# **POLICYMAKERS DIGEST**

Key recommendations for strengthening capacities to protect people and livelihoods from disasters and climate change impact

2024











The CADRI Partnership is a global UN led partnership that works towards strengthening countries' capacities to pursue integrated and coherent solutions to reduce disaster and climate risks across the Sustainable Development Goals (SDGs).

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This report presents the findings and recommendations of the Diagnosis of National and Local Capacities to manage Disaster and Climate Risk in Mongolia conducted in 2023. The analysis was subsequently complemented with additional technical inputs and updates collected until early 2024.

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In September 2023, an in-depth analysis was carried out to evaluate Mongolia's capabilities in handling climate and disaster risks. This evaluation aimed to highlight both the strong points and the areas needing enhancement. It focused on providing practical advice to formulate better early warning systems, disaster readiness, and risk mitigation strategies across essential socio-economic sectors. The main findings and recommendations of this assessment are detailed in this document. The assessment was led by the National Emergency Management Agency and the Office of the United Nations Resident Coordinator, with engagement from the Capacity for Disaster Reduction Initiative (CADRI) Partnership throughout the process.

Please refer to the following legend, which indicates the relative ease of implementation and cost of each recommendation.

## **Ease of implementation**

- Easy
- Complex

#### Cost

- Low budget
- High budget

# SUMMARY FOR POLICYMAKERS

The Disaster and Climate Risk Management system's capacity was evaluated using the CADRI Capacity Diagnosis and Planning Tool, aligned with the Sendai Framework and CADRI's capacity dimensions. This involved a modular questionnaire, semi-structured interviews, and data analysis to assess governance, implementation capacity, financing, knowledge, and technology at national and local levels.

The capacity assessment was led by the National Emergency Management Agency (NEMA) and the UN Resident Coordinator's Office, and it was jointly carried out by a multi-disciplinary team composed of 16 selected national and international experts from NEMA, UNFPA, FAO, UNDP, IOM, UNDAC, UN Habitat, UNDRR, World Vision, WMO (China and Korea Met experts), and the CADRI Secretariat.

The capacity assessment involved more than 100 central government representatives, 7 civil society actors, 2 private sector organizations and 120 local level actors, using the CADRI Digital Tool. Recommendations were made across governance, implementation, financing, knowledge, and technology, prioritizing urgency, implementation complexity, and budget considerations for actionable insights.

#### **FOCUS AREAS**

- Preparedness
- · Early warning
- Risk reduction

#### **SECTORS**

- Agriculture
- Environment
- Infrastructure (flood control, structural readiness of schools and hospitals and energy infrastructure)
- Social protection
- Human mobility



# DISASTER AND CLIMATE PROFILE

Mongolia, a landlocked country in Eastern Asia bordered by Russia and China, ranks 19<sup>th</sup> in size with 1.5 million square kilometers, featuring mountains and the Gobi Desert. With a population of 3.4 million, 69% of which is urbanized, the capital Ulaanbaatar is home to 48% of the country's residents. Mongolia has a youth population of 36% and 3% with disabilities. Transitioning from a herding and agriculture economy to extractive industries, Mongolia faces natural hazards like dzuds and dust storms, exacerbated by climate change. Since 2015, the frequency of climate events has increased 2.9-fold. The country ranked 116th on the 2024 INFORM risk index.

Mongolia has experienced significant warming over the past 80 years, with surface temperatures rising by 2.25°C, leading to fewer cold days and more hot days. This warming, more pronounced in mountainous areas, has contributed to a decline in water bodies and altered precipitation patterns, causing ecological imbalance, vegetation loss, threats to biodiversity and traditional agricultural practices. Future projections

suggest increased winter precipitation but unchanged summer levels, with a shift towards greater aridity by 2030, affecting dry and sub-dry zones while reducing more humid areas.

Warming climate is significantly affecting those in herding and agriculture communities and increasing vulnerability to geohazards like earthquakes due urbanization without risk-aware planning. Mobility challenges, such as disability and age, limit households' ability to migrate with livestock during harsh winters, exacerbating vulnerability to climate impacts. Climate change is expected to worsen disparities, especially affecting the poor, women-led households, the elderly, and children, by limiting their access to resources and services. Recent trends show a slight decrease in national poverty, with rural areas experiencing more significant improvements. Climate-related disasters, particularly dzuds, and floods, disrupt children's education by hindering access to schools.



# **CROSS-SECTOR: GOVERNANCE**

The National Emergency Management Authority (NEMA), established in 2004 and led by the Deputy Prime Minister, oversees Mongolia's disaster risk management and reduction through a robust legal and institutional framework. This framework is structured around two main bodies: the Disaster Risk Reduction Council and the State Emergency Commission, both designed to foster multisectoral collaboration and preparedness for disasters. Mongolia aligns its disaster risk reduction efforts with global strategies, transitioning from the Yokohama Strategy through the Hyogo Framework to the Sendai Framework, reflecting its commitment to enhancing disaster resilience in alignment with Mongolia's Vision 2050. The National Programme of

Community Participatory Disaster Risk Reduction supports this policy across two phases (2015-2020 and 2021-2025).

The current operational structure within NEMA's departments does not support its role in overseeing post-disaster recovery and reconstruction, indicating a lack of a policy framework and preparedness for these stages. Additionally, while disaster and climate risk reduction and prevention are essential responsibilities of various socio-economic sectors, not all ministries and local governments have the necessary resources, including skilled personnel, strategic plans, or budget, to effectively implement risk reduction and prevention measures.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1

Develop a directive to clarify the operational roles and responsibilities of sector ministries and departments in different phases of disaster risk management (emergency response, recovery/reconstruction, mitigation, and preparedness phase) and key disaster scenarios such as flood, dzud, earthquake, storm/strong wind, and fire.

2.

Develop a policy framework and plans (short, medium, and long-term) for improving end-to-end multi-hazard early warning systems that address four aspects: i) risk knowledge; ii) detection, observations, monitoring, analysis and forecasting; iii) warning dissemination and communication; and iv) preparedness to respond.



# CROSS-SECTOR: KNOWLEDGE AND TECHNOLOGY

Mongolia possesses a solid foundation of knowledge and information regarding hazards, exposure, and vulnerability, complemented by the capability to utilize existing technologies effectively. The available data on hazardous events, historical losses, and exposure are sufficiently comprehensive to guide long-term disaster risk reduction strategies, early warning systems, and preparatory measures for immediate response. Continued efforts to refine the accuracy of risk assessments, develop Impact Based Forecasting, and investments in upgrading and maintaining technological tools and equipment are recommended for further improvements.

Efforts to enhance hydrometeorological hazard monitoring in Mongolia through expanded observation networks have encountered challenges, including low data collection frequency and resolution. International satellite data often exclude Mongolia's scope, and the quality of local

observations suffers from site conditions, aging equipment, and maintenance limitations. Short-term weather forecasts lack precision in temporal and spatial resolution, limited by insufficient technical and computational resources. Additionally, earthquake detection-to-notification times lag at about 3 minutes, slower than desired for effective response. The infrastructure for disaster warnings, including siren towers, TV and radio stations, and electronic display boards, is outdated and dwindling in number. Furthermore, there is a significant gap in providing information to rural populations and groups vulnerable to information scarcity, such as persons with disabilities, elderly, children, and foreigners. Stakeholder consultations have highlighted the need for messaging that goes beyond mere warnings, to include guidance on preparation and actionable steps for recipients before an event occurs.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1.

Introduce high-performance computing resources for the future development of Impact Based Forecasting and the execution of advanced and precision numerical forecasting and modeling.

2.

Strengthen the provision of immediate and direct information, such as electronic signs and sirens. Prepare a plan for text messaging that provides information by risk area based on the Cell Broadcast System method endorsed by the World Meteorological Organization.



## **CROSS-SECTOR: IMPLEMENTATION**

Implementation gaps in disaster risk reduction are largely due to a disconnect between policy frameworks and the practical execution of risk mitigation measures, often influenced by human resource competencies and financial constraints. While sector ministries possess the necessary technical knowledge for implementing disaster mitigation and climate change adaptation strategies, securing stable financial resources remains a challenge. Conversely, entities like NEMA/LEMA and local government officials, who have the authority to

allocate resources, may lack a detailed understanding of the specific needs for proactive disaster risk reduction or climate adaptation measures. Furthermore, existing risk assessment guidelines tend to overlook the unique vulnerabilities of the most at-risk populations, such as those with disabilities, the elderly, women, and children, and there is a potential for overlap between disaster risk and environmental risk assessments, both of which are crucial for government and private sector planning.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1

Establish core minimum functional capacities that are required as NEMA/LEMA staff members to fulfill responsibilities that serve as the benchmark for future capacity enhancement programs.

2.

Establish system-wide operational procedures and protocols to connect warnings with the preparedness for actions both by the government and the citizens. Monitoring, observation, forecasting, and dissemination of warnings are part of a whole value chain of early warning systems or "end-to-end" early warning systems.





# **CROSS-SECTOR: FINANCING**

While the budget allocation for disaster risk reduction in Mongolia indicates progress, specifics on the types of disaster risk reduction measures funded are unclear, and budget tagging for disaster risk reduction/climate change adaptation is not applied meaningfully to advance allocation of fiscal resources. The Sendai Framework Midterm Review reveals an 88.4% increase in planned expenditures for disaster response and recovery, with a 9.2% increase in funds for dzud preparedness (like hay and fodder stocking) and similarly for essential goods provision by the state reserve. However, consultations in Sukhbaatar and Uvs Provinces show limited budget use for disaster risk reduction infrastructure, such as fire brigade facilities and communication equipment. Sector departments report difficulties in securing adequate

budgets for tangible risk reduction activities. Fiscal policies do not incorporate catastrophic scenarios that could require significant public expenditure or lead to substantial GDP loss, like an earthquake scenario with a potential 25% GDP loss through building collapse. The insurance industry in Mongolia needs better risk information and higher penetration to effectively calculate premiums and encourage investment in risk insurance, especially among those most affected by disasters but unable to afford insurance. Currently, Mongolia lacks a comprehensive disaster risk reduction financing strategy, focusing more on disaster response financing rather than preventive disaster risk reduction and climate change adaptation investments.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1.

Enhance the overall budget allocation for resilience building in the areas of maintenance and strengthening of critical infrastructure and buildings for disaster prevention; risk-informed planning and policy design processes; end-to-end multi-hazard early warning systems; and research and development in technology, engineering solutions, and education.

2.

Establish clear definitions of disasters and their measurements, supported by robust historical data on losses and damages to support disaster risk reduction financing. It is important that the risk transfer mechanism is used as a complementary tool to the overall disaster risk reduction financing to address the residual risk after mitigating disaster and climate risk through both structural and non-structural measures before disasters occur.





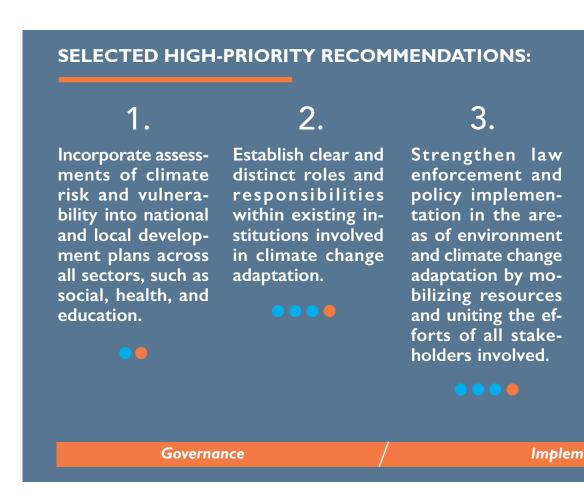
# **CROSS-SECTOR: ENVIRONMENT**

Mongolia's geography and climate make it highly susceptible to climate change, affecting its water resources, forests, pastures, and biodiversity. The country experiences various natural disasters, with 81% caused by winds, rain, and thunderstorms, and has seen these events double over the last 20 years.

Despite this vulnerability, Mongolia lacks specific climate change laws, clear adaptation strategies, and risk assessment methods. Additionally, there is a gap in coordination regarding land use and resource management, contributing to fragmented policies and a lack of integrated decision-making. The vast expanse of Mongolia complicates the enforcement of forest policies, though initiatives like the Billion Tree campaign demonstrate potential for innovative governance. Enhancing regulations to involve communities in resource monitoring and reporting could improve forest management.

Coordination between national and local authorities on climate initiatives suffers due to limited government resources and unclear role definitions across sectors. Climate change is often mistakenly considered as solely the responsibility of the Ministry of Environment, which impedes its integration into broader policies and planning. Financial constraints and competing interests at all levels of government limit funding for risk reduction and climate adaptation. Currently, environmental disaster risk management funding mainly supports fire prevention, water protection, and pollution control. However, there is a substantial opportunity to broaden green financing to more comprehensively include disaster risk and climate adaptation efforts.

Since the 1980s, Mongolia's hydrometeorological service has developed a comprehensive system for grassland monitoring and is now progressing towards implementing impact-based forecasting methods. However, gaps remain in their capability to produce data necessary for climate risk and vulnerability assessments in land use planning and other economic sectors.





# **CROSS-SECTOR: AGRICULTURE**

Mongolia's agricultural sector plays a crucial role in ensuring food security, improving rural living standards, generating employment, and providing materials to industries, thereby helping to diversify the economy. Historically, agriculture, especially livestock, was a major economic driver, accounting for up to 40% of Mongolia's GDP until the late 1990s. Today, it continues to be a significant contributor to the GDP, rooted in Mongolia's economy and cultural heritage.

However, the agricultural sector faces challenges from climate change, natural disasters, and reliance on weather conditions. Mongolia has developed early warning systems for dzud and implemented emergency measures, but there is a lack of comprehensive disaster preparedness beyond dzud. It is vital to align the number of livestock with pasture capacity to prevent overgrazing and degradation, which exacerbate the impacts of climate change and natural hazards. Increasing meat exports is considered a critical strategy to maintain

this balance.

Although policies recognize the connection between disaster risk reduction and sustainable development, they often lack detailed practical applications. Governance related to natural disaster readiness, particularly beyond dzud, remains weak. The vegetable sector struggles with harsh climates, and the policy objectives lack specificity in enhancing resilience, especially for vulnerable groups. There is an urgent need for evidence-based planning and research in climate finance to address these gaps.

Local communities, particularly herders and farmers, are minimally involved in disaster response planning, monitoring, and assessment, leading to a poor understanding of disaster risks and undermines the development of effective resilience strategies. The lack of awareness about disaster-related risks also makes these communities hesitant to explore risk transfer or insurance options.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1.

Foster active engagement and commitment from relevant sectors, including Agriculture, Emergency Management, Environment, and Social and Applied Sciences, to enhance coherent

planning in agricul-

ture.

2

Prioritize inclusive governance by actively involving local communities in the creation of policies and decisions regarding sectoral development and disaster risk reduction.

3.

Support the establishment of storage facilities, such as those for fodder and hay, along with processing facilities to strengthen the resilience of local communities.

Governance

**Implementation** 



# CROSS-SECTOR: FLOOD CONTROL INFRASTRUCTURE

Effective flood control infrastructure demands comprehensive coordination beyond administrative boundaries and requires sustained financial investment. However, the present legal and institutional framework provides only limited support for such integrated flood management practices, placing the primary responsibility on local governments to implement flood control measures within the context of urban planning and water resource management.

Despite being understaffed, Ulaanbaatar's Geodesy and Water Construction Agency has the technical

capacity for flood risk analysis and engineering works. However, the city's flood control efforts, including the maintenance of aging infrastructure and clearing of drainage systems, are hindered by insufficient funding, receiving only about 10% of the necessary budget.

Long-term plans are hampered by the absence of robust investment strategies. While flood risk knowledge and technology support infrastructure solutions, risk modeling may fail to adequately address the vulnerabilities of specific communities, such as peri-urban and informal settlements.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1

trol tailored for flood man-

Strengthen the Law on Water by incorporating elements of water management and con-

agement.

2.

Boost the implementation capacity for flood prevention infrastructure by incrementally enhancing human resources, both in quality and quantity. In conjunction with the financial investment planning for the long-term flood management master plan, design a human resources investment plan spanning at least 3 to

Governance

Implementation

5 years.



# CROSS-SECTOR: SCHOOLS AND HOSPITALS

The Ministry of Education and Science oversees school infrastructure, while the Ministry of Health manages healthcare facilities, as stipulated by relevant laws. Construction standards are set by the Ministry of Construction and Urban Development's Construction Development Center. Originally adopting the Russian Design Code in the 1950s, Mongolia has since updated its building codes, to include seismic considerations.

A vast majority of schools (88%) lack dedicated budgets for disaster risk reduction and 80% do not have specified funds for maintaining education during emergencies with no clear criteria for prioritizing renovations based on age, condition, or hazard

exposure. Structural enhancements in schools are currently hindered by inadequate guidelines and resources. Regarding seismic risks, some knowledge exists, including two earthquake scenarios developed for the Ulaanbaatar region by a 2013 JICA project.

The existing assessments of seismic risks faced by school and hospital buildings indicate that they are significantly vulnerable to damage and may struggle to maintain service continuity following earthquakes. Despite this, current strategies within these sectors largely prioritize improving service delivery, with minimal attention given to integrating disaster risk reduction measures.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1.

2.

Prioritize the reinforcement of buildings in Ulaanbaatar as the key disaster risk reduction measure in the education sector's plans, considering the city's high earthquake risk. Conduct building structural risk assessments for all schools and hospital buildings in Ulaanbaatar, based on the latest earthquake scenarios.

Governance

Knowledge and technology



# CROSS-SECTOR: ENERGY INFRASTRUCTURE

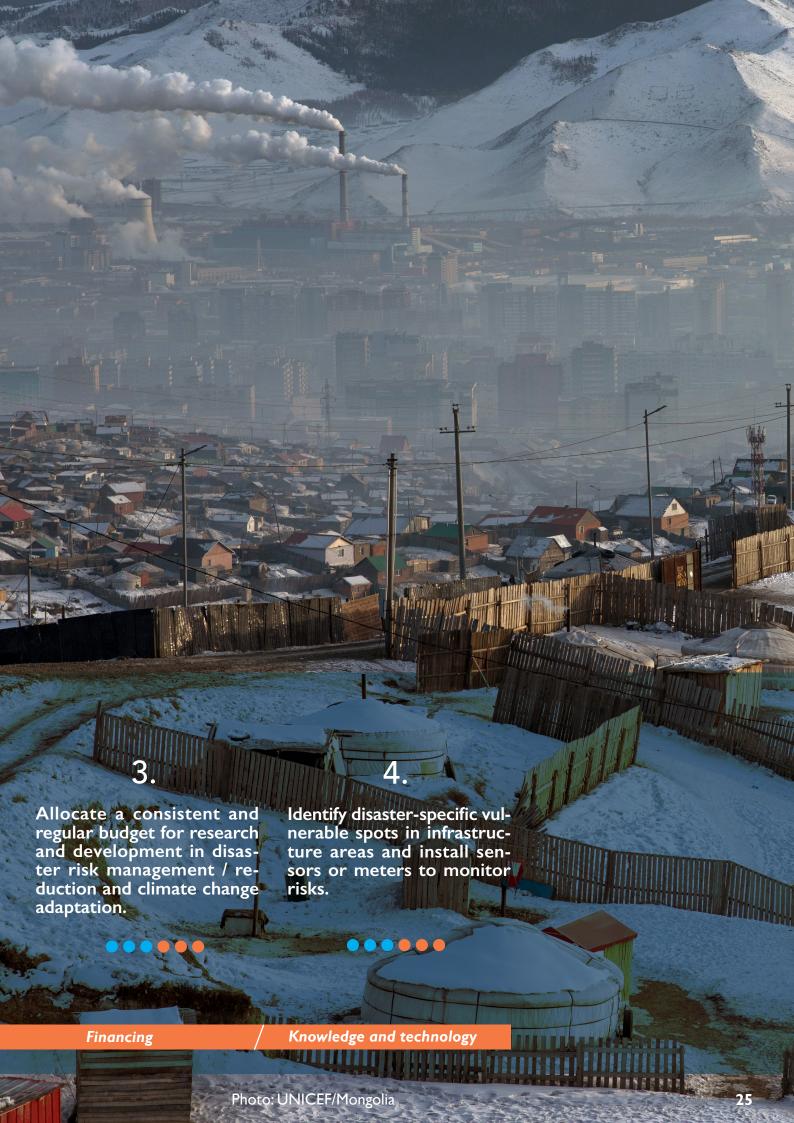
The energy sector's approach to disaster risk reduction is comprehensive and multi-dimensional, drawing on its origins in civil defense during the socialist era, which provided it with experienced personnel, emergency supplies, and support equipment. The Ministry of Energy plays a significant in energy policy, strategy, and oversight, managing a wide array of activities including power generation, grid development, and district heating, focusing on both coal and renewable energy sources. In 2023, the Ministry of Energy established a Sector Inspection department, conducting the sector's first risk assessment based on government-approved criteria, which is a significant step towards enhanced risk management. The sector's commitment to risk management is also further demonstrated by its collaboration with the National Emergency Management Agency on fire risk assessments, highlighting its proactive stance towards disaster preparedness and resilience.

However, the Disaster Protection Plans within the energy sector significantly lack alignment with those of national and local governments, the National

Emergency Management Agency, Local Emergency Management Agencies, and other key entities, leading to potential uncoordinated and less effective disaster response and recovery efforts. These plans do not include detailed self-preparedness strategies for the organization and its staff for various disaster scenarios, resulting in a lack of immediate response guidelines and increased risk to infrastructure and personnel.

The progress of the energy sector's disaster risk management is impeded by several critical challenges. Notably, there is a shortage of emergency team personnel, which compromises the sector's ability to respond effectively to disasters. Additionally, there is a significant shortfall in funding for both the technical upgrading of aging infrastructure and research activities essential for adapting to evolving disaster risks and climate change impacts. Development and maintenance plans often overlook disaster risk data, creating vulnerabilities in sector infrastructure, such as electric pillars and steam pipes, which pose safety hazards.

## **SELECTED HIGH-PRIORITY RECOMMENDATIONS:** Undertake mapping and in-Mainstream disaster risk manventory of critical infrastrucagement and climate change adaptation in all development ture and facilities within the sector, prioritizing their plans and policies, to ensure a sustainable and resilient apsafety during diverse disasproach to infrastructure and ters. community development. **Implementation** Governance



# CROSS-SECTOR: HUMAN MOBILITY

Mongolia, with its unique geography and reliance on animal husbandry, faces increased vulnerability to climate-induced disasters, influencing migration and displacement patterns. Both short and longterm internal migrations are significant, yet data on short-term moves (less than 3 months) is scarce. Migration, particularly from rural to urban areas like Ulaanbaatar, has surged due to three main factors: the post-1992 legal framework enabling free movement, the effects of climate change causing natural disasters and livestock loss, and a growing urban-rural infrastructure gap, notably in healthcare and education. Ulaanbaatar, significantly larger than Mongolia's second-largest city, now houses over 1.5 million people, or 45.9% of the population. This influx has led to environmental pollution, congestion, overstretched public services, and the expansion of impoverished "ger areas," increasing the risk of displacement within the city.

Mongolia possesses a robust governance framework for disaster risk reduction, with well-defined roles and responsibilities for managing sudden-onset disasters. This framework is supported by strong national disaster risk reduction structures that enjoy political backing. Although government measures have aimed to control migration flows, they have inadvertently increased vulnerability and inequality. Mongolia's approach to integrating human mobility in disaster risk reduction and adaptation plans focuses on sudden-onset internal displacement, with less emphasis on slow-onset events and longterm displacement solutions. Current infrastructural capacities are insufficient for responding to mediumscale or large-scale displacement, suggesting that integration with the Civil Society Organizations and social actors working to enhance the protection of vulnerable displaced groups and individuals would be beneficial for the system as a whole.

In 2020, Mongolia initiated several key policies and laws addressing migration and human mobility, such as the Law on Development Policy and Planning and Vision 2050. Despite these efforts, there remains a notable gap in dedicated policies for systematically managing internal migration.

#### **SELECTED HIGH-PRIORITY RECOMMENDATIONS:**

1.

To ensure the successful and effective implementation of migration-mainstreamed policies and plans, there is a need to institutionalize migration and allocate more targeted resources to it. This could involve establishing an agency, department or unit for migration management and migrant integration at the national level, but, more importantly, at the municipal and local levels, primarily in the Municipality of Ulaanbaatar.

2.

Establish systems to account for current and future land-use and development planning in migrant receiving areas, modeling future scenarios and taking advantage of the availability of land to orchestrate comprehensive development planning.

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Governance

**Implementation** 



# **CROSS-SECTOR: SOCIAL PROTECTION**

Social protection plays a crucial role in achieving Sustainable Development Goals by mitigating the impacts of disasters, including those induced by climate change, particularly for vulnerable groups such as women, children, and the elderly. In Mongolia, a significant portion of the population, including those with disabilities, the elderly, and children, requires targeted social protection during times of disaster. The Ministry of Labor and Social Protection is tasked with disaster risk management in social protection, including ensuring operational continuity during emergencies and developing necessary regulations. However, the absence of comprehensive legal and policy frameworks has resulted in lack of development of specific guidelines and standards for effective disaster risk management, highlighting a need for clear measures to address the vulnerabilities of at-risk groups during such times.

Efforts have been made in disaster prevention training across various sectors, however, it has become apparent that there is room for enhancement in the area of social sector-specific capacity building. For example, during the COVID-19 pandemic, staff in the social protection sector encountered difficulties fully comprehending their responsibilities, effectively engaging with vulnerable groups, and following clear, actionable protocols. The absence of rapid assessment tools for identifying the needs of those in distress, combined with the absence of a comprehensive registration system for emergency scenarios, highlights an essential need for the development of customized procedures and the strengthening of preparedness strategies to better serve those in need during times of crisis.

# Integrate and adapt international humanitarian standards into social protection governance and strategies. Promote the implementation of international humanitarian response standards in the field, ensuring they align with the existing system. Governance Implementation







