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NEXUS BETWEEN MICROFINANCE AND CLIMATE CHANGE IN PAKISTAN

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Abstract

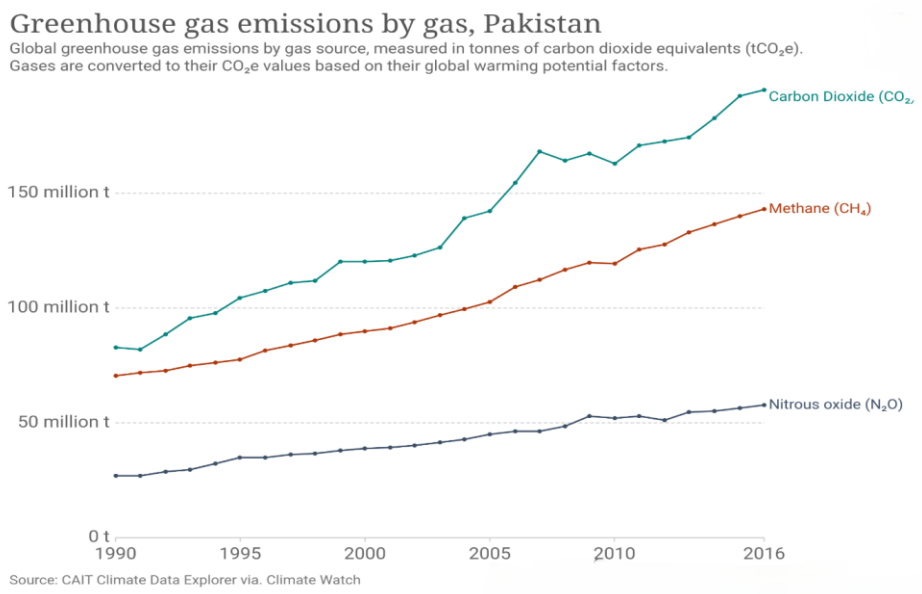
It seems that there are significant connections between microfinance and climate change. The proliferation of small enterprises is having an effect on environmental circumstances and climate change, as well as creating more business prospects for them through microfinancing operations. The escalating commercial operations necessitate a greater consumption of water and power to carry out production and manufacturing tasks. Growing commercial activity is another factor contributing to the global warming that is occurring. However, the release of greenhouse gases is also a contributing factor to harsh weather patterns and increased temperatures. In addition to having an effect on the agricultural sector of the economy, excessive water consumption and glacier melting are also contributing to sea level rise, which poses a hazard to both individuals and farmers. Floods are becoming more likely in both rural and urban regions due to increasing sea levels and the excessive melting of glaciers brought on by global warming. As such, there is a direct correlation between the rise of small enterprises and the alteration in the climate. Small businesses thus take precautions to reduce their influence on the climate, but the growing number of commercial operations can still have a negative impact on the global climate. The Hindu-Kush Himalayan region's population is especially susceptible to climate change-related food insecurity due to inadequate infrastructure, restricted access to international markets, geographic remoteness, low productivity, and susceptibility to hazards (IPCC, 2019). Due to extended droughts and more frequent floods, farmers in this area are experiencing lower agricultural yields and a rise in food insecurity (Hussain et al. 2016; Manzoor et al. 2013). These days, climate change amplifies natural disasters including drought, forest fires, floods, and landslides. The unsustainable levels of poverty

and opportunity inequality in Pakistan will be significantly worsened by changes in monsoon patterns, an increase in hydropower projects, and ill-planned rural road projects. Policymakers must take immediate action to adapt to and mitigate the effects of climate change at the household and micro business levels. If policy limits money, microfinance can be a key player in promoting such best practices. By offering loans and other financial services, microfinance assists rural residents in creating assets, diversifying their sources of income, and managing risks. By expanding these activities through policy and community level initiatives, there is a great chance to benefit from financial innovations including risk insurance, microfinance, conditional cash transfer programs, and targeted subsidies. Mitigation and adaptation strategies, however, are insufficient to stop the negative effects of climate change; loss and damage (L&D) measures are becoming more essential and necessary. A comprehensive multi-level governance is therefore required. Concrete implementation of the Warsaw International Mechanism for Loss and Damage linked with Climate Change Impacts (2013) necessitates the backing of state policies and mechanisms. We demand the implementation of a top-down as well as a bottom-up strategy to address L&D in Pakistan in a more thorough manner, drawing on the example of Bangladesh. This policy paper aims to persuade policy makers to act swiftly in order to develop and execute policies that effectively address the effects of climate change in order to promote social and economic advancement.
***Keywords**. Khushhali Bank, Microfinance, Rural Areas of Southern Punjab, Poverty reduction, Ex-post Facto Research Model.*

INTRODUCTION

One of Pakistan's biggest concerns is climate change. Pakistan is extremely susceptible to changes in climate. Pakistan's climate has altered over the past few decades, having a major impact on both the environment and the populace, much like the rest of South Asia.[1] The melting of the Himalayan glaciers has affected some of Pakistan's most significant rivers, in addition to causing more heat, drought, and extreme weather in some areas of the nation. Pakistan came in fifth place among the nations affected by extreme weather brought on by climate change between 1999 and 2018.[2] Pakistan is vulnerable to various types of natural calamities, such as earthquakes, cyclones, floods, droughts, and heavy rainfall. The catastrophic floods of 2022, which directly affected over 30 million people in Pakistan and caused property destruction, fatalities, and home displacement, were mostly caused by climate change, according to scientific studies.[3] In Pakistan's economy and security are seriously threatened by climate change. [4]

GREENHOUSE GAS EMISSIONS



Pakistan greenhouse gas emissions 1990–2016

At 2 tons per year, per person, Pakistan's greenhouse gas (GHG) emissions are less than half of the worldwide average, accounting for less than 1% of global emissions. In [2] In Pakistan, energy-related activities such as burning fuel for heat, powering transportation, and producing electricity accounted for 43% of the country's 408 million tons of CO2 equivalent in GHG emissions in 2015.In [3]

N_2O and methane make up the majority of agricultural GHGs.[3] Rice farming, the management of manure, and the belching of sheep, goats, and cattle all produce methane.[3] The application of synthetic fertilizers, farmyard manure, and crop residue mixes after burning are the principal sources of nitrous oxide in agricultural soils.[3]

Almost 80 million tons of carbon dioxide were released into the atmosphere in 2019 from the combustion of fossil fuels such coal, oil, and gas.[4] [Who has suggested] that tougher laws against air pollution in Pakistan may include steps that would help cut greenhouse gas emissions, such raising the price of vehicle fuels.[5] Pakistan's prime minister, Imran Khan, declared in 2020 that no new permits for coal-fired power plants would be granted.[6] Nonetheless, it is anticipated that already-approved coal-fired power plants will be built.[7]

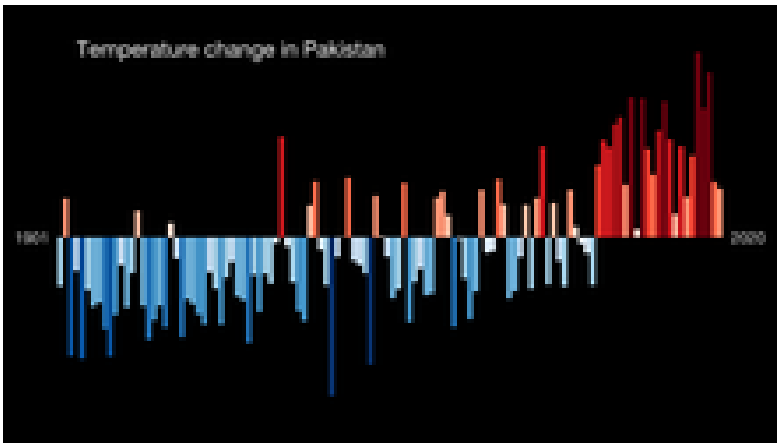
Pakistan has promised to reduce predicted emissions by 50% by 2030, but as of 2021, it has not stated a goal to achieve net-zero years.[8] To lower the cost of importing fossil fuels, Prime Minister Muhammad Shehbaz Sharif stated in 2022 that more solar, wind, and hydropower projects should be constructed.[9]

The current economic crisis has had a substantial negative impact on people's

economic rights by denying them access to essential resources and opportunities. In addition, heatwaves brought on by climate change have been known to cause catastrophic floods that have killed over 1,100 people and affected 33 million more. Without access to decent housing, education, or health care, about 750,000 people were left behind. Reference 10 In spite of producing less than 1% of the world's greenhouse emissions, Pakistan is disproportionately vulnerable to the effects of climate change because of its geographic location, which has created a pervasive sense of injustice throughout the country. [11]

IMPACTS ON THE NATURAL ENVIRONMENT

TEMPERATURE AND WEATHER CHANGES



Temperature anomaly in Pakistan between 1901 and 2020

Although there are many regional variations in the consequences of climate change, mean surface temperatures are rising and the frequency of extreme weather occurrences is expected to rise with time [source]. Both human activities and predicted environmental processes will be disrupted by these shifts. Variability can also be seen in the components that are hypothesized to influence climate change. Over a range of time durations and geographical locations, both chaotic and periodic fluctuations have been noted.[1]

India and Pakistan experienced a very hot spell in May 2022. The mercury rose to 51°C. Such heatwaves are 100 times more likely as a result of climate change. In the absence of climate change, heatwaves that are even more extreme than those that happened in 2010 are predicted to occur once every 312 years. They are now anticipated to happen every three years.[2]

The entire region of South Asia is predicted by the IPCC Sixth Assessment Report's climate change projections to have more intense and frequent heatwaves and humid heat stress, as well as increased yearly and summer monsoon rainfall with more year-to-year variance. In [3] As a result, the production and efficiency of industries that depend on water, like agriculture and electricity, would be greatly impacted. In [4]

Pakistan's climate is expected to generally improve by: [4]

- *It is anticipated that Pakistan would experience a greater rise in temperature than the worldwide average.*
- *There is a greater anticipated rise in temperature in the country's north than in its south.*
- *There will likely be a considerable increase in the frequency of hot days and nights.*
- *Rainfall estimates for Pakistan show a rising trend across the board, with the Upper Indus Basin showing an increasing trend and the Lower Indus Basin showing a dramatically growing trend.*

IMPACTS ECONOMIC IMPACTS

Based on purchasing power parity, the projected poverty rate in Pakistan is over 50% of the entire population, with significant regional variations. The nation is placed 146th out of 187 countries, considerably below the average human development index score when compared to other South Asian countries, due to the high prevalence of poverty combined with a lack of resources and restricted access.[1][2] The unique geography, demographic trends, socioeconomic factors, and lack of adaptive capacity of agriculture-dependent economies, like Pakistan, make them particularly vulnerable to climate change, according to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) for the Asia region. These factors combined determine the country's profile of climate change vulnerability.[1] [3] Heatwaves, droughts, flash floods in rivers, landslides, storms (including cyclones), and other natural disasters are common in Pakistan. Large-scale, powerful negative feedback loops that impair livelihoods and public health could be sparked by the effects of climate change.

AGRICULTURE

Major crop yields in Pakistan, including those of rice and wheat, are predicted to decline sharply in the future.[1]

By 2040, climate change is expected to cost Pakistani agriculture up to 7% of productivity, according to study lead by Dr. Adil Najam at the Lahore University of Management Sciences. However, by using effective climate adaption strategies, productivity gains might reach 40%. [Reference required]

Approximately half of Pakistan's crops were devastated by the floods of 2022, which were mostly brought on by higher precipitation and glacier melting brought on by climate change. This could result in a lack of food.[7]

MIGRATION

More details: Pakistan's population statistics Pakistan's rural communities have been forcibly relocated to larger cities due to severe weather conditions and unpredictable economic consequences. Twenty percent of the population is predicted by experts to relocate to large cities; 700,000 individuals migrate from rural to urban

areas annually. Up to 20 million people may have migrated from rural to urban areas since 2010, according to more comprehensive estimates that take into account significant displacements caused by severe weather.[8]

MITIGATION AND ADAPTATION MITIGATION

The energy and agricultural sectors are the most crucial targets for mitigation initiatives aimed at lowering GHG emissions. Integration of energy policy objectives with climate change is particularly crucial in the energy industry since investments made today, like in the Thar coalfield, will "lock in" the fuel, technologies, and infrastructure for decades to come. In a same vein, the transportation and construction infrastructure that is established today ought to fulfill the demands of future design. Long-term transportation planning and building code standards for energy efficiency will therefore be crucial.[9]

THE SUSCEPTIBILITY OF PAKISTAN TO CLIMATE CHANGE THREATS

The following are the main risks posed by climate change to Pakistan:

1. A marked rise in the frequency and severity of extreme weather events, along with unpredictable monsoon rains that frequently and severely cause floods and droughts;

2. The projected retreat of the Hindu Kush-Karakoram-Himalayan (HKH) glaciers as a result of deposits from transboundary and indigenous pollution sources and global warming poses a hazard to water inflows into the Indus River System (IRS);

3. Greater siltation of large dams as a result of floods brought on by increasingly frequent and heavy rainfall in the catchment areas;

4. Increasing temperatures that intensify the conditions of heat and water stress, especially in arid and semi-arid areas, resulting in decreased agricultural productivity;

5. Increasing air pollution from industry, transportation, and agriculture, which causes haze and causes significant losses to aviation, decreased mobility, and fatal accidents owing to poor visibility and health hazards;

6. Additional reduction of the already limited amount of forest cover due to too quick a shift in climate to permit the natural migration of negatively impacted plant species and wildlife habitat;

7. An increase in the saline water incursion in the Indus delta, which has a negative impact on mangroves, coastal agriculture, and fish breeding grounds;

8. Danger to coastal regions from expected sea level rise and heightened cyclonic activity as a result of warmer sea surface temperatures;

9. A greater strain on the sharing of water resources between the higher and lower riparian regions;

10. A rise in health hazards and migration brought on by climate change.

Pakistan may face serious survival issues as a result of the aforementioned risks, especially with regard to the security of the nation's food, energy, and water supplies.

ASSESSMENT OF CLIMATE CHANGE

Pakistan is among the countries with the lowest overall contributions to global greenhouse gas emissions, but it is also one of the most sensitive to the consequences of climate change, and it now lacks the technical and financial resources to adapt to these effects. Pakistan is creating a plan to optimize fuel mix, save energy, and boost energy efficiency in order to support global efforts to decrease greenhouse gas emissions. Pakistan must, however, prepare for climate change adaptation since it is the most pressing and important task. Only by organizing and carrying out appropriate adaptation measures, ideally nature-based solutions, at the national and local levels will it be possible to ensure the country's water, food, and energy security as well as to mitigate the effects of natural disasters on the economy, human life, health, and property.

To strengthen its resilience against climate change, Pakistan has begun the process of developing a National Adaptation Plan. Using the outcomes of the National Adaptation Plan process, Pakistan hopes to enhance the adaptation components of the Nationally Determined Contributions (NDCs), a crucial part of the 2015 Paris Agreement.

In a recent evaluation, the UN Environment Program (UNEP) found that, between 1992 and 2019, Pakistan's "Inclusive Wealth," a measure of the nation's sustainability and prosperity that accounts for social, economic, and environmental aspects, increased by 2.3% yearly on average. With growth rates of 2.9% and 3.2%, respectively, produced capital and human capital accounted for the majority of the increase. Regrettably, during that time, natural capital decreased by 0.1% yearly on average. Nonetheless, there has been a noticeable improvement in the environment over the past five years, with growth seen in grasslands, forests, sparsely vegetated areas, and water bodies since 2015. Crop land receded, but shrub land and wetlands did not change. More funding for natural capital will be necessary for future advancement.

THE GREEN REVOLUTION IN TRADITIONAL MICROFINANCE

Low-income individuals in developing nations are already experiencing the consequences of climate change, which has given rise to a new idea known as "green microfinance." In fact, groups of people are the least suited to deal with the constantly shifting weather patterns that have a detrimental impact on their income. In this case, the goal of green microfinance is to develop creative ways to increase people's capacity for adaptability while lessening the effect of human activity on the natural world. In order to reduce the vulnerability of the 130 million people worldwide that microfinance institutions assist, whose livelihoods and quality of life are significantly

influenced by environmental factors, a paradigm shift in microfinance is required (Ramaswamy & Krishnamoorthy, 2016). Moser et al. (2016) have demonstrated that the problem faced by microfinance institutions (MFIs) is linked to their capacity to adapt to the consequences of climate change (p. 242). Also, adopting eco-friendly practices may slow down the rate of environmental deterioration, considering the diverse population that MFIs presently assist with financial services.

To fulfill social responsibility and reach these objectives, green microfinance designs environmentally friendly financial services and products in an effort to identify market possibilities that environmental financial services may provide (Forcella et al., 2017). Through the inclusion of environmental performance as a third pillar to social and economic performance, conventional microfinance is brought up to date.

Allet and Hudon (2015) define "going green" as MFIs developing loan approval processes that consider environmental aspects, teaching clients about environmental issues, reducing their own ecological footprint, and offering so-called "green micro-credits." According to Forcella et al. (2017), on page 8, credits are defined as "credits provided to support the use of or investment in renewable energy or energy efficiency technologies, climate change adaptation or mitigation, or any other activities which directly benefit the environment" for low-income households or microenterprises excluded from the traditional formal financial sector. Green microfinance banks offer credits for a variety of sustainable income-generating activities, such as garbage management, solar panel installation, agroforestry, waste management, recycling, and organic production and commercialization (Allet & Hudon 2015).

Risk management plans are also used by green MFIs. For instance, they assess the environmental effects of a possible project funded by microcredit by doing an environment-based SWOT analysis (Moser et al. 2016). By encouraging the switch to environmentally friendly agricultural methods, they may also provide clients with technical help. Green microfinance organizations in this circumstances usually rely on technical partners like Sustainable Harvest International (FinDEv Gateway 2009). Lastly but not least, green microfinance institutions will develop and offer agricultural and climate-related insurance, including crop and animal insurance. To ascertain the effectiveness of this kind of insurance mechanism, however, more investigation is required (Baumgartner & Richards 2019).

Generally speaking, these eco-friendly services can "increase yield, decrease vulnerability, and support more rewarding value chains" in addition to protecting the environment (Forcella et al. 2017, p. 12). According to Moser et al. (2016), MFIs must establish partnerships with both public and private entities in order to influence people's ability to generate income from their green commodities in a sustainable way.

Another sign of the increasing interest in green microfinance throughout the world is the development of the Microfinance Environmental Performance Index (MEPI). This is due to the fact that climate change is a hot topic in the public debate right now. International conferences and workshops on green microfinance have increased since 2008, and a large number of MFIs are now supporting green microfinance initiatives (Forcella et al. 2017). The European Microfinance Platform (e-MFP) hosts the main event in the calendar for financial inclusion: European Microfinance Week (EMW). With the aim of boosting the capacity of communities that are already at risk from climate change, the 2019 European Microfinance Award "Strengthening Resilience to Climate Change" sought to recognize organizations working in the field of financial inclusion that provide non-financial and financial goods and services. The 18 MFIs that were selected have shown to employ a variety of tactics to increase the climate change resilience of those who are already at risk. The Kenyan microinsurance firm APA is the recipient of the honor. Smallholder and subsistence farmers are the main clients it serves with index-based livestock insurance and area yield index insurance. In order to strengthen its clients' resilience to climate change, ASKI, a Philippines-based MFI, ranked second. It focuses on disaster preparedness at the institutional and community levels.

According to Forcella et al., there were 79% more microfinance investment vehicles (MIVs) that included environmental issues in their investment selections in 2015 than there were in 2012. (p. 14). The most well-known green microfinance firm is named Grameen Shakti, and it focused its lending activities on providing microcredit to low-income Bangladeshi households so they could generate solar energy (Forcella & Hudon 2016, p. 454). This program's success, along with other initiatives of a similar nature, such as "Genesis" in Guatemala, which "uses microcredit through subsidies to support environmentally friendly production techniques in agriculture, for coffee and cocoa production farmers," has served as a model for other green microfinance institutions (Allet & Hudon 2015, p. 2). Despite making up a small share of the market, MFIs engaged in green microfinance focus more on their social and financial aspects than on the environment in their operations (Forcella et al. 2017).

Furthermore, there is currently a lack of research on green microfinance and a continuing discussion about the advantages it offers to the society and environment. As a matter of fact, "although environmental awareness in the microfinance sector has increased, there is little empirical evidence on the characteristics of MFIs performing best in the environmental bottom line," according to Allet and Hudon (2015, p.2). Due to a dearth of understanding on how to measure MFIs' green performance – a need for developing and monitoring successful initiatives – finding a performance indicator that would assess the MFIs' degree of engagement with green practices

became important. This multidimensional measure was developed based on studies on corporate environmental performance and social performance in microfinance (Allet 2012). The index covers the main strategies used by MFIs to "go green" and consists of the following: implementing environmental policies; reducing their ecological footprint internally; keeping an eye on the environmental risks related to their clients' operations; providing green microcredit to promote clean technologies or eco-friendly practices; and setting up non-financial services like environmental awareness campaigns.

Microfinance helps rural people create assets, diversify their sources of income, and disperse risks by offering credit and other financial services. Notwithstanding the endeavors to enhance scholarly investigations about green microfinance and the quantity of MFIs that have chosen to adopt the green revolution in recent times, apprehensions persist regarding the possible advantages and drawbacks of this paradigm shift.

THREE FACTORS INFLUENCE MFIS' ECOLOGICAL RESPONSIVENESS: SOCIAL RESPONSIBILITY, COMPETITIVENESS, AND LEGITIMACY

Many justifications for MFIs to adopt environmental management systems are provided by the literature.As stated on page 3, Allet (2012) states that the MFIs that take the lead in improving environmental policies do so largely out of a sense of social obligation, competition, and, to a lesser degree, legitimation. MFIs are referred to as "reactive" when they minimize risks for themselves and meet stakeholder needs, but they are considered "proactive" when they arrive to green solutions via precise research. Whereas social responsibility drives the former, legitimation (the pressure from stakeholders) drives the latter. Bansal and Roth define corporate ecological responsiveness as "a set of corporate initiatives aimed at mitigating a firm's impact on the natural environment," which is how Tambusamy & Salam (2010) define it on page 2. It is also possible to use this concept inside the MFI framework.

Consequently, legitimation is one of the reasons MFIs are motivated to enhance green policies. In reality, a wide spectrum of stakeholders are becoming aware of MFIs' environmental responsibilities. Certain stakeholders, including "international donors and socially responsible investors," ask MFIs to make a green commitment, whereas "commercially-oriented investors or local banks" do not give environmental performance priority (Allet, 2012, p. 4). As in previous years, strategic considerations remain the main forces behind a green transformation, with stakeholder pressure coming in second (Forcella & Hudon 2014). Nonetheless, outside parties have a big say in whether or not MFIs carry out environmental projects.

Second, making environmental pledges is a wise move in a competitive climate since it may demonstrate inventiveness and understanding of how people's interests are evolving. In fact, competition has forced certain MFIs to support green

innovations, such as green microcredits. Russo and Fouts claim that while green techniques increase customer pleasure, they also increase revenues. MFIs would, among other things, embrace environmentally friendly methods for strategic and financial advantages in order to procure funds from socially concerned stakeholders and set themselves apart from competitors. Furthermore, as stated on page 6 of Allet (2012), MFIs may "attract clients by offering enticing 'credit + services' packages; for example, by helping clients to boost their productivity through access to energy-efficient technologies or training in sustainable production techniques."" Additionally, as climate change is turning into a risky economic venture, MFIs might lower their credit risk by implementing green policies and controlling their clients' environmental risk. Increasing MFIs' reputation is a significant incentive that might be connected to this comparative advantage. Developing greener performances does, in fact, assist MFIs in enhancing their public image and reputation, which in turn leads to improved external connections. Public understanding of the dangers presented by climate change is driving a greater dedication to the green cause (Weber et al., 2014). Beginning in the early 1990s, environmental risk management became more and more popular. Reputation valuation is necessary to create economic value by encouraging more confidence and trust among stakeholders (Black et al 2000).

Since social responsibility is already a key feature of MFIs, it serves as another motivator for the improvement of green policies. One may argue that ecological responsibility and social duty are related. Green regulations would actually lessen poverty and environmental risk if MFIs' social goal is to provide financial services to unemployed or low-income individuals who often live in hazardous environments in order to help them improve their lives. Greener practices, for example, will encourage the prudent use of natural resources and lessen energy loss, resulting in increased savings. New competencies and pertinent knowledge must be learned in order to accomplish this aim. Microcredit, according to Marguerite Berger, may be divided into two categories: "minimalistic credit," which is just a loan, and "credit plus," which is "credit accompanied by technical assistance as a necessary component of microenterprise projects" (Berger 1989, p. 1025). A more effective and ecologically responsible a suitable education would guarantee credit utilization. Bhattamishra and Barrett (2008) suggest that community-based risk-finance management mechanisms play a pivotal role in mitigating poverty and the adverse effects of climate change.

RESTRICTIONS ON THE ECOLOGICAL RESPONSIVENESS OF MFIS

A lot of stakeholders don't put enough pressure on MFIs to adopt green policies in order to validate them. It is true that the inability to anticipate the advantages of investing in the poor to improve their capabilities for adaptation, mitigation, and resilience can hinder the conversation on climate change by making it

harder for them to deal with dangers now and in the future. Environmental problems are of interest to certain donors and microfinance investors, but practical solutions to climate change are not seen as a high priority problem, particularly by commercially-oriented investors or local banks. More significantly, it might be thought that putting green microfinance into practice is extremely costly. Indeed, MFI has to acquire new skills and knowledge to assess potential environmental hazards to its consumers and qualify them for appropriate mitigation measures. MFIs that seek legitimation typically respond to the environment minimally because of these reasons. MFIs may control expenses and avoid the need to hire more technical staff in this way.

Long-term cost savings for MFIs may be possible, nevertheless, if green regulations are implemented. In order to lessen expenses for MFIs and their environmental effect, MFI management should look for measures to cut down on inefficiencies and resource waste (Hall & Lal 2006).

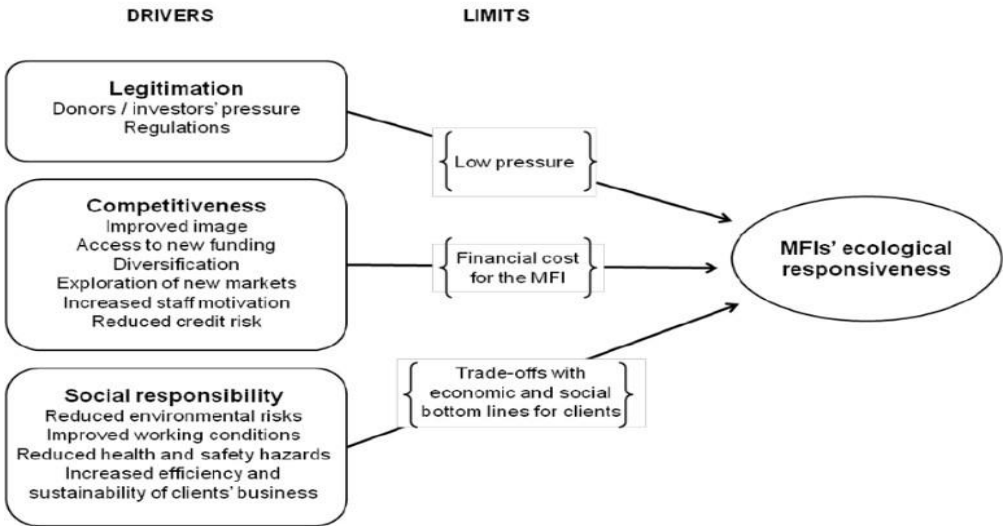
Forcella and Huybrechs (2016) suggest that in order to get favorable results, MFIs ought to foster a deliberate interaction with regional players and societies, considering specific local circumstances and demands, and steering clear of enforced policies and detrimental practices that preexist.

The increase in workload that green microfinance can bring to established microfinance institutions may provide a competitive disadvantage and impede the spread of green microfinance. Certain experts make the following claim: "MFIs would become distracted from their goals by the onerous nature of environmental management." On page 2, Allet (2012). Certainly, employees may see the need to update competencies and knowledge in order to adopt green policies unfavorably because it would need them to put in more work to be as productive as before. Lastly, it might be said that reputation risk is a poor motivator for MFIs operating in areas where it is doubtful that they would trigger an environmental catastrophe. In terms of social responsibility, functionalist perspectives agree with Sohn's summary that businesses should prioritize serving customers' needs and turning a profit for investors above all else (1982). Based on the same logic, MFIs shouldn't stray from their goals in their pursuit of ecologically responsible solutions.

A more holistic perspective, however, would see social responsibility and environmental commitment as inextricably intertwined as green microfinance would enhance recipients' lives by enabling them to lead more ethical lifestyles. In general, MFIs that are heavily engaged in environmental management feel that neglecting to address social and environmental issues would actually constitute mission drift, even for MFIs that adopt a narrow definition of involvement in environmental management as mission drift (Allet 2012, p. 18). In conclusion, MFIs that are more proactive in creating an efficient ecological framework may be attributed mostly to their sense of social responsibility.

A microfinance model of ECOLOGICAL RESPONSIVENESS

Figure 1. A model of ecological responsiveness in microfinance
(based on Bansal & Roth, 2000)



EXTENDING VIEWPOINTS: INTERNATIONAL LOSS AND DAMAGE

The two main strategies for combating climate change are adaptation and mitigation. However, when the effects of climate change increased over time and governments came to recognize that their current instruments were ineffective, they started to create a third pillar for these negative effects, which is called Loss & Damage.

The risk tolerance approach and the beyond adaptation approach are the two methods used in literature to differentiate between adaptation and L&D. While L&D is viewed by the latter as a response to risks that are beyond manageable levels, the former refers to activities implemented following the adoption of mitigation and adaptation with any residual risks remaining (Wallimann-Helmer 2015).

The priority for climate L&D in terms of actions and accountability will vary depending on the methodology employed. The deployment of effective L&D procedures is referenced as one of the goals in the beyond adaptation strategy. The implementation of L&D measures begins when it has been determined whether local communities would find them beneficial. This is in line with the risk tolerance approach's aims, which center on enhancing the capacity development of local communities through improved risk assessment abilities of individuals suffering climate effects.

A contentious issue in the current international climate change discussions is how to address these losses and damages caused by climate change. Even if losses and damages would still occur, the IPCC (2014) emphasized how important it is to

provide poor nations with resources, technology, and capacity development in order to increase their capacities for mitigation and adaptation.

During the 19th Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) held in Warsaw, progress was achieved. In actuality, the Warsaw International Mechanism for Loss and Damage linked with Climate Change Impacts (WIM) was created. This occurred in 2013. The World Intellectual Property Organization is charged with "enhancing action and support, including finance, technology, and capacity-building, to address loss and damage associated with the adverse effects of climate change, so as to support countries to undertake actions," among other tasks.

The WIM's realization that L&D encompasses more than what can be alleviated by adaptation allowed for the acceptance of a common idea that asks the industrialized countries – those who contributed more to climate change – to aid the poorer countries – who suffered the most.

Over time, the WIM accomplished significant milestones and carried out a range of tasks related to its mandate. By promoting discussion amongst many stakeholders, it enhanced understanding on connected themes and improved awareness of L&D. But the creation of the WIM alone cannot be seen as the last step in dealing with L&D. Important topics still need to be addressed in order to find a long-term solution.

Two policy actions – one based on human rights and the other on international law – may be guided by an L&D approach.

The latter demonstrates how the human rights framework may assist in resolving disputes between nations by getting past the culpability and compensation debate, which is typically a major roadblock in international discussions.

THROUGH LITIGATION, INCREASING THE GLOBAL COMMITMENT TO L&D

The most vulnerable governments are now being forced to look for alternative ways to handle L&D since there is little financial assistance, despite many talks within the UNFCCC framework over the years.

Three guiding principles govern foreign assistance, both financial and non-financial, provided to impacted nations in order to alleviate L&D. The first is known as the Polluter-Pays Principle (PPP), which stipulates that the injured parties must also make restitution to the parties that caused the harm. The second is called the "no-harm" rule, and it contends that countries have a duty to protect other states from harm, minimize that harm, and provide compensation when harm does happen. The last paragraph of the Common but Differentiated Responsibilities and respective Capabilities states that the parties shall protect the climate system for the benefit of present and future human generations, based on equity and in accordance with their

respective capabilities and common but differentiated responsibilities. Thus, the developed country Parties should take the lead in combating climate change and its negative effects. These three internationally recognized principles outline how states are required by law to protect impacted people, refrain from harming them, and offer remedies to them regardless of whether the harm is unavoidable.

In order to carry out their obligations under the UN climate system, states agreed to take mitigation and adaptation measures first, and then to establish the WIM. Still, not much or no progress has been achieved in assisting the most vulnerable countries in addressing L&D in spite of these international efforts. Therefore, the third phase of the WIM mandate – providing both financial and technical support – cannot be implemented as of yet because no financial resources have been directed toward it. Clearly, the WIM is still discussing the steps and protocols needed to guarantee that the affected countries get the financial and technical support they require, some six years later.

Several affected parties have chosen to try and hold states legally accountable for their losses, even without any support at all from the WIM. If the assertion that the Paris Agreement does not "provide a basis for any liability or compensation" is true, then the fundamental legal doctrines of international law, national legal systems, and international obligations that regulate liability and compensation between states are not covered by this assertion. Over the years, states, cities, non-governmental organizations, activists, and lone individuals have all started to file lawsuits related to climate change. It appears from the increasing trend that the affected countries no longer want to wait for the L&D to be resolved – as it should be.

Lastly, human rights are a significant factor in lawsuits related to climate change. Specifically, they make the judges more interested in the cases that are linked. Despite the difficulties in establishing an actual connection between the emitters and the alleged climate damage, human rights have proven useful in making governments responsible for the damages brought about by climate change. Human rights formed the foundation of the legal arguments made in a number of these instances. As a result, they will remain vital in making sure that all the rights that are infringed upon by the consequences of climate change are fairly represented in any future legal actions.

THE RELATIONSHIP BETWEEN CLIMATE CHANGE AND MICROFINANCE

Financial institutions offer microfinance to small firms who need the money to operate or expand within their sector. According to Forcella (2016), small businesses have a big impact on economies as they stimulate them. Small firms with great ideas grow their market share in the sector and have the potential to grow into major players in the economy. Because they give people in the economy work

possibilities, businesses are essential to it (Fenton, 2017). According to Prabhaskar (2018), the economy is growing and unemployment, which is a worry for economies, is decreasing since there is an increase in job possibilities for citizens. The deployment of business processes that have a smaller overall influence on the climate change environment is not as important to small businesses in the economy. Therefore, they have a variety of effects on the state of the ecosystem.

Chirambolo (2017) asserts that greenhouse gas emissions, particularly carbon dioxide (CO_2), have the potential to significantly contribute to global climate change. Businesses utilize more power and fossil fuels like natural gas and petroleum as a result of increased economic activity (Huybrechs, 2019). The aforementioned activities lead to a rise in greenhouse gas emissions, which significantly influence global climate patterns. There are several ways in which CO2 gas emissions contribute to climate change. For example, rising economic activity has increased CO2 gas emissions, which has led to an increase in global temperatures and increased frequency of storms (Bastiaensen, 2019).

However, the release of CO2 gasses is also contributing to altered patterns of precipitation and sea level rise, making living more difficult for humans (Dowla, 2018). Small businesses that receive microfinance facilities have a greater impact on the climate than large businesses, even though the latter do not require microfinance because they have not adopted viable business practices related to weather change.

HOW MIGHT MFS HELP WITH ADAPTATION TO CLIMATE CHANGE

MFS has promise for helping the world's poorest and most vulnerable populations adapt to climate change by providing low-income individuals and families with a means of acquiring and managing the skills and resources necessary to become less susceptible to shocks and stressors and/or deal with their aftermath. The more resources and skills someone have, the less vulnerable they are (Swift 1989; Moser 1998; Ellis 2000). This sounds reasonable. As per the findings of Galabet al. (2006) and de Aghion and Morduch, as referenced in Swain and Floro (2007), microfinance services have the potential to fortify the livelihood asset base via direct income effects, indirect income effects (resulting from education and training), and non-pecuniary effects (like enhanced confidence and stronger social networks). examining more closely the main classifications of microfinance services displayed in the table.

Role of Microfinance in Climate Change

	MFS's direct involvement	***Minimal MFS direct involvement***
Monetary	• *Money/funds to invest in activities related to a livelihood* • *savings, contingent on the credit plan* • *Gains in family assets* • *Asset diversification*	• *More consistent financial inflows* • *safety nets for finances* • *Credit standing for upcoming loans* • *Enhanced abilities in financial management*
Socially	• *Development or fortification of social ties* • *The formation orfortification of formalid groupings*	• *Strengthened networks of reciprocation, trust, and trade (e.g. through lending associations)* • *unofficial safety nets* • *Better access to governmental or civic organizations;* • *Enhanced social standing and worth;* • *Enhanced well-being; and* • *Women's empowerment and self-assurance*

Native	• *Using sustainable methods for managing land and water as a prerequisite for loans; managing resources (such as more favorable interest rates);*	• *Raising money to invest in renewable energy and sustainable natural resource management (SNRM)* • *Enhanced institutions and skills for sustainable natural resource management (SNRM)* • *Political empowerment to protect resource rights and land tenure* • *Reduced strain on the base of natural resources when activities are upgraded or diversified*
Participants	• *Loans for medical and educational purposes* • *Training and education in skills (based on credit system)*	• *Enhanced knowledge and literacy* • *Improved well-being* • *Enhanced labor force participation and employability - increasing workforce*
Tangible	• *Finances for furnishings, infrastructure* • *The credit package includes upgrades in housing and sanitation.*	• *Improved living conditions* • *Increased capacity to invest in higher-quality tools or facilities as a result of less frequent usage*

Source Author's own Calculation

SMALL-SCALE LENDING AND LOWERING THE CHANCE OF DISASTER (FROM PANTOJA 2002)

Ex post coping strategies and ex ante risk management may be used by low-income people and households with the support of a variety of microfinance services. One organisation that helps reduce susceptibility to extreme occurrences like floods, droughts, and storms is the Self Employed Women's Association (SEWA) in

Pakistan. SEWA provides home loan for things like roof replacement, wall reinforcement, and rebuilding in less hazardous places.

People who want to take on riskier and maybe more lucrative livelihood activities might benefit from this kind of arrangement, which also helps them with self-insurance. This can occasionally entail taking on greater risk (i.e., debt or loans) in order to pursue business endeavors or income-producing ventures in the trade (i.e., foodstuffs, clothing), production (i.e., baking, tailoring), or services (i.e., beauty salons, funeral parlors), which, if successful, would increase the assets of a household.

Training in "life skills" can improve the chances of success and effectiveness of these microfinance services (e.g., livestock rearing, food storage, fish processing). These include health and hygiene, nutrition during pregnancy, disease prevention, bookkeeping, investment decision-making, and specific technical and entrepreneurial skills. In the end, a healthy, literate clientele that can handle finances, find and seize new chances for employment, and lower personal risk – including that of disasters – poses less dangers to microfinance institutions (MFIs).

AN APPROACH TO L&D THAT IS BASED ON HUMAN RIGHTS

To integrate human rights commitments and values into governance and policy, a conceptual framework known as the Human Rights Based Approach (HRBA) is used. Assuring that those tasked with protecting, defending, and executing these rights keep their word and take accountability for their actions, as well as helping people recognize and speak up for their own human rights, are also included in this definition. The following six essential principles must be followed in order for the HRBA to be correctly implemented: accountability and the rule of law; universality and inalienability; indivisibility; interdependence and interrelatedness of human rights; equality and non-discrimination; participation and inclusion; and, of course.

In order to implement the HRBA, policymakers must integrate L&D and human rights requirements into regional and international human rights frameworks, therefore acknowledging their interdependence (Toussaint & Martinez Blanco 2019). It is now simpler to establish a causal relationship between climate change and its effects, which also affects the human rights that are affected by the catastrophe. For instance, the right to a sufficient quality of living or the right to appropriate and secure housing are two human rights that are affected by extreme weather events, along with other effects on individuals such as population relocation (Fig. 1).

A modified version of "Mapping the Human Rights Implications of Loss and Damage," which Pakistan submitted to the UN High Commissioner for Human Rights on September 25, 2008.

State governments are informed by the Human Rights Basic Assembly (HRBA) that human rights legislation, especially international and regional commitments, already incorporates provisions pertaining to climate policy. This approach, international human rights law allows harmed people to have access to judicial remedy even in the absence of a responsibility and compensation structure agreed upon by States parties under the L&D regime. That is to say, the ABRH offers

a preventative measure that attempts to adjust the L&D system to the human rights requirements, instead than addressing the human rights breaches that have been revealed by L&D.

Furthermore, the ABRH activity enables the impacted communities and civil society to reconstruct and reshape the public discourse and political discourse around land use and development in the context of the climate regime. Actually, the basic rights of the unique individual are at the center of the global political discussion around L&D. Specifically, "implementing an ABRH could address a fundamental shortcoming of the current policy discourse, which characterizes loss and damage as a developing country issue in abstract, state-centric terms." State protection of vulnerable groups should be strengthened by concentrating on the rights of the unique individual, including the right to inclusion and participation. States would, therefore, be required by the HRBA to guarantee that the most vulnerable groups were included in the creation and implementation of L&D policies. Because it may establish a framework for institutionalized collaboration and conversation between governments and those who are most impacted by L&D, we can conclude that the HRBA is an essential tool for bolstering the global response to L&D in regard to human rights.

THE CREATION OF A GLOBAL MECHANISM ON L&D THROUGH A NATIONAL APPROACH

The second indicated technique surfaced more recently as a result of the perception that the international community was ineffective in producing tangible results when it came to tackling L&D. Bangladesh, one of the most impacted nations by climate change, chose to take the lead in taking advantage of this opportunity. In 2008, it was the first nation to prepare a national adaptation strategy, far in advance of the UNFCCC's suggestion. The government established the "Bangladesh Climate Change Trust Fund" in order to carry out a two-year pilot project on the national framework for L&D, building on the 2008 "Bangladesh Climate Change Strategy and Action Plan" (BCCSAP).

In order to build a National Mechanism on Loss and Damage, the Government of Bangladesh decided to launch a pilot project in December 2018. It will specifically cover the following topics: gradual and sudden disasters; the potential for using insurance as a practical tool to address loss and damage; the various intricacies associated with non-economic loss and damage; and migration brought on by climate change.

Though we cannot guarantee a perfect system for addressing learning and development, the Bangladesh National Mechanism on L&D will surely be the first national mechanism and will offer insight and experience into how a successful L&D mechanism ought to function. In this sense, Bangladesh has already gained an advantage over both wealthy and developing nations when it comes to tackling the

effects of climate change through an adaptation framework, and it may now do the same for the L&D framework.

While national experiences won't replace the effort done at the international level, they will provide legitimate support since they come from the source. Advances in international negotiations may be facilitated by the lessons learned at the national level. Evidence at the national level may offer lessons that may be applied to other nations. Both the top-down and bottom-up approaches may enhance the process: while national information and experience can deepen the understanding of L&D, worldwide viewpoint and knowledge can assist national processes. This relationship must be founded on national laws and regulations and particular to each country. However, it may also develop into a significant platform for international exchange of experiences and best practices.

We won't really comprehend that till time passes. It appears more likely, though, that the national experience will allow the international community to watch and gain a better grasp of how L&D will be handled both internationally and domestically.

DISCUSSION

The freshwater and marine levels are impacted by enterprises worldwide. The amount of freshwater that is available to individuals is being affected by the growing usage of water in commercial operations like the textile industry, which needs a lot of it. However, rising sea levels are also a result of effluent being dumped into the ocean (O'Connor, 2019). In addition, the melting of glaciers brought on by rising greenhouse gas levels – one of the causes of global warming – raises the sea level even further. The lives of people and farmers are being affected by the rising frequency of floods brought on by the melting of glaciers. Farmers' crops were destroyed by the floods, which had an effect on the economies' agriculture sector (Moser, 2016). One of the main concerns with the melting of glaciers brought on by global warming is that farmers often need water for irrigation, and the water that farmers store in their glaciers provides that water. Thus, one of the risks to the agriculture sector of the economy is the melting of glaciers brought on by increased global warming (Johnson et al, 2019). Because certain animal and plant species cannot withstand hot temperatures, the ecology has been harmed by the harsh weather as well, leading to a decline in certain species.

CONCLUSION

Climate change and microfinance are closely related, and the growth of small companies has an effect on climate change. Due to their involvement in industrial activities, the enterprises require more water and electricity. In addition, the rising usage of petroleum and fossil fuels raises the temperature. A reduction in company activity can save the planet from extreme climate change, but an increase in companies would exacerbate global warming and worsen the environment. This is

how business activity and climate change are intimately associated. When it comes to the effects of company expansion on climate change, there are a variety of drawbacks; nevertheless, by taking precautions, firms may reduce their adverse effects.

The most vulnerable communities on the planet are feeling the severe effects of climate change, and the IPCC has been emphasizing these effects in various reports for many years. The frequency and intensity of weather-related dangers have increased globally in recent years, and anthropogenic actions have contributed to long-term negative repercussions of climate change. Due to its worldwide reach and impact on both human and environmental situations, this topic has emerged as one of the most contentious and pressing topics of the twenty-first century. One of the nations most at risk from the unpredictable effects of climate change is Pakistan. According to Maplecroft (2011), Pakistan is ranked fourth globally for relative sensitivity to climate change.

People are impacted differently by the changing environment, even though it affects all nations and economic sectors. Because these groups lack resources, options, and skills, they are especially vulnerable to the effects of climate change. In order to help vulnerable communities become more resilient, microfinance programs that specifically target them can be quite effective. Microfinance helps rural people create assets, diversify their sources of income, and disperse risks by offering credit and other financial services. Policymakers must provide incentives and capital constraints through policy regulations in order to direct MFIs' business practices. If financial innovations like targeted subsidies, conditional cash transfer programs, microfinance, and risk insurance are expanded through policy and community level initiatives, there is a great chance that these programs will be beneficial (Prabhakar 2013).

Unfortunately, current mitigation and adaptation efforts are insufficient to stop hazardous climate change-related effects in many parts of the world. Stated differently, the consequences of climate change to which we are unable to adjust or prevent will form a portion of our future reaction, which we may include into the loss and damage (L&D) domain. While experts call on governments to alter their policies on politics and the economy, many communities are already suffering global changes that exceed their capacity for adaptation or mitigation and endanger their life and well-being. As a result, comprehensive multi-level governance is required.

Even after six years after the WIM was created, it is still a significant information endeavor, but it lacks the ability to convert into real support. The two paths – the National Mechanism for L&D and the Human Rights Based Approach – have the power to compel the international community to take proactive steps in the direction of a more equal distribution of the costs and obligations associated with L&D. It would be wise for future studies to keep an eye on how these new tactics impact the political discourse surrounding labor and development and assess any

potential benefits that may arise from tackling it.

RECOMMENDATIONS

As previously stated in this paper, there is currently little empirical data about the connection between microfinance, adaptation, and climate change. It is advised to pursue several distinct research avenues to close this gap.

First, because of its constrained scope, this research was only able to offer a brief overview of the present circumstances facing farmers who are receiving loans from KBL. To evaluate the ways in which local farmers' susceptibility and ability to adapt are impacted by access to microloans, as well as the long-term consequences of this relationship, more multi-year longitudinal studies are required.

Second, although the research was done in Punjab province has been worst hit by the effects of climate change.This might restrict how far the results can be applied to regions that are not suffering from the most extreme weather occurrences. Many of the participants in the interviews did, however, have experiences with weather variations that had an impact on their crops, especially in Huye, where farmers are experiencing irregular rainfall and protracted dry periods. It is advised to do additional study in regions that are more negatively impacted by climate change. Third, in keeping with the principles of climate justice—which acknowledge that the poorest members of society will be disproportionately affected by climate change and that this will increase inequality at the local, national, and international levels—more research is necessary to fully understand the implications of microloans for social justice and the environment.

According to the Pakistan Government's stance on climate justice, the most vulnerable members of society will be most affected by the effects of climate change, increasing inequality at the local, national, and international levels. Research emphasizing these individuals' demands and conditions in Punjab and elsewhere is very ethically required because they did not significantly contribute to climate change. The main target audience for this initiative was Khushhali and NRSP bank members. More extensive involvement with persons who are economically inactive and do not belong to NRSP or KBLs is necessary in order to properly comprehend the effects of microfinance on stratification and social mobility. Microfinance's socio-economic and political effects must be thoroughly examined if it is to be disbursed in line with the ideas of climate justice.

In a related vein, this line of inquiry ought to investigate the reasons behind the decision of certain persons to not become members of NRSP and KBLs, as well as the consequences that follow from this decision. Lastly, data points to a possible complementary link between crop insurance and microloans, in which the latter shields farmers from unpredictable weather-related losses while the former supplies funds for essential agricultural inputs. This connection was not the study's main

emphasis. Further investigation is necessary to comprehend the trade-offs, prospects, and pragmatic consequences of offering these two financial instruments in tandem.

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