

LIVED EXPERIENCES OF CLIMATE CHANGE AND DISASTER-AFFECTED COMMUNITIES IN DISTRICT SWABI, KHYBER PAKHTUNKHWA: A QUALITATIVE INQUIRY

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Abstract

This study explores the lived experiences of climate change and disaster-affected communities in District Swabi, Khyber Pakhtunkhwa, using a qualitative research approach. Climate change has increasingly affected vulnerable regions, particularly in developing countries where livelihoods are closely dependent on natural resources. The main objective of this research is to understand how local communities perceive climate change, examine its socioeconomic impacts, and identify the coping strategies adopted by affected households. A phenomenological research design was employed to capture in-depth insights from seven respondents selected through purposive sampling. Data were collected through semi-structured interviews and analyzed using thematic analysis. The findings reveal that participants have a strong experiential awareness of climate change, particularly in terms of irregular rainfall, rising temperatures, and increased frequency of floods. These environmental changes have significantly affected agricultural productivity, household income, and overall livelihood security. The study further highlights that disasters such as floods have caused severe losses, including damage to homes, land, and assets, leading to long-term socioeconomic challenges. Communities have adopted various coping strategies, such as changing farming practices, relying on social support networks, and migration; however, these strategies remain limited due to financial constraints and lack of institutional support. The findings also emphasize the gendered impacts of climate change, with women facing greater burdens in managing household responsibilities during crises. The study concludes that climate change is a critical socioeconomic issue that requires urgent attention at the local level. It recommends strengthening community awareness, promoting climate-resilient agriculture, improving disaster management systems, and ensuring inclusive policies that address the needs of vulnerable groups. By highlighting the voices and experiences of affected communities, this research contributes to a deeper understanding of climate change impacts and provides valuable insights for policymakers and development practitioners.

INTRODUCTION

Climate change has emerged as one of the most pressing global challenges of the 21st century, affecting not only environmental systems but also social, economic, and political structures worldwide. Developing countries, particularly those with limited adaptive capacity, are disproportionately vulnerable to the adverse effects of climate change and natural disasters (IPCC, 2022). Pakistan, as a developing country with a predominantly agrarian economy, ranks among the most climate-vulnerable nations in the world (Germanwatch, 2021). Within Pakistan, the province of Khyber Pakhtunkhwa (KP), and specifically District Swabi, has experienced increasing exposure to climate variability, extreme weather events, and disasters such as floods, droughts, and heatwaves. These changes have significantly influenced the socioeconomic conditions of local communities.

Climate change refers to long-term alterations in temperature, precipitation patterns, and other atmospheric conditions, primarily driven by human activities such as deforestation, industrialization, and greenhouse gas emissions (NASA, 2020). These environmental shifts contribute to the increasing frequency and intensity of natural disasters, including floods, landslides, and storms. In regions like Khyber Pakhtunkhwa, where livelihoods heavily depend on agriculture and natural resources, such changes directly affect income, food security, and overall well-being (Khan et al., 2019).

District Swabi, located in Khyber Pakhtunkhwa, is characterized by a mixed rural economy where agriculture, livestock, and small-scale trade constitute the primary sources of livelihood. The district has experienced repeated environmental stresses due to erratic rainfall, rising temperatures, and flooding events, particularly after the devastating floods of 2010 and subsequent years (NDMA, 2011). These environmental shocks have disrupted agricultural productivity, damaged infrastructure, and increased poverty levels, making local communities more vulnerable to future risks.

The socioeconomic impacts of climate change are multidimensional, affecting income, employment,

health, education, and social structures. For instance, reduced agricultural yields due to unpredictable weather patterns directly lower household income and food availability. This often forces families to adopt coping strategies such as migration, child labor, or reducing educational opportunities for children (Ali & Erenstein, 2017). Moreover, climate-induced disasters can lead to displacement, loss of assets, and increased inequality within communities, particularly affecting marginalized groups such as women, children, and low-income households (UNDP, 2020).

While quantitative studies have provided valuable insights into the measurable impacts of climate change, they often fail to capture the lived realities and personal experiences of affected communities. Qualitative research, on the other hand, offers an in-depth understanding of how individuals perceive, experience, and respond to climate change and disasters. It highlights the voices of those directly impacted, providing rich, contextual insights into their challenges, coping mechanisms, and resilience strategies (Creswell, 2014).

In the context of District Swabi, there is limited qualitative research that explores the lived experiences of communities facing climate-related challenges. Most existing studies focus on broader national or provincial analyses, overlooking the localized and nuanced experiences of individuals at the community level. This gap underscores the need for qualitative inquiry to better understand how climate change and disasters affect everyday life in Swabi, including livelihood disruptions, social changes, and psychological impacts.

One of the critical aspects of climate change impacts in rural areas is its effect on agriculture. Farmers in Swabi rely heavily on predictable weather patterns for crop cultivation. However, changes in rainfall timing, prolonged droughts, and sudden floods have made farming increasingly uncertain. As a result, many farmers face crop failures, reduced income, and debt burdens (Ahmad et al., 2020). These challenges not only affect economic stability but also contribute to food insecurity and malnutrition within households.

In addition to economic impacts, climate change also affects social structures and community relationships. Disasters often disrupt social cohesion, as families are forced to relocate or compete for limited resources. At the same time, community solidarity and mutual support systems may strengthen as people come together to cope with shared challenges (Adger et al., 2003). Understanding these dynamics is essential for developing effective adaptation and resilience strategies.

Gender is another important dimension of climate change impacts. Women in rural areas of KP often bear a disproportionate burden during environmental crises due to their roles in household management, water collection, and caregiving. Limited access to resources, education, and decision-making power further exacerbates their vulnerability (UN Women, 2018). A qualitative approach allows for the exploration of gendered experiences and the identification of specific challenges faced by women in disaster-affected communities.

Health impacts are also significant, as climate change contributes to the spread of diseases, heat-related illnesses, and water contamination. Flooding, for example, can lead to outbreaks of waterborne diseases such as cholera and diarrhea, while extreme heat can increase the risk of dehydration and heatstroke (WHO, 2021). These health challenges place additional strain on already limited healthcare resources in rural areas like Swabi.

Another important aspect is migration as a coping strategy. Many households in Swabi resort to temporary or permanent migration in response to economic hardships caused by climate change. This migration can lead to changes in family structures, increased urbanization, and new socioeconomic challenges in both sending and receiving areas (Black et al., 2011). Exploring these migration patterns qualitatively provides insights into the decision-making processes and lived experiences of migrants.

Despite the growing recognition of climate change impacts, there remains a gap in understanding how local communities perceive these changes. Perception plays a crucial role in shaping

responses and adaptation strategies. If individuals do not perceive climate change as a significant threat, they may be less likely to adopt adaptive measures (Grothmann & Patt, 2005). Therefore, examining community perceptions is essential for designing effective policies and interventions.

This study adopts a qualitative approach to explore the lived experiences of climate change and disaster-affected communities in District Swabi. By conducting in-depth interviews and thematic analysis, the research aims to capture the voices, perspectives, and coping strategies of individuals directly impacted by environmental changes. This approach provides a deeper understanding of the complex interactions between environmental, social, and economic factors.

The significance of this study lies in its contribution to both academic literature and policy development. By focusing on localized experiences, the research offers valuable insights for policymakers, development organizations, and community leaders to design context-specific adaptation strategies. It also highlights the importance of incorporating community voices into decision-making processes to ensure that interventions are both effective and sustainable. Furthermore, this study aligns with global efforts to address climate change and disaster risk reduction, particularly within the framework of the Sustainable Development Goals (SDGs), including Goal 13 (Climate Action) and Goal 1 (No Poverty). Understanding the socioeconomic impacts at the community level is essential for achieving these goals and building resilient societies. In conclusion, climate change and disasters have profound socioeconomic impacts on communities in District Swabi, affecting livelihoods, health, social structures, and overall well-being. While quantitative data provides an overview of these impacts, qualitative research is essential to uncover the lived realities of affected individuals. This study aims to fill this gap by exploring the experiences, perceptions, and coping strategies of communities in Swabi, contributing to a more comprehensive understanding of climate change impacts and informing effective policy responses.

RESEARCH OBJECTIVES

1. To explore community perceptions and lived experiences of climate change and disasters in District Swabi.
2. To examine the socioeconomic impacts of climate change and disasters on livelihoods and daily life.
3. To understand the coping strategies and adaptation mechanisms adopted by affected communities.

RESEARCH QUESTIONS

1. How do communities in District Swabi perceive and experience climate change and disasters?
2. What are the key socioeconomic impacts of climate change and disasters on affected households?
3. How do communities cope with and adapt to climate-related challenges?

LITERATURE REVIEW

The growing body of literature on climate change and its socioeconomic impacts highlights the disproportionate vulnerability of developing regions, particularly in South Asia. Climate change has intensified environmental risks such as floods, droughts, and heatwaves, which significantly affect livelihoods, especially in rural and agrarian communities (Stern, 2007). Pakistan is considered one of the most climate-vulnerable countries, where socioeconomic systems are closely linked with environmental conditions. Within this context, Khyber Pakhtunkhwa (KP) has emerged as a region highly exposed to climate-induced disasters, making it an important area for scholarly inquiry.

Climate Change and Vulnerability in Developing Contexts

Climate vulnerability is shaped by exposure, sensitivity, and adaptive capacity. According to Brooks et al. (2005), developing countries face higher vulnerability due to limited resources, weak infrastructure, and dependency on climate-sensitive sectors such as agriculture. In Pakistan, these vulnerabilities are compounded by rapid population growth, poverty, and governance

challenges (Hussain & Mudasser, 2007). Rural communities, in particular, lack access to climate-resilient technologies and institutional support, increasing their exposure to environmental risks. Eriksen et al. (2011) argue that vulnerability is not only a physical condition but also socially constructed, influenced by inequalities in access to resources, power, and decision-making. This perspective is crucial for understanding how climate change affects different groups within society differently. In KP, marginalized populations, including small farmers and landless laborers, are more susceptible to climate shocks due to their limited coping capacity.

Socioeconomic Impacts of Climate Change

Climate change has far-reaching socioeconomic consequences, affecting income, employment, food security, and social stability. One of the most significant impacts is on agriculture, which remains the backbone of rural economies in Pakistan. Studies by Mendelsohn et al. (2006) indicate that rising temperatures and changing precipitation patterns negatively affect crop yields, leading to reduced income and increased poverty. Similarly, Lobell et al. (2008) found that climate variability has already caused declines in agricultural productivity in South Asia. In KP, agriculture is highly dependent on seasonal rainfall, making it particularly vulnerable to climate variability. Fluctuations in weather patterns disrupt planting cycles and reduce crop output, forcing farmers to adopt alternative livelihood strategies. These changes often result in economic instability and increased household vulnerability (Shah et al., 2013). Beyond agriculture, climate change also affects non-farm sectors by damaging infrastructure and disrupting markets. Floods, for instance, can destroy roads, homes, and businesses, leading to loss of income and increased unemployment (Hallegatte et al., 2016). These economic disruptions have long-term consequences, as affected households struggle to recover from losses and rebuild their livelihoods.

Disasters and Their Social Consequences

Natural disasters are one of the most visible manifestations of climate change. In Pakistan, floods are the most frequent and devastating disasters, causing widespread

Damage to lives and property. The 2010 floods, for example, affected millions of people and highlighted the country's vulnerability to extreme weather events (Mustafa et al., 2013). Such disasters have profound social impacts, including displacement, loss of social networks, and increased inequality. Cutter et al. (2003) emphasize that disasters exacerbate existing social inequalities, disproportionately affecting vulnerable groups. Women, children, and the elderly often face greater challenges during and after disasters due to limited access to resources and support systems. In rural areas of KP, these vulnerabilities are further intensified by cultural norms and gender roles. Displacement is another critical issue associated with disasters. When communities are forced to relocate, they lose not only their homes but also their social and economic ties. This can lead to psychological stress, social fragmentation, and difficulties in rebuilding livelihoods (Cernea, 2000). Understanding these social dimensions is essential for developing effective disaster management strategies.

Lived Experiences and Qualitative Perspectives

While quantitative studies provide valuable data on the extent of climate impacts, they often overlook the lived experiences of affected individuals. Qualitative research offers a deeper understanding of how people perceive and respond to climate change in their daily lives. According to Denzin and Lincoln (2011), qualitative methods allow researchers to capture the meanings, emotions, and interpretations that individuals attach to their experiences. In the context of climate change, lived experiences include how individuals interpret environmental changes, the challenges they face, and the strategies they use to cope. Studies by Tschakert (2007) highlight that local knowledge and perceptions play a crucial role in shaping adaptation responses. In rural communities,

people often rely on traditional knowledge to interpret climate patterns and make decisions about agriculture and resource management. Qualitative studies in South Asia have shown that climate change is experienced not only as an environmental issue but also as a social and economic challenge. For example, Rao et al. (2019) found that farmers in rural India perceive climate change primarily through its impacts on crop yields and income. Similar patterns are likely to exist in KP, where livelihoods are closely tied to environmental conditions.

Coping Strategies and Adaptation Mechanisms

Communities adopt various coping strategies to deal with the impacts of climate change and disasters. These strategies can be short-term, such as reducing consumption or borrowing money, or long-term, such as diversifying livelihoods or migrating to urban areas (Dercon, 2002). The effectiveness of these strategies depends on the resources and capacities available to individuals and households.

In Pakistan, common adaptation strategies include changing crop varieties, adjusting planting schedules, and investing in irrigation systems (Arshad et al., 2016). However, these measures are often limited by financial constraints and lack of access to information. As a result, many households rely on informal coping mechanisms that may not be sustainable in the long term.

Social networks also play an important role in coping with climate change. Communities often rely on mutual support systems, such as sharing resources and providing assistance during crises. These networks can enhance resilience by providing a safety net for vulnerable households (Aldrich & Meyer, 2015). However, the effectiveness of social networks may decline as the frequency and intensity of disasters increase.

Gender Dimensions of Climate Change

Gender is a critical factor in understanding the impacts of climate change. Women often experience greater vulnerability due to their roles in household management and limited access to resources. According to Agarwal (2010), gender inequalities in access to land, credit, and

education significantly affect women's ability to adapt to environmental changes. In rural areas of KP, women are primarily responsible for water collection, food preparation, and caregiving. Climate change increases the burden of these responsibilities, as water sources become scarce and food production declines. At the same time, women have limited participation in decision-making processes, which restricts their ability to influence adaptation strategies (Djouidi & Brockhaus, 2011). Despite these challenges, women also play a crucial role in building community resilience. Their knowledge of local resources and social networks can contribute to effective adaptation strategies. Therefore, it is important to incorporate gender perspectives into climate research and policy development.

Health Impacts of Climate Change

Climate change has significant implications for public health, particularly in developing countries. Changes in temperature and precipitation patterns can increase the prevalence of diseases, including malaria, dengue, and waterborne illnesses (Patz et al., 2005). In addition, extreme weather events can lead to injuries, malnutrition, and mental health issues. In disaster-affected areas, access to healthcare services is often disrupted, further exacerbating health risks. Rural communities in KP face additional challenges due to limited healthcare infrastructure and resources. These conditions make it essential to understand the health impacts of climate change from a community perspective.

Migration and Livelihood Transitions

Migration is increasingly recognized as a response to climate change. When livelihoods are threatened, individuals and families may move to urban areas in search of better opportunities. According to Warner et al. (2010), migration can serve as both a coping strategy and an adaptation mechanism. In Pakistan, rural-to-urban migration has increased in recent years, partly due to environmental factors. While migration can provide economic benefits, it also creates new challenges, such as overcrowding, unemployment, and social integration issues in urban areas.

Understanding the lived experiences of migrants is important for assessing the broader impacts of climate change.

Research Gap

Despite the extensive literature on climate change and its impacts, there is a lack of qualitative studies focusing on specific local contexts such as District Swabi. Most research has been conducted at national or regional levels, which may not capture the unique experiences of individual communities. Furthermore, limited attention has been given to the intersection of socioeconomic factors, gender, and local perceptions in shaping responses to climate change. This study aims to address these gaps by providing an in-depth qualitative analysis of the lived experiences of climate change and disaster-affected communities in Swabi. By focusing on individual narratives and community perspectives, the research seeks to contribute to a more nuanced understanding of climate vulnerability and resilience.

RESEARCH METHODOLOGY

This study adopts a qualitative research design to explore the lived experiences of climate change and disaster-affected communities in District Swabi, Khyber Pakhtunkhwa. A phenomenological approach is used to gain in-depth insights into participants' perceptions, experiences, and coping strategies. Data were collected through semi-structured, in-depth interviews with a purposive sample of seven respondents who have directly experienced climate-related events such as floods, droughts, or extreme weather conditions. The participants were selected based on their relevance to the research objectives, ensuring diversity in age, gender, and socioeconomic background. The interviews were conducted in the local language, recorded with consent, and later transcribed for analysis. A thematic analysis approach was employed to identify, analyze, and interpret recurring patterns and themes within the data. Ethical considerations, including informed consent, confidentiality, and voluntary participation, were strictly maintained throughout the research.

process to ensure the reliability and integrity of the study.

THEMATIC ANALYSIS

The thematic analysis of qualitative data collected through in-depth interviews with seven respondents from District Swabi. The analysis focuses on identifying recurring patterns, meanings, and lived experiences related to climate change and disasters. The data were carefully coded and organized into key themes that reflect the socioeconomic realities, perceptions, and coping strategies of the participants. Each theme is supported by verbatim quotations to ensure authenticity and depth.

Theme 1: Perceptions and Awareness of Climate Change

Most participants demonstrated a strong awareness of environmental changes, although their understanding was based on personal experiences rather than scientific knowledge. Respondents frequently described changes in weather patterns, including irregular rainfall, increased temperatures, and shifting seasons.

One participant stated:

"Earlier, we could predict the weather easily, but now the seasons have completely changed. Rain comes unexpectedly, and sometimes it does not come at all." (Respondent 2)

Another respondent highlighted:

"Summers have become very long and extremely hot. We feel that something is wrong with the climate, even if we don't know the exact reason." (Respondent 5)

These responses indicate that while scientific terminology may not be widely understood, local communities possess strong experiential knowledge of climate change. Their perceptions are shaped by direct interaction with the environment, particularly in agricultural practices.

Theme 2: Socioeconomic Impacts on Livelihoods

A dominant theme emerging from the data is the severe impact of climate change and disasters on livelihoods, particularly agriculture. Most respondents reported crop failures, reduced income, and financial instability due to unpredictable weather conditions.

One farmer explained:

"Our crops are no longer reliable. Sometimes floods destroy everything, and sometimes there is no rain at all. We invest money but do not get any return." (Respondent 1)

Another participant shared:

"Because of these changes, our income has decreased. It has become very difficult to manage household expenses." (Respondent 4)

In addition to agriculture, small business owners and daily wage workers also reported income disruptions. These findings highlight that climate change is not only an environmental issue but also a major economic challenge affecting multiple aspects of life.

Theme 3: Experiences of Disasters and Loss

Participants shared vivid experiences of disasters, particularly floods, which caused significant damage to homes, land, and infrastructure. These events have long-lasting impacts on individuals and communities.

One respondent recalled:

"During the flood, our house was filled with water. We lost our belongings, and it took us months to recover." (Respondent 3)

Another participant expressed:

"The flood destroyed our land. Even after the water went away, the soil was not the same. We could not grow crops properly." (Respondent 6)

These accounts reflect the physical and emotional toll of disasters. The loss of property and livelihood creates a cycle of vulnerability, making it difficult for communities to rebuild and prepare for future events.

Theme 4: Coping Strategies and Adaptation

Despite the challenges, participants demonstrated resilience by adopting various coping strategies. These include changing agricultural practices, seeking alternative sources of income, and relying on social support networks.

One respondent stated:

"We have started growing different crops that need less water. It is not perfect, but it helps us survive." (Respondent 7)

Another shared:

"When we face financial problems, we borrow money from relatives or neighbors. Community support is very important for us." (Respondent 2)

Some participants also mentioned migration as a coping strategy:

"My brother moved to the city to find work because farming is no longer enough for our family." (Respondent 5)

These findings suggest that while communities are adapting, their strategies are often limited and may not be sustainable in the long term.

Theme 5: Gendered Experiences of Climate Change

The analysis reveals that climate change impacts men and women differently. Women, in particular, face increased burdens due to their roles in household management and caregiving.

One female participant explained:

"When there is water shortage, it is our responsibility to manage the household. We have to walk longer distances to fetch water." (Respondent 4)

Another noted:

"During disasters, women suffer more because we have to take care of children and manage everything at home." (Respondent 6)

These responses highlight the gendered nature of climate impacts, emphasizing the need for inclusive policies that address the specific challenges faced by women.

Theme 6: Challenges in Adaptation and Lack of Support

Participants reported several barriers to effective adaptation, including lack of financial resources, limited access to information, and inadequate government support.

One respondent stated:

"We do not have enough money to adopt new farming techniques or protect our land from floods." (Respondent 1)

Another expressed dissatisfaction with institutional support:

"The government does not provide enough help. We are left to deal with these problems on our own." (Respondent 3)

These challenges highlight the gap between community needs and available support systems, which limits the effectiveness of adaptation efforts.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study explored the lived experiences of climate change and disaster-affected communities in District Swabi, Khyber Pakhtunkhwa, using a qualitative research approach. The findings reveal that climate change is not an abstract concept for local communities but a lived reality that directly affects their daily lives, livelihoods, and overall well-being. Participants demonstrated a strong awareness of environmental changes, particularly in terms of irregular rainfall patterns, rising temperatures, and increasing frequency of extreme weather events. The study found that the socioeconomic impacts of climate change are profound and multidimensional. Agriculture, which serves as the primary source of livelihood in the region, has been severely affected by unpredictable weather conditions, leading to crop failures, reduced income, and increased financial insecurity. In addition to economic challenges, participants reported significant losses due to disasters such as floods, including damage to homes, land, and personal belongings. These losses not only disrupt livelihoods but also create long-term vulnerability and hardship.

The findings also highlight the resilience of local communities, as individuals adopt various coping strategies to deal with environmental challenges. These strategies include changing agricultural practices, seeking alternative income sources, relying on social networks, and, in some cases, migrating to urban areas. However, these coping mechanisms are often limited in scope and sustainability due to financial constraints and lack of institutional support. Another important aspect identified in the study is the gendered nature of climate change impacts. Women face additional burdens due to their roles in household management and caregiving, particularly during times of resource scarcity and disasters. Despite their critical role in maintaining household stability, women have limited access to resources and decision-making opportunities, which further

increases their vulnerability. Furthermore, the study reveals significant challenges in adaptation, including lack of awareness about modern techniques, insufficient financial resources, and inadequate support from government and relevant institutions. Participants expressed a sense of neglect and highlighted the need for more effective and inclusive policies to address their concerns.

Overall, this study emphasizes that climate change and disasters have far-reaching consequences for rural communities in District Swabi. It underscores the importance of understanding local experiences and perspectives in order to develop effective strategies for climate adaptation and disaster risk reduction.

Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. Enhancing Community Awareness and Education

There is a need to improve awareness and understanding of climate change through community-based education programs. Workshops, training sessions, and awareness campaigns should be conducted to inform local populations about climate risks and adaptive practices.

2. Promoting Climate-Resilient Agriculture

Government and agricultural departments should introduce and support climate-resilient farming techniques, such as drought-resistant crops, improved irrigation systems, and modern farming technologies. Providing subsidies and technical assistance can help farmers adapt more effectively.

3. Strengthening Disaster Management Systems

Disaster preparedness and response mechanisms should be improved at the local level. Early warning systems, emergency response plans, and community-based disaster management committees can help reduce the impact of future disasters.

4. Improving Access to Financial Resources

Access to financial support, such as microcredit, insurance schemes, and compensation programs,

should be expanded to help affected households recover from losses and invest in adaptive strategies.

5. **Promoting Gender-Inclusive Policies**
Policies and programs should actively involve women in decision-making processes and provide them with access to resources, training, and opportunities. Empowering women can enhance community resilience and improve overall adaptation outcomes.

6. **Strengthening Institutional Support**
Government agencies and non-governmental organizations should work collaboratively to provide consistent and effective support to affected communities. This includes improving infrastructure, providing timely assistance, and ensuring transparency in resource distribution.

7. **Encouraging Livelihood Diversification**
Programs should be developed to promote alternative income-generating activities, such as small businesses, vocational training, and skill development. This can reduce dependency on agriculture and enhance economic resilience.

8. **Further Research**
Future studies should expand the scope by including larger sample sizes and comparative analyses across different regions. Longitudinal research can also provide insights into changing patterns of vulnerability and adaptation over time.

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