

Supplementary Table 1: Search Query

Database Name	Search Query	Number of Records
Scopus	TITLE-ABS (("Increasing Temperatur*" OR "Climate Change" OR "Sea-Level Rise" OR "Sea Level Rise*" OR "Water Stress*" OR "Urban Flood*" OR "Drought*") AND (migration*)) OR AUTHKEY (("Increasing Temperatur*" OR "Climate Change" OR "Sea-Level Rise" OR "Sea Level Rise*" OR "Water Stress*" OR "Urban Flood*" OR "Drought*") AND (migration*)) AND AFFILCOUNTRY ("India" OR "China" OR "Indonesia" OR "Pakistan" OR "Nigeria" OR "Brazil" OR "Bangladesh" OR "Ethiopia" OR "Philippines" OR "Egypt" OR "DR Congo" OR "Vietnam" OR "Iran" OR "Thailand" OR "Tanzania" OR "South Africa" OR "Kenya" OR "Myanmar" OR "Colombia" OR "Uganda" OR "Sudan" OR "Argentina" OR "Algeria" OR "Iraq" OR "Afghanistan" OR "Morocco" OR "Saudi Arabia" OR "Angola" OR "Yemen" OR "Peru" OR "Malaysia" OR "Ghana" OR "Mozambique" OR "Nepal" OR "Madagascar" OR "Ivory Coast" OR "Venezuela" OR "Cameroon" OR "Niger" OR "North Korea" OR "Mali" OR "Burkina Faso" OR "Syria" OR "Sri Lanka" OR "Malawi" OR "Zambia" OR "Chile" OR "Chad" OR "Ecuador" OR "Somalia" OR "Guatemala" OR "Senegal" OR "Cambodia" OR "Zimbabwe" OR "Guinea" OR "Rwanda" OR "Benin" OR "Burundi" OR "Tunisia" OR "Bolivia" OR "Haiti" OR "Jordan" OR "Dominican Republic" OR "Cuba" OR "South Sudan" OR "Honduras" OR "Papua New Guinea" OR "Tajikistan" OR "United Arab Emirates" OR "Togo" OR "Sierra Leone" OR "Laos" OR "Nicaragua" OR "Libya" OR "Paraguay" OR "Turkmenistan" OR "El Salvador" OR "Republic of the Congo" OR "Singapore" OR "Central African Republic" OR "Liberia" OR "Palestine" OR "Lebanon" OR "Costa Rica" OR "Mauritania" OR "Oman" OR "Panama" OR "Kuwait" OR "Eritrea" OR "Mongolia" OR "Uruguay" OR "Bosnia and Herzegovina" OR "Jamaica" OR "Gambia" OR "Qatar" OR "Botswana" OR "Namibia" OR "Gabon" OR "Lesotho" OR "Guinea-Bissau" OR "Equatorial Guinea" OR "Trinidad and Tobago" OR "Bahrain" OR "Timor-Leste" OR "Mauritius" OR "Eswatini" OR "Djibouti" OR "Fiji" OR "Comoros" OR "Guyana" OR "Bhutan" OR "Solomon Islands" OR "Suriname" OR "Cape Verde" OR "Maldives" OR "Brunei" OR "Bahamas" OR "Belize" OR "Vanuatu" OR "Barbados" OR "Sao Tome and Principe" OR "Samoa" OR "Saint Lucia" OR "Kiribati" OR "Grenada" OR "Micronesia" OR "Tonga" OR "Seychelles" OR "Saint Vincent and the Grenadines" OR "Antigua and Barbuda" OR "Dominica" OR "Saint Kitts and Nevis" OR "Marshall Islands" OR "Nauru") AND PUBYEAR > 2012 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp")) AND (LIMIT-TO (LANGUAGE , "English"))	2016
Web of Science	TI=((("Increasing Temperatur*" OR "Climate Change" OR "Sea-Level Rise" OR "Sea Level Rise*" OR "Water Stress*" OR "Urban Flood*" OR "Drought*") AND (Migration*)) OR AK=((("Increasing Temperatur*" OR "Climate Change" OR "Sea-Level Rise" OR "Sea Level Rise*" OR "Water Stress*" OR "Urban Flood*" OR "Drought*") AND (Migration*)) OR AB=((("Increasing Temperatur*" OR "Climate Change" OR "Sea-Level Rise" OR "Sea Level Rise*" OR "Water Resource Scarcit*" OR "Urban Flood*" OR "Drought*") AND (Migration*)) AND CU=("India" OR "China" OR "Indonesia" OR "Pakistan" OR "Nigeria" OR "Brazil" OR "Bangladesh" OR "Ethiopia" OR "Philippines" OR "Egypt" OR "DR Congo" OR "Vietnam" OR "Iran" OR "Thailand" OR "Tanzania" OR "South Africa" OR "Kenya" OR "Myanmar" OR "Colombia" OR "Uganda" OR "Sudan" OR "Argentina" OR "Algeria" OR "Iraq" OR "Afghanistan" OR "Morocco" OR "Saudi Arabia" OR "Angola" OR "Yemen" OR "Peru" OR "Malaysia" OR "Ghana" OR "Mozambique" OR "Nepal" OR "Madagascar" OR "Ivory Coast" OR "Venezuela" OR "Cameroon" OR "Niger" OR "North Korea" OR "Mali" OR "Burkina Faso" OR "Syria" OR "Sri Lanka" OR "Malawi" OR "Zambia" OR "Chile" OR "Chad" OR "Ecuador" OR "Somalia" OR "Guatemala" OR "Senegal" OR "Cambodia" OR "Zimbabwe" OR "Guinea" OR "Rwanda" OR "Benin" OR "Burundi" OR "Tunisia"	2931

	OR "Bolivia" OR "Haiti" OR "Jordan" OR "Dominican Republic" OR "Cuba" OR "South Sudan" OR "Honduras" OR "Papua New Guinea" OR "Tajikistan" OR "United Arab Emirates" OR "Togo" OR "Sierra Leone" OR "Laos" OR "Nicaragua" OR "Libya" OR "Paraguay" OR "Turkmenistan" OR "El Salvador" OR "Republic of the Congo" OR "Singapore" OR "Central African Republic" OR "Liberia" OR "Palestine" OR "Lebanon" OR "Costa Rica" OR "Mauritania" OR "Oman" OR "Panama" OR "Kuwait" OR "Eritrea" OR "Mongolia" OR "Uruguay" OR "Bosnia and Herzegovina" OR "Jamaica" OR "Gambia" OR "Qatar" OR "Botswana" OR "Namibia" OR "Gabon" OR "Lesotho" OR "Guinea-Bissau" OR "Equatorial Guinea" OR "Trinidad and Tobago" OR "Bahrain" OR "Timor-Leste" OR "Mauritius" OR "Eswatini" OR "Djibouti" OR "Fiji" OR "Comoros" OR "Guyana" OR "Bhutan" OR "Solomon Islands" OR "Suriname" OR "Cape Verde" OR "Maldives" OR "Brunei" OR "Bahamas" OR "Belize" OR "Vanuatu" OR "Barbados" OR "Sao Tome and Principe" OR "Samoa" OR "Saint Lucia" OR "Kiribati" OR "Grenada" OR "Micronesia" OR "Tonga" OR "Seychelles" OR "Saint Vincent and the Grenadines" OR "Antigua and Barbuda" OR "Dominica" OR "Saint Kitts and Nevis" OR "Marshall Islands" OR "Nauru")	
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Supplementary Table 2: Summary of the publications reviewed.

Authors (study area)	Study Aim	Environmental stressors and their Impacts	Findings	Implications	Recommendations
McMichael et al. ¹ (Global)	- Analyze global population exposure to sea-level rise (SLR) and related hazards - Examine estimates of population migration due to SLR	- Sea-level rise (SLR) is a significant global problem. - Intensifying storms and wave action.	- Analyzed 33 publications related to global population exposure to SLR. - Migration is influenced by socioeconomic, demographic, institutional, and political factors	- SLR will significantly impact coastal populations globally. - Migration and relocation are important adaptation strategies.	- Consider intangible costs and health impacts. - Improve terrain elevations in urban and coastal areas.
Leal Filho et al. ² (Kenya and Ethiopia)	- Investigate the causes and implications of climate-induced migration. - Foster a better understanding of the current crisis.	- Droughts, conflicts, and crop failures are key factors influencing migration. - Climate change exacerbates pre-existing vulnerabilities such as poverty.	- Climate change is a primary trigger of migration. - Migrants strain resources and services in receiving regions.	- Need for a better understanding of climate change and migration linkages. - Policies and programs to support migrants and promote SD are required	- Implement policies and programs to support climate change-induced migrants. - Promote SD in origin and destination countries.
Hermans & McLeman ³ (Global)	- Review existing research on drought, land degradation, and migration dynamics - Identify future directions and priorities for research	- Droughts, heat waves, and changes to seasonal precipitation patterns. - Land degradation affecting at least 1.3 billion people.	- Migration is an important component of rural livelihoods in degraded landscapes in low-income countries. - Land degradation and migration connections are mainly studied in drought-	- Need for further research in the field. - Identifying future directions and priorities for research is significant.	- Further research is needed on land degradation-migration dynamics. - More systematic data collection on perceptions and adaptation.

			prone, dryland agricultural areas.		
Martinez-Zarzoso et al. ⁴ (Global South and OECD countries)	- Investigate the link between climatic events and bilateral migration. - Analyze the effect of climatic variables on international population displacements	- Climatic events (slow and fast onset). - Impact on conflicts, poverty, and economic vulnerability	- Climate change triggers migration from South to North. - Extreme temperatures and storms impact migration patterns.	- Increased coordination at the international level is key - More ambitious investments in climate mitigation and adaptation.	- Consider climatic zones when analyzing international migration. - Consider social and economic stresses
Lincke & Hinkel ⁵ (Global)	- Assess 21st century coastal migration due to sea-level rise. - Evaluate cost-benefit optimal protection decisions for coastal areas.	- Rising sea levels leading to coastal migration. - Climate change intensifying migration due to extreme weather events.	- Global coastal land loss: 60,000-415,000 km². - Coastal migration: 17-72 million people	- Robust response for 92.8% of global coastal areas. - Migration from coastal areas likely even under low SLR.	- Consider more advanced methods for decision-making. - Include location-specific social, ecological, and cultural dimensions.
Twinomuhangi et al. ⁶ (Uganda)	- Explore migration patterns due to environmental and climate change. - To inform policy processes and actions for building resilient societies in Uganda.	- Natural resources scarcity: water, pastures, fertile soils. - Slow-onset events: environmental degradation, rising temperatures, desertification. - Sudden-onset events and disasters: drought, floods, landslides and rainstorms.	- Socio-economic hardships induce voluntary and forced migrations. - Environmental and climate shocks and stresses affect communities.	- There is a link between environment, climate change, and migration. - Inform policy processes and actions to address human mobility challenges and build resilient societies.	- Analyze research gaps for future studies. - Inform policy directions based on study findings
Minehan & Wesselbaum ⁷ (OECD countries)	- Investigate the driving forces of migration. - To examine the impact of expected temperature and agricultural variables on migration decisions.	N/A	- The expected temperature at the origin affects migration flows.	- Agricultural pathway is important for migration decision.	N/A
Murray-Tortarolo & Salgado ⁸ (Mexico)	- Understand the relationship between drought and migration - To propose policies to reduce migratory peaks	- Drought as a key driver of migration. - Decreased rainfed crop yields impacting rural farmers	- Drought was identified as a key driver of migration. - Low precipitation tripled the migration of rural farmers.	- Drought negatively impacts rural agriculture. - Provision of drought-resistant seeds and livestock	- Implement policies to reduce the negative impacts of drought. - Provide support to marginal farmers in arid

					ecosystems.
Ergin ⁹ (Syria and Turkey)	- Analyze the impact of environmental factors on migration. - To understand the causes and consequences of drought-induced migrations	- Drought-induced migrations rising. - Difficulty of isolating environmental factors from other migration drivers.	- Human-induced climate change is the primary reason for the drought. - The recent drought in the Levant is likely the worst in the past nine centuries.	- Highlights the impact of human-induced climate change on droughts. - Environmental degradation can lead to major ecological and social change.	- Regional cooperation to tackle climate-induced droughts and eco-migrations. - Calls for sustainable management of land and water resources
Hermans & Garbe ¹⁰ (Ethiopia)	- To assess the effect of drought on livelihood strategies, particularly migration. - To generate hypotheses for further research on drought and migration.	- Droughts significantly impact people's assets, leading to poverty. - Rainfall deficits cause severe crop failures and food insecurity.	- Drought increases mobility and triggers short-term migration. - Migration is one of many livelihood strategies in response to drought.	- Drought poses a major risk to subsistence farmers in the highlands. - Livelihood strategies need to be understood in a larger context.	- Suggests understanding livelihood strategy changes in context. - Migration is influenced by drought but not directly driven by it.
Ocello et al. ¹¹ (Tanzania)	- Examine the link between internal migration and environmental changes. - Test the environmental scarcity hypothesis.	- Droughts, floods, and floods decrease the likelihood of internal migration - Crop diseases decrease the likelihood of internal migration.	- Least-educated individuals are more likely to migrate due to environmental shocks.	- Adverse environmental conditions decrease internal mobility. - Migration is a coping strategy for those lacking education.	- Further examine domestic migration-environment processes. - Informed policy and programs for environmental migration.
Thirumalai et al. ¹² (Southeast Asia)	- Investigate the causes of extreme temperatures. - Assess the impact of El Niño and global warming on regional temperatures.	- El Niño/Southern Oscillation (ENSO) - Global warming.	- El Nino contributes to extreme temperatures. - Global warming increases the likelihood of record-breaking extremes.	- Anticipate post-El Nino Aprils a few months in advance. - Provides insight into the causes of extreme temperatures. - Prepare for projected increases in extreme temperatures	- Quantify contributions of long-term warming and El Nino to extreme temperatures. - Helps societies prepare for future extreme temperatures.
Clarke et al. ¹³ (Global)	- To elucidate the link between climate change and extreme weather events. - To assess the degree of attribution of various	- Types of environmental stressors: extreme temperatures, heavy rainfall, drought, wildfire, tropical cyclones. - Impacts of climate change:	- Heat extremes and intensity have increased worldwide due to climate change. - Heavy rainfall has become more frequent and intense across most parts of the world.	- Develop climate change attribution and understanding. - Recording of impacts and coverage of attribution studies is crucial.	- Improve recording of extreme weather impacts worldwide. - Enhance coverage of attribution studies across different events and

	impacts to climate change.	increased heat-related deaths, amplified rainfall, aridity, flash floods, catastrophic droughts in East Africa, reduced snowpack,	- Floods, water stress, and wildfires cause damages, tree mortality, economic losses in the agriculture industry.		regions.
Kakinuma et al. ¹⁴ (Global)	- Assess global vulnerability to flood-induced displacements. - Examine effects of income levels and flood exposure on displacements.	- Floods are major environmental stressors. - Floods cause displacements because of floods.	- African countries are highly vulnerable to floods. - Income has a significant impact on flood-induced displacement. - The relationship between income and displacement is nonlinear, indicating large gaps in flood-induced displacement between high- and low-income countries.	- Strengthening resilience to extreme weather events is a critical priority. - Adaptation measures can mitigate displacement risks. - Consider demography, policy, and land use in local adaptation measures and planned relocation.	- Develop adaptation measures to mitigate flood-induced displacement and associated risks. - Integrate river and coastal flood exposures. - Conduct more research at local and global scales.
Yue et al. ¹⁵ (China)	- Examine the effects of climate change on migration intention. - Investigate the potential larger effects of climate change on underprivileged groups.	N/A	- Higher temperatures lead to higher migration intention. - Effects are more prominent among lower-educated individuals, females, and rural residents.	- Strengthen defensive measures for underprivileged groups.	- Strengthen defensive measures for underprivileged groups. - Implement policies to reduce the urban heat island effect
McLeman ¹⁶ (Bangladesh)	- Assess the risks of migration and displacement due to sea-level rise. - Propose strategies for organized relocations and protection measures.	- Sea-level rise displaces millions of people worldwide. - Rising sea-surface temperatures amplify tropical storm damage.	- The rise in sea level will displace tens of millions of people worldwide. - Governments need to invest in protective infrastructure and relocation strategies.	- Tens of millions worldwide will be displaced due to rising sea levels. - Governments need to invest in protective infrastructure and develop relocation strategies.	- Invest in protective infrastructure for high-population-density settlements. - Develop strategies for organized relocations from high-risk locations.
Maharjan et al. ¹⁷ (Bangladesh, India, Nepal, and Pakistan)	- Investigate migration patterns and their linkages to climate change adaptation. - Synthesize key findings in the regional context of	- Rapid onset hazards (e.g., cyclones, floods) - Slow onset events (e.g., drought, changes in monsoon).	- Migration is an important livelihood diversification strategy. - Remittances help diversify household income and spread risks.	- Migration is an important livelihood strategy in climate hotspots. - Migration can help improve household adaptive capacity.	- Capture migration of entire households from original areas. - Consider involuntary permanently displaced individuals and households.

	South Asia				
Andreasen et al. ¹⁸ (Ghana)	- Analyze mobility disruptions caused by heavy precipitation and flooding. - Examine implications for livelihoods and access to markets and services.	- Heavy precipitation and flooding of roads. - Climate change exacerbating flood hazards	- Mobility disruptions are extremely common in Accra's periphery. - Prolonged travel times and severe traffic congestion are reported.	- Mobility disruptions affect livelihoods and access to markets/services. - Resilient transport infrastructure is crucial for climate change resilience.	The study highlights the need for addressing mobility disruptions. - Consider settlement consolidation and road infrastructure improvements.
Weinthal et al. ¹⁹ (Israel, Jordan, and Syria)	- Identify how water, climate change, and migration are framed as security concerns. - Analyze the policy implications of these framings.	- Protracted droughts and scarce water resources. - Internal and cross-border migration.	- Israel and Jordan securitize migration due to impacts on water resources. - Syria downplays the connection between water scarcity and migration.	- Different framings of the water-climate-migration nexus. - Unintended consequences of securitized framings.	N/A
Oliveira & Pereda ²⁰ (Brazil)	- Assess the impact of climate change on internal migration in Brazil.	- Integrate local labor markets to mitigate the negative effects of climate change. - Use migration as a strategy to address vulnerability in regions.	- Assumption of an integrated agricultural market in Brazil. - Results consistent across different cluster levels.	- Northeast region would lose population and be worse off. - Southeast region would see positive effects on population and welfare.	N/A
Cattaneo & Peri ²¹ (Global South)	- Analyze the effect of increasing temperatures on migration patterns. - Examine the relationship between temperature and emigration rates.	- Higher temperatures increase emigration rates to urban areas of middle-income countries. - In poor countries, higher temperatures reduce the probability of emigration. - The mechanism of migration does not seem to work in poor economies.	- In poor countries, higher temperatures reduced the probability of emigration to cities or other countries due to liquidity constraints. - Migration represents an important margin of adjustment to global warming in middle-income countries, potentially increasing income per worker.	- Migration can contribute to structural change and increase income per worker in middle-income countries. - Poor countries may be further trapped in poverty due to climatic warming.	- Improve agricultural productivity. - Adopt drought-resistant crops.
Mianabadi et al. ²² (Iran)	- Investigate factors influencing rural-urban migration in Sistan.	- Environmental stressors: a shortage of accessible water, drought/flood, dust storms,	- Economic factors and environmental degradation induce migration.	- Focus on improving living conditions in rural areas. - Engage local people in	- Adaptive participatory governance for rural-urban migration solutions.

	- Understand the motivations for staying in villages.	- air, water, and soil pollution. - Impacts: migration, conflict, degradation, socioeconomic stressors.	- Factors encouraging people to stay cultural and social factors.	development plans.	- Link civil society, authorities, and scientists.
Wodon et al. ²³ (Egypt, Algeria, Morocco, Yemen, Syria)	- Review the evidence on the relationship between weather patterns, perceptions of climate change, and migration in the Arab world.	- Economic, social, environmental, political, demographic, and technological factors affect migration. - Changes in temperature and rainfall induce emigration from rural communities. - Climate change is linked to local conflicts. - Less attractive job opportunities and increased workload for migrant women.	- Climate-induced migration is increasing in the Arab world. - Climate change and weather shocks are already affecting rural households. - Integrating migrants into major destination cities is not always successful. - Ineffective climate change adaptation and migration policies.	- Climate change adaptation requires assessing risks, prioritizing responses, and monitoring. - Weather shocks have a smaller impact on migration than believed. - Climate-induced migration is already happening and should be considered in policy debates.	- Climate-induced migration should be factored into policy debate. - Integrate migrants into major destination cities. - Integrate climate change adaptation and migration policies into broader reforms. - Implement economic reforms and policies to address the employment and housing concerns of migrants.
Upadhyay et al. ²⁴ (Global)	- Critically review the literature on climate change and migration. - Conceptualize and contextualize the linkages between climate change and migration. - Identify knowledge gaps and the need for understanding conceptual issues. - Detail terms, definitions, and empirical evidence related to climate change and migration.	- Physical parameters: temperature, precipitation, sea levels, environmental hazards. - Factors associated with the area of origin and destination. - Intervening obstacles - Personal factors.	- Literature on climate change and migration downplays ambiguities and limited evidence. - Conceptualizing and contextualizing the linkages between climate change and migration. - Factors associated with the area of origin, destination, intervening obstacles, and personal factors. - Some migrants are forced to relocate due to natural hazards.	- Need for comprehensive research and policymaking on climate change and migration. - Importance of recognizing the underlying factors leading to migration. - Context-specific approach to studying climate change and migration. - Data scarcity and the need for investment in data collection and management. - Sensitize data collection agencies about climate change as migration driver.	- Analyze and address the concepts and contexts within climate change and migration work. - Understand and detail conceptual issues such as terminology and definitions. - Consider factors associated with the area of origin and destination. - Recognize intervening obstacles and personal factors in migration decisions.
Thalheimer et al. ²⁵	- To investigate the impacts of compound	- Compound drought events amplify vulnerability and	- Mobility patterns are shaped by the intersection of drought	- Compound drought events can significantly impact	- Implement evidence-based policy measures and

(Madagascar, Nepal, and Mexico)	drought events on human mobility. - Examine the intersection of drought and social vulnerability factors. - Analyze the effects of vulnerability components on migration patterns. - Provide empirical evidence for policy measures and funding mechanisms.	drive forced migration. - Consecutive drought events exacerbate structural vulnerabilities, limiting migration options. - Lack of accurate information hinders migration as an adaptation option.	and social vulnerability. - Internal migration in agricultural communities in Mexico increased from 1991 to 2018. - Prospective increase in internal migration in Nepal in case of compound drought event in 2025.	mobility responses to drought. - Vulnerability components and pre-conditions can compound climate hazards. - Access to accurate information can influence migration patterns and livelihood options during droughts. - Policy interventions should focus on internal migrants and effective communication.	anticipatory funding mechanisms. - Develop forecast-based financing programs. - Understand patterns of drought-related human mobility for effective policy design. - Build adaptive capacity and awareness for migration as an adaptation measure.
Stojanov et al. ²⁶ (Maldives)	- Examine local perceptions of environmental challenges and climate change impacts. - Investigate the potential of migration as a climate change adaptation strategy.	- Low elevation of islands makes them vulnerable to slow-onset hazards. - Coastal erosion, sea-level rise, salinity intrusion, change in monsoon patterns are key issues affecting Maldivian society and livelihoods. - Future sea-level rise is a serious challenge at the national level.	- Over 50% of respondents consider future sea-level rise a serious challenge. - Migration to other countries is considered a potential option. - Culture, religion, and economics influence migration decisions. - Islanders perceive sea-level rise as a key factor affecting livelihoods. - Maldivians prioritize other adaptation measures over migration.	- Ongoing adaptation measures may not be sufficient to deal with projected climate change impacts. - Migration is a potential climate change adaptation strategy. - Maldivians are well-informed about climate change impacts and responses.	- Increase awareness of climate change impacts and migration as adaptation strategy. - Address cultural, religious, economic, and social factors in decision-making about migration. - Develop an enabling environment for good governance and risk-sensitive development. - Implement climate change adaptation projects.
Simatele & Simatele ²⁷ (Zambia)	- Examine the relationship between extreme weather events and population movement. - Study climate change and migration in sub-Saharan Africa and	- Environmental stressors include drought, flooding, and extreme temperatures. - These stressors have devastating impacts on those who depend on climate-sensitive resources. - Extreme weather events	- Insufficient empirical studies linking climate change and migration in southern Africa. - Poor countries have low adaptive capacity to climate change. - Increased rainfall variability and reduced rain days in	- Migration is a common adaptive strategy to climate change impacts. - Drought-prone individuals and households will likely migrate to less stressful areas. - Climate change and	- Policies should promote drought-resistant crops and livestock diversification. - Early warning systems and infrastructure development can mitigate climate change risks.

	developing countries.	trigger population movement. - Poor people are most affected due to low adaptive capacity.	Zambia. - Migration is influenced by stress, food insecurity, and poverty. - Local knowledge inadequate to deal with the frequency and intensity of extreme weather events.	extreme weather events have a complex relationship with population movement. - Inequalities in access to resources can lead to conflicts and migration.	
Rahaman et al. ²⁸ (Bangladesh)	- Explore trends and scenarios of climate-induced displacement and human migration landscape. - Identify association between climatic extremes and migration in vulnerable areas. - Analyze land use and ownership changes in flood and drought-affected areas.	- Climate-induced extreme disasters are sea level rise, salinity intrusion, flood, drought, storm surges, tidal inundation, water logging. - The migration trend is increasing due to increasing climate vulnerability.	- Climate-induced migration is a common scenario in vulnerable regions. - Land use and ownership changes are correlated with climate-induced displacement. - Increasing trends of climate vulnerability leading to historical migration trends.	- Responses are required for in situ and ex-situ adaptation to resolve climate-induced migration. - Migration patterns will change based on changes in climate vulnerability. - Climate displacement solutions should consider sex, age, and disability. - Stakeholder consultations are crucial for generating policy recommendations.	- Develop strategies and action plans for adaptation, DRR, and mitigation. - Address food and livelihood insecurity in vulnerable communities. - Prioritize adaptation needs of marginal farmers, women, and indigenous communities. - Conduct climate vulnerability assessments to understand impacts and vulnerability.
Quiñones et al. ²⁹ (Thailand and Vietnam)	- Investigate the impact of droughts on migration responses of rural households. - Examine the role of risk aversion and socioeconomic status in migration decisions. - Analyze how drought exposure affects migration outcomes. - Identify the presence of an environmentally induced poverty trap.	- Limited scholarship on subjective perceptions of environmental change and its role in shaping livelihoods. - Some studies emphasize the role of the environment in migration decisions due to environmentally induced agricultural losses. - Natural disasters can increase or decrease risk aversion or inconsistent effects.	- Exposure to two consecutive years of moderate drought decreases household participation in migration by 5.3 percentage points. - Drought exposure erodes socioeconomic status and increases risk aversion. - Deteriorations in consumption and assets per capita shape the negative effect of droughts on migration.	- There is evidence of an environmentally induced poverty trap. - Strengthen income diversification opportunities in rural areas. - Remittances from rural-urban migration remain crucial sources of income.	- Implement measures to mitigate climate risk and promote agricultural diversification. - Invest in quality education in rural areas and promote safe access to urban job markets. - Policymakers should devise safety nets sensitive to weather conditions.
Mpandeli et al. ³⁰	- Explore integrated	- Key climatic risks are	- Population increase and	- Migration can be	- Transform migration into

(Southern Africa)	interventional solutions for managing migration and climate change. - Demonstrate the usefulness of nexus planning and modelling in managing trade-offs and synergies. - Transform urban areas into centers of climate action and adaptation. - Address rural areas' livelihoods, income, water, energy, and food security challenges. - Assist planners and decision-makers in managing the impacts of climate change.	droughts, cyclones, desertification, wildfires. - Impacts: degradation of fisheries, loss of biodiversity, agriculture seasonal changes, depletion of water resources, limited ecosystem services. - Socio-economic changes: vulnerable communities, major cities prone to sea-level rise and other hazards.	climate change drive migration in southern Africa. - Urban areas are under pressure to accommodate climate refugees. - Nexus planning can inform adaptation strategies and provides decision support for migration policies and management. - Migration can be an adaptation strategy if receiving areas have resources. - Policies that restrict migration are often counter-productive and self-defeating. - The approach of nexus planning addresses complex issues in an integrated manner.	transformed into an adaptation strategy. - Nexus planning can build resilience and adapt to future changes. - Free movement of skilled labor can benefit economic development. - Planned migration can have triple benefits for migrants and communities. - Integrated and transformative planning can manage present and future resources. - Coordinated regional migration can enhance development strategies. - Disaggregated migration data can inform policy decisions and adaptation strategies.	a mitigation and adaptation strategy. - Implement relevant and coherent policies linking migration strategies to labor deficits. - Use circular migration schemes to allow seasonal labor migration. - Leverage and enhance the flow of intra-regional labor migrants. - Develop context-based migration adaptation strategies. - Use nexus planning for integrated management and regional integration. - Focus on the water-food-socio-economic nexus to ensure resource security and improve livelihoods.
Koubi et al. ³¹ (Vietnam)	- Examine individual perceptions of environmental stressors and their impact on migration. - Determine the role of long-term and sudden-onset environmental events in migration. - Identify policy options to address environmental migration and improve adaptation measures.	- Sudden and short-term environmental events (floods, storms) increase the likelihood of migration. - Slow-onset and long-term environmental events (droughts, desertification) decrease migration likelihood.	- Long-term environmental events like droughts reduce migration. - Sudden-onset environmental events like floods increase migration. - Aid and support for adaptation can minimize the effect of migration.	- There is the need to focus more disaster-affected areas. - Financial and technical support for adaptation to environmental change are crucial.	- Improve targeting of aid to environmental disaster-affected areas. - Implement a wide range of developmental policies in combination with environmental ones.
Kaczan & Orgill-	- Systematic review of	- Slow-onset environmental	- Climate-induced migration is	- Weather-induced migration	- Recommend future

Meyer ³² (Global South)	empirical literature on climate-induced migration.	changes (drought, elevated temperatures) increase migration. - Rapid-onset environmental changes (floods) have limited or non-significant effects on migration. - Floods decrease the likelihood of migration in Pakistan. - Fast-onset environmental shocks decrease capabilities and reduce migration.	not necessarily more prevalent among poorer households. - Long-distance domestic migration is more prevalent than local or international migration. - Slow-onset climate changes (such as droughts) are more likely to induce increased migration than rapid-onset changes (such as floods). - The severity of climate shocks impacts migration nonlinearly, with impacts influenced by whether the capability or vulnerability channel dominates.	is not necessarily more prevalent among poorer households. - Weather-induced migration tends to have the largest positive effect on long-distance domestic migration. - Slow-onset weather shocks are more likely to induce migration than rapid-onset changes. - The severity of the weather shock impacts migration in a nonlinear fashion.	research on how coping strategies interact and what conditions encourage which strategies.
Kabir et al. ³³ (Bangladesh)	- Examine the link between environmental vulnerability and human migration. - Understand how individuals and families make migration decisions in response to seasonal drought. - Assess the impact of interventions on rural livelihood and migration patterns.	- Seasonal drought and occasional monsoon floods are the main environmental stressors. - Seasonal drought leads to bad harvest in sharecropping. - Monsoon floods cause inundation of crop fields. - Environmental stressors result in financial loss in agriculture and alleged harassment by money-lending institutions.	- Both environmental and non-environmental factors influence migration decisions. - Interventions by government and NGOs may increase outward migration. - Different locations may have different findings due to socio-geographical variability. - Documented short-term and long-term migration incidents. - There is a complex dynamic of human mobility in response to natural hazards.	- There is a link between environmental vulnerability and human migration. - Policy intervention for marginalized groups. - Importance of considering both environmental and non-environmental drivers of migration. - Studies on critical drivers of rural-urban migration in different locations are needed.	- Interventions by government and NGOs are increasing outward migration. - Address the emerging and complex livelihood problem caused by interventions. - Recommends addressing the sustainability of rural livelihoods and outward migration.
Smirnov et al. ³⁴ (Global)	- Model the potential scope of drought-induced migration. - Assess the prospects of different policy scenarios to mitigate displacement	- Drought is a major environmental stressor affecting many people. - Climate change increases the frequency and intensity of droughts. - Droughts leads to	- Drought-induced migration will likely increase under high emissions scenarios. - Found a causal relationship between climate change and migration.	- Climate change mitigation efforts are important. - Global cooperation is crucial to mitigate climate change impacts. - Protectionist and populist responses to migration may	- Curb GHG emissions to reduce future migration. - Study the link between involuntary immobility and social disruption. - Consider border restrictions and

		displacement and migration of affected populations. - Environmental migration often takes place within national borders.		intensify in the future. - Policy metrics and large-N analyses can improve future model building.	institutional constraints on international migration. - Address challenges associated with potential environmental migration due to climate change.
Ide ³⁵ (Syria)	- Review existing evidence for a climate-conflict link in Syria. - Examine the shortcomings of climate-conflict research. - Identify the impact of these shortcomings on policy advice.	- Drought-induced by climate change (plausible but not proven). - Loss of agricultural livelihoods due to drought (supported by most studies). - Rural-to-urban migration triggered by livelihood loss (supported by most studies). - Migration intensifying existing grievances and facilitating civil war (possible).	- Four-stage process for climate-conflict link in Syria - Limited dialogue between different methods in climate-conflict research. - Overstatement of differences instead of finding middle ground. - Lack of theoretical engagement in climate-conflict research. - Migration triggered by livelihood loss and other factors - Little knowledge exists on migration intensifying grievances and civil war.	- Limited dialogue between researchers and lack of theoretical engagement. - Overstatement of differences instead of finding a middle ground. - Adverse impacts on policy advice and climate change debates. - Multi-case comparative designs and detailed attribution analyses can help explore the impact of anthropogenic climate change on drought.	- Conduct large-sample statistical analyses to reveal correlations between climate and conflict. - Conduct in-depth, interview-based studies to understand the motivations and actions of migrants. - Foster mutual acceptance between proponents of different research methods.
Hauer et al. ³⁶ (Global)	- To understand the implications of sea-level rise (SLR) on human migration. - To investigate household-level adaptation choices in response to SLR-related hazards. - To identify obstacles and facilitators for SLR-driven human migration.	- Saltwater intrusion, coastal flooding, shifts in sediment regimes, coastal erosion, and increased storm surges are hazards associated with SLR. - Impacts of these hazards include destruction of agriculture, water supplies, property, infrastructure, livelihoods. - Increasing population displacement and migration due to SLR.	- SLR-driven human migration alters population distributions at all scales. - Hazards associated with SLR spur human migration. - Household-level responses to SLR depend on state and institutional responses. - Households are reluctant to move away from homes, livelihood assets, and social networks. - Ageing populations affect migration dynamics in coastal	- Modelling, measuring, and policy development gaps exist in understanding SLR and migration. - Household-level adaptation choices for SLR-related hazards are limited to migration. - There is a dearth of comprehensive studies on SLR and migration. - Coastal retreat has the potential for widespread migration.	- Address modelling, measuring, and policy development gaps - Institutional measures to reduce exposure are necessary. - Increase long-term adaptation choices apart from migration. - Public institutions should actively support household-level responses. - Address resettlement challenges due to

			zones. - Few long-term adaptation choices available to households apart from migration.		reluctance and livelihood concerns.
Giannini³⁷ (West Africa)	- Examine the impact of GHGs on precipitation changes. - Explore the potential positive uses of the echo chamber phenomenon.	- The direct effect of GHGs is sufficient to explain rainfall recovery. - The direct and indirect effects of GHGs cannot be easily separated. - The model used in the study underperforms in reproducing the effect of historical SST on Sahel rainfall.	- Echo chambers have increased with social media and online news. - Echo chambers can be neutral and context-dependent. - The Echo chambers can be reinterpreted as a positive force in society. - Recovery in the Sahel characterized by increased variability and warming.	- Need more research on the social relationships that generate attitudes - Echo chambers can be reinterpreted and utilized to positively influence a democratic society. - Research on what information and sources enters the echo chamber is crucial.	- More research is needed to examine how and why climate change information goes viral. - Link individual attitudes to larger institutional structures in climate politics. - Study the dynamics of future climate change in the context of past drought persistence.
Ekoh et al.³⁸ (Lagos, Nigeria)	- Examine the relationship between flooding events, migration intentions, and mobility destination choices. - Understand the factors that constrain migration and lead to involuntary immobility. - Explore preferences for internal or international migration - Contribute to a nuanced understanding of mobility intentions in response to climate-induced flooding.	- Climate-induced mobilities are multi-causal with various environmental stressors. - Floods and diseases influence mobility intentions. - Flooding is indicated as a driver of migration for some individuals.	- Most residents affected by floods are willing to migrate. - Economic, social, and political factors constrain migration. - Intra-city relocation is preferred over migration to other states or internationally. - Some residents welcome government-supported relocation plans, while others are skeptical. - Some residents prefer community-based relocation. - Personal finances, security, and employment play a key role in determining mobility choices.	- Migration is a preferred adaptation strategy for increased flooding. - Managed retreats or planned relocation within the city may be applicable solutions. - Economic opportunities and proximity to jobs are necessary for facilitating movement. - Restrictive immigration policies are a barrier to international migration. - Climate migration should be approached from a justice lens. - Expanded options for all residents enable meaningful decision-making.	- Inform climate adaptation policies relevant to affected people's needs. - Consider economic, social, and political factors for mobility decisions. - Support community-based relocation as a preferred mobility option. - Policymakers must recognize and respect the agency and needs of individuals and communities. - Eliminate barriers within financial, institutional, and legal frameworks.

Duijndam et al. ³⁹ (Global)	- Review empirical evidence on the relationship between sea-level rise (SLR)-related hazards and migration behaviors. - Understand the complex migration dynamics under SLR and design adequate policy responses. - Identify knowledge gaps and propose avenues for future research.	- Moderate flooding intensity has a significant impact on migration. - Salinization leads to migration in coastal regions. - Erosion leads to migration.	- Flooding is not necessarily associated with increased migration. - Severe flood events decrease long-term migration in developing countries. - Salinization and erosion lead to migration. - Non-environmental factors like wealth and place attachment influence migration other than sea-level rise.	- Non-environmental factors influence migration. - More empirical research is needed to understand migration dynamics and behaviors under sea-level rise. - Empirical research on other adaptation options can complement dynamic migration modelling.	- Design effective policy responses to address migration challenges. - Conduct empirical research for varying geographical contexts, explanatory variables, and SLR risks. - Utilize behavioral experiments and risk perception data. - Differentiate impacts of SLR for subpopulations.
Buchori et al. ⁴⁰ (Indonesia)	- Assess self-mitigations and patterns of local migrations in Semarang City. - Investigate the scale and frequency of climate mitigation. - Understand reasons for people moving away from their current residence.	- Coastal inundation. - Typhoons. - Hurricanes. - Sheet flooding - Coastal and river-based floods. - Sea-level rise (SLR). - Increased risk of flooding and environmental damage in coastal areas.	- Climate change has significantly impacted coastal areas and marine environments. - The rising sea level has worsened the quality of life in coastal communities. - Found and delineate risk areas for inundation and flooding. - Most inhabitants prefer to stay and adapt rather than leave. - Safer places in hilly areas and residences close to family were preferred.	- Social factors, such as community relationships, influence the preference to stay and adapt. - Migrating to a better living environment or closer to friends or relatives is important. - Community awareness and structural mitigation efforts are similar in permanent and temporary areas.	- Encourage people to be more aware of potential hazards. - Raise houses and buildings as a common structural mitigation effort. - City Spatial Plan should be improved to contribute to solutions. - Local government should encourage awareness of hydro-meteorological hazards and develop permanent solutions.
Bohra-Mishra et al. ⁴¹ (Philippines)	- Investigate the effects of climatic variations and extremes on migration. - Examine the impact of temperature and typhoons on rice yields.	- Age, gender, and education significantly influence migration decisions.	- Temperature increase and typhoon activity increase outmigration rates. - Precipitation does not have a consistent, significant effect on migration. - Temperature and typhoons	- Migration is driven by demography and socioeconomic status. - Provinces with a higher share of rural population or agriculturally dependent experience higher	- Implement measures to mitigate the negative effects of temperature increase and typhoons on migration. - Focus on supporting agricultural productivity in

	- Analyze the link between temperature, typhoons, and outmigration patterns and decisions.		- have significant negative effects on rice yields. - Climate variables hurt rice yield.	- outmigration. - Future global warming may lead to more outmigration from hot areas.	- provinces with high outmigration. - Design migration policies that consider people's demographic characteristics.
Bell et al. ⁴² (Bangladesh)	- Understand human migration induced by sea-level change (SLC) and adaptive behaviors. - Develop an agent-based model to project household migration scenarios and decision-making. - Examine the link between floods, migration patterns and motivations.	- Flooding is associated with SLC. - Accumulated damage to livelihoods in coastal areas. - Immobilization of coastal in-migrants in hazardous areas. - Experience of flooding exceeding thresholds to risk and damage. - Livelihood diversification and access to credit as adaptation strategies.	- People will continue to migrate towards vulnerable coastlines despite future SLC. - Livelihood alternatives are most abundant in coastal cities. - Some coastal populations become trapped and unable to migrate. - Increasing access to credit does not incentivize migration.	- Consider individual-level adaptive behaviors and motivations in migration projections. - Recognize multiple constraints on and preferences for mobility. - Access to credit alone is unlikely to solve mobility problems. - The nature of how credit is delivered and received is crucial in influencing behavioral responses.	- Provide grants or savings programs to address migration and vulnerability. - Recognize the potential for unintended behavioral responses. - Consider individual-level adaptive behaviors, motivations, and social mechanisms in climate change adaptation efforts.
Basu & Shaw ⁴³ (India)	- Assess the impacts of environmental variability on population migration. - Explore the link between environmental change, water scarcity, and human migration. - Examine cases of population movement due to environmental factors	- Environmental stressors include water scarcity and other hazards. - Water scarcity is a major push factor behind migration.	- Environmental variability impacts population migration worldwide. - 25 million to 1 billion people could be displaced by climate change. - India has reported cases of population movement due to environmental variability.	- Impacts of environmental variability on population migration are a concern. - Environmental change and water scarcity contribute to human migration. - Push and pull forces influence the process of movement and migration.	- Explores mechanisms linking vulnerability and migration. - Address water scarcity to curb migration.
Adeyeye et al. ⁴⁴ (South Africa)	- Investigate water marginality in rural and peri-urban areas in South Africa. - Identify key factors	- Environmental stressors include pollution, flooding, and resource access. - These stressors can negatively impact people's	- Research utilized a qualitative approach to investigate subjective participant views. The case study provided insights into explicit and	- Water access challenges in non-urban areas are identified and analyzed. - Climate change, urbanization, policy, and	- Address connectivity between resources, limits, technology, policy, and socio-cultural norms. - Understand and address the

	contributing to water marginality. - Propose strategies to address water marginality. - Provide insights on why water marginality occurs. - Offer recommendations for further research in this field.	health, well-being, and livelihoods. - Inequality in environmental quality and access to resources is rooted in social and political factors.	subjective water access issues. - Findings structured and discussed based on adapted criteria and water security metrics.	economics affect water access. - Policy solutions and financial mechanisms are proposed to address water marginality. - Improved knowledge capacity and awareness campaigns are recommended. - Water access targets and metrics should prioritize universal access in rural areas.	interdependencies of different spatial strata and functions. - Conduct ethnographic studies to understand local issues and context. - Visit key settlements and water sources to understand water resources. - Record observations and informal conversations with residents and locals.
Adaawen et al. ⁴⁵ (African Countries)	- Analyze the links between drought, migration, and conflict in sub-Saharan Africa. - Identify policy options to address the challenges posed by these issues.	- Drought-induced crop failure and water scarcity leading to migration, starvation, and competition for scarce natural resources. - Severe impacts on water supplies and crops production - Prolonged dry spells and desertification affecting cattle and livestock farming. - Increased demand and pressure on shared water resources during droughts	- There is a link between climate change, drought, desertification, starvation, conflicts, and human mobility depending on conditions. - Drought led to declining crop yields, and loss of farmland and livestock. - Farm-herder conflicts and tensions over transboundary water resources. - Heightened food insecurity and economic losses leading to resource-based conflicts, and loss of human lives. - Found no correlation between rainfall and conflict in SSA.	- Mainstream drought and conflict management into national development plans. - Incorporate local knowledge and participation in conflict mediation. - Promote climate-smart agriculture and equip institutions for awareness. - Strengthen enforcement of treaties on shared water resources - Foster a dialogue between different policy fields and communities	- Take a proactive action to address drought impacts - Address food and water crisis in drought-affected areas urgently. - Provide adaptation options for people in drought-prone areas. - Implement weather-based agriculture and crop insurance schemes - Implement drought mitigation and land degradation strategies. - Support migration as a coping strategy to climate shocks.
Defrance et al. ⁴⁶ (Mali)	- Assess the influence of drought episodes on migration flows - Understand the impact of climate on human	- Drought events have decreased net migration rates in affected localities. - Climate shocks have led to additional departures per	- Droughts have reduced net migration rates since the late 1980s. - The effect of drought episodes varied based on localities and	- Climate events increase migration from rural areas. -The effect of drought episodes varies based on localities and households'	N/A

	spatial distribution. - Project emigration responses to future climate change scenarios.	year. - Mobility induced by drought events is expected to grow in the future.	households' capacity to adapt. - Climate shocks led to additional departures from Mali during the 2000s.	adaptation capacity. - Future migration patterns will significantly increase due to population growth and climate extremes.	
Agarwal & Deb ⁴⁷ (India)	- Analyze the impact of climate change on migration in coastal zones.	- Climate change triggers migration due to frequent hurricanes, heat waves, sea-level rise and droughts and other natural disasters.	- Bay of Bengal witnessed a strong cyclonic storm in 2020. - West Bengal, Kerala, Gujarat, and Odisha have experienced the highest coastal erosion. - Kolkata, Mumbai, and Chennai are at high risk of flooding and sea level rise.	- Climate change triggers migration in coastal zones. - Coastal areas are vulnerable to erosion, sea-level rise, and natural disasters. - Coastal erosion has led to land loss and migration.	- Assist people to rebuild their homes and livelihoods.

Supplementary References

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