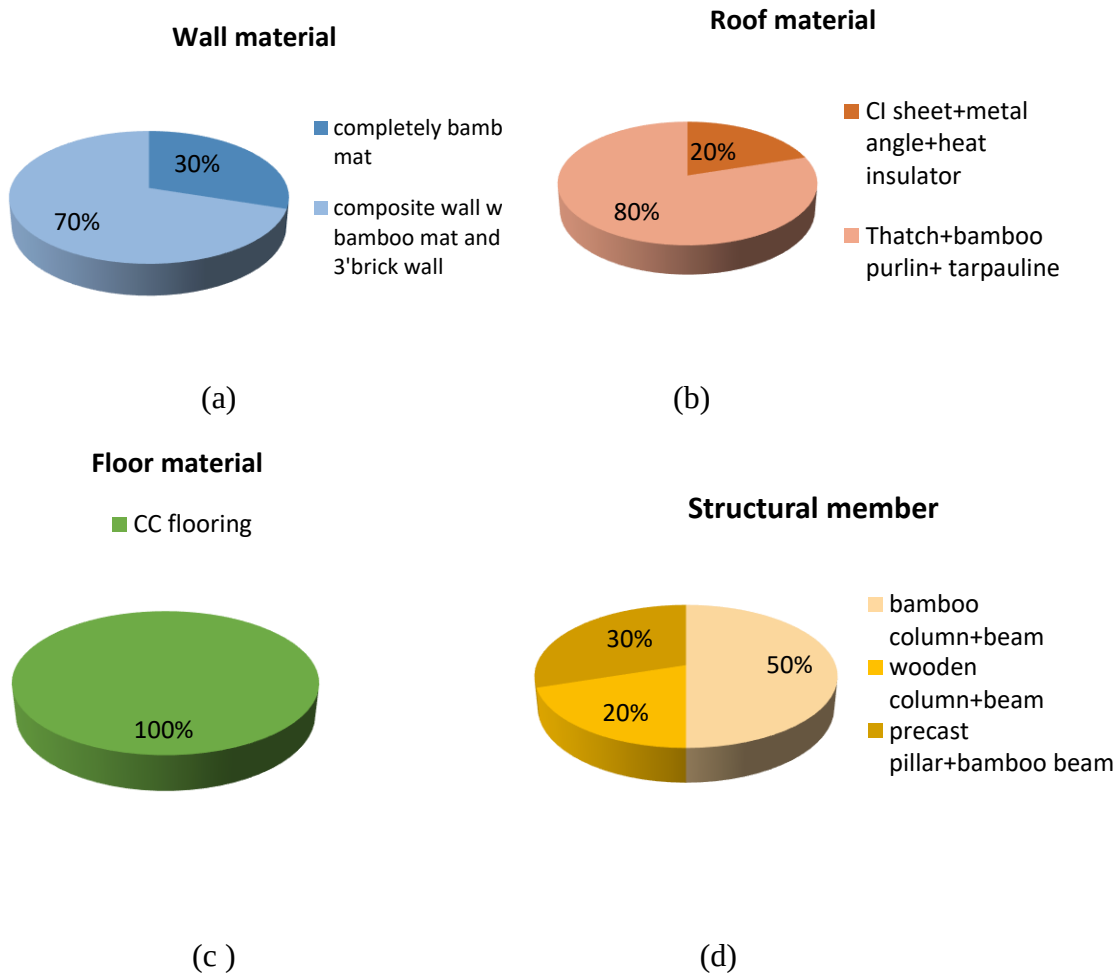


Figure 18: Percentage of Use of Building materials of selected samples. Chart (a) shows the wall material, Chart (b) shows the roof material, chart (c) shows the floor material and chart (d) shows the material of structural members of sample CFSs.

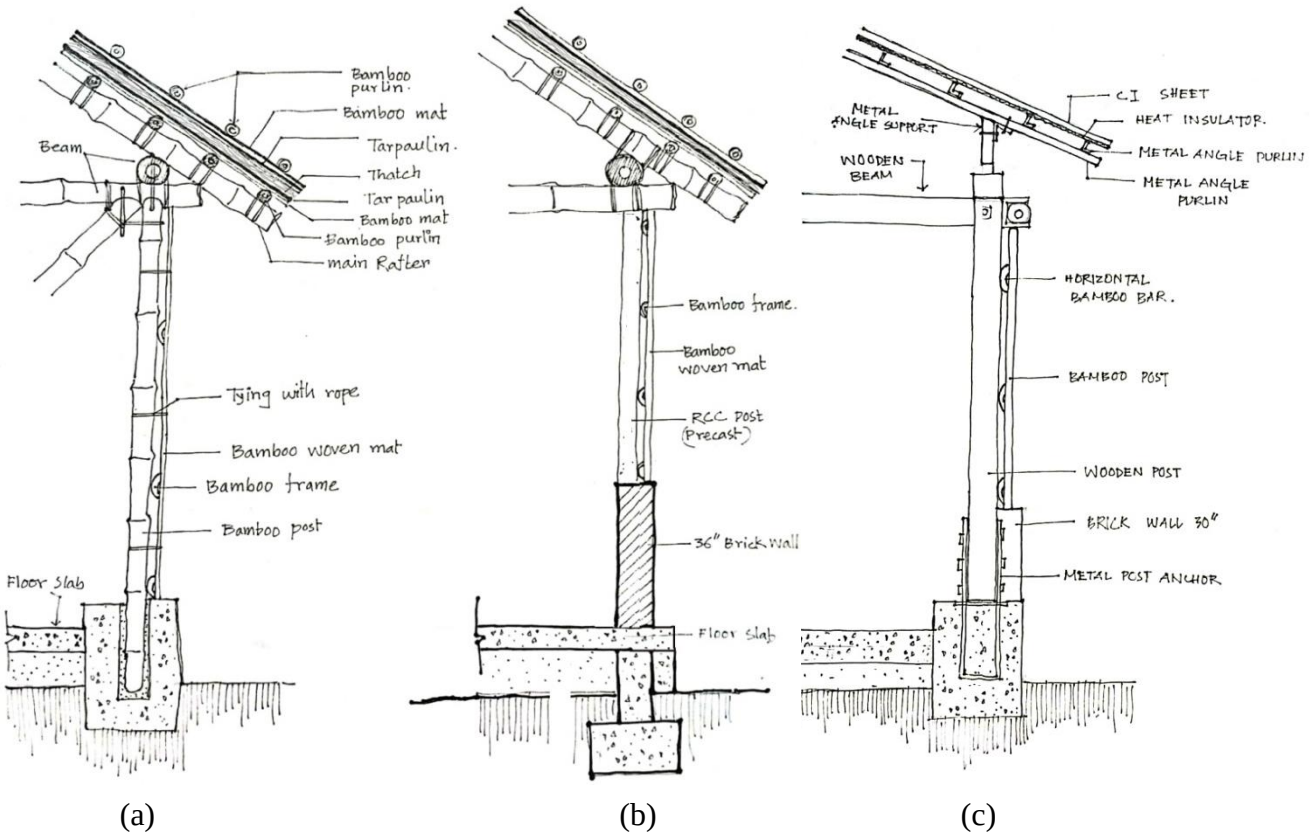
Figure 19: Images of wall material. Image (a) shows the wall made of brick and bamboo, Image (b) shows the wall made completely with bamboo. Source: Field survey by Author, 2020

The chart shows that Bamboo is being used as the main building material. For wall, bamboo solely is used in 30% of the selected CFSs while 70% of them have a 36" brick wall from the ground. In case of roof, majority of the surveyed CFSs are covered with thatch on the bamboo purlin. A tarpaulin sheet is used on both side of thatch as rain protection. On the other hand, only 20% of studied CFSs have a roof of CI sheet on metal angle as purlin. They have used thermal insulator sheet to resist the interior heat gain due to CI sheet.

Figure 20: Images of roof material. Image (a) and (b) shows thatch roof with tarpaulin on both, image (c) shows roof of CI sheet with metal purlin and thermal insulator. Source: Field survey by Author, 2020

All the selected CFSs had CC (Cement Concrete flooring). Regarding structural member, three types of material were used as column; bamboo, wood and precast pillar while bamboo and wood are used as beams for the structure. Most of the selected CFSs (50%) used bamboo column and beam. 30% of them used a combination of precast RCC column and bamboo beam whereas only 20% used wooden column –beam.

Figure 21: Images of structural material. Image (a), (b) shows wooden column-beam, (c) shows bamboo column beam, (d) shows precast column and bamboo beam. Source: Field survey by Author, 2020



(a) (b) (c)

Figure 22: Sections of material use in selected CFSs. (a) bamboo column-beam, bamboo woven wall, and thatch roof (b) precast column-bamboo beam, bamboo woven wall with 36" brick wall, thatch roof, (c) wooden post-beam, bamboo post wall with metal purlin and CI sheet roof. Source: Field survey by Author,2021

Fire Hazard: As bamboo and thatch are used as predominant building material in most of the sample CFSs, they are highly combustible to fire. Fire incident has been a frequent and common phenomenon in Rohingya camps. According to Save the Children, there were 82 fire incidents in year 2021 and 84 in year 2021till April. One of the main reasons are the use of bamboo in Rohingya shelter which is become more flammable due to prolonged summer season (Save the Children, 2021). During the survey it has been found out that very few of the CFSs are prepared for fire incidents. Only the CFSs of one agency was equipped with a fire extinguisher which is not enough to fight a large-scale fire hazard.

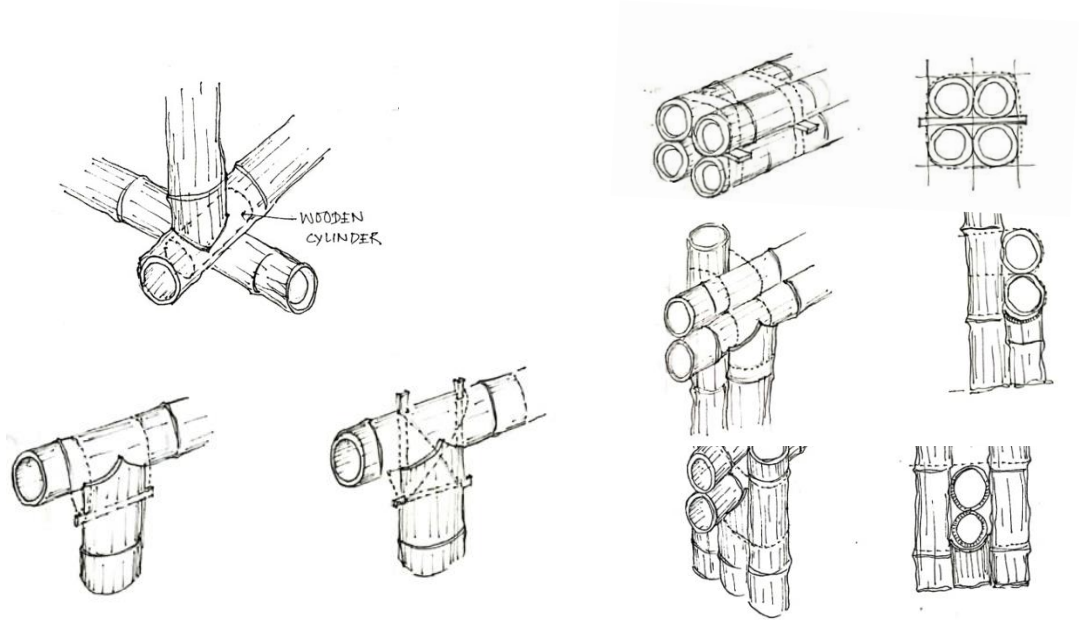
Figure 23: Image of a fire extinguisher at CFS. Source: Field survey by Author, 2020

6.2.3 Material procurement

In Cox's bazar camp, the material procurement process is a long procedure including design approval, vendor selection, buying, quality checking, transportation and receiving. Usually the procurement team is used to buy those materials which are easily available in the market. It takes much longer time if a design team asks for any specific building material for design purpose. For example, clay for walls, palm fronds for roof coverage can be used as sustainable materials but very difficult to find out in Cox's Bazar while bamboo and thatch are easy for sourcing. On the other hand such materials need expert hands to apply in any design. To avoid such technical problems the design team started adopting their design with available materials. Therefore, material sourcing and purchasing has also influenced the design and implementation of CFS.

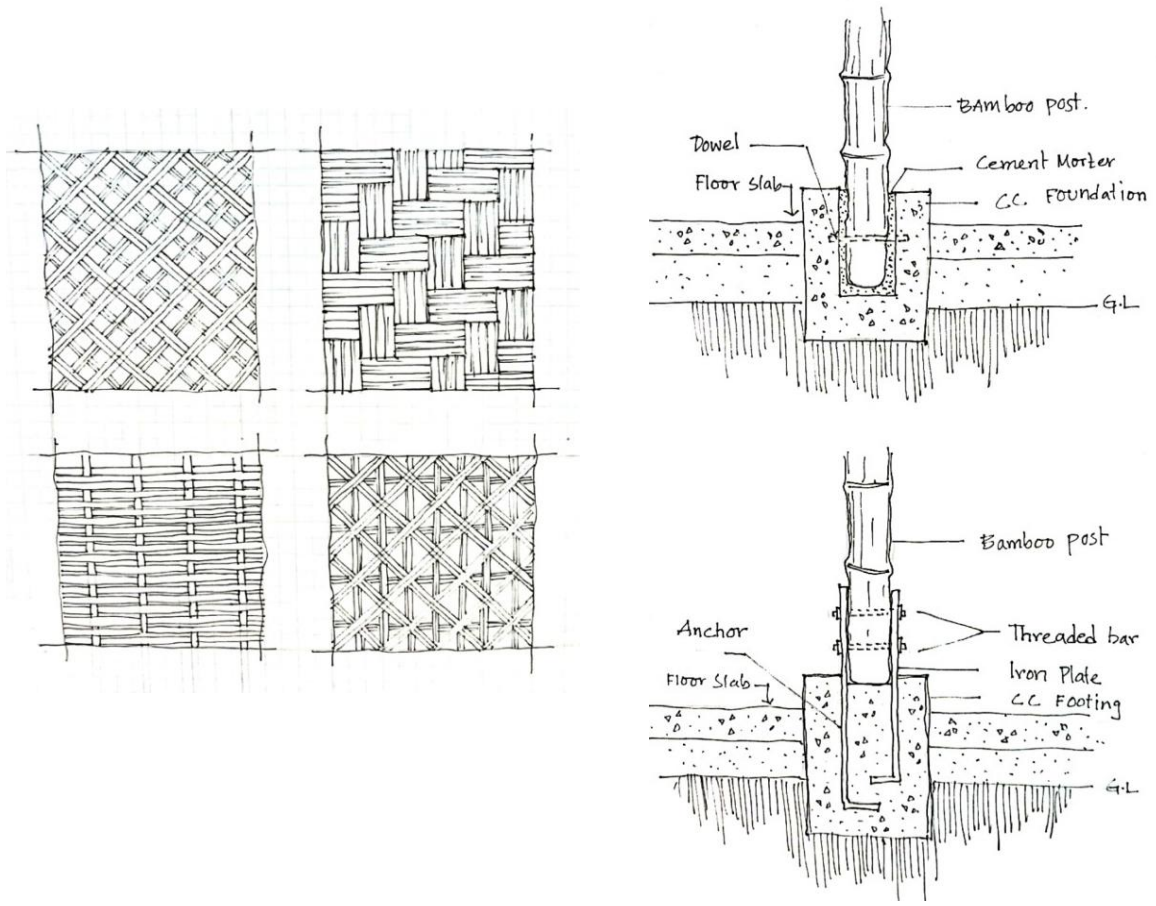
6.2.4 Construction Technique

When Bamboo has become the main building material in Rohingya camp, Cox's bazaar, it needed experts and skilled people in bamboo construction technique. In this case, Rohingya people are found more knowledgeable and skilled than the host community. The traditional houses of rural Myanmar are made mostly of timber and bamboo. Sometimes they are raised off the ground on stilts having some space underneath the super structure. Walls are made with wood planks or bamboo strips while roof coverings are of thatch from broad-leafed grass and largely of palm fronds, bamboo slats and corrugated iron sheets(Nandar, 2018).The design and construction team of agencies mostly relied on Rohingya people in joining and weaving techniques of bamboo made column, beam and wall panels. Their involvement also made a sense of belongingness to the structures.



(a) (b)

Figure 24: Bamboo joinery detail. (a) Joinery of vertical and horizontal members. (b) Quadruple and double beam joinery detail. Source: Hunnarshala foundation for building technology and innovations, 2013. Sketch: Author, 2021



(a) (b)

Figure 25: Use of Bamboo mat and detail of fixing bamboo post. (a) Showing different bamboo woven mat used as wall of CFSs. Source: Field survey by Author, 2021. (b) Showing details of fixing bamboo post into concrete floor slab used in selected CFSs in Cox's Bazar. Source: Hunnarshala foundation for building technology and innovations, 2013. Sketch: Author, 2021

Sometimes they also participate into the design process with their armature drawings, sketches and even with physical models. However initially it took quite a long time to find out and involve those skilled people from the community. Once they get familiar with the team and working process, they participated spontaneously.

6.3 Working Procedure

Two types of working procedure are practiced by the agencies inside the Cox's bazar camp for building CFSs:

a) By the Vendors or third party: the total work schedule ranging from buying material to construction is executed via hiring external professionals. Most of the agencies practice this kind of work procedure. In this case there is a low chance of community participation in design and construction process. Usually, they follow a tentative layout given by the funding agencies and try to address the quality bench marks of minimum standards. In most of the cases there remains lack of considering the context and creative interventions.

b) By an expert design and construction team: Some agencies have their own design and construction team who conduct the work phase by phase with a bottom-up approach with the help of local people and community. They try to design the CFS considering the need and requirements of the community in micro level beyond layout given by the donor agencies in a broader aspect. Sometimes they negotiate with the donor agencies for the required changes and interventions they want to execute. Usually, they engage the community both in the design and construction process to make a belongingness of the community.

Figure 26:CFS designed by different agencies. (a) Image of a CFS designed by an expert team, (b) Image of a CFS designed by an agency following a layout by funding agencies.
Source: Field survey by Author, 2020

6.4 Climatic Consideration

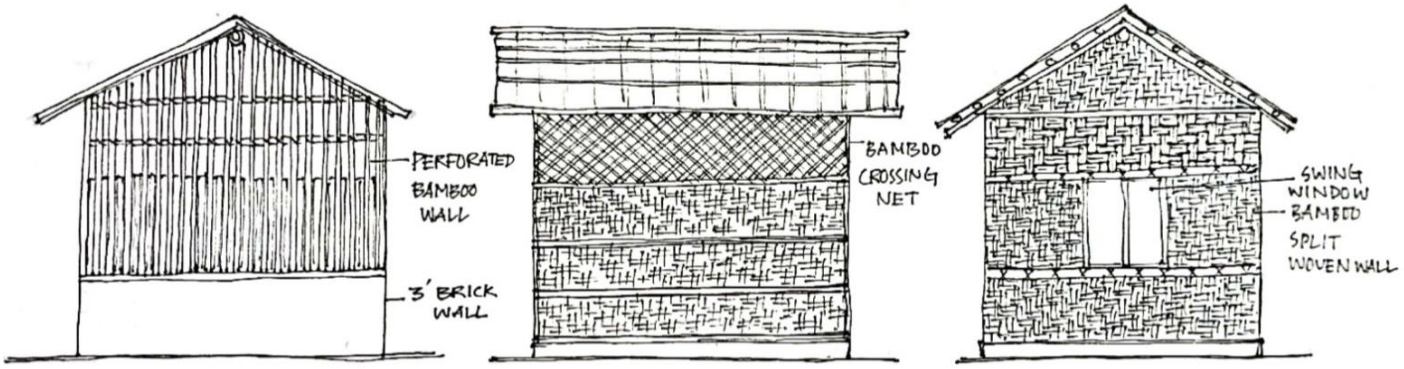
The climate of Cox's bazaar is characterized by its location on the southwestern coastal plain of Bangladesh which formed the world's longest sea beach. The coastal areas of the Cox's bazar are at the forefront to face high speed winds and storm surges associated with the cyclones originating from the Bay of Bengal. A data from NOAA archive has revealed that 22 cyclones have hit the district during year 1904-2016 periods. The frequency of direct cyclone strikes has been relative very high in Ukhia, followed by Cox's Bazar-South and Chakaria which exposes the huge makeshift settlement of Rohingya community into the high risk of tropical cyclones (Alam et al., 2020).

Apart from that the city experiences highest temperature 32.3 C in month of May and highest precipitation 925mm in month July. (Bangladesh Mateorological Department, n.d.) Climate of any area largely influence the design of a built structure. Different agencies have addressed climatic consideration in their CFSs in different ways. Following chart shows the climate responsiveness of selected sample CFSs:

Agency A	Agency B	Agency C	Agency D
Heat			
• Perforated bamboo façade providing enough ventilation. • Heat insulator has been installed under CI sheet. • Ceiling fans have been installed.	• bamboo façade with double swing window ensuring cross ventilation • Thatch roof. No heat insulator • Ceiling fans have been installed.	• Bamboo cross weaving as high clerestory for ventilation • Thatch roof. No heat insulator. • Ceiling fan has been installed.	• Bamboo cross weaving at window provides ventilation • Thatch roof. No heat insulator • Stand fans are used.
Rain			
• Bambooperforated walls are protected by poly blinder in interior • Rainwater gutter is used for draining out rainwater.	• Tarpaulin sheet on both side of thatch roof. • Rainwater gutter is used for draining out rainwater.	• Tarpaulin sheet only on top of thatch roof. • Rainwater gutter is used for draining out rainwater.	• Tarpaulin sheet on both side of thatch roof. • Rainwater gutter is used for draining out rainwater.

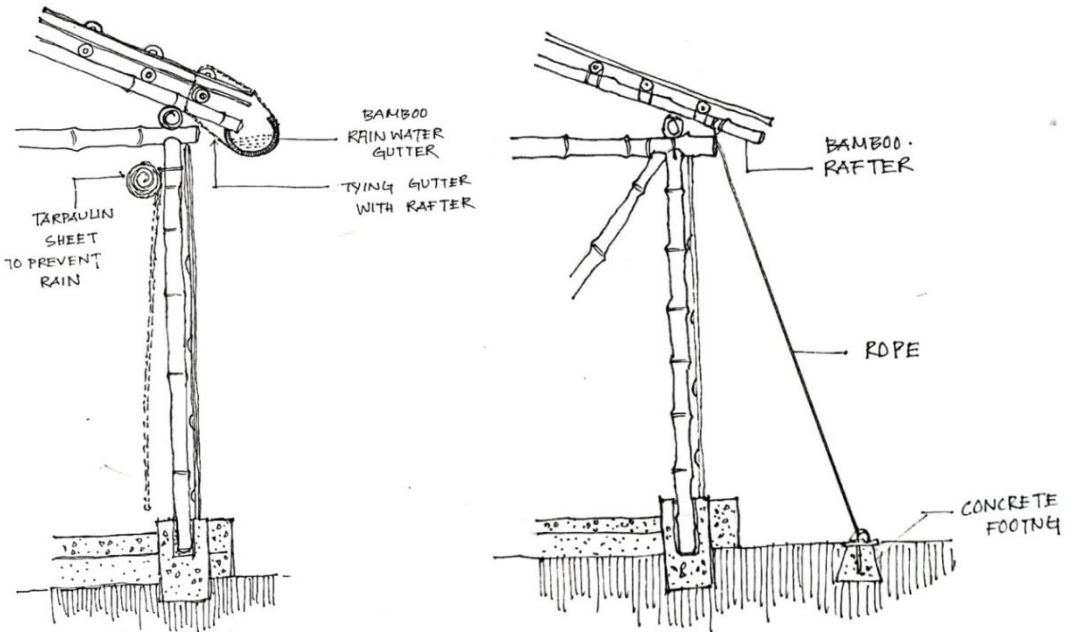
Cyclone			
• Minimum roof projection • Perforated bamboo façade works as a less barrier for high-speed wing	• Durable structure with precast column • Large Roof overhang, makes it vulnerable to cyclone	• Only roofs are anchored to the ground. • No specific feature for wall and structural members	• No specific design consideration for cyclone.

Table 9: Climate responsiveness of selected CFSs of four agencies. Source: Field survey by Author, 2021



(a) (b) (c)

Figure 27: Different elevation treatment of selected CFSs for ventilation. (a) Perforated bamboo wall made of bamboo post, (b) Bamboo woven crossing net, (c) Swing window. Source: Field survey by Author, 2020



(a) (b)

Figure 28: Detail of Rain protection and roof protection. (a) Rain water gutter and tarpaulin is used. (b) Tie down of roof to protect it from cyclone. Source: Field Survey by Author, 2021

6.5 Indoor of CFS

The following chart shows the indoor condition of selected CFS samples according to minimum standards. Minimum standards are given in Table 3.

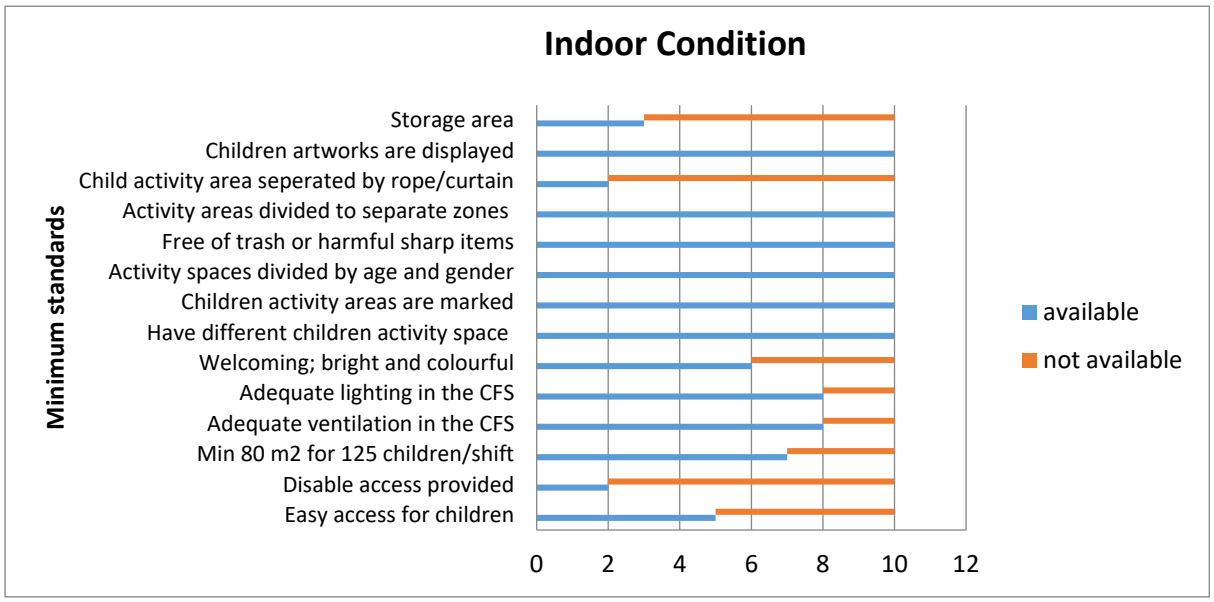


Figure 29: Indoor space of selected CFSs according to minimum standards

The above chart shows the most of the selected CFSs have fulfilled the minimum standards of indoor space. All the studied CFSs have different children activity spaces, marked, decorated with children artwork and free of trash or harmful objects. They had separate zones for different CFs activities such as case management, vocational training area, office area, store room etc.

Figure 30: Images of interior of CFS. (a) And (b) showing the colorful interior of selected CFSs but not divided by any barrier. Source: Field Survey by Author, 2021

In case of accessibility, half of the selected CFSs were difficult to access due to hilly topography, specifically in Ukhiya. Only two of the selected CFSs have disable access which is noticeable. Regarding day light and ventilation, eight among ten have ensured whereas six of them have bright and colorful interior. However, in eight CFSs among ten, the children activity spaces are not divided with a physical barrier like rope or curtain which is important for conducting different activities in small groups at a time. Another important finding is lack of storage area. Seven CFSs among ten have no storage area, the play and learning materials are stacked at a corner of the activity space in an unorganized manner.

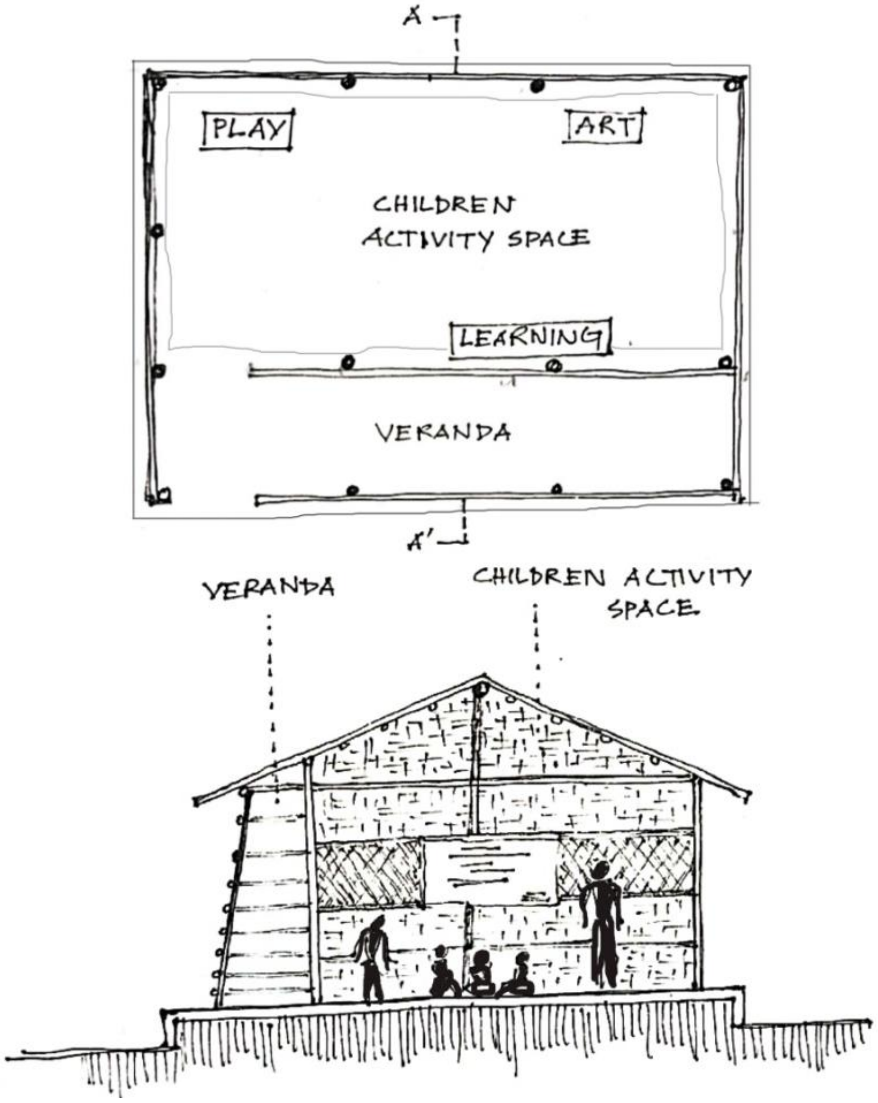


Figure 31:Plan and section of existing children activity areas of most of the selected CFSs, a mono space for multiple activities without any physical barrier. Source: Field survey by Author, 2021

6.6 Outdoor of CFS

The condition of outdoor spaces of the sample CFSs are in the following chart according to minimum standards given in Table 4.

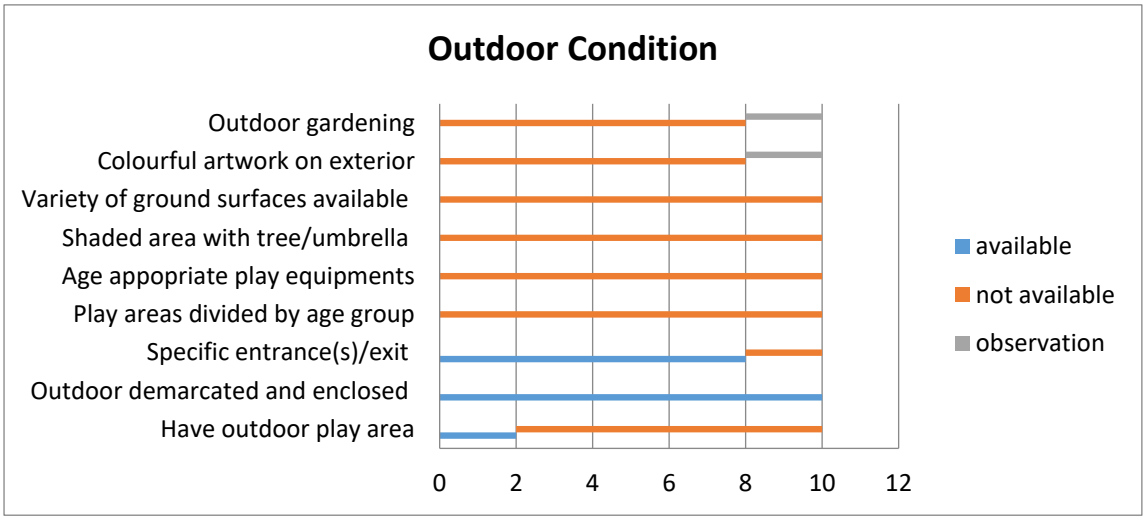


Figure 32: Outdoor condition of selected CFSs according to minimum standards

The chart shows that most of the outdoor space criteria are not fulfilled by the selected CFSs except a proper entry- exit and demarcated outdoor area with fencing. Unfortunately, eight of the ten selected CFSs could not provide a play field for the children, let alone separated play field for different age group with different play materials. The lack of outdoor playfield is an overall scenario of CFSs in Cox's bazar due to the acute scarcity of land and population density. The uneven lands of the hilly region are another reason. On the other hand, the green lines of the chart shows that two CFSs had colorful artwork on exterior and another two had outdoor gardening which were some creative additions beyond minimum guidelines.

Figure 33: Outdoor spaces of CFS. Image (a) shows lack of outdoor playground, and (b) shows colorful exterior. Source: Field Survey by Author, 2020

6.7 Availability of land

The Cox's Bazar camp stretches across 6,000 acres with a population density of 60,000 per square kilometer. Space is as low as 8 m^2/person in some areas of the Kutupalong-Balukhali Expansion Site while the UNHCR standard is45 m^2/ person. Congestion and overcrowding of camps, particularly in Kutupalong-Balukhali expansion site, is a "grave concern"(UNHCR, 2018b). Land scarcity for building different facilities has become an insoluble problem. According to ISCG, there are ten active sectors to respond the need of Rohingya crisis: Health, Shelter/NFI, Site Management, WASH, Education, Nutrition, Food Security, Protection, Child Protection sub-sector, Logistics, Emergency Telecommunications(UNHCR, 2018a). According to the field interview, after fulfilling this priority sectors such as shelter, food, health and WASH; the implementers used rest of the lands for the facilities of protection sectors such as for CFS, women friendly space, learning centers etc.

Due to this extreme congestion, a proper outdoor playground for most of the CFSs is absent. Most of the agencies prioritize the indoor space and, in some cases, that is also compromised.

6.8 Material and equipment

Material and equipment selection for a CFS is an important aspect of its physical environment. Following chart shows the status of material and equipment of selected CFSs according to minimum standard which is given in Table 6. The chart shows some interesting findings; some criteria are followed by all agencies; some are by none, and some criteria need explanations (Gray lines).

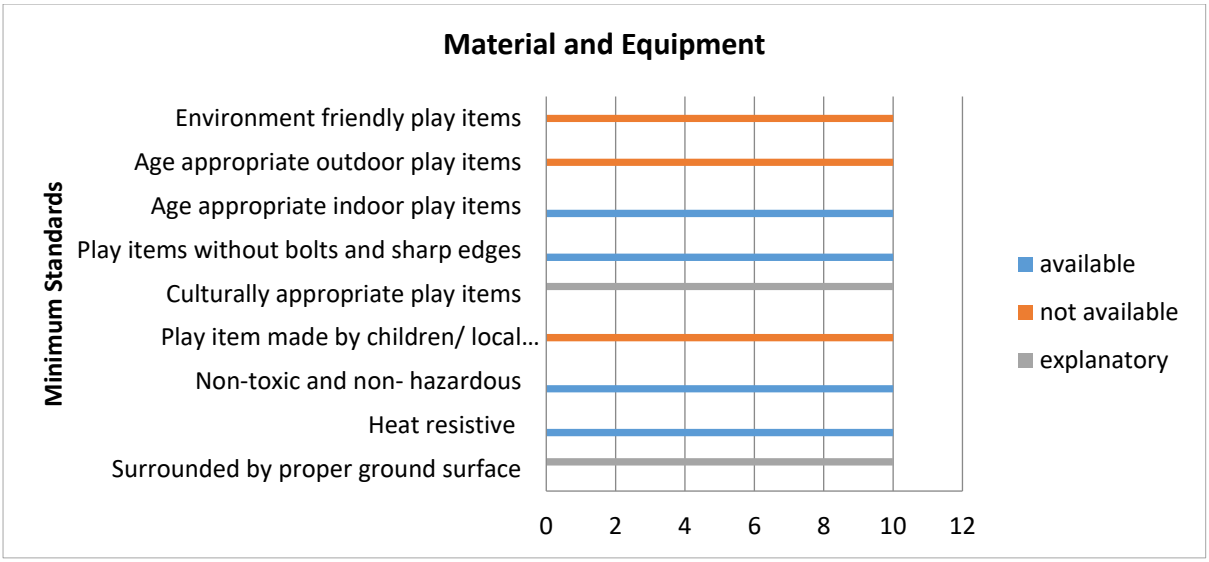


Figure 34: Use of material and equipment in selected CFSs according to minimum standard

The chat shows some interesting findings; some criteria are followed by all, some are by none and some criteria need explanations (Green lines).All the selected CFSs provided age appropriate, non- toxic, non-hazardous indoor play items to the children. On the other hand, age- appropriate outdoor play elements were not provided as most of CFSs have no outdoor playground. Also, no CFS provides play materials made by children themselves or by local artworks. Neither are they made with environment friendly materials such as wood, bamboo or earth. The aspect that needs an explanation is about culturally accepted play items. In all selected CFSs, children were given mostly urban industrially manufactured plastic toys except ludo and carrom. Traditional handmade play items are totally absent.

Figure 35: Images of materials and equipment of CFS. (a,) (b) Shows children playing ludo and carrom, (c) plastic play materials. Source: Field Survey by Author, 2020

6.9 Cultural influence:

Cultural consideration is an important aspect in physical design of any structure. In CFSs design their social values and practices are considered. For example, the privacy of women in their culture is considered in CFS design by providing separate learning and training space for adolescent girls and boys. Apart from that the aesthetic elements of their culture such as traditional art, color, pattern and motifs are adopted both in indoor and outdoor spaces of CFSs. For example, in all CFSs, the interior is decorated with their traditional colorful artwork (drawing, paper cut design etc.) done by Rohingya children and volunteers.

Figure 36: Cultural influence in CFSs design.
(a) And (b) showing traditional artworks, (c) separate learning space for boys.
Source: Field Survey by Author, 2020

6.10 WASH facilities

WASH facilities for CFSs include toilets, hand wash facilities and drinking water facility. Following chart shows the condition of WASH facilities of CFSs of selected samples. Standards are given in Table 5.

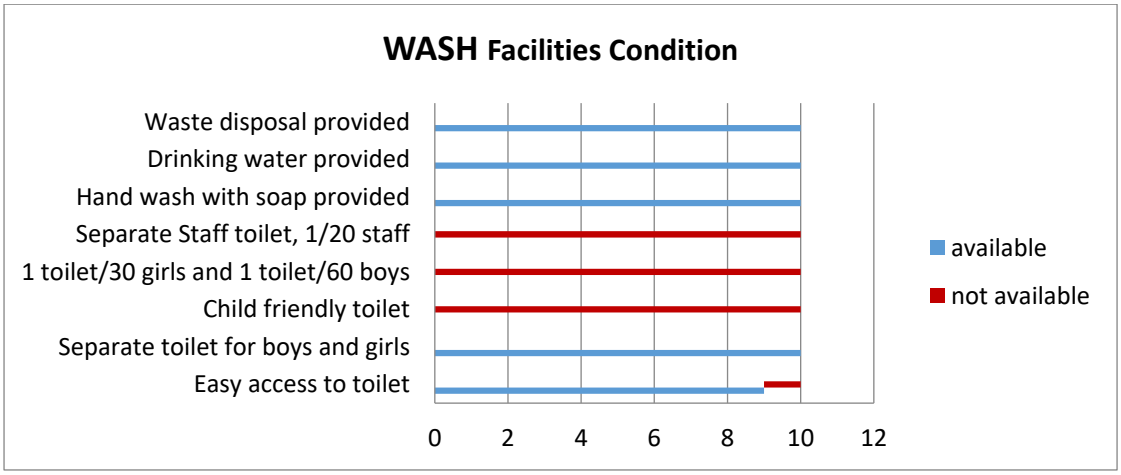


Figure 37: WASH facilities in selected CFSs according to minimum standards

The chat shows that the overall status of WASH facilities in sample CFSs is satisfactory. Most of the studied CFSs ensured easy access to toilet, separate toilet for boys and girls with common hand wash facilities, drinking water and waste disposal. However, the standard numbers of toilets for boys and girls were not provided due to lack of site area. Also, there were no separate staff toilets as well as the child friendly toilets for children in the selected CFSs.

Chapter 7

Discussion and Conclusion

This chapter will make an overall discussion about the major findings of the research. The purpose of discussion section is to highlight the major findings according to the objectives of this study. On the other hand the conclusion will be a review of the whole study; how the objectives were obtained, what were the methodology, how the study was conducted and finally, major findings and further scope of the study.

7.1 Discussion

This section will highlight the major findings following the objectives of the study. The aim of this study was to find out physical condition of CFSs in Cox's bazar based on two aspects:

- According to minimum standards and
- Impact of local factors on them.

To assess the physical condition of CFSs in Cox's Bazar, the first task was to find out if they have followed the minimum standards. Therefore, the first objective of this study was to find out the minimum standards of physical environment of a CFS. This objective is fulfilled by reviewing relevant literature available in local and international guidelines which is elaborately discussed in section 4.6 and section 3.4 respectively.

After finding out these minimum standards, the second objective was to assess the physical environment of CFS according to those minimum standards. The author has assessed the selected CFSs of Cox's Bazar according to the checklist of minimum standards. At the same time the impact of local factors on physical design and environment of those CFSs has been observed to obtain the third objective of the study.

These two objectives together have finally assisted to figure out the aim of the study, exploring physical environment of CFSs in Cox's Bazar.

Regarding the sites condition of CFS, it has been found that most of the selected CFSs are on the hilly land whereas the guideline suggested it to build on a flat land if possible. But the Kutupalong-Balukhali expansion site was an undeveloped hilly region where the displaced Rohingya people made their settlements within a very short period of time in an unplanned manner. Due to these reasons most of the CFSs are vulnerable to different natural hazard, specifically landslide and flood.

Another major deviation from the standard is the difficulties of accessibility. In most of the cases steep bamboo stairs without proper landings are made to climb up the CFSs which are not safe for the children. They become more dangerous during monsoon due to heavy rainfall and landslides.

In case of selection of typology among temporary, static and mobile CFS, most of the studied CFSs were static in nature. They were comparatively for long term and provided wide range of services such as case management, basic literacy and numeracy, vocational training for adolescent girls and boys etc. However, they are built with temporary materials.

Most of the selected CFSs were built with bamboo and thatch. According to the Govt. policy no permanent structure is allowed inside the camp. In few cases wooden column- beam and precast RCC posts are used. However, bamboo is used as the predominant building material in Rohingya camps; mostly in column, beam and wall of a structure. Regarding construction technique, the indigenous techniques of bamboo construction is preferred. As Rohingya people were used to build with bamboo, they were involved as construction workers in most of the sample CFSs.

In case of indoor environment, most of the selected CFSs tried to follow the minimum standards and met an average spatial quality. According to the criteria, the agencies tried to

- Ensure good day light and ventilation.
- Provide colorful and vibrant environment.
- Display traditional crafts and artworks done by the children.
- Display of routine, basic information, signage of activity zones etc.

However, in most of the studied CFSs a physical barrier (rope or curtain) in between different activity spaces were absent which was suggested in the guideline. It helps to conduct and organize different activities at a time. Another major finding is that most of the selected CFSs have a lack of storage area. In most of them, materials are stacked at the corner of the indoor play area which could be hazardous for children.

In case of learning and play materials, it is suggested that the materials should be culturally accepted and age appropriate. Traditional or local play items should be encouraged. Though the authority provided a variety of play materials, most of them are industrially manufactured. On the contrary, in art and craft, their cultural practices are fully addressed in terms of color, pattern and motifs.

Regarding outdoor environment, the most significant finding is the lack of outdoor play area which is a primary criterion. Due to acute scarcity of land in camp sites, it was difficult for the child protection agencies to find out an adequate land for a CFS, specifically in Kutupalong-Balukhali expansion site. The extreme population density and the hilly topography made the emergency situation more critical in terms of making important facilities.

Regarding climatic consideration, cyclone resiliency is one of the crucial aspects as the area is highly prone to cyclone. In that case very few selected CFSs have followed standards of cyclone resilient structure. However, all the structures are built with lightweight materials; bamboo and thatch; which are less hazardous in cyclone.

In case of designing a physical structure of CFS, significant differences have been observed in between the CFSs designed by a design-expert team and by a construction team. Some agencies only follow a tentative layout given by funding agencies to ensure minimum spatial quality. On the other hand, some agencies make significant modifications of those fix layout according to the need, culture and life style of the user group. They try to address the local factors into the design and engage the user group into the design process ranging from planning to construction work. These CFSs usually achieve better spatial quality in terms of innovation and creativity.

Above all, these major findings of the study have tried to portray the physical environment of CFSs in Cox's Bazar. The study suggests considering local factors while building a facility in emergency situations. It also presented the challenges of building a facility considering local factors which would be useful to partners of Child Protection Sector. However, the scope of this study is limited to 10 selected CFSs from 7 camps of Cox's Bazar. Also, the study is limited to convenience sampling as the camp area is a highly restricted zone to access as well as the protection facilities such as the CFSs. Therefore, more extensive research and sampling of CFSs will surely bring better understanding of the problem statement of this study.

7.2 Recommendations

According to the findings of the study the following recommendations can be drawn upon solving the problems:

- **Accessibility to the site**: This study has found out that the bamboo stairs provided for some selected CFSs are steeply sloped and don't have enough landings. Therefore, a gentle slope ratio for the stairs should be maintained as much as possible according to height of the land. For example, according to California Code of regulation for stairs, the preferred angle for stairs is within 30-37°. The stairs should have proper number of landings with proper space.

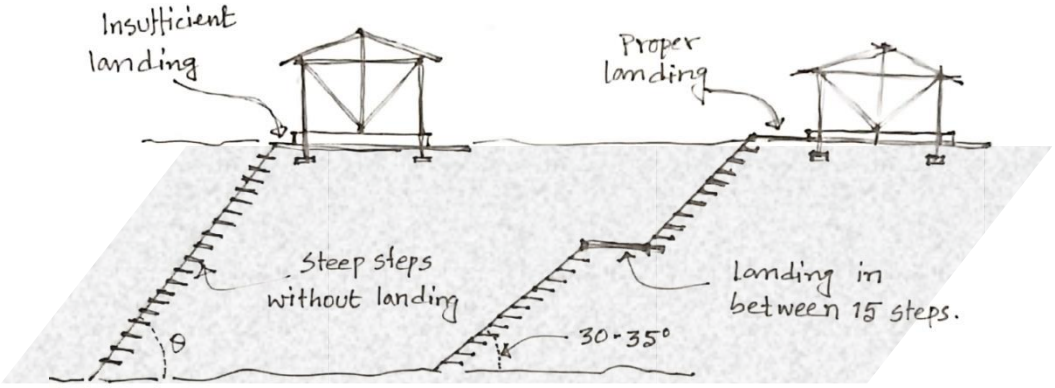


Figure 38: Stairs with preferred slope and landings. Source: Author, 2021

According to Franco, there should be a landing after every 15 steps.(Franco, 2018) For universal accessibility, provision of a ramp is recommended if enough land area is available.

- **Site protection from natural disaster:** It has been found out that most of the CFSs in Kutupalong- Balukhali expansion site are either on hilly land or at the valley. Most of the lands of the camps are vulnerable to landslides and flooding in monsoon. The sites prone to landslides should be retained with retaining wall. Land filling should be done above the flood level to the flood prone areas.

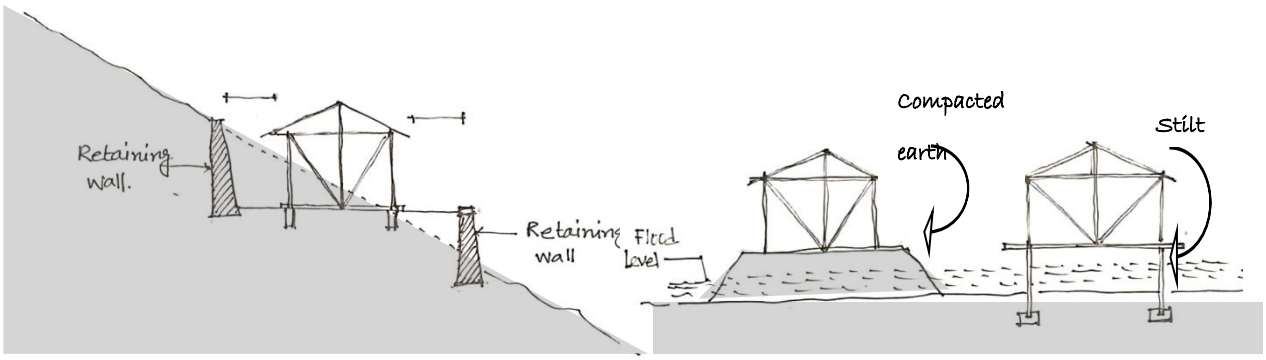


Figure 39: *Site protection from natural disaster. (a)Protecting site and structure by retaining wall in hilly area, (b) Raising structure on contacted earth or stilts in flood prone areas. Source: Housing and Building Research Institute, 2018. Sketch: Author, 2021*

- **Increasing shifts to accommodate children:** Few of the studied CFSs could not provide required space for children. The size of the CFSs is inadequate to the number of children due to Land scarcity. However usually the CFSs follow different shifts for different age group. If necessary, they can increase the shifts as well as volunteers and caregivers.
- **Dividing the indoor space:** In most of the selected CFSs the children have a large mono space for multiple activities (drawing, crafting, free play, music etc.) It has been found form the survey that usually one single activity runs at a time, therefore the agencies usually do not divide the space. If the need to divide the space to conduct multiple activities at a time, the spaces can be separated with temporary elements such as rope or curtain.

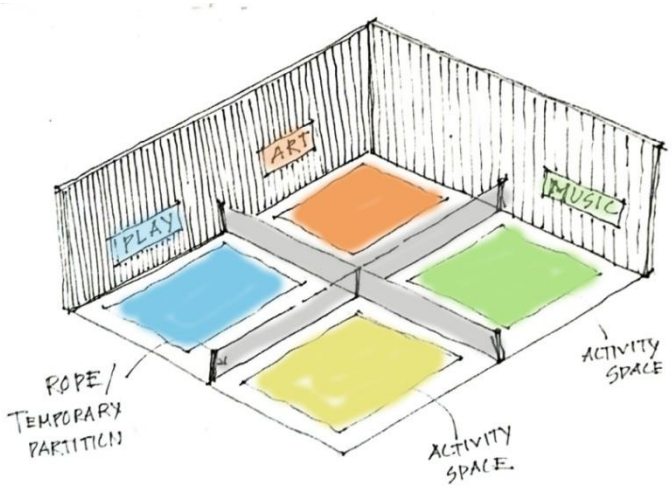


Figure 40: Recommended activity area for children in CFS in case of multiple activities at a time. Source: Author, 2021

- **Cyclone resiliency:** Very few selected CFSs were designed following the standards of a cyclone resilient structure which is a major concern as the area is highly vulnerable to cyclone. The structures can be easily transformed into cyclone resilient structures the following minimum standards of cyclone resilient structures.

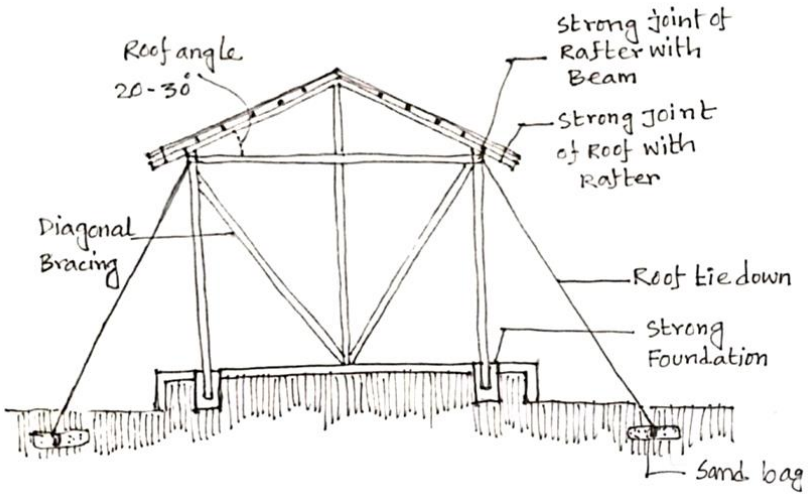


Figure 41: Basic standards of cyclone resilient structure. Source: Housing and Building Research Institute, 2018. Sketch: Author, 2021

- **Outdoor playground**: It is really a hard challenge to provide an outdoor play area due to acute scarcity of land. In that case a number of CFSs can have a common play field in the community. Those camps which are close to host community, for example in Teknaf, the agencies can negotiate with the host community to get a space for an outdoor play area.
- **Expert engagement in designing CFS**: In case of designing and implementation procedure, the agencies should have a design expert in construction team who will study the community need and design the facility accordingly. The agencies should rely on the design solutions given by an expert team than a fixed layout given by the funding agencies. Community engagement in the design procedure and execution should be considered.

7.2.1 An Idea for Spatial Environment of a CFS

Considering the above-mentioned problems, an idea of the physical design of CFS is suggested here. One of the major problems of the Rohingya camps is the scarcity of land. Due to that, most of the CFSs cannot provide sufficient indoor as well as an outdoor play area. A regular rectangular shape has been chosen for the layout as it can facilitate the maximum usage for a standard rectangular shaped area. It has been also observed also during the site survey.

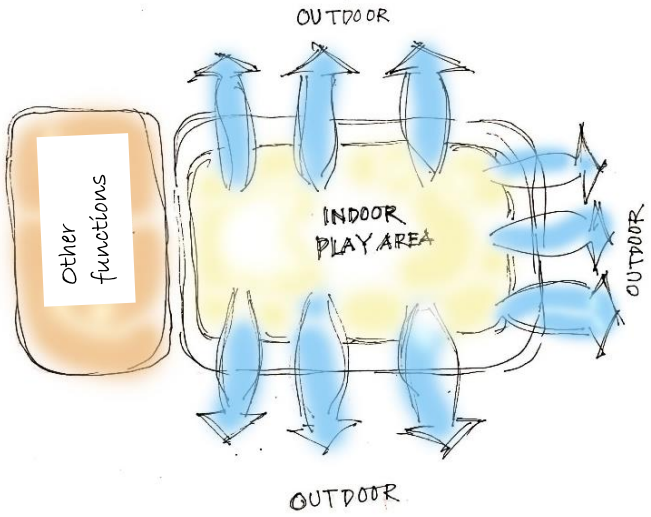
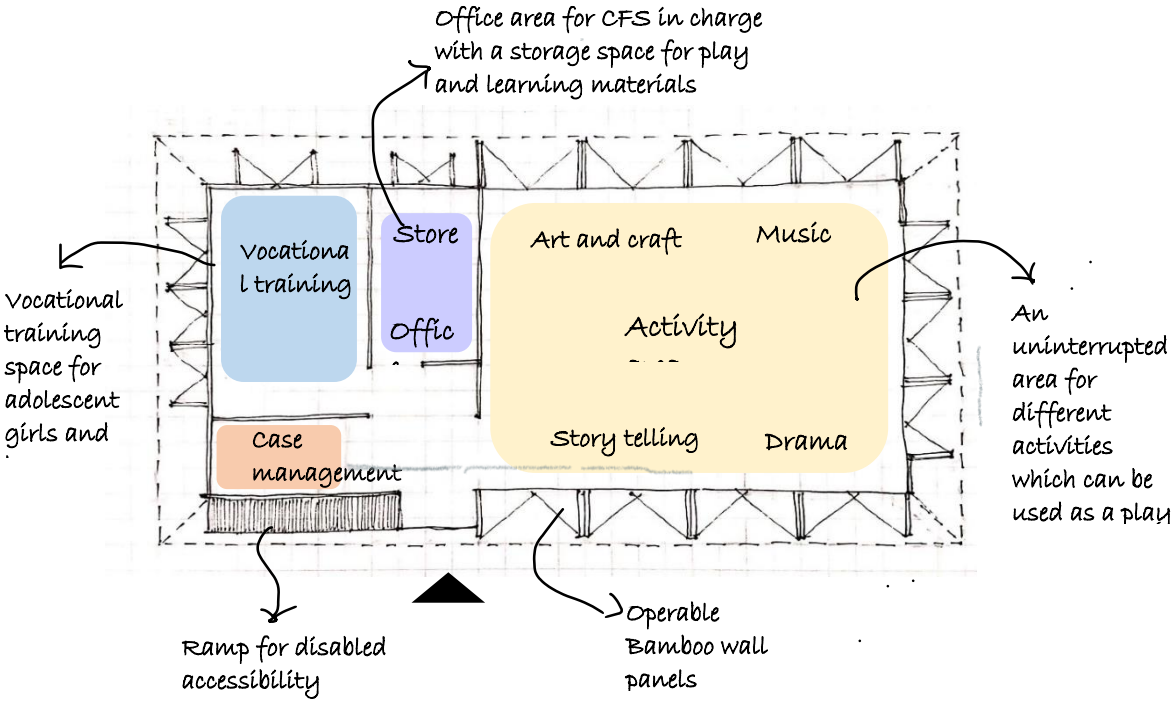


Figure 42: Conceptual sketch of layout of a CFS. Source: Author, 2021

The zoning is divided into two parts: the children activity area and rest of the functions including office area, case management and vocational training area. These are the core functions of a CFS. The focus of a CFS is the activity area which can be designed in such a way that it can be converted into a open play area. As most of the agencies couldn't provide an outdoor play area due to the scarcity of land, a strong physical and visual connection of the indoor play area can be built up with the outdoor so that the children can feel the notion of an outdoor play area.

Here, an unobstructed mono space is provided for the children activity. During the survey, it has been found that the different age group of the children are divided into different shifts of a

daytime. One single activity is scheduled at a time in most of the routines. Therefore, there is no need to divide the space for a single activity.



(a)

(b)

*Figure 43: (a) A schematic layout of CFS, (b) A perspective shows the operable wall panels can be opened to create strong physical and visual connection with outdoor. Source: Author,*2021

Different corners are leveled as different activity zones to create an identity of the activity space such as art and craft zone, music zone, drama/story telling zone etc. The wall panels of the activity area are considered as perforated bamboo panels which allows daylight and air for the indoor activities.

Figure 44: The children are singing traditional Rohingya rhymes. Source: Author, 2021

Rohingya children love chanting “kabbiyas”, traditional Rohingya rhymes which helps them to develop cognitive abilities as well as to reduce the distress and trauma(Erum Mariam & Saltmarsh, 2019). They are also very passionate about art and craft. Usually they draw colouful floral patterns and motifs which represent their culture (Mariam et al., 2021). The wall panels can be of different colours to create a playful environment and can be used to display these children artwork. The ceiling is covered with colorful “samiyana”, one of the traditional tapestries of the Rohingya culture.

This panels can be operable and opened-up during the physical play time of the children. This will change the experience of the same space due to increased physical and visual connectivity with outdoor. As the children are deprived of an outdoor playground due to the scarcity of land, this idea can transform the experience of an indoor space to an outdoor.

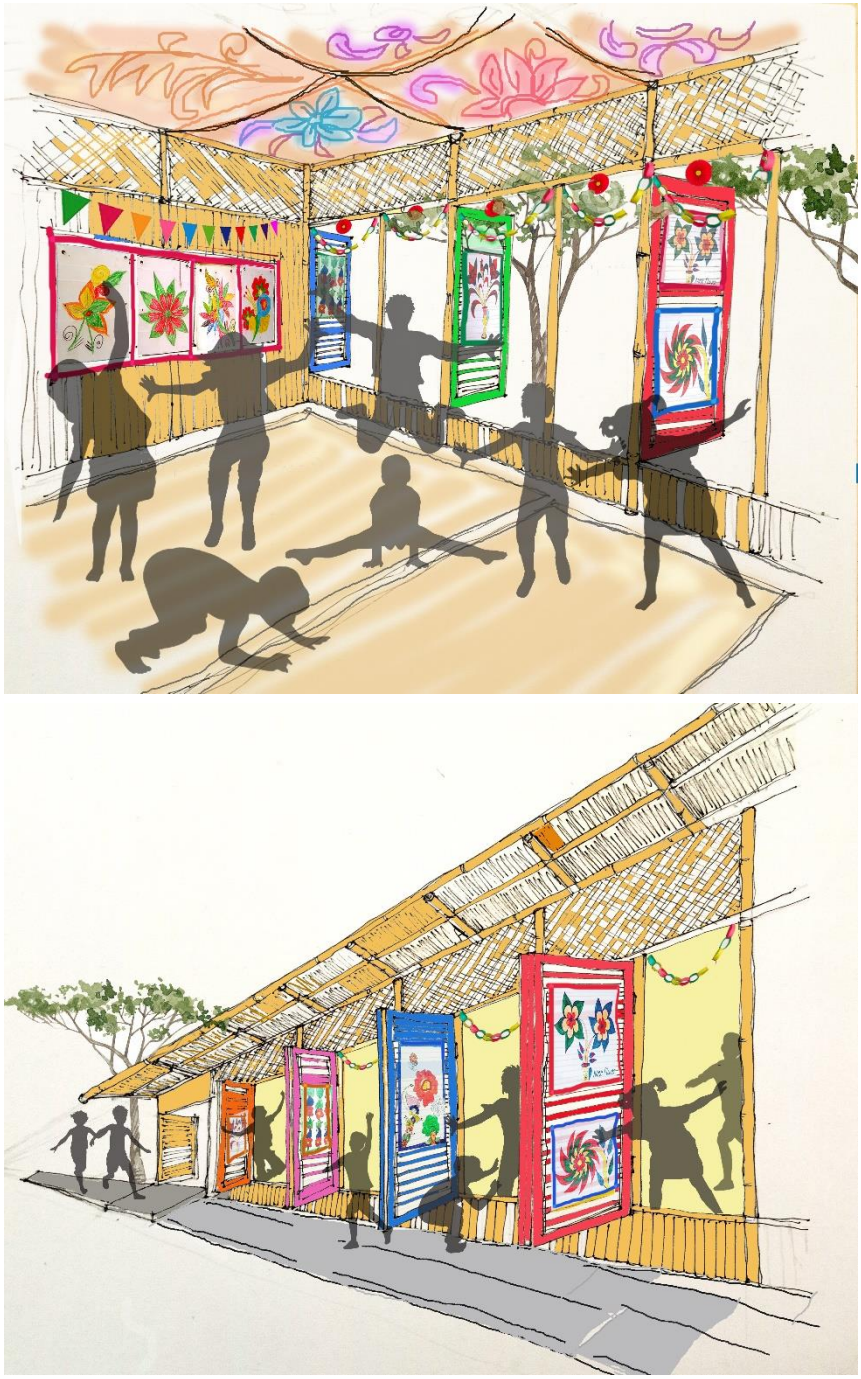


Figure 45: Images shows Rohingya children playing different types of physical games in an uninterrupted activity area. Source: Author, 2021

It has been found out in few studies that the games for boys and girls in Rohingya culture are quite different from each other. The boys like to play “elephant game” where they make a gesture of an elephant by climbing on top of each other while the girls love to play “Iching Biching” involving complicated and detailed footwork (Mariam et al., 2021). Among the outdoor games the boys used to play “Dang Khela” by sticking at one end of a small piece of wood with a bat making it flipped over a distance. Playing marble and flying kites are also their traditional games. Rohingya community is usually very conservative in case of girl’s growing-up. They are not allowed to play after reaching their puberty. Before that they used to play “Lahaluhi” (hide and seek), “faldoni” (rope jumping), “Chohodda/Malabuchi” (cooking game), “Panch gola” (playing with five stones) etc. (A. R. Chowdhury, N. Bailey, S. Shadhin, 2018). From these studies it can be said that most of these games requires a playground which is absent in most of the CFSs due to the scarcity of land. Therefore, an uninterrupted indoor space with operable wall panels which can be opened during the playtime can create an ambience of outdoor play space, is recommended here.

7.3 Conclusion

The physical environment of a CFS in an emergency context is as important as its social environment to provide the resiliency and normalcy to the distressed children. The main intension of this study was to understand the physical environment of CFSs in Cox’s Bazar built for displaced Rohingya children. To address this intension, three main objectives of the study were determined. The first was to find out the minimum standards of a CFS regarding physical design and implementation, the second was to assess if the CFSs of Cox’s Bazar have followed them and the third one was to understand the impact of local factors on design and implementation of CFSs in Cox’s Bazar.

The first objective, chalking out the minimum standards of physical design and implementation of a CFS, both international and local has been achieved in literature review chapters. To obtain the second and third objectives the author had to design a mix methodology; both quantitative and qualitative. At this stage, ten CFSs were selected from Ukhiya and Teknaf district camps. The selection was done based on both convenient sampling and some other local factors such as camp size, density, topography and working agencies. The quantitative research tools were used to assess the minimum standards of selected CFSs. On the other hand, the qualitative research tools were mostly used to achieve the third objective, how the local factors influenced the design and implementation of CFSs in Cox's Bazar.

After data collection and triangulation, the findings shows that the physical environment of CFSs in Cox's Bazar is largely defined by its local factors beyond the minimum standards. In many cases the standard criteria have been compromised due to the local context of Cox's Bazar. For example, difficulties in accessibility, inadequate indoor space and lack of outdoor playground due to acute land scarcity are matter of great concern. Additionally, the study has shown that protection of site from natural hazards, cyclone resiliency of CFS structures, indoor space organization need more attention while designing a CFS. The study suggests that engagement of design experts and the community in designing and implementation of CFS can improve the existing back draws of CFSs in Cox's Bazar.

Above all the study can contribute knowledge in the field of child protection in emergencies. It can be referred as an analysis of physical design of a CFS addressing both local factors and minimum standards. It can help the field workers to understand the challenges of local factors that should be taken into consideration before planning and designing a CFS. For example, how the inclusive accessibility can be achieved in this hilly region or, or how the cyclone resiliency of the structures can be improved.

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Appendix A.

Key informant Interview Sample Questionnaire (For CFS Project Manager):

SN	Category	Questions	Response
01	Emergency Response	• How was the protection scenario at the beginning of the crisis in 2017? • When your organization started working for Rohingya children? • What were your response strategies in Child protection? • How the CFSs have been evolved to the present condition?	
02	CFS planning and Program	• What are the facilities usually provided in CFS? • Is there any local guideline for CFS programming? • What are the psychosocial supports provided? • What are the children activities programmed for CFS? • How the size of a CFS is determined?	
03	Site selection	• What is the procedure of site selection and land acquisition? • Is there any local guideline for site selection? • What is the procedure of site approval? • How are the sites protected from natural hazards such as landslides and flood?	
04	Building material and Technique	• What are the building materials used in CFS? • Is there any local policy on using building materials? • How are the materials sourced? • What are the building techniques used for CFS? • Who worked as construction worker for CFSs in camps?	
05	Physical design	• Who are responsible for physical design /layout of a CFS? • Is there any design team in your agency? • Is there any fixed layout or guideline that the design must follow? • What are the implementation procedures? • Are community participation considered in design process?	

Appendix B.

Key informant Interview Sample Questionnaire (For Design/Construction Expert)

SN	Category	Questions	Response
01	Design procedure	• What is the overall design procedure? • Is there any need assessment prior designing a facility? If, yes, • How the community need has been assessed? • Have you considered the community participation in design process?	
02	Design consideration	• What are the factors (climate, culture, emergency etc.) that you usually consider while designing a CFS? • Is there any specific guideline that you have to follow while designing? • What are the special/unique features of your design?	
03	Indoor	• What are the design considerations for indoor of CFS? • Have you followed any fixed layout for indoor design? If yes, who provided that? If no, why? • What are the indoor facilities? • Is there any design intervention beyond minimum standards? If yes, why?	
04	Outdoor	• What are the design considerations for outdoor spaces? • What are the outdoor facilities provided? • Is there any design intervention beyond minimum standards? If yes, why?	
05	Climatic consideration	• How are the climatic issues considered in your design? • What are the considerations for heat? • What are the considerations for rain? • What are the considerations for cyclone?	
06	Building Material	• What are the materials that you have considered for your design? Why? • What are the materials for main structure? • What are the materials for wall, floor and roof?	

SN	Category	Questions	Response
07	Construction	• What is the overall construction procedure? • What is the building technique followed in construction? • Do you have expertise in that specific building technique? • How long usually it takes to complete a project?	