Shahjalal University of Science &Technology, Sylhet

Assignmenton
Climate Changeand Dimension of Human Migration

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Abstract:

Climate change Is an increasingly pressing global challenge with far-reaching implications for various aspects of human life. One critical consequence of climate change is its impact on patterns of human migration. This paper explores the relationship between climate change and human migration, highlighting the key factors, trends, and consequences associated with this complex interaction. This paper also emphasizes Bangladesh has frequently been affected by natural disasters, and its people have often been forced from their homes as a result both migration and displacement have become increasingly linked to changes in climate patterns.

INTRODUCTION

Researchers and decision-makers have become more involved in migration as a result of climate change during the past two decades. There is a connection between climate change and migration since there are record-breaking storms, floods, rain bombs, heat waves, hurricanes, sea-level rise, droughts, and wildfires in the news every day on a worldwide scale. Climate change has raised interest in migration among policymakers and scholars during the past two decades .Since there are record-breaking storms, floods, rain bombs, heat waves, hurricanes, sea-level rise, droughts, and wild fires in the news everyday on a global scale, there is a connection between climate change and migration. 28% of the population of Bangladesh lives on the coast, where the primary driver of displacement is tidal flooding caused by the sea level rise.

A survey was conducted in Bangladesh's coastal region, whereall70 villages were severely impacted by both quick and slow-on set disasters .The most common type of unexpected or rapid-on set disasters are cyclones. The erosion has been severe in 47% of the settlements as a result of tidal surges and tropical storms. As a result, on average, 82% of households have at least one family member who migrated for a better standard of living between 2000 and 2017,while 32% of home shaveat leastone unemployed individual.(Helvetians, OKUP Ovibashi Karim Unnayan Program, 2020).

Climate change and global warming will have much more severe effects in the future! Unlike what we are being taught, these repercussions (worsening storms, heat waves, flooding, rain bombs, droughts ,and wildfires)willspreadacrossincreasinglygreaterareasandgetworse,morefrequently. Furthermore, the effects will continue to worsen for many years (Wollersheim L, 2022). The main two causes of forced migration worldwide, together with conflict, result in the eviction of almost 30 million people each year. These two factors are extreme weather occurrences and conflict. The nations and areas most susceptible to climate change are closely correlated (Gaudry Haynie, 2021).

METHODOLOGY

To investigate how various environmental conditions influence migration as a result of climate change. A review of the literature was done. We used to search the article. In addition to covering several extremely important publications in the fields of climate change, extreme weather events, climate migrants, policymaking environments, and management, they offered a comprehensive pictureoftheworld'sscientificoutput.Weatherdependenceinagriculture.Thesedatabaseswerevery extensive. Used in earlier analyses of the literature on this subject.

Whenscientistsandenvironmentalistspredictedthatenvironmentalchangecouldresultinsignificant human relocation in the 1980s, we first learned that climate change had become a global concern (Baldwin et al. 2014). The investigation of climate change then became a field of study.

These papers evaluate related articles. Journals that have undergone peer review include those that discuss climate change and migration, extreme weather and decision-making, rural-rural, rural-urban, and international migration ,and agricultural reliance . Migration that is both short-term and long-term, voluntary and involuntary. The following keywords were used in our research strategy. We chose research that concentrated on the reasons for and times when people migrate as a result of climate change. in terms of socio economic insecurities and a livelihood centered on agriculture. Each member analyzed the major topics' arguments, results, in their share of the selected papers.

2. CLIMATECHANGEANDMIGRATION

TRENDSANDTRAJECTORIES

Agriculture and regions with an agricultural economy are significantly impacted by climate .Human mobility is induced by climate. Extreme weather events, which contribute to environmental deterioration and livelihood insecurity, are frequently the cause of migration. Climate change is a majorfactorinthepopulationdisplacementproblem.Aperson'sfamilyandsocialnetworks,aswell

as their perceptio no themselves ,may bederived from their house ,which may be connectedto their ancestors. People have a strong emotional connection to their place of origin. But climate change-related negative shocks to agricultural productivity sharply raise migration (Gemenne, 2011).

Climate change-related migration has its roots in the 1980s, when scientists and environmentalists predicted that environmental change would result in significanthumanrelocating.Then,inthe1980s, as environmental change became a worry for everyone, environmental-induced migration once again became atopicofdiscussion(Baldwin etal.,2014). Itiscommonlyacknowledgedthatenvironmental change due to anthropogenic and natural factors, notably climate change, can affect people's movement and behavior (Moniruzzaman et al., 2018). Adverse weather shocks reduce rural-rural, rural-urban, and international migration and drive people into cities or developing to developed countries in different presumably more prosperous states. Climate migrants are likely to be from the lower end of the sill distribution and the households dependent strongly on agricultural production (Chopra and Gulati, 1997).

Adverseweathershocksreducerural-rural,rural-urban,andinternationalmigrationanddrivepeople into cities or developing to developed countries in different presumably more prosperous states. Climate migrants are likely to be from the lower end of the sill distribution and the households dependent strongly on agricultural production. According to Myers (1993), persons who are compelled to migrate owing to great poverty are also impacted by environmental conditions; hence, theirenvironmentalstruggleisjust asimportantto theirsuccessasanyotheraspect.Naturaldisasters are not seen as surprising events by those who are frequently affected because they typically only createmodestdisruptionstodailylife;only morecatastrophiceventsresultinabandonmentorforced relocation.

Investigative field geology can offer explanations for the potential causes and driving forces behind natural disasters that have impacted socio-cultural dynamics by repeatedly forcing settlement relocation.Themajorityoftheknowledgeregardinghistoricalcatastrophesthatimpactedindigenous people has been lost because many of them did not have a written language until relatively recently (Elbert and Pukui, 1979). The impacted people have retained this information orally through oral tradition. Migrants may contest their status as climate migrants. If the economy were doing better, they would still be living in their prior residences.

HISTORICALANALYSISOFMIGRATION

Globally, the effects of climate change are getting worse. People living in Africa's deserts are the mostnegatively impacted. Theyarepresently threatenedwithextinctioninthearéaduetothecurrent state of affairs. Many people are abandoning the area. Only the elderly are still clinging to life. Morocco is losing its agricultural land and oasis. There haven't been any fruits on the tree in a very long time. They weregradually engulfed by the arid dunes. Thevegetation can no longer surviveas a result.Theoasishasbeengraduallyerodinginto the desertsandsoverthepastfewyearsasaresultof decreasing rainfall and rising temperatures. Water scarcity has occurred due to climate change. As a result, the desert is growing. Morocco's oasis and agricultural land are being lost (Notoni, 1994).

ClimatechangeisharmingTurkey'sMarmaraSea.TheMarmaraSeainTurkey islosingfishbecause to climaticchangeand uncontrolled trash. Mud is drifting about. Even Istanbul's portwas notspared. It's a terrible catastrophe for fishermen. How do fish manage to survive in water? You will expire in two minutes if you become stuck in the muck (Wilbanks et al.2007).

The Muslim-majority state was ravaged by the tsunami in the Indian Ocean in 2004. The cost of the damage was put at 480 million. The result is that 72% of the GDP will be lost financially for the nation.Numerousbuildingsweredevastatedbythetsunami,includingtheonlyinternationalairportin the Maldives.The nation in particular is renowned for having the loudest voice on this subject. Because one of the nations most impacted by climate change is the Maldives. Environmentalists worry that by the end of the century the island may have vanished beneath the waves. The Maldives arethereforeattemptingtograbtheworld'sattention inordertopreservetheirsurvival(Deiningerand Jinn, 2006). Temperatures in northern Africa are steadily rising compared to the rest of the world. If this continues, the temperature will increase by two to three degrees by 2050 (Claussen et al.2003).

The world's temperature and climate have started to shift as a result of global warming, according to ananalysisofdatafromthelastfewdecades.Every nationonearthisexperiencingtheeffectsofthis climate change. For instance, the Earth had its warmest years throughout the 1990s, with 1995 toppingthe list.MostofSiberiahasexperienced a3–5degreeCelsiusincrease intemperatureduring the past century.Since 1850, the Alps of Europe have melted by half. There are fewer penguins in Antarctica and less krill, which are consumed by a range of marine animals, as a result of rising seawatertemperatures inthePolarRegions.Thetropics arebecominghotteranddryer,agricultureis struggling, and water is in short supply. Summer rainfall in Mongolia's Gobi Desert has been decliningforthepast30years.Rainfallhas alsobeenmuchlowerthanintheMediterranean climate. The European crisis the current refugee crisis in Europe gives the data presented above a fresh perspective. Nearly one million migrants and asylum seekers entered Europe in 2015, which is a record-breaking number (OECD 2015a).

Around800,000ofpeopleattemptedtocrosstheAegeanSeafrom Turkeyto Greece;however,3,600 of them were reported as either dead or missing. In October 2015, when more than 221,000 refugees landed in Greece, sea crossings peaked. According to the UNHCR, the top ten countries in the world for producing refugees account for 84 percent of all arrivals. The number of migrants crossing into Italy from North Africa during the same 12-month period decreased marginally, from 170,000 in 2014 to roughly 150,000 in 2015 (UNHCR 2015a). The five EU member states receiving the most asylumapplicationsareGermany,Hungary,Sweden,Italy,andAustria.Togetherthesestatesaccount for over 75 percent of all first-time asylum applicants in the EU (Eurostat 2015a).While Europe has legal and institutional processes in place for migrants, refugees, and asylum seekers, these have not ensured a fair burden-sharing between countries, and have not prevented people from using smuggling routes (OECD 2015a).

CentralAmericanfinancial crisisInanefforttoescapetherising levelsofviolence,includinggender- based violence, committed by organized criminal armed groups, hundreds of thousands of citizens of El Salvador, Guatemala, and Honduras have fled to the US or nearby nations since 2011. The UNHCR commissioned research brought attention to the rise in the number of women and unaccompanied minors making these migrations. More than 66,000 unaccompanied minors entered

the US from the northern triangle in 2014 alone. 2014 saw a threefold increase in the number of womencoming totheUSfromthesameregion.Womenwithchildren, transgenderpeople,andpolice officers appear to be targeted more harshly than other categories of women (UNHCR 2015e, 2014).

In addition to dealing with the Rohingya refugee problem as a result of a cruel military campaign in neighboringMyanmar,Bangladeshisalsodealingwiththeconsequencesofclimatemigration.In this case, climate change causes a new migration crisis for Bangladesh. As the nation struggles to deal with the Rohingya crisis, hundreds of thousands are forced to make the difficult decision between urban slums and ravaged coasts (Nicholls & Lowe (2004).

3 TYPEOFMIGRATION

SHORTTIMEANDLONGTIMEMIGRATION

Thedecision-makingofclimatemigrantsisheavilyinfluencedby theeffectsofnaturaldisasters,and adapting to the effects of climate change has a permanent impact on their lives. In Burkina Faso, researchers have discovered a connection between climate change and short-distance migration in addition to socioeconomic factors, education level, and livelihood activity (Henry et al. 2004). Khatun(2021)discoveredthatthecharresidentsof Bangladesh'sPadma,Jamuna,andMeghna floodplains occasionallymigrate tonearbyplaces as atechniqueforadaptingto lowerriskand uncertainty associated with the threat of erosion.

Duetotheregion'srelianceonagriculture,rainfallshortagesinAfricaappear tohavehadparticularly detrimental effects in the worst situations, leading to food and water shortages that lead to economic failure. Depending on the disaster, there may be temporary or permanent migration. For example, rising sea levels are a long-term disaster that cause permanent migration, but sudden calamities only cause temporary migration. Following the idea of Lester Brown, Jacobson (1988) first classified environmental refugees into three sub-categories.

1. Temporarydisplacementduetotemporaryenvironmentalstress.

2. Permanentdisplacementduetopermanentenvironmentalchange.

3. Temporaryorpermanentdisplacementduetoprogressivedegradationoftheresourcebase.

PreviouslyRenaud(2011)developedadecisionframeworkbasedonenvironmentalcausesof migration and classified migrants into three categories

● Environmentalemergencymigrants(EEM): Those whohavetoleavetheirhomesfor disastrous eventssuchascyclones,floods,tsunamis,andearthquakes.●Environmentalforcedmigrants(EFM): Those who have to leave their homes to avoid certain environmental hazards such as soil erosion.

● Environmentalmotivatedmigrants(EMM):Thosewhomayleavetheirhomesanticipatinga deteriorating environmental condition such as land degradation (Schwartz and Notoni, 1994)

Traditionally,seasonal(labor)movementisdonebypeopletoimprovetheirlivingconditionsduring the flood season. Environmental migrants and environmental refugees are the two words that are discussed.

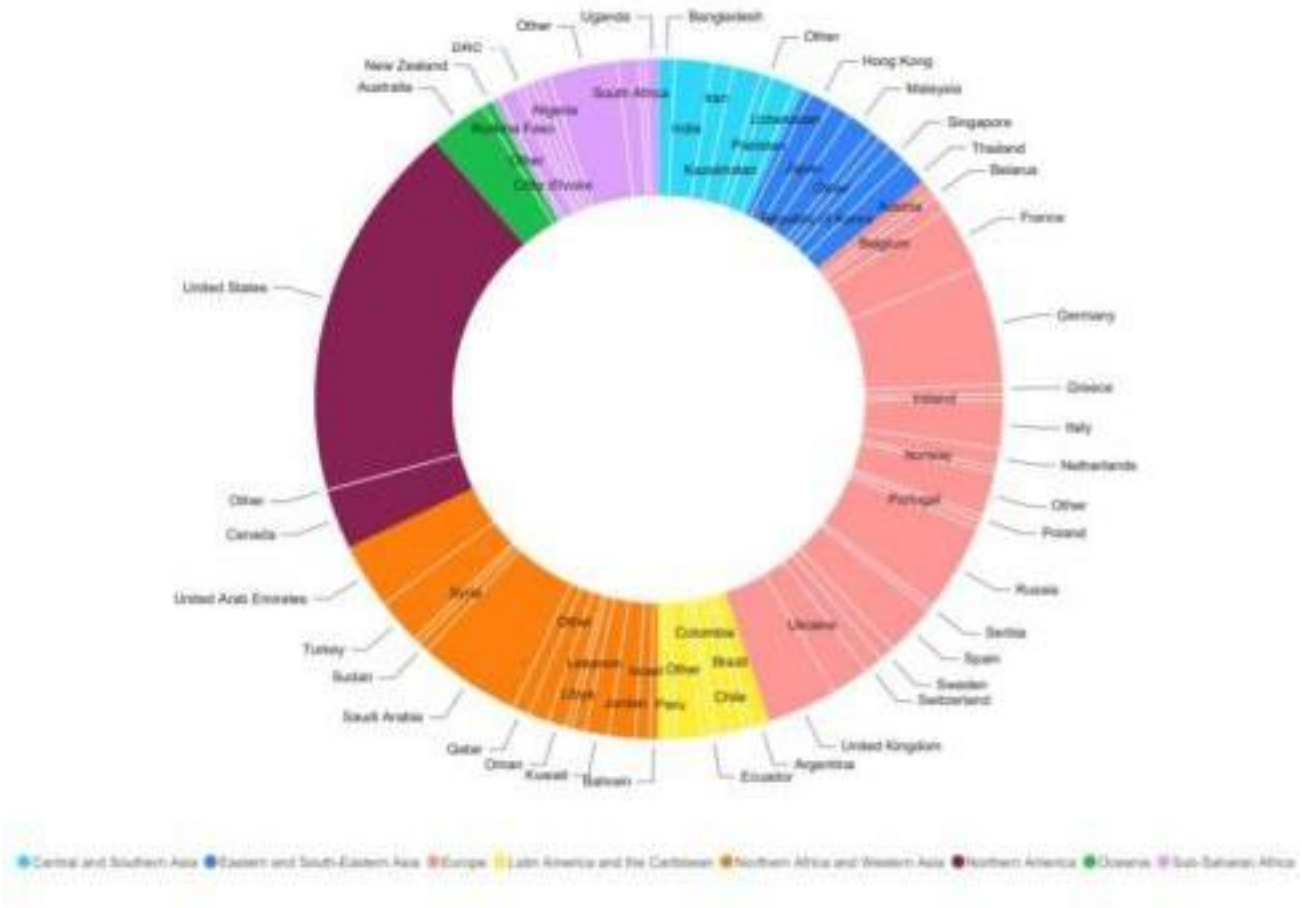
Forced migrationmaytaketheformof(permanent) displacementfromsmallislandstatesthathave been flooded or (temporary) displacement when residents flee a region in search of physical safety after a danger.Climate changes that only briefly predictably direct livelihood are included in voluntary migration (Notoni, 1994).

4. AGEANDSEX STRUCTUREOFMIGRATION

Migration patterns vary based on age and gender, as well as location and level of development.The age of migrants can impact the overall structure of migration. To determine the average age,we can compare the age ranges of immigrants. Understanding the age and gender makeup of theglobal migrant population is crucial. Differences in age and gender across continents can affectmigration decisions. In 2015, the EU received over 1 million asylum requests, with the majoritybeing young men aged 18 to 34, and most women falling into this age group as well (Eurostat2015b).Thirty-six percent of individuals who travel by sea from Turkey to Greece are minors (UNICE 2016). It was found that these individuals were accountable for a minimum of 30% ofthe confirmed deaths in the Aegean Sea during 2015 (UNICEF 2015a). Bangladesh had thehighest number of immigrants entering Europe in May 2017. According to Flavio di Giacomo, arepresentative from The International Organization, the number of Bangladeshi immigrantsarriving in Italy increased significantly from last year. End of March 2017, only oneBangladeshi arrived in Italy, while in the same period this year, the number has risen to 2,831.(Bangladesh climate displacement, EJ Foundation). The gender and age composition of migrantsand refugees coming to Europe has changed recently. Humanitarian organizations report that amajority of individuals traveling from Greece to Macedonia are women or children, which is asignificant difference from June 2015 when most were adult men (UNICEF 2016). In turmoilsituations, migration decisions can be involuntary or involve different levels of choice andmotivation. However, they are always influenced by complexsocial,economic,andpoliticalfactors(JollyandReeves.,2005).Simultaneously,individuals may migrate to fleeoppressivesocialnorms or discrimination. To attain greater economicautonomy, women may move. Youngmen might depart their homelands to avoid being drafted. Single women, widows, and divorceesmay relocate to evade societal stigmatization. To elude pressure to wed or restrictions on theirautonomy, young women may relocate. Women may migratefromruralto urban areas since theyare not permitted to inherit or own land in the former. Those with non-conforming genders maychoose to relocate to cities where gender roles may be more fluid or open (Jolly and Reeves.,2005).

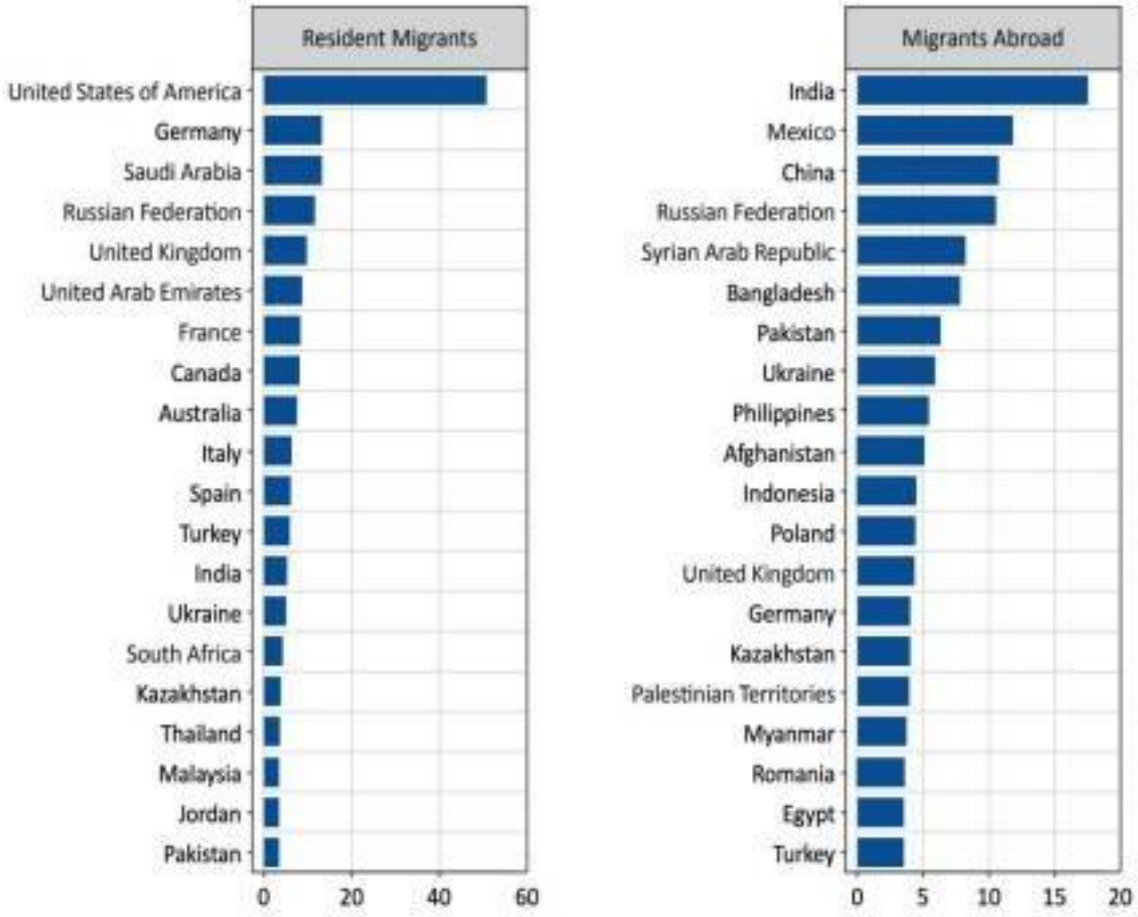
INTERNATIONALMIGRANTSDISTRIBUTION

Estimates show that the median age of global migrants is 38.4 years, which is higher than thetotal population'smedianageof29.2years.Thisisdue to fewerchildrenamongmigrants,asnewbornsin thedestination countryarenotconsideredmigrantsinmanyplaces.Developedregionshaveahigher median age of migrants (42 years) than developing regions (33 years)(POPFACTS, UN, 13/4).



(Figure1: Proportionatedistributionofinternationalmigrants,byregionandcountryof destination,2020**).**

In terms of the regional distribution of where migrants live, Europe was home to the largest numberofinternational migrants intheworldin2020with87million.NorthernAmericahosted thesecond largestnumber of migrants, atotalof nearly 59 million;followed by Northern Africa andWesternAsia,withnearly50 million.Inallotherregions,thenumberofmigrantswasmuch smaller (UN department of economic and affairs, population division (2020b) IMS, 2020).

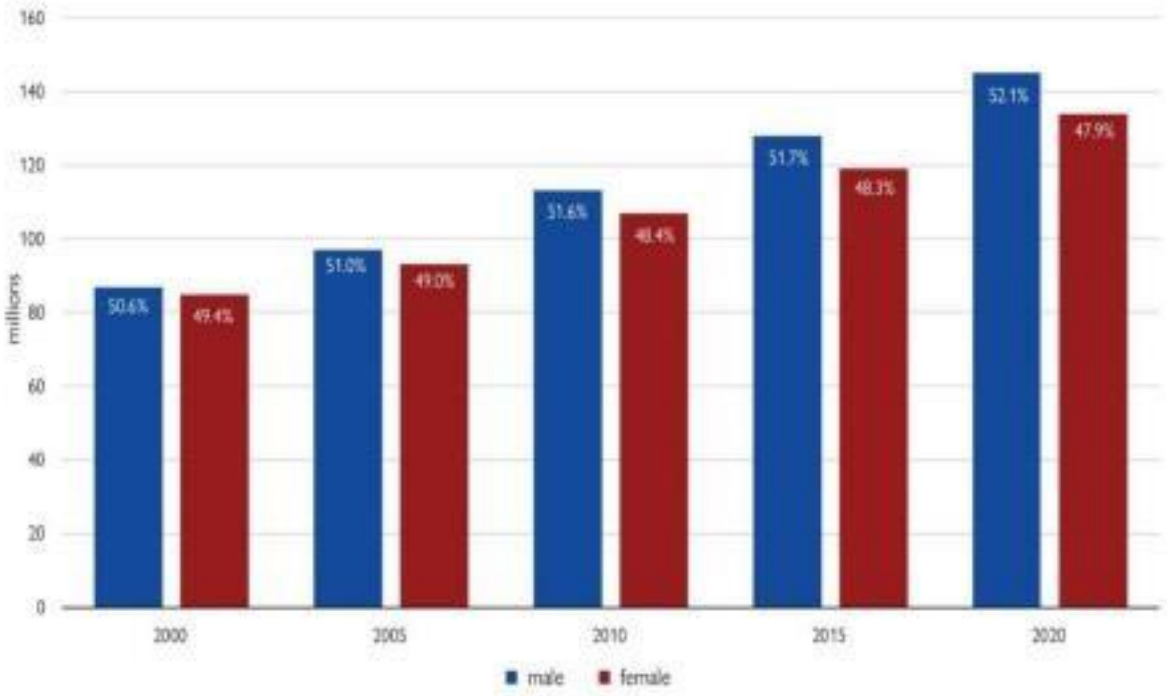


(Figure2:Top20destinations(left)andorigins(right)ofinternationalmigrantsin 2020(millions)**)**

Historically,theUnitedStateshasbeenthemajordestinationcountryforinternationalmigrants. This trend continued in 2019, with an estimated 51 million international migrants living in the country, the largest population of them in the world. Despite the highly politicized negative rhetoricon migrants, theUS has been the mostsignificantdestination country for decades, with many migrants positively and disproportionately contributing to aspects of American life. GermanyandSaudiArabia,bothwitharound13millioninternationalmigrantsin2019,werethe second- and third-largest destinations for international migrants, with displacement from Syria driving much of the recent increase in Germany's international migrant population. India, Mexico and China topped the list of countries with the largest number of migrants living abroad in2019.Morethan40%ofinternational migrantsworldwidewereborninAsia,withIndiaalone the origin of 17.5 million. UN DESA, 2019a (accessed 18 September 2019).

SEXSTRUCTUREOFMIGRATION

The migration of specific groups is influenced by age and gender. Men are often motivated by financialresponsibilitiestoseekbetterjobopportunities,leavingtheirfamiliesbehind.Youngmen may view moving as a significant life event. During times of limited resources, migratingyoung males and teenage boys becomes a priority. Women may not have the same level of acceptance to ventureoutor travel alone in certain situations. As aresult, women may facemore challenges when it comes to moving and may choose shorter trips or stay within their own countriesorregions.Thosewhoareilliterateandliveinrural areasmayhavea muchhardertime relocatingdue tolackofresourcesandknowledge.Incertaincultures,it iscustomaryforwomen to move to their husband's family after marriage. Some parents may feel obligated to have their daughters move and send money back to the family (Jolly and Reeves., 2005).



(Figure3: Internationalmigrants,bysex,2000-2020.Worldmigrationreport2022**)**

There is currently a larger number of male than female international migrants worldwide, and the gap has increased over the past 20 years. In 2000, the male to female split was 50.6 to 49.4 per cent (or 88 million male migrants and 86 million female migrants). In 2020 the split is 51.9 to 48.0 percent, with 146 million male migrants and 135 million female migrants. The share of femalemigrantshasbeendecreasingsince2000,whiletheshareofmalemigrantshasincreased by 1.4 percentage points. See Figure 4 for further breakdowns by sex (UN DESA, 2021a).

5.EFFECTSOFEXTREMECLIMATEEVENTSANDMIGRATIONASA RESPONSE

The effects of climate change will test the ability of various communitiesto adapt andexacerbate issues such as food and water scarcity and lack of protection on marginal lands. At a certain stage, the land becomes unsuitable for supporting livelihoods, resulting in migration to more promising areas. While natural disasters may displace a significant number of individuals briefly,gradualcausesaremorelikelytodisplaceagreaternumberofpeoplepermanently,albeit in a less visible manner (Brown and L.R., 2004). By 2050, climate change may displace one in every seven people in Bangladesh. Bangladesh may lose 11% of its land due to a projected 19.6 inch (50 cm) rise in sea level. This could cause up to 18 million people to migrate because of sea-levelrisealoneinBangladesh.Bangladeshhasasubtropicalclimateinthecenter-northand tropical climate in the south. Climate change endangers coastal environments and poses risks. The most significant risk is the rise of sea-levels which puts people, ecosystems, and infrastructure in danger. This also amplifies the effects of coastal storms.

CLIMATECHANGE:ITSCAUSEANDEFFECTS

Migration is an important strategy for livelihood in the world, with positive impacts on social development and empowerment through skill transfer and community development initiatives. Climate change is a result of human activity that alters the globalatmosphere and affects temperature, rainfall, wind patterns, and local weather. Geography, air and sea currents, treecover, and global temperatures influence the climate of an area (Baldwin, A., Methmann, C.,Rothe, D., 2014). Theimpactof climate changeon theworld is analyzed for both negative andpositiveeffects. TheUNFCCCdistinguishesbetween man-madeand othercausesofclimatechange.Whilesomeuse the term "climate change" for man-made changes, it is clear that bothnatural and man-made causes contributeto globalclimatechange. "Global climate change"simply refers to climatechangecaused by natural factors.

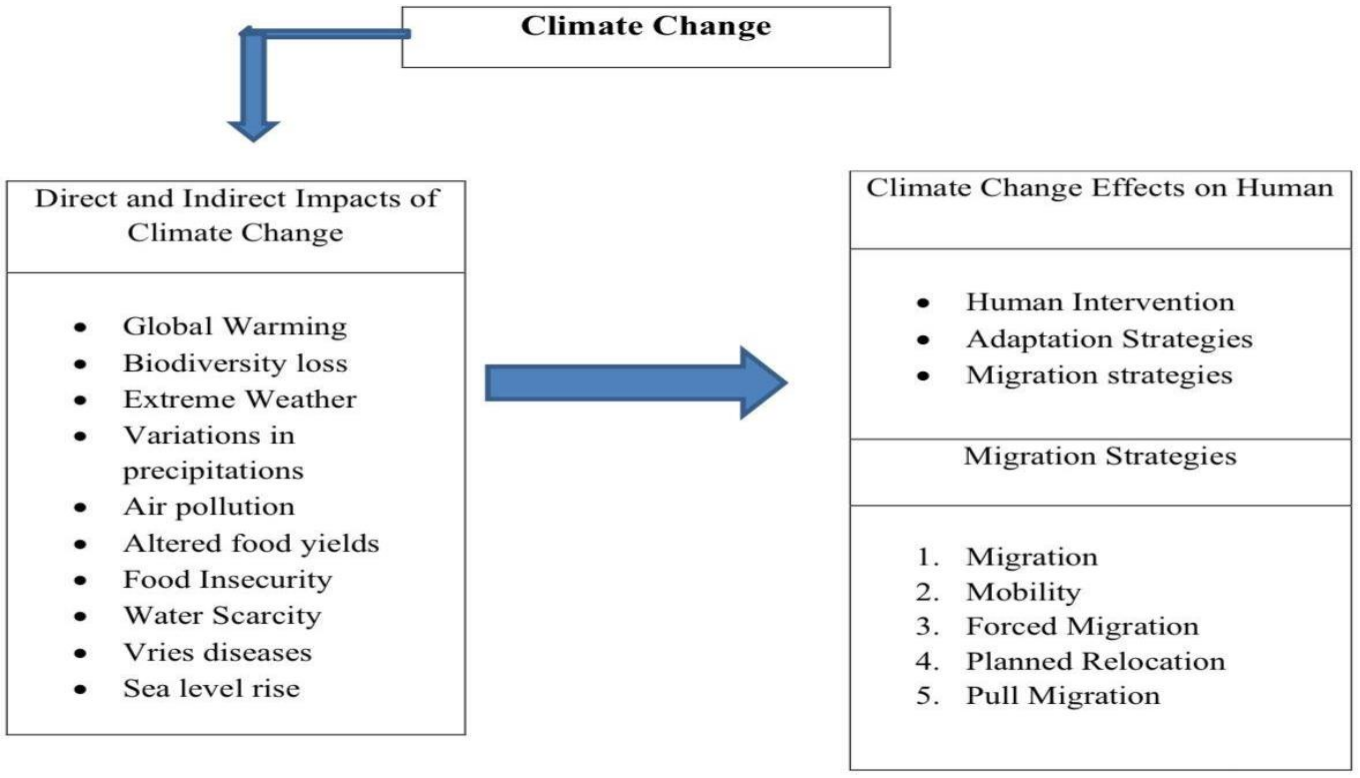
Naturalphenomenasuchasvolcaniceruptions,oceancurrents,andearthorbitalchanges,aswell as human activities like deforestation and the Himalayas, impact runoff and downstream flow. Climate change, caused by human activities like greenhouse gas emissions, deforestation, coal mining,burningoffossilfuels,industrialprocesses,andagriculture, isresponsibleforsea-level rise, increased snowmelt, and increased rainfall. Additionally, the urbanization of flood plains has led to more frequent and severe floods (Baldwin, A., Methmann, C., Rothe, D., 2014)

TheconsequencesofClimateChangearenumerous and devastating,withrisingtemperatures, sea levels, heavy rainfall, flooding, drought, and crop degradation, altering ecosystems, hurricanes, melting glaciers and snow, and riverbank erosion. Additionally, carbon dioxide

acidifyingseawater,economicexpenses,windsandcyclonesarealsosignificantoutcomesof this phenomenon (Hesse, C., and L. Cotula.,2006).

AsacountrywithalonghistoryofinternationalmigrationtheadaptabilityofBangladeshhas reached new heights. This has been crucial in the face of the negative effects of climate change, which have included decreased rainfall, increased salinity, rising sea levels, higher temperatures, desertification, and a decrease in groundwater.

CONCEPTUALFRAMEWORK



CLIMATECHANGEANDMIGRATION

Climatechangeisnotonlyathreatto thehabitability ofcertainareas,italsoinducespopulation displacement. Additionally, it cultivates uncertainty in the accessibility of food and water and heightens the incidence of floods and storms (Brooks, N.,2006). Nicholls & Lowe (2004) have projected that the annual number of people affected by flooding will increase by 10-25 million by the 2050s and by 40-140 million by the 2100s, depending on future emissions scenarios,

using a mid-range climate sensitivity projection. Diverse ecosystems' potential to provide sustenance,hydration,andhabitattohumanpopulationswillbeatriskduetoclimatechangeand related incidents. Higher temperatures may extend growing seasons and reduce frost risk in mid to high-latitude areas. The impact of climate change on agriculture is complex and multifaceted. One potential positive effect is the 'fertilization effect' caused by increased CO2 levels in the atmosphere, which could lead to increased crop yields. Alterations in rainfallpatterns may result in increased rain in regions that have struggled with water scarcity in the past (Hesse, C., and L. Cotula.,2006). The correlation between climate change and migration depends on multiple factors,suchasgreenhousegasemissions,populationgrowthanddistribution,climateevolution, and adaptation strategies. Migration has a range of implications, including urban flooding, weakened economies, political instability, and ethnic conflict. Additionally, some migrants may experience various health concerns and welfare issues (Brooks, N., 2006).

Migration is often not solely due to environmental factors, but also requires some form of environmental,social,oreconomicattraction.Climateeventsmaybeexceptions,wherepeople flee for survival (Brown, L.R., 2004).

Global emigration has a long and storied history in Bangladesh (Baldwin, A., Methmann, C., Rothe, D., 2014). Bangladesh is facing a new migration crisis due to the impact of climate change. The people of Bangladesh rely on migration for their livelihood. Migration positively affectssocialdevelopmentandempowermentbytransferringskillsandsupportingcommunity development. Bangladesh has a lengthy history of international migration Mcdonanel, 2019).

6. COMBATANDPREVENTOFCLIMATECHANGECHALLENGES

To combat climate change, it's imperative to utilize renewable energy sources such as solar, wind, geothermal, and biomass (Ali, S, S., 2006). Suggestions for promoting sustainable policymaking consist of reducing environmental pressure on energy, preventing social and economic conflicts, and taking into account social and territorial cohesion. It is imperative to providefundamentalrightssuchastherightto life,food,water,andshelterfordisadvantaged populations. Measures should be taken to improve employment opportunities and empower

women.Stepsmustbetakento aidthosewhohavebeendisplacedbynaturaldisasterssuchas floods, hurricanes, and wildfires and ensure mentalhealth treatmentis accessibleto migrants.

7. CONCLUSION

People migrate when they relocate from one location to another with the intention of settling down. New plants, animals, and technology were introduced by migrant populations, which had an impact on the ecosystem. Human migration is the movement of individuals from one place to another with the intention of establishing a new home. Climate change is a change that is added to the natural climate variability that has been seen across comparable time periods and is directly or indirectly ascribed to human activities. Climate refers to factors like temperature, precipitation, and wind patterns.Geographicalelementssuchastreecover,globaltemperatures,airandseacurrents,andother factors affect an area's climate, which affects local weather. People move to different locations in search of work when climate change, such as river erosion, soil pollution, air pollution, earthquakes, floods, global warming, and environmental contamination, affects the area where they now reside.It was just the most recent in a string of warnings about how poverty and states' capacity to effectively address it are among the repercussions of climate change. The number of individuals who will be displaced from their homes due to climate change is uncertain, but an increasing number of human rights activists and climate specialists warn that the migratory crisis brought on by environmental calamity cannot be ignored. The regular annual movement of animals between different breeding and wintering areas is referred to as migration. There are many distinct types of migration, from wholly sedentary to fully migratory populations .

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