OVERVIEW OF DESIGN OF TEMPORARY SHELTERS FOR DISASTER REHABILITATION

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Abstract: Disasters occur on a daily basis all around the world. People in affected areas look for a secure place to stay during a calamity. The majority of people flee to a shelters, which is a public safe area that is generally organized and sponsored by the government. The primary priority of affected persons is the providing of shelter, as with shelter comes other essentials such as sanitation and food. Temporary structure will provide to the individuals who are affected by disasters with safety and security until their permanent homes are repair. As a result, while designing and planning temporary shelter, various factors should be considered, such as the location of the temporary structure, the availability of materials and expertise, and the physically and mentally requirements of affected individuals. After various design changes are given to the affected individuals, a complete evaluation of existing shelters is done to assess their quality of life. The research was conducted using a set of criteria that included the temporary shelter solution to an emergency.

Index Terms – **Disaster, Temporary shelter,** environmental factors, economic factors, technical factors and sociocultural factors, **rehabilitation.**

I. INTRODUCTION

Depending on the field, there are several ways and definitions of a disaster. Furthermore, while not every scholar agrees, there is considerable agreement in categorizing them as natural or man-made catastrophes based on their causes. This divide has proved beneficial in quantifying the impact of various risks and defining the most destructive in terms of individuals impacted, homelessness, and costs. Vulnerability is defined as the inability to deal with as well as recuperate from a hazard. Ending a cycle of vulnerability necessitates significant work, with building standards, planning, and design being critical.

Natural catastrophes have made around 160 million people homeless in the previous fifty years. Although the majority of persons impacted were in the developing world, recent disasters have demonstrated that the industrialized world is equally vulnerable to these climatic and geological risks. Many people have been rendered homeless as a result of these incidents.

A disaster is an unnatural or man-made (or technology) hazard that causes considerable actual damage or loss of human life, or severe environmental change. A catastrophe is theoretically described as any occurrence caused by disaster such as floods, catastrophic, tsunami, accidents, or explosives. Disasters ca devastate people's economic, social, and cultural lives.

Disasters are becoming more often throughout the world. The intensity and effect of these calamities have been greatly exacerbated by urbanization. Human activities worsen disasters such as flooding and fire. Disasters have a greater impact on megacities because the effects are felt more acutely. Drought, earthquake, harsh temperatures, starvation, flood, bug infestation, volcanic eruptions, fire, wind storm, wave/surge, and other natural disasters are examples of disasters.

II. DEFINITION OF DISASTER

Disasters pose a challenging, worldwide issue. Disasters impact people and communities every year, which weakens their psychological health and well-being. Natural and man-made calamities periodically halt the growth of society and the economy around the globe.

Man-made Natural disasters are the two basic categories. Natural events including storms, landslides, floods, and tropical cyclones are the causes of natural disasters. Human acts, such as civil wars, extremism, political instability, and industrial tragedies, are what cause man-made disasters [1].

Disaster cannot be comprehended in isolation from other problems. Using the idea as a model.

1. A calamity has a significant effect on the social structure and poses a significant obstacle to society's regular operations. The disaster's effects go beyond the physical realm to include the psychological and psychosocial aspects as well.
2. Certain factors, such as the victims' motivation to make a positive psychological adjustment and the community's capacity for environmental adaptation, can be used to mitigate the effects of catastrophes.

3. A calamity cannot be defined in one way by everyone. The meaning varies depending on the circumstance.
4. By using coping strategies, disasters' detrimental effects on mental health are reduced.

III. TEMPORARY SHELTERS

A temporary structure is one that is built just for a temporary purpose, entirely on the plot, with the authority's consent for a particular duration, and that must be removed after the project is over or the period for which it was permitted has passed. Temporary structures are those that are approved for a time frame that does not go beyond 30 days. A typical temporary construction is made to shield individuals, objects, pieces of machinery, or anything else from the elements. Camping vacations and refugee homes are only two examples of the many applications for temporary buildings. These structures are produced by several businesses worldwide and come in a variety of shapes that are intended for various uses.

The role of temporary shelter in disaster

The term "temporary structure" refers to the supply of tents or rapidly put together buildings constructed of a variety of materials, such as wood, plastic, tin, etc., to fulfil the basic urgent requirements of those impacted by a disaster. It is the cornerstone of rehabilitation following a calamity. Designated Another crucial phrase is shelters, which refers to using public buildings and any other safe facilities that are already in place before or during disasters to protect individuals from harmful forces. They may also be referred to as community shelters. The goal of temporary constructions is to provide families with the shelter they need to protect their lives from exposure and additional suffering after a tragic calamity has robbed them of their houses. When big disasters like wars or famines occur, which greatly worsen or originate the refugee problem, shelter is another important necessity.

Importance of temporary structure in disaster rehabilitation

In a world where both natural disasters and man-made crises have occurred on a large scale, the use of temporary shelters and their importance has risen. When disaster strikes, the unexpected becomes everyday reality, as seen in a hurricane, a major earthquake, or a man-made crisis. Disasters, with little warning and often devastating consequences, demand the best performance from both people and equipment. The aid agencies and governments tasked with assembling the tools, expertise, and resources needed to respond fast and begin recovery are under added strain. Temporary shelters play an important role in these efforts, from providing secure work facilities to providing relief staff with temporary work spaces.

These rapid response not only provide temporary accommodation, and they also provide private and secure spaces for victims of such disasters. It is undeniable that the aftermath of a disaster causes psychological as well as physical harm. People's mental health has naturally suffered as a result of the possibility of losing their friends, homes, etc. In this situation, rapid response shelters help them recuperate from the detrimental consequences of disasters. They also assist patients in getting off to a better start in the recovery phase.

Disaster shelters are considered as critical elements in the providing of safety, security, climate protection and resistance to illness and sickness in an IFRC/CRS report published in 2013. The main physical characteristics of temporary shelters are that they'll be rapidly assembled, disassembled, and stored for future immediate re -use. They are flexible, easy to install, and provide immediate solutions, which are all reasons why authorities, local communities, and NGOs prefer them. Although most shelters, such as tents, prefabricated steels, and plastic sheets, share characteristics, they also differ in terms of material used, durability, ground preparation requirements, expandability, and their interest in local people during mantling. Shelters in disasters, whatever their characteristics, are undoubtedly important in disaster response and recovery.

IV. SHELTER CATEGORIES

People frequently transition between various DR shelter configurations before returning to their prior permanent residences, upgrading shelters to permanent homes, or constructing new homes. Four types can be utilized to categories shelters: i.e emergency and temporary shelters, temporary and permanent house.

Sheltering Process

The many types of shelters include temporary shelter, T-shelters (temporary and transitional shelters), transitional shelters, progressing shelters, basic shelters, or transitional housing shelters. Depicts the many phases of sheltering, from temporary accommodation to permanent housing. It exemplifies the dedication over time needed to provide good refuge for Survivors of natural disasters.

V. ISSUES RELATED TO SHELTERS

Environment Issue

Where the climatic situation is not taken into account when building shelters, environmental issues arise. Basic tents, for instance, cannot be distributed to survivors all year long [2].Given that people may have to wait months or years before being able to move into a forever place, this would have a negative impact on their health. Seasonal weather variations between possible disaster regions are significant. Depending on the climate where they live, people from different regions may find certain types of shelter to be more suitable to and pleasant. According to IFRC RCS (2013), design elements like high ceilings and verandas can make shelters may keep shelters cool in the summer and warm in the winter by closing air gaps and adding vestibules. To provide the best possible shelter design for the wellbeing of victims, providers and relief suppliers must be aware of changes in the climate.

Economical Issue

In the preparation for and handling of disasters, funding is crucial. It frequently plays a crucial role in determining design and construction costs. In disaster relief efforts, a variety of sheltering materials can be employed, including tents, prefabricated housing, plastic sheeting, and long-term, permanent building. It has been stated that modernizing and improving shelters is less expensive than

switching between phases, such as temporary shelter, emergency response, and long term repair [3]. Comparing the cost of various shelters for hosts and affected people would be a good idea [4].

Support organizations can help locals develop modest companies so they can start earning money after giving affected people temporary shelter.

Technical Issue

Lack of space, planning for storage facilities and supplies, and unauthorized occupants of emergency shelters are examples of technical issues [5]. Additionally, certain system types have more intricate architectures than others and necessitate highly competent personnel packages and personnel [6]. Where it is inadequate, uncomfortable, difficult to maintain, and enhance, and where materials have less insulation, shelter efficiency seems to diminish.

The degree of availability and security in a location depends on the shelter's layout. When toilets were constructed far from homes, they frequently served as the scene of sexual assaults against women and girls. The situation improved once modest, four-family toilets were constructed close to homes. As a result, it is essential to design relief shelters properly to provide physical and mental security.

Sociocultural Issues

Cultural gaps between relief workers and survivors are examples of sociocultural difficulties, which can lead to miscommunications, when specific solutions are not suitable for individuals, poor social networks, a shortage of communication avenues, inequality between rich and poor survivors, a lack of assistance for those who are most vulnerable, such as women, children and the elder, as well as religious issues, educational issues, gender issues.

Between areas, nations, and even ethnic groups within nations, there are differences in housing configurations, types, and design elements. They must therefore be modified to the regional cultures and communities. To offer customers sufficient housing options, suppliers or service providers must respect and understand their cultures. The requirements and needs of user's beliefs, family sizes, religions, genders, and regional architectural design must be taken into account while developing shelter solutions.

Psychological and Physical Issues

The aforementioned problems—environmental, economic, technical, and sociocultural problems—have a significant impact on the physical and emotional well-being of impacted communities. Carlier says that those whose homes were totally destroyed struggle greatly with depression. The psychological toll of losing a home is significant, and it can reflect physically as discomfort. Aside from the immediate distress that losing a home might bring about, it can also have long-term negative consequences, like stress disorder. As a result, when constructing and organizing disaster shelters, it is critical to incorporate components to reduce the stress of afflicted populations. Openings or Wide windows, for instance, if you want to assist victims feel less worried, acoustic walls may be better to solid walls.

Survivors living in less-than-homelike shelters, like containers, has reported higher levels of psychological tension than those living in more-than-homelike shelters. A 2010 study by Ventimiglia, Caia, and Mass, for example, discovered that flood victims who reside in containers have such a higher percentage of psychological stress signs, more general anger, and a sense of control over their current situation than survivors who live in dachas, which are tiny wooden structure similar in size to containers.

People from many nations, societies, and cultural backgrounds are greatly affected by integrity and wellness at the shelter. Shelters shouldn't just be a physical structure; they should also give people a sense of belonging and a safe, secure place to live [7].

VI. CURRENT GUIDELINES FOR SHELTER

In order to comprehend how such shelters have been built in the past, what types of shelters were involved in particular disasters, as well as the environmental, economic, technical, and sociocultural perspective of the disaster was.

Design elements determine how well shelters perform and should be developed in consultation with those who have been impacted by a disaster, government agencies, private industry, and any other parties involved in disaster recovery, such as volunteers and insurance companies, in order to prevent against the environmental, economic, technical, and sociocultural issues listed below, which is what this research aims to do in order to meet this need.

Design of Temporary Shelters

The elements outlined previously in the document, such as hazard resistance, utility, durability, and owner-driven reconstruction, should be the basis for the design of temporary shelters. It is important to involve and empower the community and individuals in all decisions pertaining to shelter design. This includes determining the amount of space needed, choosing the right materials, using the right construction methods, and actually building the shelter. When designing temporary shelters, the following factors should be taken:

1. In temporary shelters, hazard-resistant construction concepts should be used.
2. Climatic factors must be taken into account to provide a comfortable level in temporary shelters. For shelters, climatically sensitive design factors such building orientation, material choice, roof designs, wall thickness, and natural illumination should be taken into account.
3. In order to support owner-driven processes, temporary shelter designs, particularly intermediate shelters, should be based on the existing local customs, ways of life, and cultures of the impacted households.
4. The needs and priorities of women, the elderly, and those with physical disabilities should be taken into consideration while designing temporary shelters. All should be guaranteed privacy, comfort, safety, and security in shelters.
5. Pregnant women, breastfeeding mothers, mothers of young children, and single women should all have their unique requirements taken into consideration when designing shelters. Women must be consulted during the design process for places like kitchens, bathrooms, laundry rooms, and drinking water facilities that are used more frequently by women or where women need special care.
6. Wherever possible, in-situ temporary shelters on property owned by the owners should be built in a way that allows for future upgrades to bring them into compliance with technical standards for secure permanent housing.

7.   Cooking areas should have sufficient ventilation, and any things placed close to them should be fire resistant. For cooking facilities and heater-equipped shelters, fire risks need to be evaluated and reduced.
8.   The temporary shelters should understand and effectively accommodate the necessity for storage.
9.   When families own livestock, the site and household levels should, as necessary, take into account the cattle's spatial needs.
10. Temporary shelter designs should allow for activities like weaving, handicrafts, producing brooms, block printing, and other such home-based labour. It might be planned with support for livelihood recovery support in some circumstances.

The effects of disaster on life

The phrase "quality of life" is essentially uncertain and varies from different societies and from person to person. Quality of life is defined as a person's perception of their place in life in relation to their goals, expectations, standards, and concerns, as well as the value systems and culture in which they live. Privacy, security, and dignity are all wide concepts that are complexly affected by a person's psychological and physical health, stability of means of subsistence, relationships with family and community, and external environment.

Impact towards physical and psychological health

Disaster impact on overall health is closely correlated with disaster magnitude and varies from person to person depending on whether they are likely to get affected by the disaster. Victims who were near the disaster's epicenter were more likely to sustain physical injuries and health problems. The scope and kind of disasters also affect how severe the damage is

Minor and serious injuries are frequently brought on by the collision of the surrounding environment with the victims during natural disasters like the tsunami and earthquake. Many flood and tsunami victims have mistakenly ingested contaminated floodwater while drowning, which has led to internal disease and respiratory issues that can last for a short while or become chronic. In man-made calamities like war and terrorism, victims may sustain crucial wounds including physical body damage, hearing loss, and breathing difficulties, which are typically followed by psychological illnesses like anxiety and trauma.

When a crisis occurs, the entire supply chain is disrupted, resulting in a temporary surplus of basic essentials including food, water, electricity, and shelter [8]. News spreads slowly when there is no electricity, making it difficult to get help right away. When crops are destroyed, food production is restricted, and resources are scarce, catastrophe victims are more likely to go hungry, which increases the likelihood of hunger. When access to edible food is limited, sufferers seek out other options like eating plants, leftover food discovered in trash or dumpsters, or even dirt, which can result in a variety of disturbing illnesses like food poisoning, diarrhea, stomach viruses, etc.

Inadequate housing alone significantly raises the risk of hygiene-related diseases, in addition to food-related illnesses [9].

Impact towards community and livelihood life

The way through which a person provides for the basic necessities of existence is referred to as their livelihood. A bundle of daily responsibilities carried out during individual's life is referred to as one's livelihood. These can involve obtaining supplies of food, water, medication, shelter, and clothing. A person's livelihood depends on their ability to purchase the aforesaid items to address their basic necessities as well as the needs of family. This tasks are typically completed repeatedly, sustainably, and with dignity.

The extent and intensity of the disaster determine how it will affect the impacted group's ability to survive. The source of livelihood for those affected by large-scale disasters that destroy properties, necessary infrastructure, and governmental support is seriously compromised.

When the source of income is interrupted, community lifestyle is modified. Socioeconomic losses will probably be felt by the impacted community. For instance, if flooding forces a fishing town to evacuate, they will have to abandon their way of life and find new ways to make money and survive in their new surroundings.

Impact towards privacy and security

To limit unwanted interpersonal engagement and communication, privacy is a fundamental human right. Security is the absence of, or resistance to, potential damage brought about by others.

When a calamity strikes, the victims' houses are no longer a safe haven, whether temporarily, permanently, or both. Victims who don't have a home experience insecurity [10]. When disaster preparedness is ineffective, it may take some time to provide shelter, making victims more susceptible since they lack a sense of security and privacy. Shelters for all impacted victims, whether they are totally or partially given by humanitarian agencies, or fully created by the impacted people themselves, are less effective the more severe the disaster. Enclosure, lighting, and the creation of an access boundary, which is possible with shelter, are simple solutions for addressing privacy and security. Due to the loss of a place to call home and shelter, which signify privacy and security, disaster victims' levels of privacy and security are greatly impacted.

VII. CONCLUSION

Natural disasters have become more common, causing extensive damage to buildings. A large number of houses have been damaged and rendered useless, resulting in a large number of homeless persons. Housing reconstruction programs are critical to disaster recovery, and providing temporary Shelter is an important stage in these programs. It provides victims with a private and secure environment to return to their daily life while permanent housing is being rebuilt. Therefore, participants should think about and examine the design aspects of shelters before considering providing shelter for survivor to assure that they are appropriate for that function.

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