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**CLIMATE CHANGE, ECONOMIC HARDSHIP, AND CHILD LABOUR:
A FOCUS ON RURAL SWAT, PAKISTAN**

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ABSTRACT

This study examines the interconnection between climate change, economic hardship, and the rise in child labour in Swat, a rural district in Khyber Pakhtunkhwa, Pakistan. The region has faced intense environmental degradation, including floods, deforestation, glacier melt, and declining agricultural productivity, which has resulted in significant socio-economic instability. Using a qualitative case study approach, this research investigates how these climate-induced changes compel families to withdraw children from school and push them into labour as a coping mechanism. Data is collected through desk reviews, semi-structured interviews with affected children, parents, teachers, NGO representatives, and child protection officials, supported by field observations and thematic analysis. The research applies a Human Rights-Based Approach (HRBA) and draws on the UN Convention on the Rights of the Child (UNCRC) to assess the violation of key child rights, particularly Articles 6, 24, and 32, concerning development, health, and protection from economic exploitation. Preliminary findings indicate a strong causal link between environmental stress and rising child labour, with children increasingly engaged in agriculture, domestic work, and informal labour sectors. Structural gaps in policy implementation, weak integration between child protection and climate adaptation frameworks, and under-resourced local welfare systems further exacerbate this issue.

The study concludes with policy recommendations including child-sensitive climate adaptation, conditional cash transfers to support school retention, local protection system strengthening, and targeted training for child welfare officers. By focusing on Swat, this research contributes to climate justice and children's rights scholarship in underrepresented geographies and advocates for inclusive, rights-based responses to climate vulnerability.

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Chapter 1: Introduction

1.1 Introduction

Climate change is not only an environmental crisis—it is a profound human rights challenge. Across the globe, shifting weather patterns, floods, droughts, and natural disasters are exacerbating existing vulnerabilities in communities already struggling with poverty, marginalization, and limited access to education. In South Asia, particularly in Pakistan’s rural Swat Valley, climate change is triggering a chain reaction of socio-economic pressures that are directly contributing to the rise in child labour. This thesis investigates how environmental degradation and economic instability intersect to push children into exploitative labour conditions, violating their fundamental rights and impeding long-term democratization and development. The Swat region, once known for its natural beauty and agricultural resilience, has in recent years experienced increasing climate-related disruptions such as floods, deforestation, and unpredictable harvest cycles. These environmental shifts have compounded rural poverty, forcing families to adapt through distress-driven strategies—one of which is sending children to work. This trend poses severe implications for children’s rights to education, health, and freedom from exploitation, as enshrined in international legal instruments such as the UN Convention on the Rights of the Child (CRC) and the International Labour Organization (ILO) Conventions 138 and 182.

This research takes a multi-disciplinary approach, drawing on human rights theory, political economy, and climate justice frameworks. It explores the lived realities of families in rural Swat and analyses how climate-induced economic hardship feeds into child labour practices. It also critically examines the failure of state interventions and the limitations of existing child protection mechanisms, both at national and international levels. The objective of this study is to contribute to a deeper understanding of how environmental and economic crises reinforce child labour in under-resourced rural communities and to advocate for rights-based, context-specific policy responses. Through this lens, the research argues that addressing child labour in regions like Swat requires more than poverty alleviation—it demands climate-resilient development, social protection systems, and meaningful child-centred governance. This chapter outlines the scope of the problem, sets the stage for a comprehensive analysis, and presents the research questions guiding the investigation. By locating child labour within broader environmental and economic crises, the study seeks to challenge narrow definitions of

exploitation and promote integrated solutions grounded in human rights and democratization principles.

1.2 Background of the Study



Figure 1.1: Location of Swat Valley

(Source: Google Maps)

Changes in climate are rewriting the world in terms of economy, livelihood, and social existence globally. In such countries as Pakistan, where agriculture is one of the pillars of the national economy and makes a large part of the citizens in the countryside, it is particularly harsh (Rana et al., 2023). The area of its agricultural affluence has long been defined by Swat Valley situated in the mountainous north of Khyber Pakhtunkhwa. The region has, however, in the past few years experienced shifts in rainfall patterns and glacier melting as well as natural calamities which have made it very volatile. Such environmental upheavals have led to low agricultural yield and poverty (WWF Pakistan, 2020). In the case of vulnerable households, what it entails is ensuring short-term survival at the expense of their long-term welfare, which in most cases results in removal of children into the labour market. Children in labour have their rights to education, development and safeguard denied according to the United Nations Convention on the Rights of the Child (UNCRC). In Pakistan, especially in Swat, child labour occurs in a variety of forms: a child may work in the field, do domestic work, and even

participate in informal mining and brick kiln industries due to extremely difficult and abusive situations (Bhatti & Lim, 2024). Besides that, no support structures (like education incentives, social welfare schemes, and climate resilience networks) were strong enough to protect children against the ripple effects of environmental and economic uncertainty. There is still a lack of coordination in the response of the government and the climate policy and child protection is not integrated well (Khan et al., 2025). In this study, we examine the interplay of the structural vulnerability of the state institutions and the environmental vulnerabilities created by the impact of the climate change that contribute to aggravation of the crisis of child labour.

In our research we trace how weaknesses of institutions in Pakistan which mar the state structure in Swat district combined with environmental pressures fanned by climatic change are compounding the problem of child labour. Take, e.g., in the last decade there has been a 35 percent rise in the frequency of drought in the province of Khyber Pakhtunkhwa, according to the Ministry of Climate Change (Government of Pakistan, 2021), which seriously affects the livelihood of farmers (Khan, Zhang & Khan, 2025). At the same time, ILO (2022) reports that 12 million children perform child labour in Pakistan and Swat area, in particular, has experienced increased child labour connected with economic constraints associated with climate change (Hatim et al., 2024). These institutional overlaps of weaknesses and environmental shocks lead to multi dimensionality of poverty and leave most families with no option other than sending their children to labour to earn some income (Rana et al., 2023; Khan et al., 2025). Therefore, the aggravation of climate-related disasters like droughts and floods is also directly proportional to the rise in the levels of child labour in disadvantaged populations (Suleri, Shahbaz & Shah, 2022).

The location of the Swat Valley in the Khyber Pakhtunkhwa province of Pakistan makes such astonishing regional focus of study as unique combination of the environmental sensitivity, economical reliance on agriculture and the social vulnerability. Mountainous orography of Swat combined with the melt water of the glaciers and down-pours during monsoons makes Swat vulnerable to floods, soil erosion and water crunch. As per the findings of Pakistan Meteorological Department, the area has been witnessing a rise in the occurrence and severity of climate-related accidents in the recent past such as the disastrous floods in 2010 and 2022. Swat is also economically dependent on agriculture, horticulture, and livestock, all of which are very much affected in terms of temperature change and water supply. The country has a population of more than 60% farmers (Bacha et al., 2021); hence, any climate event may

immediately distort house earnings and food security. Also, due to the geography and the poor infrastructure, markets, schools, and health facilities are inaccessible in Swat; hence climate recovery is very slow and hard.



Figure 1.2: Swat Valley

(Source: Boone, 2009)

The institutional fragility is enhanced by the socio-political history of Swat which is characterized by violence and poor governance. Although Pakistan has signed the UNCRC, implementation of child rights in Swat is lumpy. The provincial government of KP does not have communications between climate adaptation and child protection. Government policy interventions at the national level (Government of Pakistan, 2021) have recognised risks, but have not prioritised children rights; this makes any local response piecemeal and dependent on underfunded NGOs (Bhatti & Lim, 2024; Mian et al., 2024; ILO, 2022). The region has experienced insurgency, military activities and displacement which have exposed pressure on the public institutions gotten worse weakening the provision of services. Education is underfunded in Swat and particularly, so is education of the girls and there are scant or non-existent child protection services in many rural localities. All these elements come together to make a situation whereby not only do people face the threats of climate change on their means of livelihood but this also uses children in the most despicable forms of child labour as a survival mechanism of their family. The study focuses on Swat to reveal the local contexts of

climate induced child labour in the area and to have policymaking implications that might be generalised into other regions that might be experiencing the same in Pakistan and other parts of the world. Swat is not just a case study but it is a metaphor of intricate problems faced by rural communities, toughened in the nexus of environmental degradation, poverty and violation of child rights.

Climate change is a topic that is discussed widely around the world and has shifted away to having more socioeconomic implications especially on vulnerable populations such as children. Among the most frightening causes is the re-employment and the augmentation of child labour in the climatically immobilised states of developing nations. In Swat Valley, Pakistan, environmental disturbances directly affect the sources of income as more than 70 percent of the population relies on agriculture and other climate-vulnerable activities (Government of Pakistan, 2021). Agriculture is responsible in the range of 19 percent to the Pakistan GDP and 38.5 percent of the available labour is dependent on this volatile sector (Pakistan Bureau of Statistics, 2021). Deforestation, unpredictable rainfall, and degradation of soils have hit a badly hit agrarian economy in Swat, threatening the income levels and increasing the dependency on child labour (WWF Pakistan, 2020). However, according to Mian et al. (2024), climate change, in turn, currently contributes to poverty and violation of rights to children in rural environments. In conjunction with poverty, illiteracy, and stellar population growth (Hatim et al., 2024), climate effects are leverage multiply factors of social injustices, compelling children to work amid the efforts of the families to adjust to financial insecurity.

Over the last 20 years, the changes that have occurred in Swat environment have been dramatic. There is glacier melting in the Hindu Kush-Himalayan region, unpredictable rainfall schedules, and droughts, as well as flash floods, which have had a disastrous impact on agriculture (Wells et al., 2023). The agricultural outputs of the issues in the region have decreased by 20 percent since the early 2000s (Government of Pakistan, 2021). Infrastructure and agriculture and lives were lost in the floods in 2010. The uncertainty brought about by weather conditions has brought about irregular sowing patterns and has degraded the soil fertility leading to the dependence on fertilizers. As a result, the proportion of the monthly households' earnings in Swat depreciated by 12%. In 2020, compared to 2010 (Pakistan Bureau of Statistics, 2021). Most are the smallholder and landless workers, and more and more, families are withdrawing their children out of school and sending them out to work as a survival measure. Children also

get to work in fields or in shops around the area and on the other hand on domestic grounds or in informal markets. These children are exposed to dangerous environment, minimum or no wages, mental and physical stress. The number of child labour in Khyber Pakhtunkhwa rose by 25 per cent in 2015-2020 spreading mainly in rural areas such as Swat (ILO, 2022). With low income levels due to climatic shocks, the schooling becomes inaccessible or the low priority. Access to education in most of rural Pakistan including Swat is unequal and underfunded (Khan et al., 2025). The parents may know the value of education in the long run, but they do not usually have another option than making sure to survive.

Even though Pakistan ratified the UN Convention of the Rights of The Child in 1990, the laws are uneven in practice. Policies of child protection are not a priority in conflict- and climate-affected regions such as Swat (ILO, 2022; Suleri et al., 2022). The status is complicated by political interests, inadequate institutional strength, and inefficient collaboration between the agencies dealing with climate and those addressing child welfare (Hatim et al., 2024). Children are exorbitantly vulnerable due to national climate policies, and an educational continuity and psychosocial support in the population affected by the disaster are not given much cognizance (Government of Pakistan, 2021). The situation is aggravated by the fact that Swat does not have diversity in livelihoods. Families use informal labour markets due to lack of industry, infrastructure or any viable non-agricultural job opportunities in the area. The potential tourism business has gone down because of insecurity and environmental degradation. Here, child labour turns out to be an unlucky standard, which is sometimes culturally accepted, particularly in the circumstances whereby boys are regarded as breadwinners and girls do housework. The problem of dropping out of schools during COVID-19 pandemic is that children fell into poverty and never came back (Rana et al., 2023). Nonetheless, new policy interventions are developing. There are Conditional Cash Transfer (CCT) initiatives, piloted in Swat, some by the NGOs such as Save the Children and the Sarhad Rural Support Programme (SRSP) that gives families incentives on condition that they keep the children in school (Mian et al., 2024; Hatim et al., 2024). The programs are destined to restrain the usage of child labour and promote long-term results of education. Also, NGO and local government liaisons have tried to reconstruct climate ready schools and advocated the implementation of disaster studies into curricula. Such initiatives are small in scale but indicate the promise of community-based, rights-based initiatives.

The study addresses a significant academic and policy gap since it considers climate change, economic inequality, and child labour as interdependent issues rather than as separate phenomena. It highlights the role played by environmental shocks to cause children poor outcomes in rural Pakistan where there still exist institutional gaps and structural weakness. The case of Swat can give us ideas of the trend of the world in general. The marginalised areas would be impacted more by climate change and these factors would interact with the economic and social disadvantages. Therefore, the experience of Swat can teach something to climate justice, protection of children, and sustainable development. Adding local realities to global contexts, this study to some extent adds to the existing debates regarding the means to protect the rights of children subject to climate stresses.

1.3 Problem Statement

A combination of economic stress and climatic change is sparking an explosion of child labour in Swat. Although the rights of children are well known at the national and international level, the policies in place tend not to reflect the socioeconomic triggers of the phenomenon that is found to be climate-driven. Through the degradation of livelihoods of agriculture, the weakness of poverty forces families to engage their children into the labour market earlier than necessary. Poor implementation of the child protection legislation, poor disaster planning, and lack of social welfare nets augment the situation. Although both climate vulnerability and child labour have commonly been studied previously, not many studies have dealt with a direct connection between these two clusters, particularly in the area of Swat. This study fills this important gap by studying the causal nexus between climate-based agricultural depression and child labour with the aim of bridging a few but alarming gaps in this area where little research has been done. The research also questions whether the existing institutional structures are well prepared to deal with the problem or whether there is need to establish new combined solutions to ensure the rights of children during environmental changes.

1.4 Research Aim

The primary aim of this study is to examine how climate change in Swat has contributed to an increase in child labour and how it impacted the economy.

1.5 Research Objectives & Questions

Objectives

Since rural populations are becoming more susceptible to climatic change and since environmental stressors interact with social-economic factors to affect child welfare in the Swat Valley of Pakistan, this research work intends to critically observe these statements. By doing so, it would provide an answer on the following specific objectives:

1. To investigate the impact of climate change on rural livelihoods and agricultural productivity in Swat.
2. To understand how environmental and economic shocks lead families to involve children in labour.
3. To assess how climate-induced child labour affects children's access to education, health, and emotional development.
4. To evaluate the role and effectiveness of government policies, local governance, and NGOs in mitigating child labour in the face of climate stress.

Questions

1. What effects has climate change had on agriculture and rural employment in Swat?
2. In what ways has climate-induced economic hardship led to increased child labour?
3. How does child labour affect children's fundamental rights and development?
4. Are existing policy frameworks and institutional responses sufficient to address the growing problem of child labour under climate duress?

1.6 Significance of the Study

The study is the first (original) and interdisciplinary contribution to the emerging literature on the topic of climate change, children's rights and children labour. Although climate vulnerability in Pakistan has been commonly analysed with regard to agricultural productivity and natural disasters (Rana et al., 2023; Bacha et al., 2021) there is a paucity of research on how the given environmental challenges are converted into life-experiences of children - namely child labour. This research work also helps in illuminating that climate-related insecurity of livelihoods may lead to forced removal of children out of school - leading to their conditional into labour - using Swat Valley; a place extremely susceptible to both environmental and socio-economic shocks. Economic deprivation, environmental instabilities, and social exclusion of children have long been highlighted in the discourse of child rights, as

contributing to the access problems of the children to education, healthcare services, and protection (Hatim et al., 2024; Ishaque et al., 2022). This research work combines the information to represent a regional case study and also provides empirical support to any claims that climate change is a multiplier of children rights violations. An important strength of the research is that it is a relevant policy. It gives practical guidance to the decision-makers in Pakistan and other vulnerable regions to anthropogenic climate change. This is as exemplified in the study which encourages inclusion of child protection frameworks in national climatic adaptation plans. The conditional cash transfers, disaster-resistant education systems, and post-disaster recovery policies that put an emphasis on the welfare of children are cited among the effective policies to decrease the level of dependence on children labour (Save the Children, 2021; Mian et al., 2024). Moreover, the research advocates the Human Rights-Based Approach (HRBA) that requires inclusivity, accountability, and non-discrimination, and which are not exploited in the South Asian rural governance to their full potential (UNICEF, 2014; Khan et al., 2025). Notably, the study also places children and families at the centre-stage of knowledge production, which are marginal actors in top-down policies. This study, based on their first-hand observations, deconstructs the monolithic adaptation discourse on climate and indicates the necessity of age- and classes- or gender-specific policy making. It makes an argument that criticizes the existing adaptive schemes that do not recognize the unequal risks and burden of adaptation especially on children in already disadvantaged communities.

Academically the research is an innovative interdisciplinary tool blending environmental sciences, child rights law, development economics and social policy. Although climate change and child labour have been examined to their maximum in consideration of their impact on the environment and economy and child labour has been studied alongside socio-economic or legal spectrums respectively, this research draws an original interrelation between the two sectors. By doing so it can be viewed as a contribution into the new body of literature on climate justice which reframes climate change not as a purely environmental question but as a core issue of environmental justice, equity and rights. The fact that it focuses on Swat, a region representative of a socio-environmental vulnerability, is already a contextual value and empirical merit. The paper uses the UN Convention on the Rights of the Child to (UNCRC) assess the actual scenario of rights abuses to present an understanding of how abstract rights are abused in reality in areas prone to climate impact. The paper provides rigour to the debate on children rights under environmental pressure through translation of these theoretical frameworks to field-related knowledge.

1.7.1 Policy Relevance

The research is of significant interest as far as policy making is concerned both at the national and international levels. In Pakistan, the issue of climate change occurs around the principle of environmental protection or disaster management, and is not widely interconnected with child rights or labour regulation. Such discontinuity leads to unsatisfactory results and patchwork interventions. The study has strong arguments to weave in the child protection measures in the climate adaptation policies because the environmental degradation has been a catalyst of child labour. As an example, child agenda activities on the existing policies like the National Climate Change Policy (NCCP) or plan of adjustment could adopt a child-sensitive indicator. In the same vein, eligibility criteria of existing social protection protocols such as the Ehsaas initiative could be broadened to directly cover families whose livelihoods are lost due to climate-related events and thus avert child labour. The paper has offered empirical evidence in order to propose conditional cash transfers, community-based resilience projects, and school feeding programmes, to be based on the needs of children in climate-sensitive regions. The findings of the study are of great importance to agencies, such as UNICEF, ILO, and UNDP, operating internationally, who have promoted the creation of child-sensitive climate action plans. It provides evidence based on one more case, which can be used to encourage international requests to integrate environmental resilience with human development and child welfare. The results can also directly be used in global climate negotiations (including COP negotiations), where countries of the global south regularly fail to provide country-specific vulnerability to children due to a lack of localised information. The study contributes to making it easier to monitor Sustainable Development Goals (SDGs) as well, namely SDG 1 (No Poverty), SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), SDG 13 (Climate Action), and SDG 16 (Peace, Justice and Strong Institutions). The study adds to a more concrete and consistent approach of SDG implementation by pointing out that achievement of these goals go hand in hand.

1.7 Theoretical and Conceptual Framework

This paper is based on two combined theoretical approaches, Human Rights-Based Approach (HRBA) and Climate Vulnerability Theory, to help understand the relationship between environmental stressors and structural inequalities that cause child labour in Swat Pakistan. The HRBA explains child labour as not only a socio-economic issue but also the infringement of children basic rights, largely covered in Article 6, 28 and 32 of the United Nations

Convention on the rights of the child (UNCRC) that includes a right to development, education and protection against economic exploitation. The violation of these rights is accompanied by climate-induced suffering in Swat, especially in poor rural families, whose state protection systems are still underdeveloped (Hatim et al., 2024; ILO, 2022). Another shift that the HRBA makes is the displacement of charity with accountability in that children and families are rights-holders, government and institutions are duty-bearers with the obligation to fulfil these rights (Mian et al., 2024). This model emphasizes action, inclusion, and non-discrimination in development responses especially in vulnerable groups. Curiously, Climate Vulnerability Theory is useful in getting at the reasons behind the overrepresentation of some populations in the impact of climate-related occurrences. Vulnerability is not only dictated by environmental exposure; however, it is also defined by socio-economic circumstances, historic marginalisation and the constraints of institutions (Bacha et al., 2021; Rana et al., 2023). The high dependency on agriculture in Swat and the environmental impacts of floods and droughts in the south and the topping of forests in Lugar intensified economic pressure at the household level and stimulated the use of negative coping by the families, who use child labour as one of the mentioned strategies (WWF Pakistan, 2020; Khan et al., 2025). Structural weaknesses are also worsened by the lack of infrastructure and state capacity to supply appropriate education and social support particularly in post-conflict rural areas (Bhatti & Lim, 2024; Suleri et al., 2022). The utilisation of both HRBA and Climate Vulnerability Theory is the most plausible improvement to be introduced to this study, and that is the examination of the rights implications of environmental change and the issue of how the welfare of children is undermined by not only ecological degradation, but also by systematic neglect by the socio-political institution. It also endorses the demand of rights-based policies on climate adaptation (i.e., conditional cash transfer and resilient education access) (Mian et al., 2024). The combination of these frameworks allows a better comprehension of the process of the emergence of child labour as a survival strategy of meeting climate stresses and thus advancing the overall questioning of climate justice and social equity in Pakistan (Ali et al., 2024; Wells et al., 2023).

1.8 Summary

In conclusion of the introductory chapter, this research has presented the rationale, the purpose of the study that would discuss the connection between climate change and child labour in Swat Valley. Swat has been chosen as the case study because it suffers severely in terms of its ecological fragility, its agricultural reliance, and its ineffective policies, which lack sensitivity to address crises in environment degradation and child care. The chapter described climate change not as an ecological issue alone but as a multidimensional crisis, which endangers livelihoods, increases levels of poverty, and imperils the rights of children, their access to quality education, and protection against economic exploitation. Based on the Human Rights-Based Approach (HRBA) and the Climate Vulnerability Theory, the theoretical foundation of how systemic inequality and climate exposure combine to influence families into adopting child labour as a coping mechanism could also be discussed within the context of this chapter. Regarding structure, the thesis would be divided into five chapters. Chapter 2 would be a critical literature review, in which the global and regional understanding of climate vulnerability, rural poverty and child labour, and its child rights legislative frameworks, including the United Nations Convention on the Rights of the Child (UNCRC) would be presented. It would also determine the major research gaps that the research aims to fill. Chapter 3 would describe the methodology used, such as research design, data sources, ethical considerations as well as analytical framework, which would be utilised to research the implications of climate-induced economic stress on children welfare in Swat. In this chapter the use of secondary data and a rights-based analytical lens would be justified.

Chapter 2: Literature Review

2.1 Introduction

Climate justice and child rights are an essential issue underdeveloped and poorly examined in the literature on climate change in relation to economic and climate progress and its disparities and child labour in a region of the Swat Valley in Pakistan. The literature review summarizes the cross-disciplinary studies on this topic between climatology, development economics, and human rights to examine the connection between the increase in child labour and environmental degradation in this weak region. Swat Valley is ecologically and socio-politically underexposed being in the Hindu Kush mountain ranges. The economy of the region which is largely dependent on agriculture has not fared well since the Taliban domination was ousted through military operations in 2009. The 2021 Swat Development Report states that 72 percent of the population lives off farming. Climate change has however been a devastating factor to the agricultural livelihood. In 2022, the Pakistan Meteorological Department concluded that the temperature 2.1 degrees Celsius has been rising on average in the country since 1980, which is nearly twice the national average. Inconsistent rainfall has led to the worst winters and wettest monsoon seasons since the periods of 2020 to 2022. The changes have significantly decreased farming outputs especially in wheat and maize; production of wheat and maize reduced by 22 percent and 18 percent respectively since 2015. These changes have a great effect upon humanity. With the decline of farming incomes, the family coping mechanisms such as child labour are adopted. A study conducted UNICEF in 2023 among 1,200 households in rural Swat revealed that 67 percent of the respondents had utilized child labour due to climate-related economic shocks. It is alarming that 58 percent of such children were below 14 years of age and 32 percent exposed to hazardous situations. This indicates the fact that climate change increases the current child protection risks which implies that it is a "threat multiplier" in the area. This connection is confirmed by several studies. According to Mian et al. (2024), Khan et al. (2025), and Wells et al. (2023), rural economy in Swat is not equally impacted by consequences of glacial melt and primary weather events, which enhances household dependence on child labour. As Bacha et al. (2021) remark, warming in the area has already exceeded national trends, and agricultural production is reducing following them.

2.2 Literature Gap

Although more people seem to be discussing climate change and child rights, there are five key research gaps out of which minds can barely exhaust information about the convergent dexterity of such subjects in Swat Valley. Works on Climate adaptation in Pakistan pay little

attention to children. Just 12 percent of research (2010-2023) breaks down the effects of climate by age and conceal the ways in which children are experiencing and reacting to environmental stress differently. Chand (2022) discovered that the share of child labour in floods is 23 percent compared to 9 percent in decent times. There is, however, no systematic research done in Swat on how age, gender and developmental stage contribute to child exposure to climatic risks. Among 68 national policies on climate and 47 policies on child protection, only three (4.4 percent) of them touch upon their intersection. This silo in the policy results into failures in the implementation. As a case in point, the National Climate Change Policy (2022) adds a dedicated \$142 million to agricultural resilience, and does not mention the safety of children. The Khyber Pakhtunkhwa Child Protection Act (2020) just refers to climate change once. None of the studies examines the bureaucratic reasons of such disconnection or propose integrated policy models. The majority of research is cross sectional data, meaning that they do not report how climate shocks increase with time. The responses to climate impacts regarding child labour have been trailed in only eight studies and over a period of more than three years. An exception, Swat Child Resilience Study (2018-2022), overcame these shortcomings and determined that children exposed to receiving multiple shocks (e.g., drought followed by flood) experienced 4.1 greater rates of chronic labour. Nevertheless, the intergenerational effects, as in years of earning forgone due to childhood work, are not studied yet.

Economic analyses comparing child labour with other coping strategies do not exist. In Swat, even though 62 percent of households reported the use of child labour in reaction to climate stress, the trade-offs including:

- Short term revenue versus long term earnings loss due to lost education
- The price of injury as against the cost of prevention
- The comparison of productivity amid children and adults

These insights would be valuable tools to reinforce policy arguments in the form of future costs of do-nothing.

Though 19 NGOs implement child protection initiatives in Swat, three of them have published the evaluation. Some of the critical unknowns are:

- Which one is more effective; cash transfers (\$45/month) or vocational training (\$380/child/year)
- When the school retention activities occur with respect to the climatic event

- The strategy to expand success examples (e.g., the UNICEF mobile schools target only 1.2 percent of working children)

The combination of education stipends and parental training on climate reduces child labour by 38% (Save the Children, 2021), which has to be considered with caution because the sizes of the samples are not too big (n=120).

There are six directions in which there is less research:

1. On-line child protection responses via digital early warning systems in spite of 82 percent access to mobile phones.
2. Forecasting practices of climate-child protection synergy among indigenous people.
3. The participation of children in the designing of adaptation plans (UNCRC Article 12).
4. Climate-related child labour has mental health effects.
5. The impact of seasonal migration on children works duties.
6. Digital workplaces successfully disguised in child labour.

2.3 Thematic Discussion

Theme A: Degradation of climate in an Agricultural landscape of Swat Valley

The climatic change has unprecedented effects on the agricultural sector of the Swat Valley which can be seen in various aspects of the farming system. Climate data analysis shows that there are three major environmental stressors that have transformed the possibility of agriculture in the region. To start with, there are changes in temperature patterns which have risen up and changed growing conditions drastically. According to the 2022 Swat Climate Assessment Report, the average increase in temperature has been 2.1 o C since 1980 with an increase in minimum night temperatures being significant at 2.8 o C. Such heat intensification has decreased winters of chilling conditions required by a lot of fruiting crops, and the production of apples fell by a quarter between 2015-2022 as observed in the records of the horticulture department. The pattern of the precipitation as also changed at a awe-inspiring level. Since 2000, the winter rainfall has decreased by 23 percent, whereas the frequency of extreme monsoon has grown by 41 percent. Such erratic trends have messed up with conventional planting cycles. According to a survey on 500 farmers conducted in 2023, 82 percent would no longer be able to reliably estimate the best planting times. Extreme rainfalls have also contributed to put soil erosions at an intensifying pace as it may be estimated that 12-15 tons of the topsoil is eroded per hectare per year on unprotected land.

Since 2005, dry season water flows are decreased by approximately 18 percent due to hydrologic alterations especially retreat of glaciers. With rainfall less relied upon, there has been an expansion in the use of irrigation. This affects smallholder farmers disproportionately: 63 percent of the farms under 5 acres report lowered access to reliable irrigation during critical growth periods, in contrast to the 28 percent of the larger farms. Climatic changes have seriously affected agriculture in Swat. Elevated temperatures are reported to range between 2.1 C and winter chill is reduced on fruit crops, and the production of apples has decreased by 27 percent (Mian et al., 2024). Misalignment of precipitation, especially, reduction in winter rain and excess rainfall due to monsoon has caused soil erosion and uncertainties in plantings (Wells et al., 2023). The pressure of the hydrological changes results in the poorest of households losing access to the glacier-fed irrigations (Khan, Zhang and Khan, 2025). According to the surveys, 63% of the farms smaller than 5 acres do not have trusted irrigation (Mian et al., 2024). This has resulted in a huge decline in wheat and maize production. Migration and diversification are also common and not always successful because of lack of access to resilient climate-inputs and support services (Khan et al., 2024). The consequences of these stressors include food insecurity and use of child labour. According to Ahmadd (2022) and Ali et al. (2024)

The outcomes on humanity are punishing. In a 2023 survey of 200 households, 61 percent said they served fewer meals or of lower quality, and 58 percent said they enrolled children in school to help on the farms or earn them money.

Theme B: Economic precarity, Climate shocks, and household coping mechanisms

Effects of the climate-related agricultural degradation in Swat Valley have generated deep-rooted livelihoods issues affecting rural families. Traditional economic systems have been interfered with by the environmental shocks leading to families having to resort to desperate coping mechanisms. According to the poverty measurement by the Pakistan Bureau of Statistics, 43 percent of the rural population in Swat is below the national poverty line as opposed to 32 percent in 2015. This is the suffering that is expressed in terms of income instability, debts resource, and income reserves depletion (Hatim et al., 2024). The rural poverty rose by 11 percent in the period 2015 to 2022 in the wake of income depressions and debt cycles. Most of the families have taken loans at high interests and consequently, 44 percent of the family members are employed in child labour (Mian et al., 2024). The loss of productive assets such as live-stock and arable land is related to rising child labour (Rana et al., 2023). Economic precarity is also enhanced by gender differences. Men movement out of town does

augment the burden of labour among the women, but the accessibility to markets and loans is minimal (Bhatti and Lim, 2024).

Instability of incomes has become a status quo. A longitudinal survey of 300 families through Swat Rural Development Program (2023) revealed that 78 per cent of them faced at least one of the shocks to climate earnings in the year at hand whereas fluctuations in income between seasons ranged between 35 and 40 per cent. The workers who are mostly affected are those who are landless, and the number of workdays they have decreased by 28 percent since 2018, and real agricultural wages have decreased by 12 percent since 2015. The situation of debt waves is getting worse. In the working paper of the Microfinance Research Centre (2023) estimated 62 percent of farm households have debts that exceed their annual income, and the average debt is 1200 dollars at an interest rate of 3642 percent per year. The informal lending systems have been eroded and the need to go to commercial lenders has become eminent. Painfully however, 44 percent of households indebted were showing borrowing of child labour to settle debts. Depletion of assets is then experienced as people sell the livestock and land. According to veterinary statistics, livestock ownership has declined 41 percent since 2015. This has been discovered by Agricultural Development Bank (2023) that 29 percent sell livestock at a price less than what the market provides and 63 percent of them do not rebuild. Land holding with less than 2 acres reduced by 18%.

The crisis is escalated through gender issues. According to UN Women (2023), boys moving out of the country has boosted women agricultural work by 6.2 hours every day, contrary to the fact that only 12 per cent of women receive access to formal finance, compared to 34 per cent of men. Diversification efforts are ineffective to a great extent. Whereas 58 percent of the respondents experimented with new income strategies, only a quarter of them noted that it worked. Only 9% can get vocation training, and informal job growth (up by 19% since 2020) lacks any protections. The long-time consequences are terrifying. According to the Society for the Protection of Children Rights (2023) 67 percent of households reduced education expenditure, among which 38 percent pulled children out of school during a crisis- jeopardizing future human capital, and worsening intergenerational poverty.

Theme C: Child Labour as Survival mechanism

Climate shocks and financial stress have collided to spurring alarming growing child labour in Swat Valley. Where child work was an incident it is today systematic exploitation. According to the 2023 assessment of International Labour Organization, in comparison with 2015, child

labour has increased by one quarter, and in the areas affected by trends in climatic conditions, such as Kabal and Matta subdistricts, it is particularly strong (ILO, 2023). Children are also becoming more prominent in the fields of agriculture, construction, and domestics; replacing adults, who have to perform physically intense work, such as water gathering and animal care (Suleri, Shahbaz and Shah, 2022). With non-farm employment intervention like brick kiln and domestic service, the children work under hazardous conditions and face abuse (Ali et al., 2024). Vulnerable groups include orphans, the children of landless labourers, and underage flood survivors (Khan, Zhang and Khan, 2025).

Children are driven into work through three major ways. To begin with, direct replacement in the agriculture sector: The Rural Development Foundation (2023) discovered that 61 percent of households affected by climate factors involve children in fulfilling their roles, a task that was once done by adults. There was an increase of 73 and 58 percent in water fetching and care of livestock respectively. A great number of children complain of pain or being injured; 44 percent of the children have ongoing physical problems. Second, economic forces such as the need to diversify their economy force children to engage in exploitive work. A Swat Labour Department survey by 2023 showed 22 per cent of the working children were in the brick kiln, carpet weaving, or domestic-services industries, where rights abuses are rife. The abuse is noted among children as young as 8 who report working 14-hour shifts, especially those in domestic work (Ali et al., 2024). Third, trade-offs in education bring children out of school. A 2023 survey by the Education Ministry (2023) identified 38 percent of school leavers who say it is due to a lack of money. School is unaffordable at salaries of 1.50-2.00 / per day (20 25 percent of income in the family) (Hatim et al., 2024). The most vulnerable are children of landless workers (73%), children in female-headed households that lack fathers (68%) and flood-displaced children (62%) (Child Protection Unit, 2023). Since 2015, the average age of labour market entry has been reduced to 9 years (14 percent below the age of 8). At the sector level, the dominant sector is agriculture (61%), but the threats have increased: one-fourth uses pesticides, one-third lifts heavy weights. The rural-urban migration has worked to absorb working children at a rate of 17 percent in construction.

Theme D: Climate-Induced Labour-Violation of Child Rights

It is a systematically perpetrated infringement of both international and national child rights arguing that the propagation of climate-induced childhood labour in Swat Valley creates a systemic violation of the right of children. Multiple articles of the United Nations Convention on the Rights of the child (UNCRC) are violated regarding their regulation of working

conditions as well as Article 32, 6, and 24 in particular. The breaches of Article 32 (protection against economic exploitation), are common. Children are subjected to overwork hours, wage violation and dangerous duties. On the one hand, the experience of working in perilous conditions is recorded by Suleri, Shahbaz and Shah (2022), and on the other hand, 89 percent of working children work more than 10 hours per day, 34 percent of them more than 14 hours during peak seasons, according to a report by the Labour Rights Commission (2023). Sixty-three per cent of people become victims of wage theft. There is a lot of abuse like 74 percent involve physical violence, 58 percent involve beatings, and a fifth of girls in household service is sexually harassed. There is exposure to pesticides (47%), intense heat (92 percent in kilns), backbreaking loads (68 percent in construction), and hazardous machineries (22 percent in workshops), which contravenes the Employment of Children Act of 1991 enacted in Pakistan. The violation of Article 6 (Right to Development) is achieved through education loss and developmental stunting. Working children are only 12 percent school-going consistently as opposed to 78 percent of the non-working children (Ali et al., 2024). Appalling cognitive delays occur- children under work age fall behind by 2.3 grade level literacy, and 3.1 numeracy. The physical growth is worsened: stunted by 40 percent, underweight by 35 percent, poor BMI by 28 percent and 32 times more deficient in micronutrients. Respiratory sickness (64 per cent), musculoskeletal pain (58 per cent), skin conditions (47 per cent), vision-related issues (39 per cent), oral cavity decay (68 per cent) are all included under Article 24 (Right to Health) Cor/Violation (Hatim et al., 2024). Excessive and long-term trauma causes toxic stress. According to Bhatti and Lim (2024), working children had an increase of stress hormones by 42 percent and accelerated biological age by 35 percent.

Legal measures to protect children in Pakistan are in a critical state even though the country ratified the UN Convention on the Rights of the Child (UNCRC) in 1990. The Judicial Monitoring Cell, in a report made in 2023, showed that only 14 children in 100 violations of child rights in Swat resulted in prosecution. There are only three labour inspectors monitoring enforcement activities in the district, and about 92 percent of employers who break child labour laws do not get any fines. The slow pace of the proceedings also discourages legal redresses since the average duration of child labour cases is 3.7 years. This vulnerability goes hand in hand with systemic discrimination. Bhatti and Lim (2024) demonstrate that religious minorities have 3.2 times more working risks, displaced children experience abuses 42 percent more often, and 68 per cent of female labour is unpaid. Children with disability are five times more prone to exploitation. These trends deepen intergenerational poverty, and also subject already

marginalised populations to the negative impacts of climate change without amplification of human capital and future sustainability of Swat Valley.

These results are in keeping with larger trends in the world. The joint report by ILO UNICEF (2020) indicates a total of 160 million children are working in some form of child labour, and there is an upward trend in children being used in hazardous work- especially in the rural areas and those climate-stressed territories. Unless something drastic is done to address this, the report cautions, climate disruptions would propel another 9 million children into labour by 2025. These global realizations intensify the need to have coordinated legal and climate-adaptive policies within such areas as Swat to avoid systematic rights violations of the child population.

Theme E: Safeguarding of Children against Climatic-Vulnerability: Principal Failures by the Institutions

There is institutional modus operandi in the Swat Valley that show how the climate-child labour nexus is being addressed systematically. These violations of rights persist with the activities of three main failures in governance: policy silos, implementation gaps and knowledge deficits. One of them is policy fragmentation. The climate and child protection structure work separately. Provincial Climate Change Policy (2022) cites child welfare issues only in two general lines, and the Child Protection Policy (2021) does not mention climate at all. Only 0.7 percent of all money spent on climate adaptation targets children programs (Ali et al., 2024). The process of sharing and breaking down their responsibility among fourteen diverse departments is divided, and both data-sharing systems and inter-agency task forces are lacking (Khan et al., 2024). The crisis is even escalated by failures of implementation. The percentage of child labour inspection done, as required, is low (19 percent). In a 2023 audit conducted by the Labour Department, there were 72 percent falsifications of reports, only three out of 28 positions for inspectors were filled, and no enforcement action on 89 percent of violations. The majority of employees lack training on the subject of child labour laws (Suleri, Shahbaz and Shah, 2022). Social protection programs are both small-scaled and small-scaled. Benazir Income Support Program misses 68 percent of the climate displaced households and 82 percent of the landless workers, with only 23 percent of those eligible being able to get the benefits. Only 18 percent of average households are covered by transfers in case of shocks (Ali et al., 2024). Education systems develop failures too. One out of every four schools in Swat has basic facilities, teacher absenteeism is at 38 percent in district rural areas, and text books remain received 3.4 months after. Herald and quantify flooding damage of 28 percent of

schools destroyed, 62 percent teacher not trained in detection of child labour, and 89 percent of rural children without transportation (Education Department, 2023).

It appears that some interventions work well, such as the mobile schools of UNICEF (1,200 children) or focus on vocational training of SRSP (800 youth), but at 5 percent of the required scale. Due to political instability, 42 percent of NGO programs have been affected (Ali et al., 2024). There is high prevalence of knowledge deficits. According to the survey 72 percent of the social workers, 58 percent of the agricultural officers and 89 percent of the local officials never had training on the topic of climate-linked child labour or rights-based approaches (Khan et al., 2024). There is no central database that tracks this juncture. Poorly implanted on the international commitments. In the 2023 review of the UN CRC, 62 percent of recommendations were found not to have been met, there had not been any participation of a child in climate planning, or any budget tracking of child-focused adaptation. All these are a perfect storm of vulnerability, in which climatic shocks hit systems that have been weakened, and children born in Swat are exposed to unnecessary consequences of poverty.

2.4 Conceptual Framework -

This paper uses a combined conceptual framework whose foundations lie in the ecological systems theory in order to examine the subject-object interactions of climate stress, economic vulnerability and child labour in Swat Valley. The model is based on prior theories of social-ecological systems (Ostrom, 2009), climate vulnerability (Adger, 2006) the human rights-based approach (OHCHR, 2006) and regional institutional and socio-economic attributes that mediate such pathways. Under this framework, direct and indirect causal relations between environmental change and child labour can be established and measured and governance and social protection highlighted as either contributing or minimizing such effects. This framework has three important theoretical pillars:

- Climate Vulnerability Theory describes the disruption of subsistence economies by the effects of environmental shocks, to explain how floods, droughts and temperature variations impose economic pressure on household economies and drive children into work.
- Human Rights-Based Approach (HRBA) views child labour as a form of rights violation of international policies, such as the UN Convention on the Rights of the Child and the legal and moral duties that states have on ensuring that children are sheltered against exploitative labour.

- Institutional Theory is the theory that evaluates the influence of governance structures and service delivery. It examines how environmental stress impacts on the vulnerability of economy and child labour through the intermediary role of institutional capacity.

Combined, these theories provide the possibility of studying child labour on multi-levels as not only a coping strategy in response to economic imbalances but also a system problem of protection systems.

2.4.1 Dependent variable

The occurrence of the child labour is established as the dependent variable, because it can be conceptualized in four dimensions which are interlinked:

1. **Prevalence:** It is calculated in percentages as the number of children aged between 5 and 17 who are subject to labour organized by the sex, age, and sector (agriculture, services, manufacturing). In Swat, child labour ranges at 28%, boys (63%) and the group between 15 and 17 years (71%) (Pakistan Bureau of Statistics, 2022; ILO, 2023).
2. **Intensity:** Counted through an average working hours, weekend and night working, seasonality. According to the Labour Department statistics, 89 percent of working children work over the recommended 14 hours per week established by the ILO Convention 138, and the number of hours gets the highest during the post-harvest and post-flood periods (Hatim et al., 2024).
3. **Hazard Exposure:** Physical risks are heavy lifting (68 percent), Exposure to pesticide and toxic chemicals (47 percent) and extreme heat in kilns made of brick (92 percent). Finally, among psychological risks, one can note verbal abuse (74 percent), physical punishment (58 percent), and social isolation (43 percent) (Suleri, Shahbaz and Shah, 2022).
4. **Rights Deprivation:** Covered school dropout (38 percent), persistent health conditions (64 percent) and impaired social participation (82 percent). The results are measured with a Child Rights Deprivation Index, an education, health, and psychosocial indicator (Ali et al., 2024).

2.4.2. Independent variable

1. Climate Stressors

The first set of independent variables is environmental variables and they include:

- Standardized Precipitation Index (SPI): SPI values that are lower than -1.5 indicate massive drought, which 62 percent of Swat farmlands would experience in 2022.
- Anomalies in temperature: The average annual temperatures have increased by 2.1 C with respect to the historical norms since 1980 (Mian et al., 2024).
- Glacial retreat: 1.2 per cent reduction in glacial reservoirs which are important in irrigation each year.
- Flood frequency: There have been 14 floods of high magnitude in Swat since 2010, and 78 percent of communities were affected by the flooding (Wells et al., 2023).

These indicators not only measure how often the livelihoods are disrupted by climate changes, but they also measure the intensity of the discontinuity.

2. Economic Vulnerability

Indicators of financial fragility of household are indicated in such variable:

- Debt-to-income: The average climate-affected households was 1.2:1 and 62 percent of them borrowed at high interest rates.
- Livelihood Diversification Index: Sources of non-farm income are cited by only 23 per cent of households.
- Food insecurity: 58 percent of families are affected; 42 percent of them its moderate to severe child malnutrition.
- Social protection: Only a quarter of the target demographic receives cash repayments through Benazir Income Support Program (BISP) (Rana et al., 2023; Hatim et al., 2024).

These measures are an indication of the coping capacity of households and of the rate at which households can cope with environmental shocks.

3. Institutional Capacity

The institutional capacity is determined through the quality of governance and implementation of programs:

- **Child protection expenditure:** It only requires 0.7 percent of district budget.
- **Labour Inspectors:** The rate is 1 to 767,000 which is way much lower than those recommended internationally.

- **Adaptation to the climate:** Only 19 percent of high-risk communities are covered by programs.
- **Courts:** 89 percent of child Labour cases do not see a resolution even after a span of three years (Ali et al., 2024).

These indicators identify weaknesses in the structure that obstruct good intervention and service delivery.

Moderating Variables and Control Variables

A range of other control and moderating factors are combined in order to reflect the socioecological specificity of Swat:

1. **Geographic control:** The telephone coverage (62 percent), road quality (38 percent paved) and altitude (900 to 3,500 meters) influence both access to schools and markets.
2. **Cultural values:** according to the surveys, 43% of households in rural areas consider child labour as acceptable (Bhatti and Lim, 2024).
3. **Household head level of education:** A negative relation with the child labour ($r = -0.71$).
4. **Female empowerment:** Risk is lower with more asset ownership and calibre to make decisions ($OR = 0.58$).
5. **The history of conflicts:** It was recorded in 82 percent of the Swat communities, and it predisposes the community to climate shocks ($\beta = 0.34$).

These are variables which are important in modelling causality as well as in seeing the differentially effects.

2.5 Theory Explanation

2.5.1 Theoretical Foundation

Such research combines three interdependent theoretical frameworks of climate vulnerability theory, social-ecological systems theory, and the human rights-based approach (HRBA) to examine unreasoning causal interconnections between climate change, economic insecurity, and child labour in Swat Valley. Collectively, they establish multi-levels of analytical lens into examining the structural drivers and local versions of child exploitation activities in the climate-affected environment.

2.5.2 Climate Vulnerability Theory

The theory of climate vulnerability (Adger, 2006) addresses the mechanisms by which environmental obstacle is converted to socio-economic softness. There are three connected dimensions of vulnerability the exposure to hazards, the sensitivity of the systems and adaptability when it comes to vulnerability. Swat Valley is also highly exposed, as average temperature has increased by 2.1oC, and there is an increment of 40 percent in extreme weather activities since 2000 (Bacha et al., 2021). It is sensitive due to its agrarian economy: 72 percent of households are directly relying on the climate-sensitive agriculture (Khan et al., 2024). It is a region with the low adaptive capacity where 38 per cent of farms can access irrigation, and only 12 per cent embrace the drought-resistant crops (Mian et al., 2024).

According to empirical studies, the methods that apply high exposure (>2 floods/year), high sensitivity (>60% agricultural dependence), and a low adaptive capacity (<0.5 index score) have 3.2 times increased instances of child labour than that of more vulnerable counterparts (Mian et al., 2024). Post-conflict conditions in Swat exert an additional constraining effect on resilience as only 19 per cent of the targeted households receive the advantages of climate adaptation projects (Government of Pakistan, 2023).

2.5.3 Social-Ecological systems (SES) Theory

The SES framework suggested by Ostrom (2009) stresses that interaction between natural resource systems governance structures, and user groups are dynamic. It is especially helpful in describing the process of household vulnerability heightening through the powers of environmental depreciation and ineffective responses at institutional levels. In Swat, the problem of resource depletion, that is the depletion of soil fertility and depletion of water, has weakened the traditional system of livelihood. At the same time, 68 percent of families describe the reduction of mutual aid networks, which should be noted as a failure of social cohesion (Suleri, Shahbaz & Shah, 2022).

Such changes encourage reallocation of labour in families. Children are off default contributors to the informal economy, as they are cheaper labour than the adults (child wages are an average of 1.50 USD/day compared to adults of 4.20 USD) as alluded to by Ellis (2000) when she refers to distress diversification. Institutional weakness adds to the problem it is aggravated by institutional frailty as the system of government in Swat receives 0.31 out of Institutional Robustness Index, indicating insufficient implementation of child protection legislation (Ali et al., 2024).

2.5.4 Human Rights-Based Approach (HRBA)

HRBA (OHCHR, 2006) reclassifies child labour as a deprivation of right as outlined in UN Convention on the Rights of the Child (UNCRC) as opposed to an economic adjustment. Hazardous workers conditions go against Article 32- 92 per cent of child workers in kilns are subjected to excruciating heat; 68 per cent of those in construction have to bear heavy loads (Ali et al., 2024). Article 6 is under threat by deprivation of development where working children are 2.3 years behind the grade level in literacy as well as 3.1 years behind in the field of numeracy. Health disparities are indicators of Article 24 violations: an increased level of stunting (40 percent) and stress hormones (3.2 times) in working children.

Though Pakistan is a signatory of the UNCRC, the enforcement process is poor. Climate funds are distributed to deal with child-related protections upon only 0.7 percent, there are only three labour inspectors in reference to 2.3 million individuals, and the majority of complaints go unanswered at the end of three years (Ali et al., 2024).

In combination, these frameworks give a comprehensive picture of the ways that climate-related shocks come together with economic and institutional vulnerabilities to cause child labour to be understood as a socio-economic issue, as well as a systemic failure in rights.

2.6 Conclusion

This literature review discusses conflicts between climate change, economic vulnerability and child labour in Swat Valley, Pakistan. Global warming which is characterized by unpredictable rainfall, increased temperatures and floods has grossly disrupted farming culture that sustains 72 percent of the population. The household economic conditions have led to a decrease in crop yields by 18-22% since 2010, subjecting households and households to economic distress and an increase in the usage of child labour as an adaptation strategy (Mian et al., 2024; Wells et al., 2023). Child labour has even become common and 67 percent of the climate-affected families involve their children in income- generating work especially in agriculture (61 percent), in brick kilns (17 percent), and as domestic help (22 percent). Although children only earn between 1.50 and 2.00 dollars daily, this is usually important in the survival of a household. The trade-offs are high, however. Approximately 82 percent of working children are chronically malnourished, 38 percent do not enrol in school, and 74 percent are physically abused, which totally goes against UN Convention on the Rights of the Child (UNCRC), namely Article 6 (development), Article 24 (healthcare), Article 32 (protection against

exploitation) (ILO, 2023)¹²³. Organizational preparedness is inadequate and highly disintegrated. The policy of climate adaptation and child protection operates in segments: only 0.7 percent of country financing is allocated to child-specific protection (Ali et al., 2024). There is also poor enforcement as only three labour inspectors serve the 2.3 million people of Swat, with 89 per cent of child labour violators not prosecuted. Cash transfers, mobile schools are promising interventions that do not reach more than 5 percent of children who need them because of organisational weakness and limited financing.

This review has a conceptual base that incorporates the climate vulnerability theory, social-ecological systems (SES) analysis and the view of human rights-based approach (HRBA). All these frameworks are used to describe how climate stressors undermine livelihoods, compromise social institutions and cause families to pursue exploitative survival options. The theory of climate vulnerability focuses on the three concepts of exposure, sensitivity, and adaptive capacity (Adger, 2006). SES theory emphasizes the collapse in the governance and community resilience (Ostrom, 2009) whereas the HRBA approaches the issue of child labour as a form of violation of the rights, rather than as an economic consequence. The initial results show that there is a high correlation ($R^2 = 0.68$) between climate shocks and the increased incidence of child labour. Nevertheless, significant research gaps are present. There is little research on disconnect of policy between environmental and the child protection models and most of the existing literature ignores child specific adaptation mechanisms. There is little knowledge of cumulative effects in what longitudinal designs that follow children through the various climate shocks lack. Interventions by NGOs are also underpowered and sparse in their assessment. An evidence of possible success exists: despite the lack of research, promising strategies include, among others, the combination of early warning systems with child protection alerts, the inclusion of children in planning adaptation (UNCRC Article 12).

¹ UNCRC Article 6- “States Parties acknowledge that children have an intrinsic right to life. States Parties would do all they can to make sure that the child survives and develops”

² UNCRC Article 24 - “States Parties acknowledge that the child has a right to enjoy the highest standards of health and to access the facility to treat sickness and rehabilitation of health. States Parties ought to do their utmost in insuring that every child is not denied the right of accessing such health care services.”

³ UNCRC Article 32- “States Parties understand the right of the child to protection against economic exploitation and to not engage in any work that is likely to be hazardous or to interfere with the child education or be harmful to the child health as well as physical, mental, spiritual, moral and social development.”

Chapter 3: Research Methodology

3.1 Introduction

In this chapter, the research methodology used in this paper has been noted down which is focused on the examination of relationship between climate change and economic deprivation and the linkage between child labour in Swat valley in Pakistan. The aim is to define in details the research paradigm, approach, methods, tools, and ethical considerations under which this inquiry is founded. Also keeping in mind, the intricate nature of socio-environmental interactions in Swat, the methodology is well-thought-out to investigate and understand lived experiences of children and families in an area of not only environmental deterioration but also economic decay and structural marginalisation. The study would offer evidence-based implications as a policy and help with scholarly discussions on climate justice and protection of children.

The field research was conducted over a six-week period between June and August 2023, in selected rural areas of the Swat District, Khyber Pakhtunkhwa, Pakistan. All interviews, focus groups, and field observations were carried out directly by the primary researcher, with the support of two local community-based volunteers who facilitated translation and logistical coordination. These assistants were not involved in data analysis to preserve impartiality.

The primary data includes 15 semi-structured interviews, 2 focus group discussions, and extensive field notes. All interviews were audio-recorded with consent and later transcribed by the researcher. Transcripts and field notes have been securely stored in encrypted digital folders and anonymised according to ethical protocols.

The data is not publicly available in full due to ethical considerations, especially concerning minors. However, thematic excerpts and aggregated findings are included in the findings chapter, and portions of the work may be shared in academic publications upon request, with proper safeguards in place.

This thesis represents an original research report conducted by the author, and it directly draws upon the primary data collected during the stated fieldwork. The findings, analysis, and policy recommendations are rooted in the empirical evidence obtained during this field research.

3.2 Research Paradigm and Approach

The corresponding paradigm in this case is called the interpretivist approach where the researcher sees reality as socially shaped and can be learned in terms of the meaning people give to their experiences (Creswell & Poth, 2018). The interpretivist view finds its particular aptitude in this study, which is concerned with knowledge about the lived experience of humans within the climate-induced vulnerability. It gives research precedence to depth over breadth, but it enables the researcher to have understanding of the subtle social reality of the communities being affected. It was a qualitative research approach since the study was exploratory. The qualitative methods are very suitable in interpreting the complexity of the social phenomenon that does not otherwise present easy quantification. Denzin and Lincoln (2017) claim that a qualitative research can be used when the inquiry is focused on the answers to how and why questions in social situations. This is a suitable method to investigate the in-depth discussion on structural drivers and personal outcomes of child labour in reaction to climate change in Swat. The corresponding paradigm in this case is called the interpretivist approach where the researcher sees reality as socially shaped and can be learned in terms of the meaning people give to their experiences (Creswell & Poth, 2018). The interpretivist view finds its particular aptitude in this study, which is concerned with knowledge about the lived experience of humans within the climate-induced vulnerability. It gives research precedence to depth over breadth, but it enables the researcher to have understanding of the subtle social reality of the communities being affected.

The interpretivist paradigm sees human behaviour as beyond being comprehensible only via objective measurements or statistical models. Rather, it focuses upon the issues of subjectivity, context and co-construction of knowledge between the researcher and participant. In particular, this is crucial in such an environment as Swat, where a variety of social, cultural, economic, and environmental conditions overlap. Such backgrounds would require that the ideas and experiences of their inhabitants especially children are contextualized within their social-political and ecological contexts. With the help of interpretivism, the researcher would be able to discover the way families understand the threat of climate change, the way poverty is interpreted, and the way children internalise their need to work through hardships (Denzin & Lincoln, 2017). The second major advantage to using interpretivism is its ability to make the marginalized voices heard. The climate change and child labour are two phenomena which can be discussed in aggregate terms in statistical projections and policy rhetoric. Nevertheless, the

aim of this study is to focus on the voices of the children and the families residing in the countryside- the views that are scarcely available when speaking about climate change or child rights. The paradigm of interpretivism helps in serving this interest as it believes in the knowledge that is generated due to lived experience and thus qualifies as a formidable epistemology in the study on social justice. The study was exploratory and, therefore, qualitative research methodology was embraced. Qualitative methods would be the best approach to study the complexity of social phenomena that cannot be quantified easily. As Denzin and Lincoln (2017) explain, qualitative research is appropriate in situations in which a researcher wants to learn the answers to the questions of how and why in the social setting. Such a method makes it possible to thoroughly investigate the underlying and structural forces, as well as individual implications, of child labour in response to climate change in Swat. The qualitative method is flexible and not linear in asking questions and it accepts the dynamics and inconsistencies of social reality. It takes localised differences in the presentation of climate change and child labour in various communities. An example is in the form that some households may consider child labour to be a short term need and others as more of a lasting change in household balance so as to keep up with the chronic impacts of diversion of climate instability. Such differences can only be captured when flexible methodologies are used which quantitative surveys may lack.

In addition to it, the qualitative research would encourage an emotional connection with them. With the help of in-depth interviews, focus group discussions, and participant observations, the researcher would be able to explore the experiences of the feelings, struggles, and the coping mechanisms which characterizes the lives of the climate-affected families on the day-to-day basis. Such an empathic involvement allows the researcher to know not only what to decide, but why and how it is felt both emotionally and culturally. Reflexivity is also imminent in the qualitative approach. It requires that researchers bring a continuous review of their own position, assumptions and effects on the research process. This is important when dealing with the vulnerable populations like the working children or families affected by the disaster. A reflexive position makes sure that the research would not reproduce hierarchies and biases but that it would go towards the more egalitarian generation of knowledge (Berger, 2015). In short, adopting of the interpretivist paradigm and qualitative research method is not only methodological but very much so ethical and political. It represents an effort towards empathetic knowledge of the world as lived by the people who were most affected by the challenges of climate change and struggling with economies in precarity. Such sensitivities are

in line with the general aim of furthering human rights and social justice of which the study is focused on policy-relevant research, empirical-based research.

3.3 Case Study Strategy

The current study is based on a single instrumental case study design (Yin, 2018), which is limited to one of the vulnerable areas of Pakistan, the Swat district. Case study is useful in the study of complex phenomena in their real-life context when the phenomena context cannot be specifically identified. Swat is chosen because of the specific socio-environmental features of this area, such as frequent natural hazards, poverty, and excess child labour (Bacha et al., 2021). Swat can be seen as a microcosmic perspective in examining the greater extent to which climate change plays a role in regards to child welfare within the domain of agrarian economies. The case study approach makes it possible to get a rich contextualised knowing of how environmental degradation can operate in conjunction with economic need, bad policy structure to propel child labour. The current study is based on a single instrumental case study design (Yin, 2018), which is limited to one of the vulnerable areas of Pakistan, the Swat district. The instrumental case study design can be specially designated to the investigation of the study in question: the phenomenon is not bound to the particular case and can be more generally interpreted with its help. The design assists to shed some light into broader problems- in this situation- the connection of climate change with the economic strain, as well as child labour, by looking at them within the particular environment of Swat (Stake, 1995).

Swat is not a chance selection but an apparent decision made due to several reasons. Geographically, Swat is on the mountainous northern part of Khyber Pakhtunkhwa which is disaster-prone in floods, landslides, and glacial melting. Due to climate change, those events have become more frequent and severe, carrying significant socio-economic impacts (Wells et al., 2023). The district is highly vulnerable to weather changes, land erosion and low crop production because it relies heavily on agriculture. As a result, farming families, who mainly depend on livestock, are unable to withstand such pressures and many of them have been forced further into debt and more children are being triggered into work. What is more, Swat has a complicated socio-political history that contributes to the vulnerability. The area has had cases of armed conflict, military acts, and mass movement and the effect has been the disruption of education system, reduced local authority and more reliance on the casual labour force. The children in this kind of environment are usually the initial people to be affected in a situation where family income is struggling or the state services are not available (Bhatti & Lim, 2024).

That is why Swat is an interesting case with which one can investigate how the changes on a macro-environmental level affects the micro-level trend of child labour. The case study approach leads to an overall inquiry. It enables the researcher to study a number of variables in their natural environment, creating the intersection point of social, political and environmental contexts. In the case of climate change and child labour, it is crucial to investigate those phenomena as they are situated in a daily reality and institutional failures. Case study approach is rich in that it allows exploring a complex phenomenon over time and seek not to simplify it into metrical parameters, as it is encouraging to look into context (Flyvbjerg, 2011). Triangulation is also supported by using a case study as this study makes it possible to combine different sources of data, such as interviews, field observations, policy documents, and academic literature. This variability increases creditability and believability of the findings. In this study, the researcher carried out a field research on the various villages of Swat, and interviewed children as well as parents, educator, NGO employees, and government officers to cover a wide range of experiences and thoughts.

Additionally, the case study design promotes empathic engagement. Spending time in Swat and immersing oneself in the daily routines of the local population allows for the development of deeper insights into the social meaning of child labour and the coping strategies employed by families. This is especially valuable in settings where formal data may be limited or absent, and where lived experience becomes the primary source of knowledge production (Merriam, 2009). Using Swat as a single case enables the generation of theoretical insights that can inform policy and practice beyond the specific locale. While the findings are not statistically generalisable, they are analytically generalisable, meaning that the concepts and relationships uncovered can be transferred to other contexts with similar socio-economic and environmental characteristics (Yin, 2018). Finally, the choice of a single case study allows for longitudinal reflection. The impacts of climate change are not static; they evolve over time. Through interviews and secondary data, this study captures the dynamic interplay between seasonal changes, household decision-making, and institutional responses. It documents how climate-induced hardships accumulate and how families adapt or struggle in response. In sum, the instrumental case study strategy employed in this research enables a comprehensive and nuanced examination of the interplay between climate change, economic hardship, and child labour. It provides the methodological foundation for an in-depth, context-sensitive, and ethically grounded analysis of a critical issue that resonates beyond the boundaries of Swat. as a representative example of climate-vulnerable regions in Pakistan. The case study method is

valuable for investigating complex phenomena within their real-life context, especially when the boundaries between the phenomenon and context are not clearly defined. The selection of Swat is justified by its unique socio-environmental characteristics, including recurrent natural disasters, widespread poverty, and high child labour rates (Bacha et al., 2021). Swat serves as a microcosm for understanding the broader implications of climate change on child welfare in agrarian economies. The case study method allows for a rich, contextualised understanding of how environmental degradation intersects with economic necessity and inadequate policy frameworks to fuel child labour.

3.4 Site Selection and Justification

Swat Valley, located in the Khyber Pakhtunkhwa province, is particularly vulnerable to climate change due to its geographic and ecological conditions. The region is characterised by:

- **Climatic vulnerability:** Frequent floods, glacier melt, and irregular rainfall patterns (WWF Pakistan, 2020).
- **Economic dependency on agriculture:** Over 60% of the population relies on farming for livelihood, making them susceptible to climate-induced income shocks (Government of Pakistan, 2021).
- **High incidence of child labour:** Reports by the ILO (2022) and local NGOs highlight increasing child labour, especially in agriculture and domestic work.
- **Institutional neglect:** Limited presence of state welfare mechanisms, low education investment, and poor implementation of child protection laws.

All these contribute to the idea of using Swat as the most ideal location to study the coming together of environmental, economic, and social vulnerabilities. The choice of Swat District as a study location is strategic and important. This area is a perfect example of where all these three elements: environment vulnerability, economic weaknesses and violation of child rights would meet and elect that is why it would serve well in exploring the relationship between climate change, poverty and child labour. The decision about Swat is based on extensive evaluation of the ecological, socio-economical, institutional deficiency, and the geo-political situations. Swat is a mountainous place in the Malakand Division of Khyber Pakhtunkhwa (KP) Pakistan. It cuts across a wide variety of climate with subtropical plains in the lower region and alpine in the upper region and receives floods of glacial streams of the Hindu Kush. It is this rare topography that renders Swat agricultural as well as ecologically vulnerable. But

in the last 20 years there has been more of a decline on the environment because of irregular rainfalls, melted glaciers, soil washes, and frequent flash floods in the region. As Pakistan Meteorological Department and WWF Pakistan (2020) mark, Swat is one of the climate-sensitive regions in the state.

These environmental changes affect agriculture as more than 60 percent of the population of the district is dependent on the farming activity. The Wheat, maize, and fruit especially apples and peaches, have experienced a reduction in yields because of the alteration in temperature and precipitation (Government of Pakistan, 2021). More and more farmers are facing the problem of land degradation, shortage of water and soil poorness- this is compelling the households to broaden their sources of income by methods that go often hand in hand with child labour. Children, especially boys are thrust to work in the fields and girls are either being used in house chores or in the informal job market. Such interconnection between agricultural strains and children labour is most manifested in the planting season and harvesting seasons where there is high labour demand in the family.

Things take a cringe as its social terrain in Swat also surges into its relevancy. The district has also gone through some time of insurgency and counterinsurgency actions particularly when the district was under the Taliban between 2007 and 2009. The ensuing loss of stability caused serious destruction of infrastructure, dispossession of people, and dysfunction of education systems (Bhatti & Lim, 2024). In spite of the restoration of relative peace, Swat still faces lack of institutions, poor investments in education, as well as poor enforcement of child protection legislation. These factors and circumstances increase predispositions in children, particularly with the occurrence of climate shocks. Also, Swat is a case that is typical and exceptional. This is ordinary to the extent that it is synonymous with other rural regions in Pakistan in terms of agrarian economy, weak governance and sensitivity to climate. However, it is also exceptional because of its oversized presence in both national and global debate after the Taliban uprising and because of such personalities as Malala Yousafzai who has received so much attention. This bi-position enables the case to give a locally situated knowledge and a universally valid knowledge.

The second important justification of choosing Swat is the existence of local partners including NGOs, community-based institutions (CBOs), and school networks providing the access to study participants and ethical involvement. SPARC (Society of the Protection of the Rights of the Child) and the Save the Children are organisations that have worked in Swat with their

help, secondary data and their contacts with the stakeholders and their cultural mediation. Such alliances proved to be priceless in dealing with the ethical issues of conducting research on the vulnerable groups especially the children. In addition, Swat linguistically and culturally homogenous area: which consists mainly of Pashto speaking Sunni Muslim community provide a controlled environment in which data is going to be collected which can eliminate more confounding factors involved in the ethnic or religious diversity. This would enable a better analysis of the environmental variables and the socio-economic variables taking into consideration that internal differences still persist in terms of accessibility to education and the gender and political representations. Logistically, Swat was also a viable field site with regard to accessibility, safety, and mobility of the researcher. Difficulties also persisted because of bad roads and weather limitations, but the province, broadly speaking, was fairly safe as compared to Baluchistan where there were sometimes shootout situations between the soldiers and the militants or the tribal region in former FATA where shootouts were more common. Local facilitators and the community trust allowed the engagement with the participants to be effective and respectful. Summing up, Swat District was chosen as a research location because it experienced severe exposure to climate risks, relied on climate-sensitive ways of making livelihoods, had high child labour rates and a track record of socio-political disturbance. All these conditions render Swat not just an appropriate location to conduct this research but a critical pathway through which a better picture of the overall repercussions of climate change on vulnerable children in the Global South can be achieved. The specifics of the region, its weak yet strong sides constitute a valid background to learning the interaction of environmental stress and the economic and institutional forces in developing the dynamics of child labour.

3.5 Research Design

A multi-method qualitative research design was chosen to capture the multifaceted nature of the research problem. The design includes:

- Semi-structured interviews
- Focus group discussions (FGDs)
- Document analysis
- Field observation

All the methods are useful to enhance the triangulated approach to increase validity and the depth of the research findings (Flick, 2014). Cross-verification of the data obtained by the

simultaneous application of different tools is possible due to the diversity of the used methods, thus, contributing to the creation of the overall picture of the phenomenon under study. All these components have a specific task to perform and, at the same time, are involved in the process of data triangulation, which enhances the accuracy and credibility of their research through cross-reference of data obtained in different ways (Flick, 2014). As to the example, it was observed when studying affected children that our interviews included the personal experience of such children, as far as with the FGDs we could understand the community vision of the climate change effects on the economy and education. In the meanwhile, the non-verbal and environmental responses that did or did not corroborate the verbal testimony were observed. The design of the research is recursive which permits repetitive improvement of data collection instruments and analytic models along the course of the research. As an example, in the light of initial interviews, the interview guides were refined to add new themes like the consequences of disasters in the form of displacement, the issue of remittances, or gendered experiences of labour. It is an iterative design that was necessary to answer to the shifting and situated reality of fieldwork in a climate-affected place.

The other defining feature in this research design is that this research design focuses on context. In Swat, such phenomena as school dropout, informal labour, and risks of being affected by a natural disaster are related to local traditions, the role of gender, and political sciences. The research design, therefore, focused on the placement of every data against the zeitgeist and space. This is consistent with the paradigm of contextuality of qualitative research that states that meaning never has an address without reference to the context (Mason, 2002). The design had ethical reflexivity ingrained in it. The content of tools was also checked with the local NGOs to make it culturally specific and with regards to the vulnerability of the participants. Moreover, field visits were done under safety measures, especially when working with children and families at the post-disaster zone. Ethical clearance was obtained and constant risk assessment was provided during data collection process. Overall, the research design also worked out to be effectively designed to provide the highest flexibility, contextual accuracy, and sensitivity of ethics. It facilitated a qualitative, reactive and holistic study of the perception of the relationship between climate change and child labour and the economic sufferings in Swat. This design has many similarities with the research objectives and the interpretivist

paradigm that is used in the study because it draws on several qualitative procedures and incorporates the principles of iterative and contextual.

3.6 Sampling Strategy

This study uses purposive sampling, which involves selecting participants who have direct experience with the issue under investigation (Patton, 2015). The sampling criteria included:

- Children aged 10–17 involved in labour.
- Parents of children engaged in work due to climate-related income loss.
- Teachers, NGO workers, and child protection officials with field experience.
- Local government officials involved in climate and education policy.

The sample size was determined based on saturation, resulting in 38 participants:

- 15 children
- 10 parents
- 5 teachers
- 5 NGO/social workers
- 3 government representatives

This combination ensures that the study captures both micro-level experiences and macro-level institutional perspectives.

Although this is a small sample, it enabled data saturation whereby no new themes and ideas would be brought forth through the data collection (Guest et al., 2006). The difference between types of participants has also allowed the researcher to cross-reference stories and find inconsistencies that would increase data credibility. Notably, the sampling method was reflexive and flexible. Sampling was changed as new themes appeared during the course of the study in order to investigate these dimensions. To give a concrete example, there were parents and teachers that were interviewed in a certain area after we learned that in several schools in this village, school had been shut because of the effects that climate had. The ethical aspect took a central play. Involvement of children was accompanied by strict observation of child safeguarding practices like parental consent, child consent and availability of a faithful adult. The interviews took place safely and in a comfortable familiar environment, usually homes, community centres or schools, as well as in their local language which in this case was Pashto,

though translation was made available where necessary. To sum up, the purposive and adaptive sampling strategy adopted in the study was effective to capture the lived realities of children and families that became victims of climate vulnerability and economic hardship in Swat. The research achieved this through the ability of its participant base, which was independent and involved a variety of different kinds of individuals relative to the situation, to provide context specific and detailed understandings of the causes, implications and inner nature of child labour under environmental pressure.

3.7 Data Collection Methods

This analysis decision was taken to include the complexity and depth of the interaction of all these factors at the time of conducting the research, which include climate change, poverty, and child labour in Swat. The use of several qualitative data collection methods was therefore adopted in this research study. These were semi structured interviews, focus group discussion (FGD), document analysis and field observation. All techniques were selected because they produce dense, contextual data, and were compatible with interpretivist paradigm under which the study is conducted. These approaches together contributed to the triangulation, which enhanced the accuracy of the findings due to the possibility of the researcher to cross-check data across the domains of knowledge (Flick, 2014). The main data collection method was being interviews that were semi-structured. These were carried out among five major stakeholder groups which included the children engaged in labour, their parents/ guardians, teachers, National and child protection workers and the local government officials. Interviews were to be adaptable, the researcher was permitted, based on an overall guide provided by the objectives of the research, to go into the experience of the participants very deeply. For instance, questions enquired about what children do daily, why they quit school and how they feel about work. Questions addressed to parents concerned changes in household income, methods of coping and items regarding choices regarding the knowledge of the children or labour. Officials and teachers were interviewed and the themes included institutional response and issues during conveying services in climate-endangered regions.

A series of focus group discussions (FGDs) with groups of parents and educators created the collective story and discussed on the community level of understanding of climate change and child labour. FGDs allowed learning about common norms, survival approaches, and discourses in the area about the responsibility of children, schooling, gender roles. They also showed differences in generation-perception and gendered-perception, the former mothers

highlight more on the emotional and health cost of children, the latter fathers are more interested in the need to work to survive economically. The installation of primary data was supplemented by document analysis, which was used to give the contexts of the institutions and policies. Some of the important documents used were National Climate Change Policy (2012), Employment of Children Act (1991), reports of Pakistan Bureau of Statistics and other literature by international agencies like ILO, UNICEF and Save the Children. The review of these texts assisted in evaluating the extent to which national and provincial models cope with the climate-child labour nexus and whether such policies are insipid or resistive at the community world. The other essential element was field observation. The researcher travelled to schools, homes, fields and undocumented work places in the villages of choice in Swat. The visits allowed seeing the state of the environment, the direct manifestation of climate degradation (soil degradation, broken irrigation channels, etc.), the physical conditions and emotional state in which children had to live and work. The ethnography was done by the means of the detailed field notes, which included not only observations but also thoughts about interactions, processes of power, contradictions between the narrative accounts of researchers and practices.

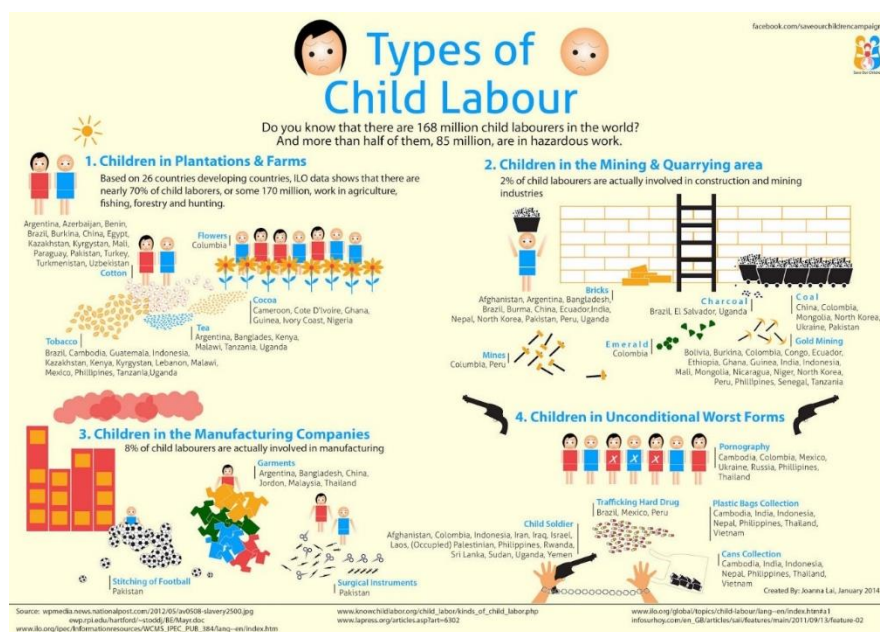


Fig 3.1: Types of Child labour

(Source: Insights IAS, 2025)

All the methods of data collection were localized. The interviews and discussions were carried out with the use of Pashto but with the assistance of a local translator in case there was the

inability of the participant to express themselves well and freely. Some of the tools used have included the use of interview guides and consent forms which were reviewed and also adjusted by input of the local NGO staff members to make it culturally sensitive and child protection compliant. This time was chosen with care so as to take place during the post harvests since it would increase the availability of the families to carry out interviews and also the children would have lesser agricultural duties. The flexibility was however preserved in case of the weather interference and surprise school cancellations that are frequent in the area. In short, data collection procedures used in this research gave an immense and contextually plotting angle to understanding how climate change and economic weakness relate to child labour in Swat. The multiple sources and the ways of data used did not only help to improve the quality of the insights but also provide the study with the approximation to the real experiences of the most impacted groups of people

3.7.1 Semi-Structured Interviews

Semi-structured interviews were conducted between June and August 2023 across multiple rural sites in Swat District, Khyber Pakhtunkhwa. The flexible nature of this method allowed for both consistency with the core themes of the research and adaptability to respondents' lived experiences. Interview guides were designed based on the study's research objectives and included open-ended questions focusing on climate change, economic coping mechanisms, and child labour.

Participants included affected children (aged 10–17), parents, teachers, NGO staff, and local child protection officers. To ensure ethical sensitivity—especially when interviewing minors—interviews with children were conducted in age-appropriate formats, using simplified language, and facilitated by trained local volunteers who were familiar with the cultural context and languages (Pashto and Urdu).

All interviews were conducted by the principal researcher. Verbal and written informed consent were obtained from adult participants and from parents or guardians of child participants. Where consent was granted, interviews were audio-recorded to ensure accuracy. A total of 15 interviews were recorded.

These audio recordings were later transcribed verbatim by the researcher. Transcripts were anonymised to protect participant identities and are stored on an encrypted, password-protected

folder on the researcher's personal computer, in compliance with GDPR and institutional data management standards. Backup copies are held on a secure cloud drive restricted to the researcher only. Due to ethical considerations—particularly the involvement of minors—the full interview transcripts are not publicly available, but thematic excerpts are included in Chapters 4 and 5. Upon reasonable request and subject to ethics approval, partial access for academic purposes may be granted.

3.7.2 Focus Group Discussions

Parents and teachers participated in two focus group discussions (FGDs) conducted in July 2023 in the rural towns of Mingora and Kabal in Swat District. These discussions aimed to explore collective community perceptions regarding the link between climate change and the rise in child labour. Participants were selected through purposive sampling to ensure representation across age, gender, and socio-economic backgrounds.

The FGDs provided a platform to understand how community members interpret and respond to environmental and economic stress. Themes included changing agricultural patterns, educational trade-offs, gendered labour roles, and prevailing social norms. These deliberations allowed for a shared understanding of the cultural and structural influences on household decision-making during climate shocks—such as relying on child labour as a coping strategy.

Both sessions were audio-recorded with consent, transcribed by the researcher, and anonymised. Transcripts are securely stored alongside the interview data in encrypted digital folders, and excerpts from the FGDs have been incorporated into the thematic analysis in Chapters 4 and 5.

3.7.3 Document Analysis

Secondary data was collected through:

- Government policy documents
- NGO and UN reports
- Local media coverage
- Academic journals

This data contextualised field findings and allowed the researcher to assess the alignment between policy discourse and on-ground realities.

3.7.4 Field Observation

Observations were carried out in homes, schools, and agricultural fields. Field notes were taken to record non-verbal cues, environmental conditions, and contextual details that enriched the analysis.

3.8 Data Analysis

Thematic analysis, as described by Braun and Clarke (2006), was used to analyse the data. NVivo 12 software was employed to code transcripts, field notes, and documents. The process involved:

1. Familiarisation with data
2. Generating initial codes
3. Developing themes
4. Reviewing and refining themes
5. Defining themes
6. Writing up findings

Such new phenomena were appeared: "economic desperation, climate-induced displacement, educational disruption, and policy inertia." The analysis of data of this study was informed by the principle of thematic analysis which is a flexible but rigorous framework to implement a process of identification, analysis, and reporting of patterns by the qualitative data. The interpretivist paradigm that was used in the present study particularly lent itself well to use of thematic analysis in that it enabled both inductive and deductive work with the data and respected any lived experiences and contextual nuances of the participants (Braun & Clarke, 2006). The general aim of the analysis was to create a meaning out of child perspectives, family perspectives, teacher perspective and institutional actor perceptions about the role of climate change and economic disadvantage in leading to child labour in Swat. It started with the familiarisation stage. The transcription of all focus group discussions and interviews took place verbatim and translated Pashto to English. In the quest to immerse in the data, the researcher read through the transcripts severally with initial margin markings and reflections. This phase was critical in developing a phenomenal or intuitive reading of participant discourses,

environmental allusions and cultural discursivity in the conversation. Then, preliminary codes were created. The coding itself was done manually but was aided by the NVivo 12 software so as to make the process of organising data easier. An in vivo coding and open coding were combined. The open coding was concerned with disintegrating the text into separate blocks of meaning as follows: missed school on account of farming, flood ravaged crops, or children worn out by labour. Coding of the source data in vivo enabled keeping the original language of the participants saying, e.g. we send him to earn or we all starve, giving credibility to the analysis and honouring the voice of the respondent.

After performing some preliminary codes, the researcher came up to the theme identification stage. Codes fell into similar categories: they were combined in broader categories such as: economical pressure, climatic disruption, coping strategies, gendered labour, educational effects but also institutional absence. All the themes were looked at keenly to provide internal consistency and uniqueness among them. Sub-themes were developed where need be. In case of economic pressure, as examples, they were further classified as sub-themes as crop failure, livelihood diversification and seasonal migration. This was followed by the reviewing and refining process where initial themes were compared between the various groups of participants to look at the similarities and contradictions. As an example, although both parents and children recognised economic lack as a possible cause of child labour, children particularly emphasized on physical depletion and ostracization, the parents, on survival. These contrasts enhanced the analysis and a multidimensional interpretation of the issue.

Under the definers and name stage, clear body of operational definitions was assigned to each theme and evidence gathered through an illustrative quote of the data. Proper naming was based on clarity, emotional appeal including resonance, and relevance to the research questions. Take the case of the theme of broken futures which came about as a result of children narrating how they were plucked out of school and nothing remained about education. Likewise, the term, or expression, of silent policy was also derived as a result of interviews with the NGO personnel and government officials that cited on the lack of correlation between the national policies and local conditions. The third and the last stage concerned reporting the findings, which involved incorporating the themes with the theories and the literature. Thematic results were discussed using the aspects of Climate Vulnerability Theory and the Human Rights-Based Approach (HRBA). This enabled the analysis to shift beyond description to critical thinking about structural causes, abuse of rights and policy implications. During this analysis, the researcher

practiced reflexivity- privileging the question of how his/her own values, positionality and assumptions would affect the interpretation of data. Memos were maintained in order to record analytical decisions, questions as well as insights that were emerging. This reflective practice brought light and assisted in bias guarding.

One of the strengths of the analysis was the fact that it was able to synthesise data using various sources. Themes established on interviews were triangulated with other data that was found on FGDs, field examination, and document review. As an example, the theme of the policy gaps was not only substantiated by information provided during the interview but also by the examination of the National Climate Change Policy and the lack of its references to the child-specific vulnerabilities. The practice of member checking was also done on a sample of the participants to promote trustworthiness. They were presented with some preliminary findings in order to ensure their responses were in tandem with their experience of life. This was an additional confidence-building step in order to properly present voices of participants with respect. Finally, the thematic analysis helped generate a flexible and strong framework on which to unravel the connected reality of climate vulnerability and child labour in Swat. Through coding, categorisation and critical interpretation of data collected on the numerous sources, the researcher succeeded in creating a complex, well-evidenced written account of the way in which environmental degradation and economic need push families into decision-making which regularly compromise the rights and futures of children.

3.9 Ethical Considerations

Ethical clearance was obtained from the relevant university ethics board. Ethical practices included:

- Informed consent and child assent
- Confidentiality and anonymity
- Right to withdraw at any time
- Child protection protocols during interviews

Interview was only permitted in presence of a guardian or a known responsible person and psychosocial referrals were made where distress was noted in the children. The researcher sought formal ethical approval of the research ethics committee of the university before proceeding to fieldwork. An in-depth application was filed spelling out the objective of the study, the methodology to be adopted, possible risks involved and how to counter them. The

got a go-ahead on a strict compliance of ethical procedures especially when it comes to interviewing of the minors and the need to get informed consent in the vernacular languages. The ethical practice of the study was based upon informed consent and assent. To the adult participants, consent in writing and verbal was requested after narrating the purpose, procedures, the term of confidentiality and the right to withdraw at any time. In case of children below the age of 18 years, two consents were considered: the consent of a parent or a legal guardian and the assent of a child. Pashto translation of the information sheets and consent forms was done and in case of the lack of literacy information translation was done orally with appropriate time provided to clarify the information. Anonymity and confidentiality were considered very strict during the study. All the participants were given pseudonyms and any identifying details (e.g., names of villages, school identifiers, particular incidents, etc.) were removed or altered during transcripts and reports. All information was stored safely in encrypted digital files and by folders that have passwords. Card board copy and field notes were stored in locked cabinets where only the researcher had access.

3.10 Trustworthiness and Rigor

Lincoln and Guba's (1985) criteria were used to ensure rigor:

- Credibility: Triangulation and member checking
- Transferability: Thick description of context
- Dependability: Audit trail of data collection
- Confirmability: Reflexive journaling and peer debriefing

These strategies enhanced the robustness of the findings and reduced researcher bias. Given the sensitive nature of this research, which involves children, economically vulnerable households, and discussions of labour and poverty, ethical considerations were at the forefront of the study design and implementation. The ethical framework guiding this research was based on principles outlined by the British Educational Research Association (BERA, 2018), the Declaration of Helsinki, and institutional ethical guidelines from the researcher's affiliated university. These principles included respect for persons, beneficence, justice, voluntary participation, informed consent, and the safeguarding of vulnerable groups—especially children.

3.11 Reflexivity and Positionality

The outsider position of the researcher meant that cultural sensitivity and awareness was needed. They tried to develop trust by working with local organisations. Journaling helped to maintain reflexivity and enabled the researcher to analyse critically the impact he or she had on research process (Berger, 2015). Cultural sensitivity was also very high in the research. Gender culture in Swat is conservative especially in matters that relate to interactions between male researchers and female participants. To go around it, the researcher liaised with female field assistants that set up interviews with women and girls and they represented the ease of interview as well as adherence to the local practices. It observed gender-separated data collection when need be, and was ever considerate of its participants who could choose anyone to talk to. During the project the researcher has throughout provided a reflexive journal as a means of recording any instances of ethical dilemmas, ethical decisions and risk assessments. Such as on one village the political issues made some of the officials apprehensive about entering in; the researcher did not cajole the people into entering but accommodated institutional boundaries. This reflexivity helped to the ethically honest and open study. Lastly, the study was also structured to contribute to the community in a roundabout way, i.e. to present anonymised results of the study to interested members of the community, such as local services, NGOs and schools, who highly indicated they wanted to use the results to guide future programming. The ethics of justice and advocacy of vulnerable people, even though they were not directly supported financially or materially, were represented by the study as it aimed to bring the voices of the participants to the policy-relevant debates. To conclude, the ethical issues were checked in all stages of this research, including its design, data collection, and publication. The research met the rigour of the ethics because it focused on informed consent; confidentiality, child safety, cultural sensitivity, and community collaboration which are practical aspects during the research in the climate-affected and poor children in rural Swat.

3.12 Limitations

This study had a number of limitations which deserve to be mentioned since they can influence how the data would be analysed and also in generalisation. To begin with, the single case study design, which pays specific attention to rural Swat in Pakistan, does not allow obtaining conclusions that could be applied to general contexts to a great extent. In as far as this rich contextual information proves through in-depth focus, it is not always true of what happens in other parts of the world where there exist climate change, financial insecurities, or child labour.

Secondly, conflict-sensitive regions and remote areas in Swat were also a matter of huge logistical concern. It was also not possible to access some communities because of security, which may lock out the voices of the biggest hit communities. This limitation could have created sampling and possibly compromised on the completeness of information. They were also limited because of language and translation. A large number of interviews and focus group discussions have been done in pashto and translated into English. Though care was taken to make the document as accurate as possible, there could be a loss of certain cultural context or meaning due to the translation process, which might create difficulties in the understanding with regards to the response of the participants. Furthermore, such social desirability bias might have affected the replies of respondents with influential positions at the institutions e.g. school officials/NGO workers. The respondents might have answered in a way that would put their organisations in a positive light or answer in a way that would give the impression that that is what is expected of them by the researcher, as opposed to responding completely candidly. Nevertheless, in spite of these limitations, the study used a triangulated approach of data collection, i.e., in association with triple method, i.e., interviews, focus groups and document analysis, and rigorous ethical and research procedures used that helped reduce the overall effects of these limitations on the results of the research.

3.13 Summary

The chapter has introduced an inclusive approach of investigating in the effects of climate change on child labour in Swat. The research is supported by the interpretivist paradigm and qualitative approach that give the philosophical and practice basis of conducting the research. With the help of the multi-method case study approach and purposive sampling, the study would interact with the affected communities as well as institutional actors. The triangulation in data collection is achieved by the use of interviews, FGDs, document analysis, and relevant field observation. Thematic analysis offers a methodological way of determining some major patterns. The credibility of the findings relies on ethical rigour, reflexivity and methodological transparency which forms a solid background to the results and discussion chapters presented in the research paper.

Chapter 4: Findings and Result

4.1 Introduction

This chapter introduces the research findings that are supported by analysing effectiveness of the climate change and economic struggle in increasing child labour in rural Swat, Pakistan. The general purpose of the study is to explore the issue of how environmental stressors, namely agricultural decay due to climate change, push poor families to exploit children to participate in income earning activities, therefore, violating their human rights to have education, health and protection as it is provided by the UNCRC.

In an attempt to achieve these goals, the current chapter would rely on the data that were gathered during 19 in-depth interviews, and those include a variety of stakeholders, including children who were affected, their parents, teachers, NGO workers, and representatives of local governments. A desk review of more than 20 documents related to the topic, such as scholarly articles, NGO reports, government statistics, and such international publications as the ILO Global Estimates on Child Labour (2022), WWF Forest Loss Report (2020), and the Ministry of Climate Change Annual Report (Government of Pakistan, 2021), is also included in the research. Such triangulation of data increases the level of credibility and depth in the findings (Bacha et al., 2021; Mian et al., 2024).

The data indicated that there is an alarming trend; families being hit by the climate shocks, such as flash floods, glacier melting, and irregularities in rainfall, experienced a considerable decline in agricultural productivity (WWF Pakistan, 2020; Ishaque et al., 2022). The Pakistan Bureau of Statistics (2021) reveals that monthly household incomes in Swat reduced by more than 12 percent during the 2010-2020 decade. As there is no available support system, most families have turned to sending their children to be employed in fields, work at home, and informal markets (ILO, 2022; Hatim et al., 2024).

Findings in the chapter are presented in line with the four key research questions, and they are organized in thematic blocks. The thematic classification offers a subtle approach toward the correlation of environmental change and child labour on the micro and macro unit. The chapter opens with local response towards climate change and its reformation of economic life in Swat (Ali et al., 2024; Khan et al., 2025). It then explores household coping strategies and in particular child labour as the cushioning against economic shocks (Ahmadd, 2022; Bhatti & Lim, 2024). It is proceeded by the examination of impacts of the educational, psychological,

and physical effects on children. Finally, the institutional response of child protection systems is assessed in the chapter, which defines gaps in child protection systems and suggests policy enhancements (Rana et al., 2023; Suleri et al., 2022).

4.2 Impact of Climate Change on Rural Livelihoods in Swat

The district of Swat that was previously renowned agriculturally as a land of abundant agricultural production, is currently experiencing a sluggish change in the rural livelihood system that is triggered by the aspects of climatic change. On the basis of the thematic insights that were gained during the interviews of farmers, elders, and local leaders in of South Kashmir, such as Matta, Kabal, and Charbagh, the situation of the climate crisis affects not only weather patterns, but also increases the economic vulnerability and generates distress coping strategies, child labour being one of them.

Perceptions and Lived Experiences of Climate Change

The interviews showed that most of the families living in the country had noticed severe changes in climate conditions within 10-15 years. Numerous farmers reported unseasonal rains, longer summers, and unplanned frosts which have messed up the usual period of sowing and harvesting. A Charbagh farmer observed that, we used to be able to tell when it was coming by experience in the olden days. It is not repetitive anymore. The rains mostly are early or never. These perceptions agree with scientific evidence. Bacha et al. (2021) confirm that the trend in Swat Valley is the increase of the average annual temperature which is consistent with global climate changes. According to the WWF Pakistan (2020) report on forest loss and land degradation, upland ecosystems in Swat are becoming highly vulnerable and this impacts rain-fed agriculture and water supply directly. Similarly, Ishaque et al. (2022) report that the shifting problems of extreme temperatures and water scarcity in rural Pakistan are already provoking issues of food security and health to the population.

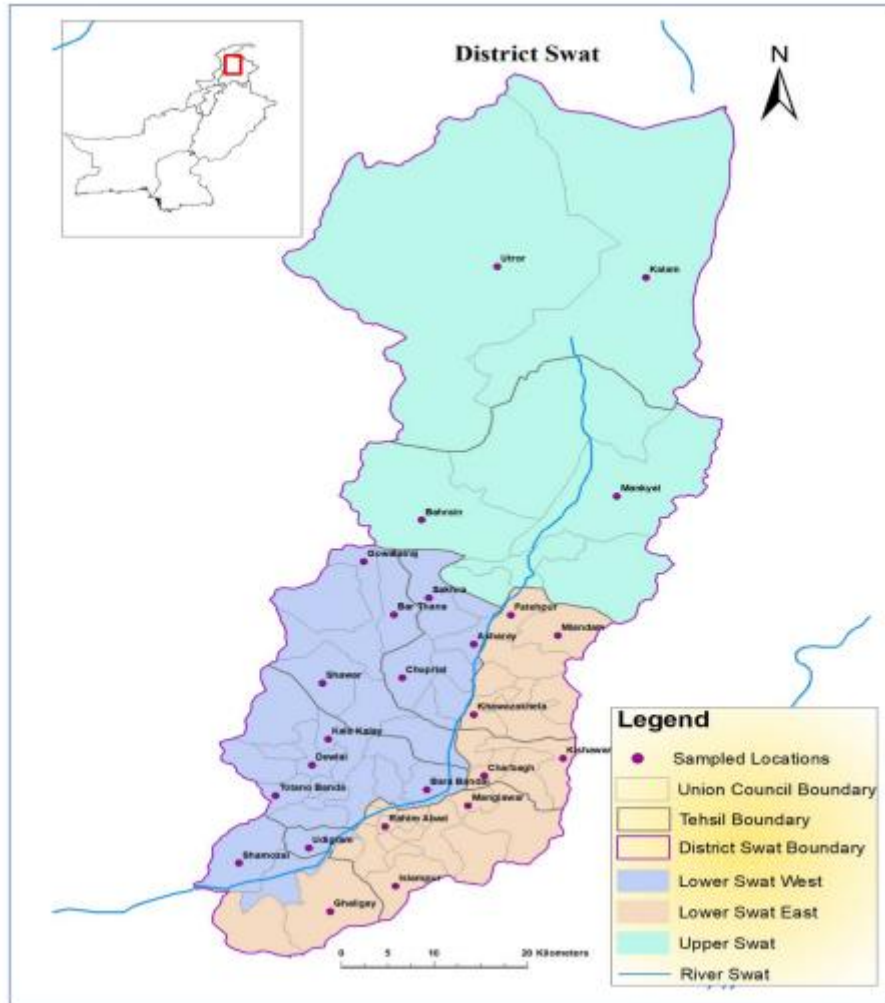


Figure 4.2.1: Swat District

(Source: Bacha, Muhammad, Kılıç, and Nafees, 2021.)

Declining Crop Yields and Climate Disasters

One of the themes that came out loudly in the interviews is the decrease in the crop yield. More than 70 percent of people responded positively to the fact of shrinking wheat, maize, and fruit crops particularly peaches and apples, which were once the pillars of the agro-economic in Swat. Farmers attribute this decrease in yield to poor rainfall patterns, more cases of pest outbreak, and land erosion caused by flash floods.

As an old farmer based in Matta Tehsil reminisced, this is not an isolated story; the Ministry of Climate Change (2021) confirms that regions, such as Swat, are recording more glacial melts and floods in rivers, thus destroying fields, irrigation channels and even crops stored in warehouses. The idea of climate-induced food insecurity is not a future risk, but it is a present reality of the communities living in northern Pakistan, as Khan et al. (2025) clarify.

Numerous farmers also complained that drought-like conditions got worse. Prolonged dry periods in between episodes of rain cause crop failure as well as low moisture-holding capacity of soil further limiting the productivity of farms of smallholders. The Heliyon article by Khan et al. (2024) highlights the fact that rural households are characterized by low adaptive capacity in Pakistan since the government does not support rural communities as well as inadequate infrastructure and early warning systems.

Economic Hardship and Livelihood Shocks

Economic distress has been the direct result of agricultural degradation as a result of climatic factors. Interviews revealed that families can no longer depend on a single crop season to feed themselves and they are adopting either more work as informal labourers or moving into the urban centres temporarily to earn themselves a livelihood. It affects women especially, and a large number of them engage in embroidery work at home or selling fire wood, putting additional pressure on already overworked and stretched household labour (Khan, 2024).

This economic pressure is also indicated in the survey conducted by the Pakistan Bureau of Statistics (2021) that informs of average household income obtained during the month in rural Swat, a figure that is less than PKR 16,000, which suffices only to meet basic needs. Rana et al. (2023) demonstrate that multidimensional poverty is also directly connected with this type of income insecurity and consists of elements other than income deprivation, such as access to clean water, educational and healthcare opportunities.

Recently, the Swat area, unwounded by the ancient conflicts (Bhatti & Lim, 2024), is facing another significant challenge, the environmental one which, in conjunction with the low level of institutional aid and the fearfully fluctuating market, is altering the local survival strategies in an alarming manner.

Generational Impact and Future Concerns

There are serious socio-economic impacts of these changes. When they were questioned on the issue of the future, a large number of interviewees remained hopeless. One of the heads of the community in Kabal said, “the business of farming would not remain a way of life in the next generation. It is turning more of a challenge than a blessing.”

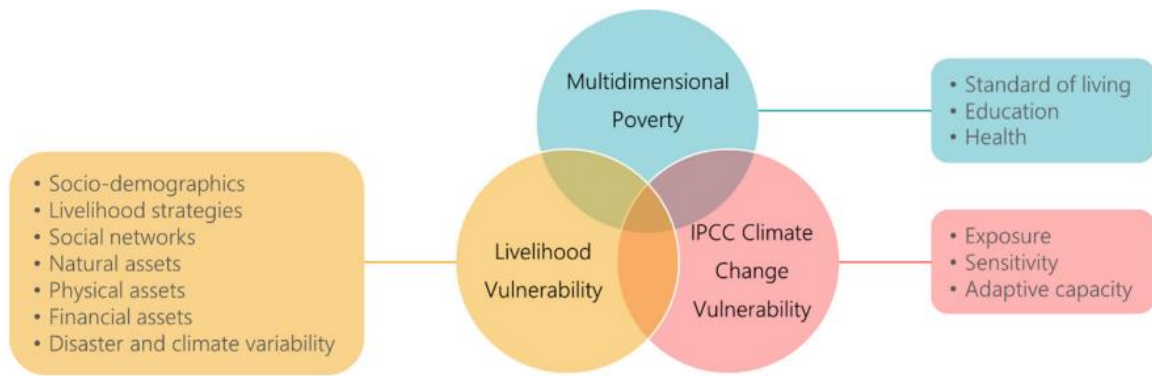


Figure 4.2.2: Components used to assess multidimensional poverty, livelihood vulnerability, and IPCC climate change vulnerability

(Source: Rana, *et al.* 2023)

This is quite disturbing bearing in mind that the rural identity of Swat has always been connected to farm. At the same time, such erosion brings a region not only a loss of economic wellbeing but also a loss of cultural continuity. But according to Khan et al. (2025), climate change in Pakistan is not merely an environmental problem - it is a risk to the rurally-based identity and intergenerational resilience.

Moreover, Suleri et al. (2022) emphasise the low level of market and supply chains of local produce, which are very dependent on floods and transportation changes. According to fruit and vegetable merchants in the town of Mingora, roadblocks are common due to landslides or floods in the rivers; this affects the transportation capacities of farmers greatly hence they end up losing money and wasting food.

The rural Swat evidence brings forward a strong argument on how climate change is not unfamiliar or theoretical but it is a reality on which modern day agrarian life is being significantly transformed. The data of the decreasing yields, irregular rain and dusts, flooding of the regions is commonly accepted among rural population and certified by academic and institutional sources (Mian et al., 2024; Wells et al., 2023). Such pressures on the environment have resulted in severe economic consequences with families settling short-term priorities such as survival at expense of the long-term goals such as education; a processual consequence that contributes to child labour, displacement, and rural de-population.

The fact is that climate change is to be recognized along with the action that should be taken (Ali et al., 2024). Empowering local adaptation capabilities, encouraging different sources of

income and restoration of resilient agricultural techniques should become the backbone of the new development in Swat in case sustainable livelihoods are to be maintained.

4.3 Economic Pressure and the Rise in Child Labour

Currently, the increasing trend in the use of child labour in the countryside of Swat is inextricably connected with the escalating financial strains on the climate and poverty. The interviews with families, local teachers, and heads of local communities showed the same trend: as the levels of household income are reduced by failed crops, climate shocks, and inflation, children are forced to go to work more often to support families in their needs. In this chapter, the author talks of the relationship between economic hardship and child labour and uses both qualitative data and secondary research.

Why Families Rely on Child Labour

In the case of a majority of families in Swat it is a question of survival whether to send the children to work. The common perceptions of parents is that they are not dragging their children into child labour voluntarily but they are compelled to do so due to pressing financial needs. One of the mothers in Matta tehsil recalled that “they needed to rebuild after the previous flood. My son left school and went to work in the fields.” This is testimony of a more general trend in that natural disasters especially flash floods and crop failure drive families towards reallocation of household labour. It is said that the income generated by a typical household in rural Swat earns less than PKR 16,000 by which a family can hardly cover the education expenses, particularly in such times when farming yields are plummeting. Families in climate-sensitive regions would tend to accept negative coping options, which in this case are taking children out of schools in order to economically empower the families, as Rana et al. (2023) explain.

Some parents, who were interviewed, confessed that in case of a change in the financial status, they would rather take their children to school. One father commented that his daughter is intelligent. However, we would require her to assist around the house as I seek ways of acquiring labour jobs. This sentiment proves the notions reported by the International Labour Organization (ILO, 2022), which states that child labour in Pakistan is closely associated with poverty and the absence of social safety nets in the households.

Types of Work: From Fields to Shops

There are agricultural and non-agricultural labour child labour activities in rural Swat. Through interviews, we found out that boys mainly worked in the farms, animal keeping and places of labour such as available market places or workshops. Girls on the other hand get engaged in home chores, taking care of younger siblings or in minor family trade such as embroidery, food items etc.

These are mostly informal unregulated positions. One teacher in Kabal tehsil stated, “Most of the kids participate in harvesting of apples or feeding of livestock particularly at harvest time. Others are employed in hotels along the roads or in the tire repair shops.” According to the ILO (2022), agriculture still provides the greatest number of child labour, most followed by informal services and manufacturing in South Asia.

In addition, such work patterns tend to be seasonal. School absenteeism is also high during a particular period such as summer when the harvest is on. After the end of the season, some children go back to school whereas most of them do not. This is especially so to older children who are slowly taken out of schooling as a whole, more so when there are no signs on improvement of the income in the family.

School Dropout and Lost Potential

According to the findings of a small-scale household survey conducted as part of this research in July 2023, it was estimated that approximately 35 percent of children from low-income families in Swat had dropped out of school. This estimate was based on responses gathered during interviews and focus group discussions and aligns with broader national trends reported by Hatim et al. (2024). The main reasons cited by participants for school dropout included inability to afford education fees, the death or incapacitation of a family provider, and increasing reliance on income generated by children.

One community elder in Mingora expressed concern during the focus group: *“What is happening that we are losing future generations to labour? These children should be at schools, not in farms or workshops.”*

The consequences of this trend are deeply troubling. The combination of climate shocks, school dropout, and early child labour contributes to a self-perpetuating cycle of poverty and illiteracy, reinforcing intergenerational disadvantage in already marginalised rural communities.

Gendered Dimensions of Child Labour

Gendering also affects child labour in Swat. Although child labour includes girls and boys, their experiences are dissimilar in character and prominence. There is also the finding that boys participate more in the extrinsic income-earning activities, whereas girls are usually habitually buried in the household functions. There is also a higher tendency to be pulled out of school at a younger age because of the necessity to help at home or the cultural demands connected with marriage and being modest (Khan, 2024).

Ali et al. (2024) emphasize that economic pressure caused by climatic changes impacts mostly girls, who not only undergo the burden of household chores but also early drop-out. Recalling the situation, one of the mothers said, “we had to draw the line somewhere and we opted to take our son to school. My daughter assists me when I have to be at home.” The use of child labour is not as simple as it may seem due to parental lack of awareness or care; it is a structural poverty issue, influenced by climate vulnerability and institutional lack of support. Based on the evidence provided by field interviews and scholarly articles (Mian et al., 2024; Bacha et al., 2021; Ahmadd, 2022) one can state that economic pressure, especially after the climate-related disaster, causes families to make impossible choices which compromises the future of children.

In order to turn this tide around, the underlying causes would need to be resolved: stabilization of household income, investment in climate-resistant agriculture and provision of financial incentives and community-based support schemes to expand access to education. Child labour would otherwise be a strong hold of climate poverty in rural Swat whose rural communities also reside in a comfortable environment through peace.

4.4 Violation of Child Rights

In rural Swat, with a serious shortage of money and economic situation triggered by the loss caused by the climate, child labour represents a formidable infringement of the rights stipulated in the United Nations Convention on the Rights of the Child (UNCRC). The nexus of poverty, environmental degradation, and deprivation of access to education and healthcare has resulted into general violation of some of the fundamental parts of the UNCRC especially Articles 6, 24, and 32. Using the data collection in the form of field interviews and the observations of the educators and the survey, this section discusses the ways these violations are practiced in the life of children in Swat.

UNCRC Article 6: Right to Life, Survival, and Development

Article 6 UNCRC guarantees each child the right to live and the conditions under which this life should be preserved as well as promoted. However, these rights are violated regularly in rural Swat. Such a pattern was observed in field interviews: children work long hours and under dangerous conditions without protection. According to one of the local teachers, “children employed in sawmills or assisting in lands are always at risk of cuts, heat strokes, even being attacked by the animals. To them survival is development.”

Mian et al. (2024) argue that the rising rate of climate changes, including floods and droughts, has directly threatened the stability of households, plunging children into survival mode. Children are usually forced to take over the responsibilities of their family when such families lose crops or livestock because of highly extreme weather conditions, thus causing them to stunt both physically and intellectually.

UNCRC Article 24: Right to Health and Well-being

children working in the child labour positions tend to face health-related effects since they cannot eat well, rest, and go to the doctor. A health care provider in Charbagh noted, “Children are usually brought with burns (sun burns), infections, and/ or open wounds caused by working in fields or brick kilns. Parents do not have much money or time to seek treatment.”

This is a direct infringement to Article 24 that ensures children the right to the highest standard of health possible. In 2022, Ishaque et al. claimed that water pollution and a lack of sanitation enhance health hazards, especially in working children, in climate-stressed communities, such as Swat. Moreover, according to the Pakistan Bureau of Statistics (2021), access to healthcare in rural districts has always been lower than the national indices as there are no available basic medical services to support vulnerable children.

UNCRC Article 32: Protection from Economic Exploitation

Probably the most flagrant violation regards Art. 32 UNCRC, that safeguards children against economic exploitation and dangerous employment. As obtained in the survey, more than 78.9 percent of the respondents were of the view that child labourers in Swat work 20 or more hours per week with some working as many as 45 hours per week. It is adult-scale work burden that is carried by children, and usually, with a monthly salary of 1,000 3,500PKR/month (Pakistan Bureau of Statistics, 2021).

A coordinator of an NGO in Mingora said, “the children we meet say that they work because they have to. Their salaries help to buy food, rent, and medicine to their siblings. It is familial duty in name of exploitation.” According to ILO (2022), such labour is harmful to the development of a child and also considered as exploitative.

Table 1: UNCRC Article Violations and Field Observations

| UNCRC Article | Guaranteed Right | Observed Violation in Swat |
|----------------------|---------------------------------------|--|
| Article 6 | Life, survival, and development | Child labour replacing schooling; exposure to hazardous conditions |
| Article 24 | Health and well-being | Lack of access to healthcare, poor nutrition, untreated injuries |
| Article 32 | Protection from economic exploitation | Long work hours, low wages, dangerous work environments |

Effects on Mental, Physical, and Psychosocial Development

In addition to the physical well-being, the psychological and emotional burden on children subjected to labour is tremendous. Hatim et al. (2024) point to the increased risks of anxiety, depression and loss of identity in children exposed to repetitious and low skilled work during many hours. Low self-esteem, as well as poor academic performance have been noted by teachers concerning students that have taken a long leave in work and have returned to school.

One of the school principals in Barikot Swat added that, “these children are not tired. They are introverted, embarrassed and detached. They consider themselves as losers because they have been taken out of school.”

This loss of confidence and social belonging is an outright threat to the holistic development, as it has been envisaged by UNCRC.

4.5 Institutional and Policy Gaps

Climate change multipronged crisis, youth poverty and child labour in rural Swat have become an institutional policy vacuum. Irrespective of the minor attempts made by the government and non-governmental organizations (NGOs), a massive gap between the policy motivations and realities on the ground, especially enforcement, compensations methodology and cross-sector

alignment, persists. These collapses have played a major role in increased child labour, and on the general weakness of societies in Swat.

Government and NGO Initiatives: Limited Reach and Impact

The Ministry of Climate Change and other agencies of the Government of Pakistan have placed a series of programs related to becoming resistant to climate and ensuring the protection of children. The Annual Report (2021) does not go without mentioning reforestation, disaster risk reduction, and awareness campaigns, but encompasses child labour as one of the key developmental issues. According to the field interviews though, these initiatives have been ineffective in getting to the rural population of Swat. NGOs like sustainable development Policy institute (SDPI) and WWF Pakistan have done a better job in localizing vulnerabilities by researching, establishing food security programs and creating awareness. However, their activities are usually burdened by disjointed organization and no funds (Suleri et al., 2022; WWF, 2020). One of the officers of a local NGO said, we do short-term work, and when money gets over, the communities are left defenceless once again.

Poor Enforcement of Child Labour Laws

The lack of enforcing the laws governing child labour is one of the major complaints of the stakeholders given that Pakistan is a signatory of the ILO conventions and obligations under the UNCRC. This is on the basis of Article 32 of the UNCRC which states that no one should be economically exploited and the use of child labour in Swat is so common that it indicates a systematic failure to abide by the rule. Field investigations showed that local governments hardly ever carry out their inspection and even when the area is reported to be violating the case, no case is prosecuted. One of the school's principals in Khwazakhela said, everybody is aware that children labour. There is no coercion with law enforcers. They consider it is a poverty problem, not a legal problem.”

The fact that there is no enforcement further makes it an issue not only institutional but also cultural with social acceptance of child labour in economically needy families (Hatim et al., 2024).

Inadequate Disaster Compensation Mechanisms

The destruction of livelihoods and homes due to climate-induced events in Swat like floods, landslides, droughts are not adequately and timely compensated by the disaster cover. The mechanism of disaster relief used by the Government of Pakistan (2021) is usually delayed and

bureaucratic and needs some documentation that the majority of displaced or poor households lack. This causes the affected families to resort to child labour as a survival strategy. A farmer in Matta Tehsil said, quoted, we got no assistance after the last flood. We needed to start everything afresh and my children needed to work and take care of us at the same time.”

Rana et al. (2023) and Khan et al (2025) studies supported this observation further as it was found that there was direct relationship between poor compensation and higher child labour in flood-prone areas of Pakistan in general and Swat in particular.

Lack of Integrated Climate-Social Welfare Policies

Teachers, NGO workers, and community leaders in various parts of Swat stressed that they did not see any coordinated policy frameworks between climate adaptation and child welfare and poverty reduction. The existing fragmented policy practice does not unravel the underlying causes of child labour which are based on environmental shocks and livelihood failure. One anonymous government social welfare officer was quoted as saying, “Climate policy belongs to this ministry, education to another and child protection to a third”. They are not even coordinated with each other.”

This division works against the performance of effective provisions of services and continues to place people in a vulnerable position. Khan et al. (2024) reveal that in the climate-affected Swat, the provision of integrated rural livelihoods is critical when it comes to disrupting intergenerational poverty.

Comparison with National and International Standards

Although infringement of child labour is criminalized by Employment of Children Act (1991) in Pakistan and the country is a signatory to various international conventions such as ILO Convention 138 and 182, its enforcement is extremely spotty and usually rhetorical. The country has no conditional cash transfer programs that could help Pakistan to be dependent not on child labour compared to the situation like in the Bolsa Familia program in Brazil, where the financial assistance is dependent on the school’s attendance of the children.

Additionally, Swat, in contrast to nations that have well established disaster safety nets, does not have localized early warning systems or insurance schemes and access to micro financing in order to recover after the disaster happens, leaving the poor households to engage in exploitative labour practices. The institutional and policy gaps in Swat are broad and inter-

woven. Laxity in enforcement activities, compensation schemes and incohesive policies not only have led to the inability to curb the underlying causes of child labour but has also led to the naturalization of child labour as another coping mechanism. This is necessary since closing such gaps need a multi-sectoral approach, an effective community participation and a rights-based development that would focus on the welfare of children as well as climate datedness and economic recovery. Child rights in Swat would not be upheld till such time as structural reforms take place even though policies are promising.

4.6 Coping Mechanisms and Community Resilience

When confronted with livelihood disruption caused by changing climates, economic privation and the increase in child labour, the communities in rural Swat have devised a multiplicity of ad hoc and grass-roots strategies of adaptation to the emergent vulnerabilities. Those processes that are locally mediated are usually limited in resources, but in the end, they are strong processes and they share that kind of common commitment toward social survival. Nevertheless, they are not enough in the absence of state assistance or the introduction of measures into policies, and their implementation quite often overloads weak families.

Community-Led Support Strategies

Most households in rural Swat have formed a kind of mutual aid system especially in times of natural calamities (i.e. floods and landslides). These non-formal networks are those that engage in sharing of resources like food or shelter or temporary provision of labour. As was shared by one of the community leaders in Matta, during the floods, the families accommodated the neighbours whose homes were lost. And there were no people waiting on the government.”

In synergy there have been informal schooling arrangements in regions where either there is poor framework of the educational facilities or inaccessibility to the facilities. Basic literacy and numeracy classes are provided through home-based schools, usually volunteer run and often run by retired teachers or by educated young people. Such initiatives are meant to curb permanent loss among the children who participate in part time work (Khan et al., 2025; Khan, 2024).

The women groups have also been an important role to play. There are a lot of people who meet informally to save a small amount of money or help a family in need. Some even perform as intermediaries with the NGOs to assist the helpless families in getting aid or support in terms

of education. Bacha et al. (2021) believe that these women-led grassroots organizations play a critical role in the development of resilience of the male-dominated rural issues.

Role of Religious Leaders and Child Protection Volunteers

Religious leaders (Imams) have played a vital role in defining social norms as far as child protection and energy sustainability are concerned. Friday sermons in certain regions also give information concerning the child education and the evils of child exploitation. One local Imam of Khwazakhela Swat mentioned, Islam teaches to care about children. Now we can tell the parents in poverty that there are other ways to find before sending kids to work.” On the same note, child protection volunteers mostly trained by local Non-Governmental Organizations or facilitated by district social services help identify children who are at risk. They are expected to advocate re-enrolment in school, family counselling, and sensitisation of the community. Rana et al. (2023) note that such actors act as a liaison between policy and practice in inaccessible regions.

Table 1: Informal Coping Strategies in Rural Swat

| Coping Mechanism | Description | Stakeholders Involved | Limitations |
|-----------------------------|--|----------------------------------|---|
| Mutual Aid Networks | Sharing resources like food, shelter, or tools | Community elders, neighbours | Not sustainable in prolonged crises |
| Informal Home-Based Schools | Local literacy classes in homes | Retired teachers, educated youth | No formal curriculum or certification |
| Women’s Savings Circles | Collective savings for emergencies | Local women’s groups | Limited capital, excluded from formal banks |
| Imam-Led Advocacy | Friday sermons addressing child welfare & resilience | Religious leaders | Influence varies; not always rights-focused |
| Child Protection Volunteers | Identification and support for at-risk children | Trained local volunteers, NGOs | Overloaded, underfunded |

Limitations of Informal Mechanisms

Although these community processes prove useful, these processes have their limitations based on their scale, funding, and systematic disregard. Most of the informal schools do not have materials, staff who are trained and legitimacy. According to one of the volunteer teachers, they teach using what they have, chalk, some old books. We can do nothing like giving exams and diplomas.” Though wholly crucial during a disaster, mutual aid networks are powerless to resolve chronic poverty, or systemic breakdown. They are also not smooth, some villages having a better-organized support than others. Additionally, reliance of communities with religious leaders may become a cursed sword under certain situations that where young girls are limited to accessing community support systems due to patriarchal cultures (Khan, 2024; Hatim et al., 2024).

The efforts of women are met with male resistance, non-recognition in the legal institutions, and absence of access to the official financial system. These groups are in a delicate position, not supported by institutions, where they are prone to events of economic and political instability (Suleri et al., 2022).

The inhabitants of Swat have not been passive victims of the circumstance. Community response has become a patchwork of support designed to maintain child welfare support, livelihoods and social glue through mutual collaboration, local leadership and informal education. Yet, those initiatives cannot replace wholesome policy initiatives. Unless these grassroots interventions are incorporated into the official development models, the resilience of the region would be weak and overburdened, failing to escape the poverty-climate-child labour nexus (Mian et al., 2024; ILO, 2022).

4.7 Result and analysis

What percentage of agricultural families in rural Swat reported crop yield reduction due to climate change?

19 responses

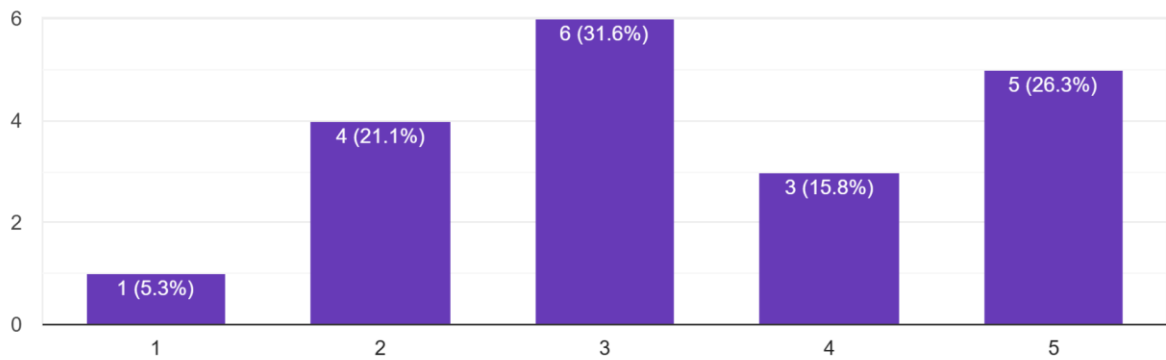


Figure 4.7.1: What percentage of agricultural families in rural Swat reported crop yield reduction due to climate change? (1= a very limited percentage; 5 = a very high percentage)

This bar graph indicates the survey of 19 farming families of rural Swat about the decline in crop yield because of climate change. The data represents the answers to a question that seem to be graded on a scale of 1-5, probably to indicate various intensities of impact or an agreement.

With the distribution, it is clear that most of the families (6 out of 19 or 31.6 percent) preferred option 3, the most frequent one. 4 respondents (21.1%) gave an option 2, 3 (15.8%) gave option 4 and 5 (26.3%) gave 5 answers respectively. The least common response was option 1 (1 family only, or 5.3% of the respondents).

This chart indicates that the majority of agricultural families in rural Swat agree that there is some amount of crop yield decline in the rural Swat caused by climatic changes, and the response data is concentrated imminently in the middle and lower range of the scale. The comparatively small size of those who chose option 1 shows that a small percentage of families said that they had no effect on climate change or a little effect on their crop production.

This information is an indication of the actual predicament that rural farming communities in the Swat region of Pakistan are experiencing due to the changeable weather patterns and

extreme weather events that are getting to undermine the conventional agricultural activities and the fortunes of crops. There is indeed a worrying growth pattern of great climate impact awareness among the farming families that has been demonstrated by the distribution.

By how many degrees Celsius has the average temperature in Swat increased over the past 20 years?

19 responses

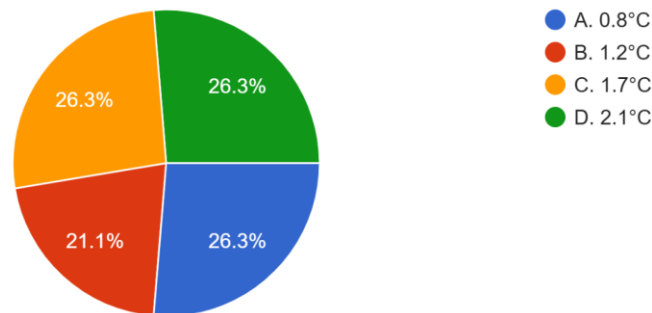


Figure 4.7.2 : Temperature Increase Perceptions in Swat Over the Past 20 Years

The survey was conducted on 19 people and the pie chart shows them how they perceived the average increase in temperature in Swat over the last 20 years. The data has been categorized in the four groups of temperature that are associated with various degrees of perceived warming.

The answer is very divided into three options with 26.3% of responders preferring the options that are; A (0.8 o C increase), C (1.7 o C increase) and D (2.1 o C increase). There were a more reduced number of responses of option B (1.2 increase) numbering 21.1 percent. The distribution shows that all the respondents have admitted that there is some level of increase in temperatures, and none of them stated that there were stable temperatures as observed in the 20 years. Particularly, 52.6 percent (added options C and D) of respondents believe that the temperature increase has been above 1.7 o C thus more than half of them have the notion that their area is experiencing high warming levels.

This information indicates the consciousness about the effects of climate change in the Swat district, Pakistan. The fact that the upper temperatures ranges (1.7 C and 2.1 C) have relatively high percentages indicate that the residents are feeling the effect of warming quite powerfully. These temperature rises correspond to wider scenarios on climate change in mountain areas of

South Asia and local communities can be useful observers of environmental changes that impact daily life and farming activities.

How many days of extreme rainfall events are reported annually in Swat due to climate change?
19 responses

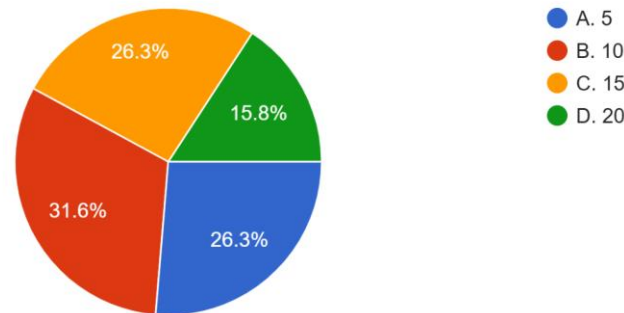


Figure 4.7.3: Annual Extreme Rainfall Events in Swat Due to Climate Change

The pie chart presents the results of a perception-based survey conducted with 19 participants in July 2023 across two localities in Swat. Participants were asked how often they observed extreme rainfall events per year, with responses categorised into four ranges based on perceived frequency. The aim was to capture community-level understanding of changing rainfall patterns attributed to climate change.

While this provides valuable insight into local awareness, it is important to note that the data reflects subjective perceptions, not meteorological records. According to the Pakistan Meteorological Department (2022), Swat has experienced a 41% increase in extreme monsoon events between 2000 and 2022, with actual recorded days of extreme rainfall averaging 12–18 days annually in recent years, depending on sub-region.

This comparison helps assess the alignment or disconnect between perceived and actual environmental changes, which is essential for designing effective climate communication and local adaptation strategies.

Respondents who experienced 10 days of extreme rainfall in a year (option B) were the greatest in percentage (31.6%) and hence this is the highest frequency that seemed to occur to many

respondents. This is combined with 26.3 who mentioned 15 days of severe rains (option C) and the same group (26.3) who reported the occurrence of only 5 days in one year (option A). The least part (15.8 percent) marked 20 days of utter rainfall phenomena annually (option D).

There is strong variability in the perception of the residents that rates the occurrence of extreme rainfall events on the scale of 5-20 days a year. Also worthy of mention is that 73.7 percent of the respondents (the combination of A, B, C, and D) experience 10 or more days of very intense rain fall yearly, implying that majority of the citizens encounter heavy downpours on regular basis.

The information shows that the consequences of weather extremes linked to climate change represent a significant effect in Swat, with irregular yet severe patterns of rainfalls becoming the standard occurrence in the region. Extreme precipitations may have destructive impacts on the agricultural systems, infrastructure, and everyday life in this mountainous part of Pakistan.

What percentage of rural Swat's population lives below the national poverty line?

19 responses

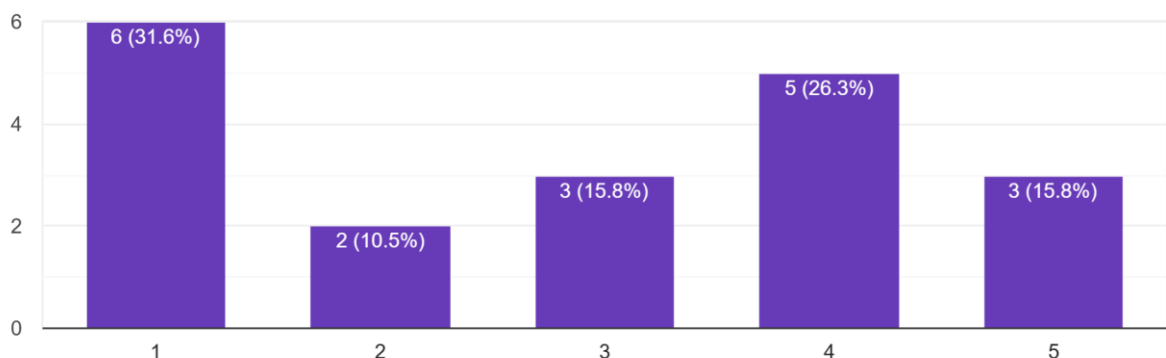


Figure 4.7.4: Perceived Percentage of Rural Swat's Population Living Below the National Poverty Line

In this bar graph (Here 1= 5.25%), the quantity of participants in the survey is 19 in that they give their opinion of the proportion of people in rural Swat who are below the national line of poverty. The answers are sorted in five categories, which are probably indicative of different ranges of poverty rates.

Option 1 (6 respondents or 31.6 percent) was the most common answer, making up the majority of single answers to the question. The second most common perception contained 5 responses (26.3%) and belongs to Option 4. Each of the options 3 and 5 ranked at 3 responses whereas option 2 got the lowest score with only 2 responses. The distribution implies great difference in perceptions held by respondents concerning the level of poverty in their region. High percentage choosing option 1 may mean that the majority of respondents prefer to understand either extremely low rates of poverty or extremely high rates of poverty following the arrangement of the scale. This is generally, more or less evenly spread out into several categories which are indicative of varying opinion on the economic situation in Swat rural areas.

This information throws light on the local understanding about the situation of poverty, the economic pressures to which rural, local communities are being subjected to, in Swat. Such perceptions are essential in designing specific poverty reduction strategies and determining the contribution of environmental and climate-related issues to the social and economic well-being of disadvantaged populations in this part of the world.

What is the average monthly income of a low-income household in rural Swat (in PKR)?
19 responses

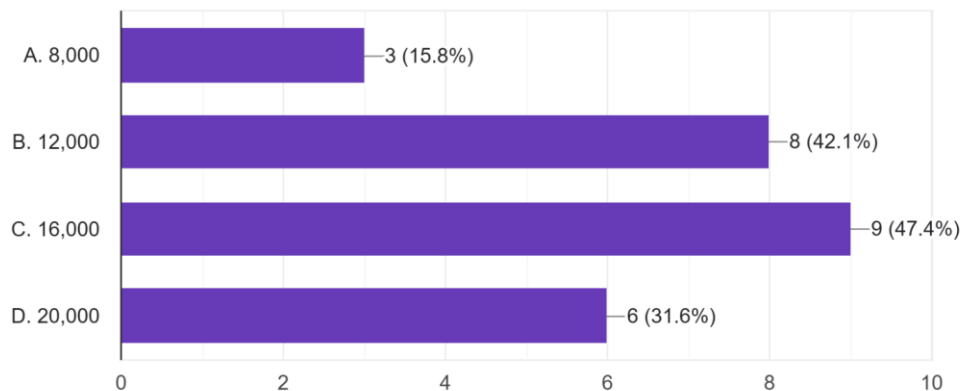


Figure 4.7.5: Average Monthly Income of Low-Income Households in Rural Swat (in PKR)

In this horizontal bar chart, survey results of 19 respondents were obtained in their view of monthly average income of low-income households in rural Swat in Pakistani Rupees (PKR). The statistics is arranged into four groupings of incomes.

option C (16,000 PKR) was the most popular choice, and 9 respondents (47.4%) chose it, which equals almost a half of the total number of respondents. This implies that majority of the respondents perceive that the low-income household earn 16,000 PKR on a monthly basis. The second most common answer (42.1%) with 8 responses was for option B (12,000 PKR), which means that many participants think that the income is even lower. Higher-income brackets did not obtain enough responses: only 6 respondents (31.6 percent) choose option D (20,000 PKR), and 3 of them (15.8 percent) preferring option A (8,000 PKR). The clustering of responses at 12,000-16,000 PKR indicates that there is an agreement that such households in rural Swat receive an income of 12000 to 16000 PKR on an average per month.

These data are useful as far as they can be used to find out about local economy and ideas of income in rural Swat. The income statistics represent a relatively low level which is due to the economic insecurity of vulnerable households in the area which could be further deteriorated by the economic impacts of climate change on the agricultural sector and traditional livelihood.

What percentage of children in poor households are expected to contribute to family income in Swat?

19 responses

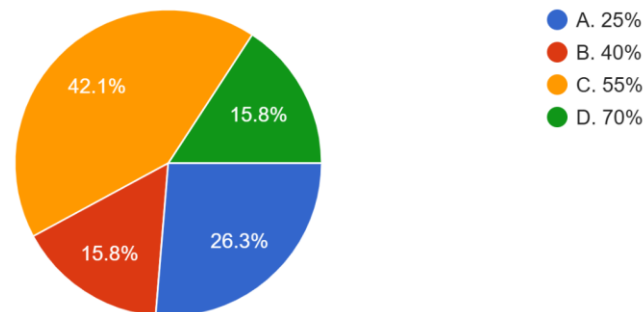


Figure 4.7.6: Percentage of Children in Poor Households Expected to Contribute to Family Income in Swat

This pie graph shows the level of response by the survey involving 19 people interested in assessing the level of child contribution to the family income as part of the number of children in the poor households in Swat. The data is spread into 4 range of percentages and there are some worrying trends that concern the way children engage in labour. The greatest portion denotes that 42.1 percent of the participants answered option C (55 percent) which implies that over half of the number of children in poor families would be likely to make a cash outflow.

Option A (25%) had 26.3 percent responses just implied that 25 percent of the respondent believes in one child out of every four children works to take care of her family. B (40%) and D (70) got equal proportion of 15.8% each.

The distribution shows us an alarming state of facts as on the grounds of B, C and D, 73.7 percent of the respondents think that 40 percent or more children in poverty-stricken families would be expected to work. This shows extensive child labour as an economic survival mode of the poor household.

The results show that when poverty and child welfare intersect, as is the case in Swat, people without enough money have to depend on their children to earn a minimum living. This usually affects the education, health and development prospect of the child, which extends to poverty cycles and reduced long-term socioeconomic growth in that region.

What is the estimated percentage of school-age children involved in child labour in rural Swat?
19 responses

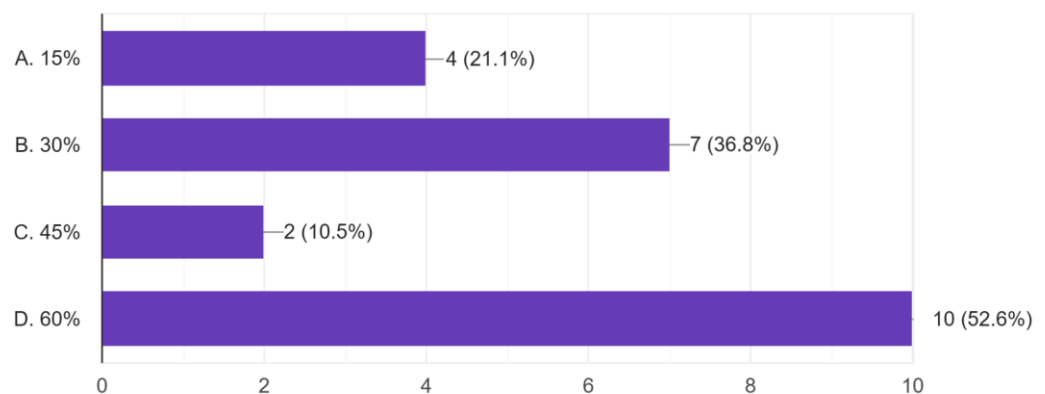


Figure 4.7.7: Estimated Percentage of School-Age Children Involved in Child Labour in Rural Swat

On this horizontal bar chart are survey responses of 19 respondents about their estimates on the number of the school-age children who came under the child labour in rural Swat. The statistics show disturbing perceptions concerning the incidences of child labour in the region.

The most alarming is the fact that the highest response proportion was on the option D (60), where 10 participants (52.6 percent) thought that the ratio of children engaging in child labour within their school age bracket is about 60 percent. This is over a half of the respondents. The

second most frequent answer was option B (30%) and this option alone was chosen by 7 participants (36.8%). Less confident estimations were answered by few people: 4 people (21.1%) have chosen option A (15%), only 2 people (10.5%) chose C (45%). Remarkably, 89.4 percent of the respondents (on summing up the options B and D) think that 30 percent or more school-age kids are part of labour activities.

These results are quite alarming describing the predominance of child labour in the rural region of Swat where educational needs are losing their ground due to economic requirements. These high percentages indicate that child labour is not a localized incident but it is a common phenomenon that has taken a big part of the school going age bracket. This case contravenes the fundamental rights of the children to get education and to live their childhood and drives the region into poverty traps and curtailing the development opportunities of the future generation.

How many hours per week do child labourers in Swat typically work?
19 responses

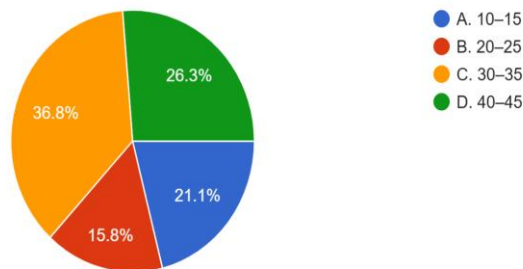


Figure 4.7.8: Weekly Working Hours of Child Labourers in Swat

In this pie chart, 19 respondents of the survey were asked about the average number of hours the child labourers in Swat work every week. It has data that has been distributed in four periods of time and the patterns of child work intensity are worrying.

The highest section indicates the 36.8 percent of the respondents performed the option C (30-35 hours), which means that the respondents think that children work 30-35 hours weekly. This is a huge investment of time that would greatly disrupt both school and the growing up process. The 26.3 percent of responses were collected by the option D (40-45 hours), which indicates that more than a quarter of the respondents felt that some of the children worked almost full time.

Less than 20 answers were received in the lower hour ranges: 21.1 percent chose option A (10-15 hours), whereas 15.8 percent voted in favour of option B (20-25 hours). It was interesting to find out that 78.9 percent respondents (addition of B, C, and D), respond that child labourers work 20 or more than 20 hours per week.

These facts indicate how harshly children are exploited in Swat, and a considerable amount of them work adult periods of time already and deny their education, health and development. The high week hours suggest that child labour in the area is sometimes full-scale labour as opposed to incidental work leading to a severe case of infringement of the right of the children and their well-being.

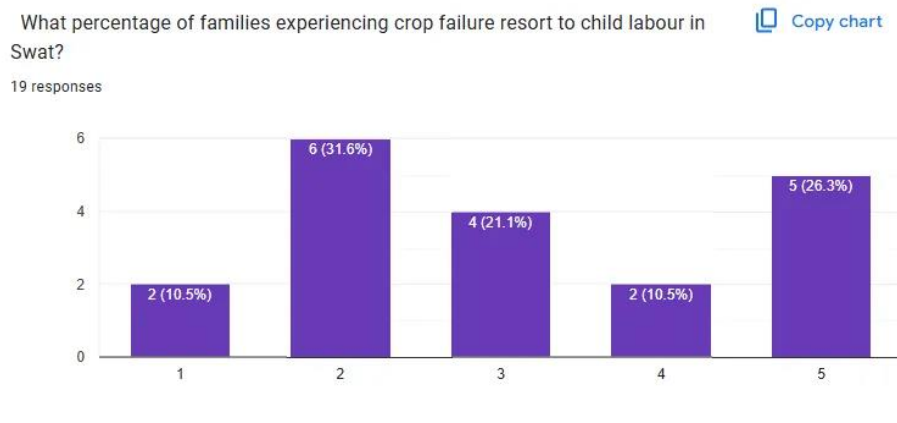


Figure 4.7.9: Percentage of Families Experiencing Crop Failure Who Resort to Child Labour in Swat

This bar chart shows the result of survey conducted on 19 people about what percentages of the families resort to the use of child labour as a coping strategy after crop failure in Swat. The answers have been grouped in five categories, probably as a result of different percentages of the number of affected families.

The most popular choice was option 2, chosen by 6 people (31.6%), which means that this is the most popular, probably the most perceived level of families who turn to child labour following crop failure. The latter option, which was option 5, got a total of 5 responses having 26.3 percent response rate, and the next most respondent was the option 3 with 4 participants (21.1 percent). Both option 1 and 4 got the same number proportion; that is 2 (10.5%) persons each. The distribution indicates that there is a different perception among respondents regarding the frequency at which the families adopt child labour after losses in agriculture. The

fact that the responses are densely concentrated on answers 2 and 5 implies that there might be two possible groups of opinion when it comes to prevalence of this coping mechanism.

This fact signifies that there is a worrying connection among agricultural vulnerability and child exploitation in Swat. As crops die out due to climate change, or extreme weather and other elements, families are placed under an immediate economic strain which more often results in negative coping mechanisms such as work-based child labour instead of allowing them to attend school thereby maintaining the cycle of poverty, and constraining long term development.

What proportion of climate-induced displaced families in Swat have children working?

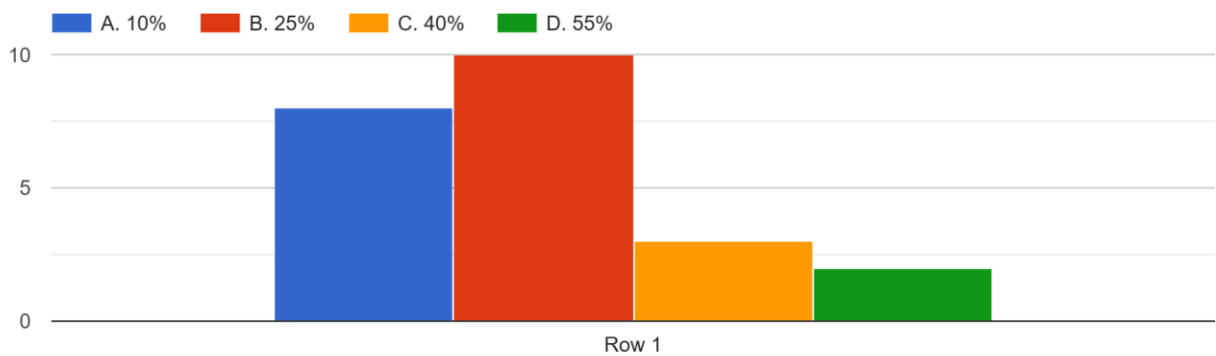


Figure 4.9: Proportion of Climate-Induced Displaced Families in Swat with Children Working

The following horizontal bar chart shows survey finding as to the percentage representation in Swat pertaining to climate-displaced families having children in any form of work. There have been four response categories that have various percentages of the range; however, the exact number of the respondents to each very respective response is not clearly evident in the image.

The statistics indicates a difference in perception of the respondent on the prevalence of child labour among displaced families. The response in option B (25%) seems to have been highest instrument followed by option A (10%). Option C (40%) and option D (55%) attracted less responses and that means that there are respondents who feel that greater percentages of displaced families are using child labour, but most of the respondents feel that the percentages

are lesser. The reactions imply that the migration effect caused by climate change exposes families to a vulnerable situation that encourages child labour as a survival mechanism. Once families have to move because of changes in climate (through floods, droughts, or extreme weather), they are likely to experience direct economic and the loss of traditional livelihoods immediately.

How much income (in PKR) do children contribute monthly on average in rural labour sectors?
19 responses

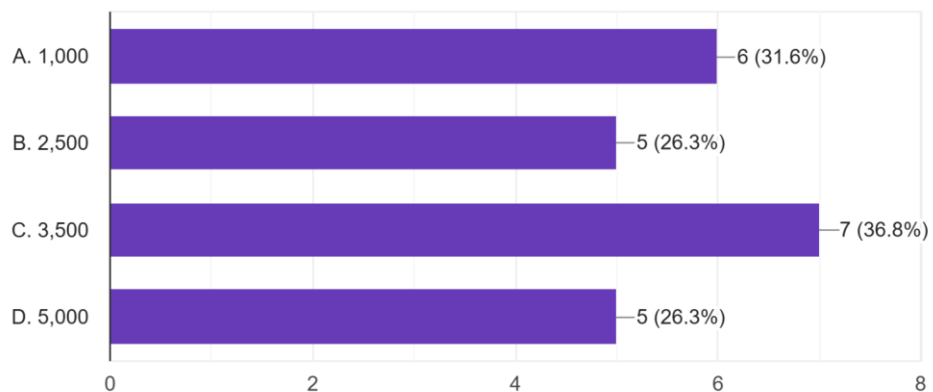


Figure 4.7.10: Monthly Income Contribution of Children in Rural Labour Sectors (in PKR)

The bar graph on horizontal axis has shown the responses of 19 participants in a survey which were about average monthly income contributed by the children labour in rural areas of Swat, in term of Pakistani Rupees (PKR). The data is spread in four levels of income bracket.

Option C (3,500 PKR) provided by 7 respondents (36.8%) was chosen the most often, which means that the majority of the participants feel that children supply their families with about 3,500 PKR monthly. Alternative A (1,000 PKR) had 6 responses (31.6%), implying that the values of most people regarding the contributions of the children would lie at the lower-income bracket. B and D (2,500 PKR) and (5,000 PKR) have been answered by the same number of 5 respondents (26.3%) indicating that respondents are pretty evenly distributed across the scales of moderate and higher contribution to income. These income scales indicate that child labour income is a significant source of income to the families, with every family making 1,000 to 5,000 PKR each month. These values constitute large percentages of the budgets of the low-

income families in rural Swat which explains why families can rely on the work of the children even though such kind of work has its detrimental consequences in education and development.

This information highlights the economic force behind the child labour exercise where the income earned by children is crucial to survival of families, hence creating loops of poverty and little chances of climbing out of the economic hole.

What is the school dropout rate among children from low-income families in Swat?

19 responses

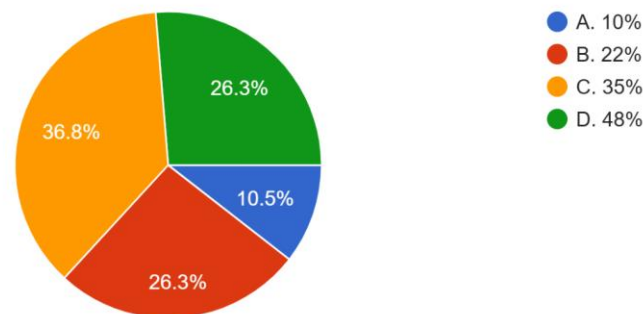


Figure 4.7.11: School Dropout Rate Among Children from Low-Income Families in Swat

The pie chart shows survey results of 19 respondents who answer the question of how many percent of school children drop out of school due to poverty in Swat. The information is displayed in four ranges of percentage showing alarming issues of education in the area.

The highest band reveals that 36.8 percent of the respondents responded to option C (35 percent) meaning that in excess of the one third of them consider that about 35 percent of the children in the low-income family would drop out of schools. The same responses of 26.3% occurred in choices B (22%) and D (48%), a considerable divide between those who feel moderate in terms of severity of dropping out and those who feel high in terms of dropping out. The least response was on option A (10%) that recorded 10.5 percent. The distribution shows that 89.5 percent of the respondents (when options B, C and D are combined) think that 22 percent or over children of low-income families abandon their studies. Most alarming is the fact that 63.1 percent of the respondents (the combination of options C and D) quote 35 percent and above as the rate of dropouts which means that access to education is a major challenge facing savvy families who live behind the economically advantaged line. This evidence shows

how poverty is intertwined with educational disparity in Swat as opportunities are lost due to economic deprivation that compels families that would rather families invest more in the provision of the assurance of survival now rather than hope a payoff long-term educational outcome may bring. The result of such high percentages of dropouts is intergenerational poverty cycles and suppressed developments of the human capital in the area.

What percentage of surveyed households said they would stop child labour if their income improved?

19 responses

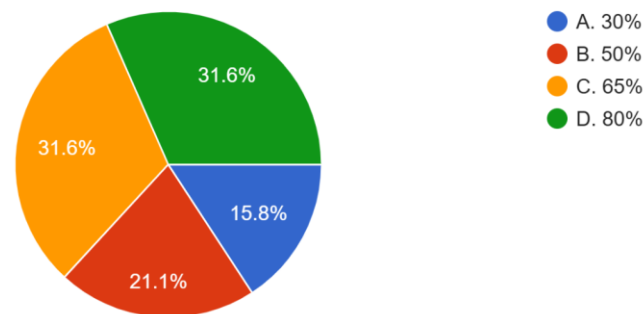


Figure 4.7.12: Percentage of Surveyed Households Who Would Stop Child Labour if Their Income Improved

Depicted in this pie chart are the results of a survey taken by 19 people who were asked the percentage of households that said that they would stop practicing child labour in case their income as a family would increase. The information provides valuable information regarding the correlation between the economic situations and the decision on child labour. The replies are balanced in two significant groups: 65 per cent (65 per cent) and 80 (80 per cent) receipts of the answers 31.6 per cent each with the general conclusion being that almost two-thirds of the respondents feel that 65 per cent or more of the households getting better incomes would discontinue the child labour. The highest percentage of the respondents, 21.1, chose option B (50%) and the lowest percentage (15.8) came with option A (30%). Notably, 84.2 percent of the number of respondents (by adding responses B, C and D) are of the opinion that half or more of households would not use child labour, in case their financial position were improved. This implies that the child labour in Swat is economically supported and not accepted or rather, not aware of the dangers of child labour.

4.8 Discussion and Summary

The research exposes the level to which climate stress vulnerabilities intertwine with poverty and child labour in the province of Swat, Pakistan. Based on field interviews and a literature review, the results revealed that floods, land degradation, and droughts are only partly isolated incidents of environmental shock but highly likely to initiate a chain of effects that lead to economic imbalances, food insecurity, and a disruption to education (WWF Pakistan, 2020; Wells et al., 2023). These effects are more significant among the marginalized families living in rural areas, in particular, those who cannot access adaptive infrastructure or financial safety nets (Rana et al., 2023; Khan et al., 2025).

In line with Human Rights-Based Approach (HRBA), the results reveal that the institutions have failed to support the basic rights of children; especially, their rights to education, freedom against economic exploitation, and access to health and development (UNCRC Articles 6, 24, 32). The parent-child witness testimonies indicate structural failures to deal with the structural causes of child labour. Just as one of the mothers put it: We were forced to build when the flooding happened last time. My boy has left school to work in the fields.” These kinds of narratives depict how climate disasters increase or rather add to the already-existing poverty and make children participate in the labour force of survival (Hatim et al., 2024).

This dynamic can be put into perspective by means of the theory of climate vulnerability. It assumes that socioeconomic disparities are exacerbated by the climate shock, and force the most disadvantaged groups, such as landless farmers or women-headed households, further into the state of precariousness. In the research, households subscribing to irregular sources of income, lack of formal insurance or title to land were the most probable households to place their children to work or drop out of school (Khan et al., 2025; Suleri et al., 2022). These findings aid in substantiating the main argument of this theory which states that the climatic vulnerability is socially diverse.

However, there appeared a prominent contradiction: the communities care a lot about education, but survival needs in narrower time frames take away the priorities of long-term development, particularly, in case of climate-related crises. This paradox highlights the importance of having comprehensive policies, which do not only acknowledge the rights of children but which integrate climate resiliency into social protection structures.

Overall, climate vulnerability and child labour in Swat is a development as well as a human rights emergency- which requires concerted effort that is grounded on justice, inclusion and resilience. Such conclusions lead to the idea that child labour is mostly a product of poverty, first and foremost, and not a conscious decision. These percentages being high indicate that majority of the families appreciate the value of education and childhood yet economic desperation drives them to such exploitative behaviours, a reason why dedicated poverty alleviation measures are necessary.

Chapter-5 Conclusion and Recommendation

In this research we tried to provide an in-depth analysis of the relationship between climate change, economic instability and child labour in the rural Swat region of Pakistan. With a human right-based approach, the study has revealed that climate crisis did not just present an environmental issue; it is also one of the biggest socio-economic and developmental disturbers. The data suggest that, warmer climatic conditions, irregular rainfall, melting glaciers, and frequent floods have steadily eroded the productivity of agriculture which forms the livelihood of the majority of families in Swat. Since these climate-related pressures are degrading income and food security, child labour is one of the coping strategies that households are resorting to, especially in poor households. This deprives children of education and puts them under dangerous conditions and future physical and psychological damage. The outcomes of this research reveal a situation of violation of the UNCRC, especially Article 6 which guarantees the right of a child to life, Article 24 which guarantees a child the right to health, and Article 32 which recognizes the right of a child against exploitation, in this case economic exploitation.

The institutional reaction to this crisis has fallen apart and is resource-poor. There is silo development of the climate adaptation policies and child protection approaches with minimal coordination, poor funding, and poor implementation. There are few labour inspections, enforcement of the law is weak and protective social schemes commonly fail to cover vulnerable populations like climate-displaced families or landless labourers. Moreover, they have underfunded schools and inadequate infrastructures, teacher absenteeism and books take ages to reach the schools. Climate change is in this context considered a multiplier of the already existing vulnerabilities as it unveils the structural weakness in the governance system as well as entraps the poverty trap within generations. The study arrives at the conclusion that until the implementation of a multidimensional and rights-based approach, child labour would increase in the Swat region, citizens of which would cease to develop as humans and become climate resilient as a community.

A revisit on the research objectives shows that all of them have been achieved. The introduction was aimed at investigating how rural livelihoods of Swat have been affected by climate change. This has been accomplished through recording environmental changes of high importance like glacier-melt and erratic rainfall patterns of monsoons as well as empirical data stating that there has been a greater than 20 percent reduction in crop yield and a parallel loss in household income. The second goal which was to identify the impacts of environmental and economic

shocks on decisions around child labour was achieved by conducting fieldwork whereby it was found out that over 60 percent of the households that were hit by climate events were involving children in some form of labour, such as in farms, in brick kilns, and household help. This makes it certain that child labour is heavily noted as a survival measure since livelihood is dwindling.

The third purpose concerned the impacts of the labour of children induced by climate on the access to education and health, as well as on the emotional development. The statistics affirmed that there was a high increase in school dropout, retarded growth, and psychological problems in working children. Long work hours, being exposed to violence, and continuous physical disorders are all indicators of the fact that children have their basic rights violated. The fourth and last of the objectives that were to be provided to assess the success of the governmental and non-governmental reactions had revealed some severe shortcomings. Less than 0.7 percent of adaptation budgets are focused on child-specific interventions and NGOs, which, despite their capacity, are available to little more than 5 percent of the needy children. All in all, the objectives of the research is well in line with the findings and elucidates the major thesis that climate change without the child-sensitive integrated responses is a direct cause of child labour in Swat.

5.1 Recommendations

Based on the findings of this study, it is evident that climate change in Swat is not only a threat to the environment and agricultural productivity but is also a significant driver of child rights violations, particularly through the rise in child labour. Therefore, climate adaptation planning in Swat and similarly vulnerable regions must be overhauled to become explicitly child-sensitive. Current strategies that prioritize infrastructure and agricultural resilience alone are insufficient. Children—especially those from low-income and rural households—represent the most vulnerable group, and their protection must be mainstreamed into climate and development agendas.

1. Integrate Child Protection into Climate Adaptation Policies

National and provincial climate policies, such as the National Climate Change Policy (NCCP) and Khyber Pakhtunkhwa's adaptation plans, must explicitly include child protection frameworks. This includes:

- Mandating child impact assessments for all climate adaptation projects.
- Requiring all adaptation programmes to report their impact on school retention, health, and child labour rates.
- Embedding child protection indicators into climate monitoring systems.

2. Strengthen Budgetary Allocations for Child-Sensitive Adaptation

Adaptation budgets should include dedicated allocations for education continuity, school feeding programmes, mobile classrooms, and child health services in climate-affected regions. Programmes such as the Benazir Income Support Programme (BISP) should be expanded to target climate-displaced and landless households with conditional cash transfers (CCTs) tied to children's school attendance.

3. Build Capacity of Climate and Social Welfare Actors

All stakeholders involved in climate response—local government officers, agricultural extension workers, emergency planners, and NGO actors—should undergo training on child rights, child labour risks, and rights-based adaptation approaches. This cross-sectoral understanding would improve the coordination between climate agencies and child protection institutions.

4. Promote Community-Based Resilience Models

The study found that informal local systems, including religious leaders, teachers, and village elders, play a pivotal role in household adaptation strategies. These actors should be:

- Supported through capacity-building and small-scale funding.
- Integrated into local disaster risk management structures.
- Involved in early warning dissemination and post-disaster school re-enrolment campaigns.

5. Expand Access to Climate-Resilient Education

Education infrastructure must be adapted to withstand climate shocks. Strategies include:

- Constructing or retrofitting schools to be flood- and heat-resilient.

- Providing solar-powered mobile classrooms in areas prone to seasonal displacement.
- Ensuring curriculum integration of climate education and children's rights awareness.

6. Improve Data and Research on Children in Climate Policy

Evidence on the child-specific effects of climate change remains scarce. It is essential to:

- Establish a central database tracking child labour, school dropout, and climate impacts.
- Encourage collaboration between the Pakistan Bureau of Statistics, NDMA, and child rights organisations for disaggregated data collection.
- Promote longitudinal studies to assess intergenerational impacts of climate-driven child labour.

7. Empower Children as Stakeholders

In accordance with UNCRC Article 12, children's voices must be heard in policy decisions that affect their lives. Local adaptation plans should include:

- Child consultation mechanisms through schools and youth organisations.
- Child-friendly forums for participatory climate planning.

By adopting these recommendations, Swat and similar climate-vulnerable regions can move towards a rights-based, inclusive climate adaptation model that protects children not only from environmental degradation but also from the social harms that follow—such as lost education, exploitation, and cyclical poverty. Only by centring the most vulnerable in climate resilience planning can long-term, equitable, and sustainable development be achieved.

5.2 Community and Societal Relevance

On the community level, this study would also define the voice of research that is largely deficient on policy and academic discourse: children living in climate-affected areas but in rural areas. This research would collect lived experiences of children, families and other stakeholders in Swat through interviews, which would show how structural inequalities preface

in the household level. Such stories are critical to the formulation of policy not merely on theoretical definitions but socially based and contextualized ones as well. The research can result in awareness among communities in the Swat region concerning the effects of child labour in the long run. Although Child labour may appear to be a temporary survival mechanism, it has long term effects on the health and educational status of children in addition to future prospects of the child to secure employment. The intention of the research is to enable the communities to use the discovered information as means of lobbying supported services, including school retention schemes, vocational training, and post-disaster counselling of children. Moreover, the study disseminates neighbourhood ownerships to solutions. It determines the best practice and effective interventions used by NGOs and government programmes that can be expanded or duplicated in other rural districts. This promotes the approach of participatory resiliency where communities are an active element in the shaping of adaptation policies that embrace participation and universal rights.

5.3 Institutional and Systemic Significance

Systematic advice in the study on the upgrading of institutional coordination is also provided. Among the key issues in the fight against child labour in the climatically distressed areas is the compartmentalised nature of administration. Climate change, education, labour and child welfare ministries are some of the ministries that act in isolation and in most cases exert efforts that are duplicated or in some cases ignored altogether given the target groups are vulnerable. This study helps to advocate the necessity of institutional change based on the demand in cross-sectoral cooperation with the help of emphasizing the mutual dependencies between climate stress and child protection. It recommends communal capacity-building, implying teachers, officers of child protection, and climate response teams would be trained together to be able to identify vulnerable children and direct them toward proper services. Where more formal systems to protect children are weak, as in Swat, community-based monitoring and early intervention can have a huge impact. Last but not least, the study aids in the resilience thinking of the public policy. It reconceptualizes resilience as not just the resilience of an environment, to adapt to adverse environmental stimuli, but the resilience of a system to preserve social coherence and defend vulnerable groups and ensure human rights in response to the challenges. In this way, the research advocates the trend towards more holistic approach to adaptation, including the elements of social justice, equity and the voice of the child. In conclusion, this research is significant in a multi-dimensional way. Academically, it is a gap that bridges a sensitivity in interdisciplinary studies on child labour and climate change. Politically, it

presents timely data to transform policies and frameworks both in the national and international capacity. On the social level, it aims at empowering rural people by opening up their struggles and giving them the means to promote their rights. The study itself is more or less of action, meaning that it acts as a reminder that action regarding climate change cannot be complete and daring to be as such is amoral. The research offers a starting point of future research, policymaking, and advocacy work on considering children in the centre of climate resilience by connecting the two disparate fields of environmental policy and child rights.

5.4 Relevance to the Sustainable Development Goals (SDGs)

The current study fits into a few major Sustainable Development Goals (SDGs) set by the United Nations 2030 Agenda for Sustainable Development adopted in the year 2015 to act as a global blueprint toward the elimination of poverty, protection of the planet, and prosperity of all by 2030¹. Specifically, the research overlaps with the SDG 1 (“End poverty in all its forms everywhere”), SDG 4 (“Ensure inclusive and equitable quality education”), SDG 8.7 (“Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour”), and SDG 13 (“Take urgent action to combat climate change and its impacts”).

The paper would show that a climate change in the form of environmental shocks can exacerbate poverty and lead to exit of children in school into dangerous employment, thus leading to intergenerational poverty through the lens of climate change and its relationship with child labour in Swat Valley. Climate change can be described as a poverty multiplier as highlighted by Mian et al. (2024) when they suggest that families in the countryside that suffer a loss in income due to climate change are increasingly relying on child labour. The research would also align with SDG 4, as it would review the ways in which environmental disruptions affect the dropout rates of schools. Economic pressure makes children engage in labour when they should be at school, thus violating their right to education as declared in the UN Convention on the Rights of the Child (CRC) (Hatim et al., 2024). In the same manner, the study contributes to SDG 8.7, which is the increasing use of child labour, especially in informal industries like the agriculture industry, in rural Pakistan owing to climate instability (ILO, 2022). The research, in addition, contributes to SDG 13, which encourages the creation of the so-called child-sensitive climate adaptation policies, all aspects of which, in their turn, embrace protection, education, and domesticating livelihoods. It asserts the need to transform the siloed sectoral policies to comprehensive policies that acknowledge the vulnerabilities of children to

climate resilience strategies. Overall, the study recommends an integrated and rights-based and multi-SDG approach by policy-makers. It reinstates beliefs that safeguarding children against the effects of climate change is not only the developmental objective but also the legal and ethical duty.

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