Bangladesh

Key Adaptation Sectors:

- Water resources
- Disaster, social safety, and security
- Crops, fisheries, and aquaculture
- Livestock
- Urban areas
- Ecosystems, wetlands, and biodiversity
- Private sector involvement
- Policies and institutions
- Capacity development, research, and innovations

Key Policy Instruments Referenced:

- National Adaptation Plan (NAP, 2023)

Document link – https://unfccc.int/sites/default/files/resource/NAP-Bangladesh-2023.pdf

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Detailed list of strategies – Listed (table) precisely in the document itself

Water Resources

1. Repair, construct, and rehabilitate coastal polders, sea dykes, or embankments
2. Inside and outside polder management
3. Regular and timely operation and maintenance (O&M) of coastal polders
4. Functional WMA (Water Management Association) and DMC (Disaster Management Committees)
5. Encroachment-free khals in connection to polders
6. Large-scale reservoir development for freshwater flow augmentation
7. Construct heightened dykes or freshwater retention ponds
8. Community-based, youth-led, and gender-inclusive freshwater pond management and rainwater harvesting
9. Protection and management of potential vulnerable coastal areas
10. Expand hydro-meteorological observation network and strengthen forecast and climate information services
11. Extension of low-cost & smart desalination techniques
12. Data acquisition and monitoring of local climate variables, SST (Sea Surface Temperature), SLR (Sea Level Rise), sediment, land subsidence, and salinity intrusion
13. Space technology, AI, crowdsourcing, and big data-based climate impact monitoring tool
14. Impact-based early warning & dissemination for slow-onset and sudden events
15. Restoration and conservation of wetlands and reservoirs
16. Dredging of all major and medium rivers
17. Eco-engineering flood and drainage management measures
18. Drainage management of economic/industrial zones and critical infrastructures
19. Internal drainage management in Char and Islands areas
20. Protection against flash floods, wave action, erosion, and sedimentation
21. Karach/Hijol belt along the periphery of Haor settlements
22. Maintaining connectivity of rivers or khals with perennial beels
23. 'Living with Floods' in deeply flooded haor areas
24. Improvement of existing erosion prediction model using AI
25. Shoreline erosion management based on eco or bio-engineering measures
26. Reclamation and development of lands
27. Riverbank stabilization
28. Ecosystem-based sediment management in coasts and estuaries
29. Managed Aquifer Recharge
30. Implementation of Bangladesh Water Rule 2018
31. Coordinated and community-based rainwater harvesting
32. Shadow water pricing of water
33. Operationalize National Drought Monitoring System
34. Participatory and coordinated land and water resources management
35. Trans-boundary river basin management and basin-level cooperation
36. Basin-wide and participatory watershed management
37. Remodeling of water regulating and cross-drainage structures
38. Coordinated water and disaster management
39. Planned resettlement
40. Sea wall construction
41. Pumping excess floods
42. Awareness raising and behavioral change
43. Capacity development

Disaster, Social Safety & Security

1. Construction and rehabilitation of gender and disability-sensitive multi-purpose cyclone and flood shelters
2. Landslide EWS (Early Warning System) and risk management with eco-engineering measures
3. Plantation of palm trees and installation of lightning arresters
4. EWS, ICT, and community-based dissemination system development for lightning
5. Gender, disability, and youth-led disaster preparedness and emergency rescue and evacuation services
6. Gender, youth, and disability-responsive diversified livelihood opportunities
7. Climate resilience allowance or fund
8. Expand social security/social safety net programs
9. Raise awareness to halt child abuse, early marriage, and domestic violence
10. Update child education curriculum with climate change issues
11. Development of women, disability, and young entrepreneurs for livelihood improvement

National Adaptation Priorities Inventory

Regional advocacy on GGA & NCQG

12. Extension of easy access to micro-credit support or startup loan
13. Implement risk transfer or insurance facilities for livelihoods and infrastructures
14. Establishment of low-cost climate-resilient houses
15. Establishment of climate-resilient education facilities for improved child education
16. Integrated and participatory water and disaster management
17. Behavioral change and awareness development
18. Ex-situ capacity development training
19. Planned relocation of settlements

Livestock

1. Extension of climate-stress-tolerant breed, farmhouse, and fodder
2. Extension of community-based livestock and poultry farm management system
3. National database development for livestock
4. Extension of local livestock and poultry breeds
5. Engagement of youth and women in livestock and poultry management
6. Application of IoT-based farm management
7. Availability of smart AI techniques to the local AI workers for successful AI of stress-tolerant breed
8. Development and extension of dietary feed manipulation
9. Development and extension of climate-induced disease management
10. Community-based cooperative farming system development and extension
11. Fodder suitability analysis
12. Establishment of fodder silo pit
13. Awareness building for livestock de-worming and vaccination
14. Extension of hydroponic fodder cultivation
15. Development and extension of indigenous livestock breed and farming practices
16. Construction of Killa in disaster-prone areas
17. Infrastructure for mobile veterinary services
18. Research on stress-tolerant livestock and poultry breed, farmhouse, feed, and fodder
19. Research on converting manure into renewable energy and bio-fertilizer
20. Research on climate change-induced/emerging and re-emerging livestock and poultry pest and diseases
21. Research on subsistence livestock and poultry farming system
22. Research on the immunological status and vaccine scheduling of livestock and poultry
23. Research on climate change's impact on the nutritional aspects of feed and fodder
24. Research on local livestock breeds
25. Capacity building in disease outbreaks of livestock and poultry

Fisheries & Aquaculture

1. Identify and select simultaneous culture of fish or shellfish along with other culture systems in light of integrated fish farming (IFF)
2. Identify and demonstrate suitable state-of-the-art aquaculture technology
3. Facilitate mangrove ecosystem-friendly aquaculture (i.e., silvofishery) in the existing coastal farm
4. Maintain sufficient water in ponds
5. Species diversification in coastal aquaculture
6. Select and develop stress-tolerant species of commercially important fish for extension
7. Facilitate in developing and extension of stress-tolerant functional aqua-feed
8. Emphasize and facilitate mechanization and automation (e.g., 4th IR, sensor, IoT, etc.) technology to combat climatic stresses in aquaculture
9. Introduce IMTA (Integrated Multi-trophic Aquaculture) in suitable areas
10. Utilize solar energy for avoiding GHG emissions
11. Develop and disseminate stressor-based early warning system for fisheries
12. Restore connectivity between the habitats and increase room for water
13. Restore habitat for conservation of aquatic resources under conservation programs (e.g., Sanctuary, MPA, EBFM) to enhance productivity
14. Stock enhancement of threatened fish species
15. Climate-responsive hilsa fishery management
16. Open water fisheries resource mapping
17. Identify and select mariculture species and their extension
18. Develop a leapfrogging approach for coastal fisheries management
19. Develop an integrated approach for mangrove fisheries management
20. Seaweed farming as a sustainable blue food and the pathway to carbon neutrality
21. Identify the selected indigenous technologies currently in practice
22. Conduct stakeholder survey and accumulate the information by the stress area

Urban Areas

1. Preparing City Climate Action Plan
2. Stormwater management guidelines and SOP based on LID
3. Construct and rehabilitate artificial urban drainage network
4. Re-excavation, revitalization, and maintaining connectivity of urban wetlands, khals, and rivers
5. Conservation of urban wetlands and biodiversity
6. Development of WASAs (Water and Sewerage Authorities)
7. IT-based monitoring and emergency response for urban drainage problems
8. Smart Pumping
9. Integrated solid waste and urban drainage management
10. Regular O&M (Operation & Maintenance) of natural and artificial drainage

11. Expansion and conservation of urban green areas
12. Expansion of Low Impact Development (LID) such as green buildings, green roofs, permeable pavement, bio-retention or bio-swale, green parks, etc.
13. 3R (Reduce, Reuse, Recycle) for Urban Environment Management
14. Development of climate-smart solar energy-based utilities
15. Environment-friendly vehicle and mass transport
16. Lightning risk measures in city buildings
17. Climate-proofing of water management and critical infrastructures

Ecosystem, Wetland & Biodiversity

1. Extension and expansion of mangrove and coastal greenbelt
2. Establish vegetative barriers or ecosystem-based protection (such as oyster reef structures)
3. Community-based afforestation and reforestation
4. Carbon Farming
5. Expand EbA (Ecosystem-based Adaptation) for restoration of mangrove, hill, and wetlands
6. Introduce a nominal amount of PES (Payment for Ecosystem Services) for all tourists and dependent livelihood groups of Sundarbans, beach areas, hill areas, and wetlands
7. Provision of community-based rainwater harvesting
8. Strengthening ecosystem and biodiversity monitoring and law enforcement
9. Maintenance of environmental flow of aquatic ecosystems, rivers, and wetlands
10. Participatory watershed management through step farming and terrace plantations in hilly areas
11. Restore the eco-hydraulics for wetlands, rivers, and canals
12. Removal of in-filled debris and illegal encroachments from wetlands
13. Implementation of EbA for restoring water in feasible wetlands
14. Monitoring of water quality and nutrition for protecting wetland ecosystems and biodiversity
15. Multifunctional Hill and Forest management and conservation
16. Development of future land-use plan for hill and forest management planning
17. Restoration of degraded hill and springs
18. Marine Protected Area (MPA) management and monitoring the rights of the fishermen
19. Adopt Other Effective Area-based Conservation Measures
20. Create an artificial mangrove forest to expand the Sundarbans for high ecosystem services value
21. Plantation in hilly areas to protect topsoil erosion from the hills

National Adaptation Priorities Inventory

Regional advocacy on GGA & NCQG

Bhutan

Key Adaptation Sectors:

- Water
- Agriculture and Livestock
- Forests and Biodiversity
- Human Settlements & Climate Smart Cities
- Health
- Energy
- Climate Services and Disaster Risk Reduction

Key Policy Instruments Referenced:

- National Adaptation Plan (Adaptation communication included in it) (NAP, 2023)

Document link – https://unfccc.int/sites/default/files/resource/NAP-Bhutan-2023.pdf

Detailed list of strategies – Listed (table) precisely in the document itself

Water

1. Improve natural capacity for infiltration, water recharge, and water buffer for prevention of fast runoff and erosion.
2. Optimal use of available water discharge.
3. Ensuring climate-resilient supply of safe drinking water under climate change.
4. Enhance water use efficiency and promote sustainable management of water resources for agriculture.
5. Strengthen institutional capacity for water management.

Agriculture and livestock

1. Securing the natural resource base for livestock grazing, feed, and fodder sources.
2. Enhancing resilience and livestock production through appropriate technologies and management practices.
3. Managing livestock losses from climate change impacts and emerging threats.
4. Enhance water use efficiency and promote sustainable management of water resources for agriculture.
5. Pursue an integrated landscape approach for sustainable soil and land management for agriculture.
6. Managing food production losses from climate change impacts and emerging threats.
7. Enhancing resilience and food production through appropriate technologies and management practices.
8. Conduct targeted training at the sector and decentralized levels for enhanced assessment and implementation of adaptation.

Forests and biodiversity

1. Strengthen forest fire management in Bhutan through a participatory and consultative approach.
2. Enhance assessment and monitoring of biodiversity.
3. Identify, restore, and manage key important areas and components of biodiversity.
4. Prevent and control the increasing incidences of zoonosis, pests, diseases, and Invasive Alien Species (IAS).
5. Control and prevent degradation of forest cover and biodiversity through scientific sustainable management and community engagement.
6. Ensure women and other vulnerable groups access natural resources and capacity building.

Human settlements and climate smart cities

1. Develop climate-smart cities and human settlements.
2. Build a comprehensive database for urban areas.
3. Enhance logistics preparedness for disaster management and improved service delivery.
4. Climate-proof critical infrastructures and settlements against floods and landslides.
5. Construct climate-resilient road infrastructure.

Health

1. Build resilience of critical public health systems and infrastructure against extreme events and long-term climate risks.
2. Enhance health emergency preparedness and response to climate-induced disasters.
3. Enhance surveillance and management of climate-sensitive and vector-borne diseases.
4. Build awareness and capacity of the health sector on climate change adaptation.
5. Research on the impacts of climate change on human health.

Energy

1. Diversification of energy systems to reduce the vulnerability of hydropower from climate change.
2. Increase the resilience of hydropower infrastructures/technologies to climate change.

Climate services and disaster risk reduction

1. Improve hydrological services for water resources management.
2. Strengthen agro-meteorological services and climate information systems.
3. Protect critical infrastructures and settlements.
4. Enhance early warning, response, and recovery capacity.

Pakistan

Key Adaptation Sectors:

1. The agriculture - Water Nexus
2. Natural Capital (Land, Water, and Air)
3. Urban Resilience
4. Human Capital
5. Disaster Risk Management
6. Gender, Youth, and Social Inclusion

Key Policy Instruments Referenced:

- National Adaptation Plan (NAP, 2023)

Document link – https://unfccc.int/sites/default/files/resource/National_Adaptation_Plan_Pakistan.pdf

Detailed list of strategies – Listed (table) precisely in the document itself

The Agriculture - Water Nexus

1. Incentivizing farmers to transition to climate-smart water and land management practices.
2. Modernizing surface and groundwater irrigation services to support the transition to Climate-Smart Agriculture (CSA).
3. Developing a long-term agriculture growth strategy with a focus on productivity improvement, climate resilience, and physical expansion.
4. Developing a plan for managing projected river flow and rainfall variability under different climate scenarios.

Natural Capital (Land, Water, and Air)

1. Mainstreaming sustainable land management into ecosystem services.
2. Promoting integrated watershed management.
3. Improving water quality through better wastewater management.
4. Investing in coastal and marine resources protection.
5. Investing in the air pollution-climate change nexus.

Urban Resilience

1. Mainstream climate adaptation in urban planning across federal, provincial, and local governments.
2. Improving land regulation and land-use planning to bolster resilient service provision.
3. Bolstering climate-smart municipal services.
4. Leveraging Nature-Based Solutions (NBS) to manage climate risks.
5. Developing financing instruments to ensure sustainable revenue streams.

Human Capital

1. Mainstream Climate Adaptation in Health and Education Policies.
2. Enhance Climate Resilience through Disaster Emergency Preparedness and Response.
3. Build Workforce Capacities to Address Climate Risks.

Disaster Risk Management

1. Understanding climate and disaster risk by investing in state-of-the-art hydromet, climate, and early-warning systems.
2. Strengthening disaster risk governance.
3. Investing in disaster risk reduction to bolster the resilience of communities and critical infrastructure.
4. Enhancing disaster preparedness for effective response and to "Build Back Better" by incorporating risk-informed approaches into recovery and reconstruction efforts.

Gender, Youth, and Social Inclusion

1. Support vulnerable groups in strengthening their capacity for Disaster Risk Management (DRM).
2. Empower vulnerable groups through fostering climate-resilient livelihoods.
3. Promote inclusive participation of vulnerable groups in climate-related policy and development planning.

Nepal

Key Adaptation Sectors:

1. Agriculture and Food Security (AFS)
2. Forests, Biodiversity and Watershed Conservation (FBWC)
3. Water Resources and Energy (WRE)
4. Rural and Urban Settlements (RUS)
5. Industry, Transport and Physical Infrastructure (ITPI)
6. Tourism, Natural and Cultural Heritage (TNCH)
7. Health, Drinking Water and Sanitation (HDWS)
8. Disaster Risk Reduction and Management (DRRM)
9. Gender Equality and Social Inclusion (GESI), Livelihood and Governance (GESILG)

Key Policy Instruments Referenced:

- National Adaptation Plan (Adaptation communication included in it) (NAP, 2023)

Document link – https://unfccc.int/sites/default/files/resource/NAP_Nepal_Summary_for_Policy_Makers.pdf

Detailed list of strategies – Listed (table) precisely in the document itself

Agriculture and Food Security (AFS)

1. National Capacity Building of Agriculture and Livestock Institutions on Climate Change Adaptation Research, Planning and Implementation
2. Strengthening Climate Services and Agriculture Information System
3. Integrated Soil and Nutrient Management for Resilient Agriculture
4. Enhancing Agriculture Productivity through Building Climate-Resilient Water Management Systems
5. Genetic Resource Conservation and Development Programme for Climate-Resilient Agriculture in Nepal
6. Programme on Sustainable Agriculture, Food and Nutrition Security and Climate-Resilient Health and Hygiene
7. Commercial Animal Husbandry for Climate-Resilient Rural Livelihoods
8. Development of Insurance, and Community and Peasant-Friendly Climate Induced Risk Sharing Model and Expansion in both Agriculture and Livestock
9. Climate Smart Collective Agriculture Promotion in Hills and Mountains

Forests, Biodiversity, and Watershed Conservation (FBWC)

1. Forests Fire Preparedness, Prevention, and Control
2. Karnali Watershed Management Programme for Reducing Climate Risks and Vulnerabilities and Promoting Irrigation Facilities in the Downstream
3. Restoration of Habitats and Strengthening Ecological Connectivity for Wildlife and Biodiversity
4. Integrated Sub-watershed Management for Climate Resilience
5. Improvement of Forest Health and Restoration of Rare, Endangered, Endemic, and Threatened Species for Building Resilient Forest Ecosystem
6. Promotion of Multiple Uses of Protected Areas and Natural Heritage and Generation of Climate Adaptation Services
7. Reduce the Impact of Climate Induced Disasters and Extend Forest Networks for Resilient Ecosystems
8. Conserve and Restore Ponds/Lakes in Community-managed Forests for Climate-Resilient Biodiversity (One Community-managed Forest-One Wetland)
9. Wetland Development and Conservation

Water Resources and Energy (WRE)

1. Restoration and Conservation of Water Sources for Sustainable Supply
2. Strengthening Climate Resilience of Hydropower and Energy Systems
3. Integrated Water Resource Management at the River Basin Level for Climate Resilience
4. Promotion of Solar and Other Alternative Energy in Rural and Remote Areas
5. Improving Water Governance and Promoting Climate-Resilient Water Use Practices
6. Strengthening the Adaptive Capacity of Communities through Local Water Management Initiatives
7. Enhancing Water Storage and Conservation Techniques for Climate Resilience
8. Development of Early Warning Systems for Flood and Drought Management
9. Implementation of Climate-Smart Irrigation Technologies

Climate-Induced Disasters (CID)

1. Enhancing the Capacity of Communities and Institutions for Climate Disaster Risk Reduction
2. Strengthening Early Warning Systems and Information Dissemination Networks
3. Climate-Resilient Infrastructure Development for Disaster Risk Reduction
4. Community-Based Disaster Preparedness and Response Programmes
5. Integration of Climate Risk Management into Local Development Planning
6. Strengthening Emergency Response and Recovery Mechanisms for Climate Disasters
7. Capacity Building for Local Governments on Climate Disaster Management
8. Promoting Nature-Based Solutions for Climate Disaster Mitigation
9. Development of Hazard Maps and Risk Assessments for Climate Disaster Preparedness

Public Health (PH)

1. Strengthening Climate-Resilient Health Systems and Infrastructure
2. Enhancing Surveillance and Early Warning for Climate-Induced Health Issues
3. Capacity Building of Health Workers on Climate Change and Public Health
4. Promoting Community-Based Health Adaptation Initiatives
5. Development of Climate-Sensitive Health Policies and Programmes

6. Strengthening Water, Sanitation, and Hygiene (WASH) Systems for Climate Resilience
7. Research and Development on Climate-Health Linkages
8. Public Awareness and Education on Climate-Related Health Risks
9. Establishing Climate-Resilient Health Services in Vulnerable Areas

Tourism, Natural and Cultural Heritage (TNCH)

1. Strengthening Climate Resilience in Tourism Infrastructure and Services
2. Promoting Sustainable and Climate-Resilient Tourism Practices
3. Conservation of Cultural and Natural Heritage Sites from Climate Risks
4. Enhancing Community-Based Ecotourism and Livelihoods
5. Research and Monitoring on Climate Change Impacts on Tourism
6. Capacity Building of Tourism Stakeholders on Climate Adaptation Strategies
7. Promotion of Traditional Knowledge in Climate-Resilient Tourism
8. Development of Climate-Resilient Tourism Policies and Guidelines
9. Strengthening Disaster Preparedness for the Tourism Sector

Urban Settlements and Infrastructure (USI)

1. Enhancing Climate Resilience of Urban Planning and Development
2. Promoting Green and Sustainable Urban Infrastructure
3. Strengthening Waste Management Systems for Climate Resilience
4. Development of Climate-Smart Transportation Systems
5. Integration of Climate Adaptation Strategies into Urban Policies
6. Promoting Energy Efficiency in Urban Buildings and Infrastructure
7. Strengthening Community-Based Urban Climate Adaptation Initiatives
8. Research and Innovation in Climate-Resilient Urban Development
9. Enhancing the Role of Local Governments in Climate-Smart Urban Planning

Gender and Social Inclusion (GSI)

1. Strengthening Gender-Responsive Climate Adaptation Policies
2. Enhancing Participation of Women and Marginalized Groups in Climate Decision-Making
3. Promoting Climate-Resilient Livelihoods for Vulnerable Communities
4. Addressing Climate-Induced Migration and Social Vulnerabilities
5. Research on Gender and Social Dimensions of Climate Change
6. Capacity Building for Women and Marginalized Groups on Climate Adaptation
7. Integrating Social Inclusion in Climate Change Strategies
8. Supporting Climate Justice and Equitable Adaptation Measures
9. Development of Gender-Sensitive Climate Finance Mechanisms

Sri Lanka

Key Adaptation Sectors:

1. Food security
2. Water resources
3. Coastal and marine sector
4. Health
5. Human settlements and Infrastructure
6. Ecosystems and biodiversity
7. Tourism and recreation
8. Export agriculture sector
9. Industry, energy and transportation

Key Policy Instruments Referenced:

- National Adaptation Plan (NAP, 2016)

Document link – https://unfccc.int/sites/default/files/resource/NAP-Sri-Lanka-2016.pdf

Detailed list of strategies – Listed (table) precisely in the document itself

Food Security

1. Develop tolerant varieties (paddy, OFC, horticulture) and breeds (livestock and poultry) to heat stress, drought, floods, and resistance to diseases and pest attacks
2. Develop and promote water-efficient farming methods
3. Adjust cropping calendars according to climate forecasts.
4. Develop systems for timely issuing and communicating climate information to farmers
5. Develop research institute capacity for conducting research on tolerant varieties/breeds and climate-resilient farming methods

Water Resources

1. Develop and implement watershed management plans for critical watershed areas
2. Increase the efficiency of use and reduce losses of irrigation water
3. Assess the current practices of water management for climate resilience and identify ways to improve them
4. Identify and map areas vulnerable to droughts and flood hazards and prepare disaster risk management plans
5. Design rational intra-basin and trans-basin strategies to harness periodic surpluses of water in storage facilities

Coastal and Marine Sector

1. Implement a continuous programme for monitoring shoreline changes
2. Develop shore shoreline management plans including M&E programmes
3. Study impacts of sea level rise on coastal habitats over short-, medium-, and long-term horizons
4. Identify, declare, collect information and prepare maps on vulnerable areas to extreme events and inundation
5. Conduct awareness programmes on sea level rise and extreme events to coastal communities to empower them for facing the risks of climate change

Health

1. Establish a surveillance programme for detection and monitoring of climate-induced diseases
2. Conduct research studies on the impact of climate change prevalence and spread of vector-borne and pathogenic diseases
3. Develop research institutes' capacity for conducting research on health impacts of climate change
4. Strengthen the mechanisms for sharing information between disaster management and health management agencies
5. Launch awareness programmes on climate and health risks for healthcare workers and the public

Human Settlements and Infrastructure

1. Promote climate-resilient building designs
2. Revise building approval systems to increase climate resilience
3. Conduct research studies on climate-resilient building designs, green building concepts, and alternative materials
4. Conduct training programmes on climate-resilient buildings for industry stakeholders
5. Prepare hazard preparedness plans for urban, rural, and estate settlements

Ecosystems and Biodiversity

1. Conduct research studies on climate change impacts on ecosystems and biodiversity
2. Establish a comprehensive programme to monitor climate change impacts on key natural ecosystems and biodiversity
3. Prepare adaptive management programmes for climate-sensitive ecosystems
4. Prepare recovery plans for highly threatened ecosystems and species
5. Develop research institutes' capacity for conducting research on climate change impacts on ecosystems and biodiversity

Tourism, Natural and Cultural Heritage (TNCH)

1. Climate-Resilient Tourism for Ecological Sustainability and Economic Prosperity
2. Climate Risk and Tourism Information System for Resilient, Safe and Sustainable Tourism
3. Develop Climate-Resilient Infrastructure, and Explore and Enhance Knowledge and Capacities for Resilient Mountain Tourism
4. Promotion of Community-based Adaptation through Eco-and Cultural Tourism and Indigenous and Traditional Knowledge
5. Diversifying and Promoting Alternative Tourism Destinations and Products for Climate-Resilient Tourism Business
6. Establishment and Operation of Emergency Relief and Rescue Services in Adventure Tourism
7. Building Capacity for Resilient Tourism in Nepal
8. Promotion of Climate-Resilient 'One Local Level-One Tourism Destination'

Health, Drinking Water and Sanitation (HDWS)

1. 'Health Promoting Cities': Health, Environment and Life (Heal)
2. Strengthening Climate Sensitive Disease Surveillance Systems with Emergency Preparedness and Response

3. Research, Innovation and Development of Climate Resilient Preventive Measures/Technologies/Approaches for Water Supply, Sanitation and Health System
4. Capacity Building of Health and Hygiene Service Providers and Professionals (Institution and Personnel) on Climate-Resilient Health Hygiene Service Planning and Implementation
5. Development of Climate Resilient and Inclusive WASH Service and Facilities through Building Capacities, Developing Institutions and Systems, Adopting Innovative Technologies and Extending Collaboration
6. Promotion and Conservation of Water Sources along with Watershed Management for Sustainable Water Supply Service
7. Integration and Implementation of Climate Change Adaptation in the Health and WASH sector through Policy Reform, Strategy Development and National Level Awareness

Disaster Risk Reduction and Management (DRRM)

1. Building Climate Resilience by Developing and Harmonizing DRRM and Climate Change Adaptation at Federal to Local Levels through Policy Reforms (Integration of DRR in Local Adaptation Plans)
2. Strengthening Adaptive Social Protection/Shock Responsive Practices for Transferring Climate Risk
3. Maintaining and Strengthening Early Warning Systems and Multi-Hazard Monitoring Systems to Facilitate Climate Adaptive Function of Key Economic Service Sectors
4. Developing a Regulatory Framework and Implementation Strategy for Domestic and Industrial Fire Control and Mitigation, and Build National Capacities
5. Promote Culture of Safety and Build Climate Resilience through Climate Risk Sensitive Land Use Plan (RSLUP) Guideline and Standards
6. Developing Federal and Provincial Strategies and Action Plans on Control of Climate-Induced (primarily water-borne) Disasters in the Forest Areas of Nepal and Phase-wise Implementation under the Leadership of Forest Authorities

Gender Equality and Social Inclusion (GESI), Livelihood and Governance (GESILG)

1. Strengthening Gender Equality and Social Inclusion (GESI) Responsive Climate Change Adaptation Planning and Implementation
2. Building Human Capital for Inclusive Climate and Disaster Resilient Society
3. Economic Empowerment through the Usage of GESI Responsive, Climate-Resilient and Smart Technologies
4. Enhancing Resilience to Climate Change through GESI-Responsive Livelihood Programmes

India

Key Adaptation Sectors:

1. Agriculture
2. Water Resources
3. Coastal and Marine Ecosystems
4. Forestry and Biodiversity
5. Urban Ecosystems and Infrastructure
6. Human Health
7. Disaster Risk Reduction
8. Gender and Social Inclusion
9. Finance and Technology for Adaptation

Key Policy Instruments Referenced:

- National communication (adaptation communication included to it) (NC, 2023)

Document link – https://unfccc.int/sites/default/files/resource/India-TNC-IAC.pdf

Detailed list of strategies – Compiled from broad texts of the document

Agriculture

1. Development of climate-resilient crop varieties, including stress-tolerant breeds.
2. Promotion of climate-smart agricultural practices such as improved irrigation techniques, precision farming, and soil conservation.
3. Enhancement of agro-meteorological services to provide timely weather and climate information.
4. Strengthening integrated pest and disease management systems.
5. Diversification of cropping systems to reduce risks from climate variability.
6. Improving water-use efficiency and rainwater harvesting techniques.
7. Adoption of organic farming and sustainable land management practices.

Water Resources

1. Development and implementation of watershed management plans.
2. Improving irrigation efficiency and promoting water-saving technologies.
3. Strengthening flood management systems, including the construction of embankments and flood storage reservoirs.
4. Enhancing early warning systems for extreme weather events.
5. Mapping and monitoring drought-prone areas for better preparedness.
6. Sustainable groundwater management and recharge measures.
7. Strengthening water governance and integrated water resource management.

Coastal and Marine Ecosystems

1. Conservation and restoration of mangroves, coral reefs, and seagrass beds to protect coastal areas.
2. Implementation of ecosystem-based adaptation approaches for shoreline protection.
3. Monitoring and managing sea-level rise and coastal erosion.
4. Strengthening coastal infrastructure against cyclones, storm surges, and flooding.
5. Enhancing community resilience and relocation strategies for highly vulnerable coastal settlements.
6. Improving coastal fisheries management and sustainable aquaculture practices.

Forestry and Biodiversity

1. Climate-resilient afforestation and reforestation strategies.
2. Anticipatory planting of tree species along latitudinal and altitudinal gradients.
3. Strengthening biodiversity conservation programs and habitat restoration.
4. Linking protected areas and forest corridors to improve ecosystem resilience.
5. Strengthening fire management systems to mitigate climate-induced forest fires.
6. Incorporation of climate change concerns into forestry working plans.
7. Enhancing long-term ecological monitoring of forest ecosystems.

Urban Ecosystems and Infrastructure

1. Development of climate-resilient building designs and urban planning strategies.
2. Strengthening stormwater drainage systems to reduce urban flooding.
3. Enhancing resilience of critical infrastructure such as roads, bridges, and energy systems.
4. Promotion of nature-based solutions like green roofs, urban forests, and permeable pavements.
5. Improving waste management and pollution control systems to reduce climate risks.
6. Developing climate-adaptive transportation and mobility solutions.

Human Health

1. Strengthening surveillance and early warning systems for climate-sensitive diseases.
2. Enhancing capacity for managing heat-related illnesses and vector-borne diseases.
3. Improving access to climate-resilient healthcare infrastructure.
4. Raising awareness and training healthcare professionals on climate change impacts.
5. Conducting research on climate-health linkages and vulnerabilities.
6. Integrating climate change considerations into national health policies.

Disaster Risk Reduction

1. Enhancing early warning systems and disaster preparedness mechanisms.
2. Strengthening climate-resilient infrastructure in disaster-prone regions.
3. Implementing ecosystem-based disaster risk reduction strategies.
4. Establishing climate-resilient shelters and emergency response facilities.
5. Improving coordination between national and local disaster management agencies.
6. Conducting community-based disaster risk reduction programs.

Gender and Social Inclusion

1. Mainstreaming gender-responsive adaptation planning.
2. Enhancing climate resilience for marginalized and vulnerable communities.
3. Promoting diversified livelihood opportunities for women and disadvantaged groups.
4. Strengthening social protection measures to support adaptation.
5. Encouraging participatory approaches in climate adaptation decision-making.

Finance and Technology for Adaptation

1. Enhancing access to climate finance, including international funding mechanisms.
2. Promoting public-private partnerships for climate adaptation projects.
3. Strengthening local financial institutions to support community-based adaptation.
4. Supporting research and development of climate-resilient technologies.
5. Developing innovative financial instruments such as climate bonds and insurance schemes.

Myanmar

Key Adaptation Sectors:

1. Climate-smart agriculture, fisheries, and livestock for food security
2. Sustainable management of natural resources for healthy ecosystems
3. Resilient, inclusive, and sustainable cities and towns where people can live and thrive
4. Climate risk Management for people's health and well being
5. Education, science, and technology for a resilient society

Key Policy Instruments Referenced:

- Nationally Determined Contribution (NDC, 2021)

Document link – https://unfccc.int/sites/default/files/NDC/2022-06/Myanmar%20Updated%20%20NDC%20July%202021.pdf

Detailed list of strategies – Highlighted in list (not in table) under broad texts of the document.

Climate-smart agriculture, fisheries, and livestock for food security

A. Promote climate and weather monitoring and knowledge sharing

1. Improving climate and weather information systems to all farmers and public, including drought/ flood alerts as well as daily inputs for irrigation and other water management possibilities.
2. Establishing and strengthening a network on "Sharing Weather Conditions".
3. Establishing agricultural research facilities and demonstration plots at region and state level on agriculture to better understand climate change impacts.
4. Establishment of Climate Smart Agriculture Villages (CSV) to disseminate models for sustainable agricultural/aquaculture/livestock production throughout Myanmar.

B. Support adaptation of climate in line with Climate Smart Agriculture

5. Implementing conservation agriculture for integrated soil and water conservation e.g., contour systems and SALT (Sloping Agriculture and Land Technology), windbreak plantations, aquaponics.
6. Supporting people displaced due to conflict to improve climate resilient agricultural practices.
7. Implementing System of Rice Intensification and improvement of Salinity tolerance and Submergence tolerant rice varieties.
8. Supporting farmers in Integrated Pest Management (IPM) promoting organic pesticides use.
9. Developing rules and regulations with government to control imported seeds quality and distributing plant/seed varieties that help improve the soil quality.
10. Developing and implementing crop insurance mechanisms and ensuring they are designed to reflect ways of overcoming barriers to access and information of the most vulnerable.
11. Creating a platform to exchange knowledge and share information on Agriculture and communicate issues in relation to agriculture with related departments.

C. Promote climate change adaptation through livelihood diversification/growth

12. Support development of community-based adaptation technologies such as paddy dryers, solar dryer technology for high valued crops.
13. Promotion of circular-economies technologies for reuse of agricultural residues and livestock/aquaculture byproducts, such as bio-fertilizer and biochar production.
14. Promotion of solar powered pumping/drip irrigation technologies in cash crop production, plantations, and aquaculture.
15. Implementing GAP (Good Agriculture Practices), GAqP (Good Aquaculture Practices), and GAHP (Good Animal Husbandry Practices).
16. Protecting and upgrading native agricultural varieties, and support for upgrading rainfed agriculture technology.
17. Protecting and genetic upgrading of indigenous livestock breeds, and support for Artificial Insemination Services
18. Building capacities of younger farmers and informing them re licensing procedures for overseas export to enhance socio-economic resilience and discourage migration.

Sustainable Management of Natural Resources for Healthy Ecosystem

A. Protection of Critical Watershed Hydrological Services

1. Analyzing and sharing of actual water quantity that may be discharged from reservoirs.
2. Protecting and conserving natural waterholes, springs, spouts, and supporting water purifying technology in remote villages of Myanmar.
3. Creating a knowledge platform and mechanism to share information
4. Protecting watersheds against climate change using nature-based solutions
5. Preserving traditional knowledge on water resource management.
6. Establishing community conserved watershed areas.
7. Establishing community based small reservoirs.
8. Designing and implementing rainwater harvesting.
9. Renovation and improvement in village ponds and tube wells (i.e., Central Dry Zone)
10. Building Flood resistant wells and lakes.
11. Maintaining and conserving water sources like lakes and identifying new lakes
12. Promoting community-based afforestation and reforestation ensuring these activities protect and enhance water systems and endemic biodiversity.

B. Protection of Environmental Quality to support health and livelihoods

13. Undertaking effective wastewater treatment.
14. Demonstrating and encouraging domestic wastewater management bringing in recycling
15. capabilities for wastewater and solids use in agriculture and other water demand sectors.
16. Protecting over consumption of groundwater but promoting other alternatives.

17. Address overuse of inorganic fertilizers and poor waste management through support for bio-composting and bio-charring.

C. Protection of Forests and the Ecosystem Services that support Livelihoods

18. Assessment of impacts of climate change on biodiversity and wildlife and taking necessary adaptation measures.
19. Mainstreaming climate change adaptation into protected areas management and sustainable landscape management including marine ecosystems, MPA (marine Protected Areas), and dryland ecosystem.
20. Enhancing climate resilience of coastal communities through promotion of forest and fisheries dependent livelihoods, support for innovative SMEs in sustainable value addition, and capacity-building for community-based natural resources management institutions.
21. Understanding, developing, integrating, and implementing nature-based solutions to climate change.
22. Creating knowledge platforms, information dissemination, and stakeholder engagement mechanisms to share information, related to the above.

D. Myanmar's coastal ecosystems

23. Establishment of township, district, state/regional Coastal Resource Management Committees, to design, oversee and implement technologies for flood disaster risk reduction, for coastal adaptation actions and marine biodiversity conservation.
24. Enhancing and expanding forestry areas, communicating its benefits, promoting ecosystem-based adaptations.
25. Increasing private and community-owned mangrove wind and wave breaks.
26. Mainstreaming climate change adaptations in Marine Protected Areas (MPA) and promoting nature-based solutions.
27. Developing a coastal disaster defense/Green Belt through mangrove restoration and rehabilitation of mangroves having mitigation co-benefits.
28. Increasing PAs to enhance nature-based solutions to climate change.
29. Identifying and developing opportunities for local communities to benefit from blue carbon mitigation co-benefits.
30. Conserving and protecting biodiversity, habitats, ecological hotspots and wildlife and building their resilience against climate change.
31. Establishment and support for coastal resource research centers to enhance knowledge management.
32. Integrating mangroves sustainable management, restoration and conservation into REDD+ Implementation in Myanmar
33. International funding and technical support will be needed for Myanmar to implement these ideas and identify further nature-based solutions to climate change.

Resilient, inclusive, and sustainable cities and towns where people can live and thrive

A. Integrated Waste Management to strengthen urban resilience

1. Develop city-wide solid waste strategies to create circular economies that improve water, energy, and food systems, benefiting agriculture and power generation.
2. Consider challenges for waste workers, especially in low-income areas exposed to pollutants.
3. Reduce landfill waste by increasing recycling and repurposing organic waste (e.g., capturing methane from landfills).
4. Manage untreated fecal waste and explore ways it can improve agriculture, generate power, and support forest growth.
5. Build sanitary landfills and facilities to dispose of or repurpose non-organic waste (e.g., plastic) into Refuse-Derived Fuel (RDF)

B. Nature-based Solutions that reduce exposure to climate-induced watershed risks

6. Multi-scale strategies to reduce landslides and flooding risks at different levels (watershed, township, neighborhood, household) to lessen the frequency, severity, and impact of these events.
7. Neighborhood-level projects to prevent water- and insect-borne diseases by integrating climate-smart housing, urban river/drainage planning, and waste management to reduce standing water.
8. Balance land/agricultural and urban water needs with potential Payments for Ecosystem Services (PES) to incentivize watershed afforestation and climate-smart agriculture.

C. Promote climate-sensitive, resource efficient housing, neighborhoods, and industrial zones

9. Promote climate-adapted designs for residential, commercial, and industrial buildings to handle increased temperatures, humidity, and rainfall due to climate change.
10. Improve Myanmar Building Code to ensure buildings are more energy-efficient, safe from flooding/high winds, and better at cooling.
11. Urban zoning and industrial zone planning to encourage circular economies and resource efficiency in energy and water usage.

D. Nature-based Solutions to protect livelihoods and reduce urban heat island effects, flooding and landslides

12. Promote and assess conservation and expansion of urban and peri-urban green spaces to reduce water runoff, mitigate landslide risks, and lower urban heat island effects.
13. Evaluate the co-benefits of green spaces, such as better air quality, reduced noise pollution, improved public health, enhanced city aesthetics, and higher land values, benefiting residents, tourists, and municipal revenue.

Climate risk Management for people's health and well being

A. Improve Forecasting and Warning Systems

1. Need to approach Impact Based Forecast and Warning System
2. Establishing local Early Warning Systems (EWS) engaging with local communities and ethnic peoples and linking these drought and flood action plans.
3. Developing SMS systems, mobile applications for EWS and information dissemination.
4. Improving flood and cyclone forecasting tools and or enhancing international cooperation in forecasting.
5. Monitoring sea level rise.
6. Improving marine weather observations and forecasting systems by capacity building tools and technology training.

B. Interventions for disaster preparedness

7. Implementing Disaster Management Law (2013) and MAPDRR (2017) and ensure practical emergency and response actions are in place and agreed across ministries and other agencies.

8. Constructing cyclone shelters / multipurpose shelters, distributing life jackets, making available fiber boats.
9. Establishing post-disaster rapid response networks to meet the immediate nutritional needs of disaster-affected communities.
10. Mainstreaming gender into addressing and dealing with climate hazards and loss and damage.
11. Implementing inclusive and rights-based disaster risk reduction measures to ensure equal opportunities of the community.
12. Initiating shock responsive social protection for effective disaster response.

C. Interventions to improve health service responses

13. Developing and implementing the National Adaptation Plan for the health sector that mainstreams climate change into the National Health Policy.
14. Reducing the vulnerability of local communities to climate-induced water-related health hazards.
15. Integrating climate change adaptation strategies into the prevention of heat-related disorders in agricultural and industrial workers.
16. Adapting to climate change through climate-resilient health facilities in Rakhine state, and Ayeyarwady, Bago, Mandalay and Sagaing regions.
17. Supporting intensive care units in hospitals to treat heat-related disorders.
18. Integrating climate adaptation strategies into the prevention and control of diarrheal
19. diseases and control of malaria and dengue hemorrhagic fever.
20. Building capacity of the health sector to determine direct and indirect impacts of climate change on the transmission of current and emerging diseases.
21. Adapting to climate change through integrated plague and rodent control strategies.

Education, Science and Technology for a Resilient Society

1. Undertaking research on a suitable database and developing management tools for priority climate change adaptation and mitigation sectors.
2. Dissemination of information to stakeholders and organizations who will use the research findings.
3. Integrating climate change subjects into the syllabus at basic education, higher education and University.
4. Documenting and distributing local knowledge on climate change.
5. Enhancing human resource capacities to increase climate change knowledge and awareness.
6. Increasing studies on national and local climate projects and scenarios, and on vulnerability assessments, climate change trends and risks.
7. Engaging and educating youth on climate change and conservation.

National Adaptation Priorities Inventory

Regional advocacy on GGA & NCQG

China

Key Adaptation Sectors:

1. Agriculture
2. Forestry and Grassland
3. Water resources
4. Public health
5. Infrastructure
6. Cities
7. Coastal Erosion Areas
8. Qinghai-Tibet Plateau
9. Monitoring, Early warning, and Disaster prevention

Key Policy Instruments Referenced:

- Nationally determined contribution (adaptation communication included to it) (NDC, 2021)

Document link – https://unfccc.int/sites/default/files/NDC/2022-06/China%E2%80%99s%20Achievements%2C%20New%20Goals%20and%20New%20Measures%20for%20Nationally%20Determined%20Contributions.pdf

Detailed list of strategies – Compiled from broad texts of the document

Agriculture

1. Development and promotion of 60+ agro-meteorological adaptation technologies.
2. Implementation of agricultural climate zoning and irrigation systems.
3. Selection and development of heat, drought, low-light, and low-temperature resistant crop varieties.
4. Expansion of effective irrigation areas from 55 million hectares (2005) to 68.3 million hectares.
5. Research and promotion of sowing date adjustment, population optimization, and water-nitrogen migration strategies.

Forestry and Grassland

1. Implementation of the Action Plan for Adaptation to Climate Change in the Forestry Sector (2016–2020).
2. Establishment of wildlife refuge systems and national parks.
3. Strengthening protection and management of national public welfare and natural forests.
4. Restoration of degraded grasslands through returning pasture to grassland and afforestation projects.
5. Implementation of grassland management systems, including grazing bans, soil enhancement, and pest control.
6. Development of artificial grass planting and vegetation restoration measures to enhance ecosystem resilience.

Water Resources

1. Strengthening flood control, drought relief, and disaster reduction systems.
2. Expansion of water-saving city initiatives, with 96 cities saving ~5 billion m^3 of water annually.
3. Implementation of river chief and lake chief systems for improved water governance.
4. Construction of water resource storage and allocation projects for efficient distribution.
5. Establishment of sponge cities (e.g., 30 pilot cities, 33,000+ projects completed nationwide).

Public Health

1. Assessment of climate change impacts on public health.
2. Development of technical guidelines for health protection during climate disasters.
3. Implementation of health risk assessment research projects.
4. Strengthening of epidemic prevention programs related to climate-sensitive diseases.

Infrastructure

1. Implementation of urban renewal projects, including upgrades to old housing and drainage systems.
2. Promotion of prefabricated buildings (420 million m^2 newly constructed in 2019).
3. Expansion of urban greenways (56,000 km by 2018) to mitigate urban heat islands.
4. Enhancement of climate-resilient transport infrastructure, including roads, railways, and airports.
5. Strengthening highway network resilience to extreme weather such as floods, snow, and typhoons.

Cities

1. Formulation of urban climate change adaptation action plans.
2. Launch of climate-resilient city pilot projects in 28 cities.
3. Strengthening urban planning, monitoring, early warning, and emergency response.
4. Implementing climate adaptation measures in infrastructure, water resources, ecosystems, and public health.
5. Promotion of nature-based solutions for urban climate resilience.

Coastal Erosion Areas

1. Annual publication of the China Sea Level Bulletin and China Marine Disaster Bulletin.
2. Implementation of seawall heightening and reinforcement projects.
3. Strengthening coastal protection strategies against sea level rise.
4. Conducting risk assessments and zoning for storm surges, tsunamis, sea ice, ocean waves, and sea level rise.
5. Completion of the First Scientific Assessment Report on the Ocean and Climate Change (2020).

Qinghai-Tibet Plateau

1. Establishment of plateau glacier and frozen soil observation stations.
2. Implementation of nature reserve and ecosystem protection projects (e.g., Sanjiangyuan National Park).
3. Restoration of alpine grasslands using ecological re-sowing and photovoltaic sprinkling.
4. Implementation of ground temperature monitoring and structural adaptation measures for the Qinghai-Tibet Railway.
5. Adoption of frozen soil protection technologies to ensure the stability of infrastructure in high-altitude regions.

Monitoring, Early Warning, and Disaster Prevention

1. Implementation of the National Comprehensive Disaster Prevention and Mitigation Plan (2016–2020).
2. Development of a comprehensive climate change assessment model and national disaster database.
3. Investment of 19+ billion yuan in meteorological satellites, radars, and disaster monitoring projects.
4. Establishment of an air-ground-space integrated disaster monitoring system.
5. Issuance of the China Climate Change Monitoring Bulletin annually.
6. Creation of inter-departmental early-warning centers in urban areas.
7. Strengthening of meteorological disaster monitoring and early warning systems in rural areas.

Iraq

Key Adaptation Sectors:

1. Water resources
2. Agriculture
3. Public health
4. Forestry and Natural Ecosystems
5. Coastal Areas and Sea Level Rise
6. Waste and Sanitation
7. Climate Monitoring and Early Warning
8. Research and Higher Education
9. Transport
10. Tourism and Cultural Heritage

Key Policy Instruments Referenced:

- Nationally determined contribution (NDC, 2022)

Document link – https://faolex.fao.org/docs/pdf/irq205646.pdf

Detailed list of strategies – Compiled from broad texts of the document (very short)
(translated from Arabic using AI)

Water Resources

1. Sustainable groundwater management and monitoring.
2. Water harvesting and reducing water losses.
3. Construction of dams and reservoirs for flood control and groundwater recharge.
4. Improving irrigation efficiency and adopting modern irrigation methods.
5. Using non-traditional water sources (e.g., desalination, wastewater reuse).
6. Strengthening transboundary water cooperation.

Agriculture

1. Land and rangeland restoration to combat soil degradation.
2. Adoption of climate-smart agricultural practices.
3. Expansion of greenhouse farming and tissue culture labs for climate-resilient crops.
4. Enhancing livestock production to improve resilience.

Public Health

1. Strengthening healthcare infrastructure to cope with climate-related health impacts.
2. Raising awareness of climate-sensitive diseases.
3. Rehabilitating vulnerable communities for better health resilience.

Forestry and Natural Ecosystems

1. Expansion and protection of natural reserves and forests.
2. Sustainable forest management and afforestation efforts.
3. Ecosystem restoration to protect biodiversity.

Coastal Areas and Sea Level Rise

1. Restoration of damaged coastal ecosystems in southern Iraq.
2. Measures to combat saltwater intrusion into the Shatt al-Arab.
3. Coral reef and marine biodiversity protection.

Waste and Sanitation

1. Wastewater treatment and reuse for irrigation and industry.
2. Establishment of decentralized wastewater treatment plants in rural areas.
3. Industrial wastewater treatment to reduce pollution.
4. Solid waste management and waste-to-energy projects.

Climate Monitoring and Early Warning

1. Developing a national early warning system for climate hazards.
2. Expanding meteorological stations and data collection networks.
3. Climate risk assessment and scenario modeling.

Research and Higher Education

1. Establishment of climate change academic programs in universities.
2. Supporting climate-focused research and graduate studies.

Transport

1. Climate-proofing transportation infrastructure.

Tourism and Cultural Heritage

1. Protecting archaeological sites from climate-induced damage.
2. Preserving Iraq's marshlands and wetlands as UNESCO World Heritage sites

Japan

Key Adaptation Sectors:

1. Agriculture, Forestry, and Fisheries
2. Water Environment and Water Resources
3. Natural Ecosystems
4. Natural Disasters and Coastal Areas
5. Human Health
6. Urban Life and Infrastructure

Key Policy Instruments Referenced:

- National communication (adaptation communication included to it) (NC, 2023)

Document link – https://unfccc.int/sites/default/files/ACR/2023-04/2nd%20Adaptation%20Communication%20Pursuant%20to%20Article%207%2C%20Paragraph%2010%20of%20the%20Paris%20Agreement%20V2.pdf

Detailed list of strategies – Compiled from broad texts of the document

Agriculture, Forestry, and Fisheries

A. Paddy Field Rice

1. Introduce high-temperature resistant rice varieties.
2. Adjust planting schedules to avoid high temperatures during the grain ripening period.
3. Implement pest control measures due to increasing pest outbreaks from global warming.

B. Fruit Trees

4. Establish a network system to share climate change impact information among major production areas.
5. Gibberellin + prohydrojasmon spraying to reduce peel puffing in satsuma mandarins.
6. Water sprinkling and reflective sheets to prevent poor coloring and sunburn in apples.
7. Girdling techniques to enhance color in grapes.
8. Sprout promoters to reduce poor sprout emergence in Japanese pears.
9. Conduct demonstration projects on Shifting from satsuma mandarins to medium-late ripening citrus fruits and introducing high-value subtropical and tropical fruit varieties.

C. Plant Pests and Weeds

10. Enhance pest control timing using forecasting systems.
11. Implement early detection and control measures for invasive pests.
12. Strengthen plant movement restrictions to prevent pest spread.

Water Environment and Water Resources

13. Assess water supply safety levels and drought risks at existing facilities.
14. Develop drought response action plans through collaboration with government, local authorities, and water users.
15. Promote time-sequenced drought impact scenarios to plan mitigation measures effectively.

Natural Ecosystems

A. Common Efforts

1. Recognize that ecosystem conservation itself is an adaptation measure.
2. Conduct long-term monitoring to track changes in ecosystems and species.
3. Reduce non-climate-related stress factors to enhance resilience.
4. Develop ecological networks between protected areas for improved adaptation.
5. Strengthen conservation in climate refugia (areas where species can retreat and survive).
6. Secure connectivity between forests, rivers, and seas to sustain ecosystem services.

B. Terrestrial Ecosystems (Forests & Grasslands)

7. Protect and manage virgin forests that harbor rare species.
8. Research climate change impacts on forests to guide conservation.
9. Prevent lowland species from expanding into highlands due to warming.

C. Coastal Ecosystems (Subtropics)

10. Implement long-term monitoring of tidal flats, salt marshes, coral reefs, and seagrass beds.
11. Ensure continuity of coastal ecosystems by designating more Marine Protected Areas (MPAs).

D. Changes in Species Distribution & Populations

12. Conduct citizen science monitoring for species distribution shifts.
13. Create ecological networks to help species migrate and adapt.
14. Take action against invasive species considering climate change impacts.

E. Ecosystem Services (Eco-DRR & NbS)

15. Assess and visualize the benefits of ecosystem services in disaster risk reduction (DRR).
16. Investigate climate impacts on pollination services due to species distribution changes.
17. Ensure habitat connectivity to support pollinators and maintain ecosystem balance.

Natural Disasters and Coastal Areas

A. Floods and Inland Waters

1. Implement "River Basin Disaster Resilience and Sustainability by All", involving national and local governments, businesses, and residents.
2. Strengthen flood control infrastructure, including upgrading dams, levees, and reservoirs.
3. Improve water storage and infiltration capacity using paddy fields, reservoirs, and other natural water retention systems.
4. Enhance land-use planning by introducing flood-resilient urban development, restricting high-risk areas, and improving drainage systems.
5. Improve early warning systems for floods and heavy rainfall through high-accuracy forecasting and risk mapping.
6. Expand weather monitoring systems, including meteorological radars and high-density observation networks.
7. Upgrade meteorological satellites for enhanced tracking of tropical cyclones, heavy rainfall, and storm surges.
8. Promote green infrastructure and ecosystem-based disaster risk reduction (Eco-DRR), such as wetland conservation and riverbank restoration.

B. High Waves and Storm Surges

9. Strengthen coastal defenses through seawalls, storm surge barriers, and natural buffers.

10. Implement multi-layered coastal protection strategies, shifting from single-line defense (breakwaters) to multiple defense layers.
11. Expand marine monitoring programs to track sea-level rise and changing ocean conditions.
12. Improve risk assessments and early warning systems for storm surges and typhoons.
13. Enhance coastal land-use planning to prevent excessive development in high-risk zones.
14. Revise coastal infrastructure design standards based on future climate projections.
15. Adapt harbors, fishing ports, and airports to withstand future sea-level rise and high waves.
16. Implement disaster-resilient urban planning in fishing villages prone to storm surges.
17. Strengthen fire prevention, landslide control, and flood mitigation measures in vulnerable coastal communities.
18. Develop emergency evacuation routes and improve disaster response capacity.
19. Utilize nature-based solutions, such as sand dunes, mangrove forests, and coastal protection forests, to reduce storm surge impacts.

C. Sediment Disasters (Landslides, Debris Flows, and Erosion)

20. Implement landslide and debris flow prevention measures, particularly in mountainous and urban areas.
21. Improve sediment control dams and retention basins to mitigate the risk of downstream flooding and debris flows.
22. Strengthen risk mapping and hazard assessment for sediment disasters in high-risk zones.
23. Promote integrated watershed management to reduce soil erosion and enhance slope stability.
24. Implement preventive forest conservation measures to reduce landslide risks.

D. Mountainous Disasters and Forest Conservation

25. Enhance forest conservation measures to mitigate disaster risks, particularly in upstream river basins.
26. Implement sustainable forest management to maintain ecosystem functions and prevent soil erosion.
27. Promote headwater forest conservation to regulate water retention and reduce flood risks.
28. Improve forest road networks for better disaster response and recovery, ensuring durable road designs resistant to extreme weather.
29. Conduct research on forest resilience to climate change and develop adaptation strategies for climate-sensitive forests.

E. Adaptive Recovery

30. Promote “Adaptive Recovery”, prioritizing land-use shifts, relocating infrastructure and communities away from high-risk areas.
31. Strengthen disaster waste management systems, including emergency waste processing plans.
32. Develop innovative disaster-resilient technologies, such as climate-adaptive construction materials and improved drainage systems.
33. Incorporate long-term climate resilience considerations into post-disaster reconstruction efforts.

Human Health

1. Enhance heat stress prevention efforts to reduce mortality and heat illness risks.
2. Increase awareness campaigns on heat illness prevention, targeting elderly populations, outdoor workers, and athletes.
3. Implement workplace adaptations to reduce heat exposure, including mechanization, shortening work hours, and adjusting schedules.
4. Improve monitoring and information collection on the effectiveness of adaptation measures.
5. Strengthen inter-agency coordination through the Heat Illness Prevention Conference.
6. Implement the Heat Illness Action Plan, ensuring collaboration between national and local governments, industries, and communities.

Urban Life & Infrastructure

1. Enhance infrastructure resilience against heavy rains, tropical cyclones, and droughts.
2. Promote green infrastructure solutions to integrate climate resilience into urban planning.
3. Strengthen lifelines and essential services, including electricity storage systems and emergency water supply systems.
4. Assess long-term urban infrastructure needs based on sea-level rise projections.
5. Mitigate heat island effects through urban greening, expanding green spaces, and using reflective surfaces.
6. Monitor and research heat island effects to develop more effective long-term solutions.

Indonesia

Key Adaptation Sectors:

1. Food Security
2. Water Resources
3. Energy
4. Health
5. Ecosystem and Biodiversity
6. Disaster Risk Reduction

Key Policy Instruments Referenced:

- Adaptation communication (AC, 2022)

Document link – https://unfccc.int/sites/default/files/ACR/2022-11/221119%20Indonesia%20Adaptation%20Communication.pdf

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Detailed list of strategies – Compiled from broad texts of the document

Food Security

1. Strengthening climate-resilient agricultural systems.
2. Improving food commodity production and distribution.
3. Enhancing adaptation in aquaculture and livestock management.
4. Promoting local food diversity and sustainable nutrition.

Water Resources

1. Expanding water storage capacity.
2. Climate-proofing water infrastructure.
3. Strengthening water distribution networks.
4. Managing drought risks and improving water governance.

Energy

1. Increasing renewable energy deployment (wind, solar, geothermal).
2. Protecting power generation infrastructure from climate hazards.
3. Developing climate-resilient electricity grids.
4. Enhancing energy efficiency in adaptation strategies.

Health

1. Strengthening disease surveillance systems.
2. Addressing urban heat island effects.
3. Ensuring clean water and sanitation for health resilience.
4. Building community capacity for health risk reduction.

Ecosystems and Biodiversity

1. Implementing ecosystem-based adaptation (EbA).
2. Restoring and conserving key ecosystems (forests, wetlands, coastal areas).
3. Integrating biodiversity conservation into climate planning.
4. Encouraging community participation in sustainable ecosystem management.

Disaster Risk Reduction

1. Strengthening climate-related disaster governance.
2. Enhancing early warning systems for floods, droughts, and storms.
3. Developing climate-proof infrastructure.
4. Improving risk transfer mechanisms (insurance, financial protection).