



MEGHALAYA

STATE ACTION PLAN ON CLIMATE CHANGE 2023-2030

**MEGHALAYA
CLIMATE
CHANGE
CENTRE**

**Meghalaya Basin Development Authority
Planning, Investment Promotion & Sustainable Development Department,
Government of Meghalaya**



PLANNING, INVESTMENT PROMOTION & SUSTAINABLE DEVELOPMENT DEPARTMENT

THE PLANNING, INVESTMENT PROMOTION AND SUSTAINABLE DEVELOPMENT DEPARTMENT (PIPSDD) IS RESPONSIBLE FOR OVERALL PLANNING, WORKING OUT A STRATEGY FOR SUSTAINABLE DEVELOPMENT TO MAXIMIZE THE NATIONAL PRODUCT, LAYING DOWN GUIDELINES FOR DEPARTMENTS TO FORMULATE DEPARTMENTAL PROGRAMME AND SCHEMES. THE DEPARTMENT ALSO TAKES UP APPRAISAL OF THE SCHEMES AND PROJECTS OF STATE GOVERNMENT DEPARTMENTS.

THE DEPARTMENT IS ALSO THE NODAL DEPARTMENT FOR COORDINATING CLIMATE CHANGE MANAGEMENT PROGRAMME IN THE STATE.

[HTTPS://MEGPLANNING.GOV.IN/](https://megplanning.gov.in/)

MEGHALAYA BASIN DEVELOPMENT AUTHORITY

THE MEGHALAYA BASIN DEVELOPMENT AUTHORITY (MBDA) IS A SOCIETY REGISTERED UNDER THE SOCIETIES REGISTRATION ACT 1860 AND IS HEADED BY THE CHIEF SECRETARY, GOVERNMENT OF MEGHALAYA.

MBDA AIMS TO ADDRESS MANAGEMENT OF NATURAL RESOURCES IN THE STATE WHILE ADDRESSING ISSUES OF LIVELIHOODS AMONG THE RURAL COMMUNITIES WITH EMPHASIS ON SUSTAINABLE GOOD PRACTICES. ITS STRATEGIES FOCUS ON LEVERAGING THE STRENGTHS OF THE LAND WHILE ADAPTING TO CLIMATE CHANGE, WITHOUT DEGRADATION TO THE ENVIRONMENT.

AS THE NODAL AGENCY, MBDA PROVIDES SUPPORT TO THE MEGHALAYA STATE COUNCIL ON CLIMATE CHANGE & SUSTAINABLE DEVELOPMENT.

[HTTPS://MBDA.GOV.IN/](https://mbda.gov.in/)

MEGHALAYA CLIMATE CHANGE CENTRE

THE MEGHALAYA CLIMATE CHANGE CENTRE HAS BEEN ESTABLISHED UNDER THE NATIONAL MISSION FOR SUSTAINING THE HIMALAYAN ECOSYSTEM (NMSHE). IT FUNCTIONS UNDER THE PLANNING DEPARTMENT AND IS HOUSED IN MBDA.

THE CENTRE HAS BEEN ANCHORING THE STATE ACTION PLAN ON CLIMATE CHANGE 2.0 REVISION PROCESS AND DRAFTING THE REVISED DOCUMENT UNDER THE GUIDANCE OF THE CORE GROUP FOR REVISION OF THE STATE ACTION PLAN ON CLIMATE CHANGE.

[HTTPS://MEGHALAYACCC.ORG/](https://meghalayacc.org/)



MEGHALAYA
STATE ACTION PLAN ON CLIMATE CHANGE
2023-2030

GOVERNMENT OF MEGHALAYA
2024

PREPARED BY
MEGHALAYA CLIMATE CHANGE CENTRE
MEGHALAYA BASIN DEVELOPMENT AUTHORITY



ACKNOWLEDGEMENT

WE ARE PLEASED TO DEVELOP AND REVISE THE MEGHALAYA STATE ACTION PLAN ON CLIMATE CHANGE (SAPCC) 2.0. A CRUCIAL STEP TOWARD BUILDING A SUSTAINABLE AND RESILIENT FUTURE FOR THE STATE. THE SAPCC 2.0 REPRESENTS THE COLLECTIVE EFFORTS OF DEDICATED INDIVIDUALS, ORGANIZATIONS, AND STAKEHOLDERS WHO HAVE WORKED TIRELESSLY TO ADDRESS THE CHALLENGES POSED BY CLIMATE CHANGE.

WE WISH TO EXPRESS OUR GRATITUDE TO OUR DIRECTOR GENERAL WHO IS ALSO THE CHAIR OF THE CORE GROUP FOR REVISING THE SAPCC. YOUR GUIDANCE AND VISION FOR THE DOCUMENT HAS HELP IN DEVELOPING A ROBUST AND COMPREHENSIVE ACTION PLAN.

WE ACKNOWLEDGE AND APPRECIATE THE INVALUABLE CONTRIBUTIONS FROM THE CORE GROUP FOR REVISING THE SAPCC, WHO PARTICIPATED IN DISCUSSIONS, PROVIDED FEEDBACK, AND SHARED THEIR INSIGHTS. YOUR VOICES HAVE SHAPED THIS PLAN AND REFLECT OUR SHARED COMMITMENT TO PROTECTING OUR ENVIRONMENT.

WE ALSO WOULD LIKE TO THANK THE NODAL PERSONS FROM EACH DEPARTMENT WHO HAVE SPARED THEIR BUSY SCHEDULE IN BRINGING OUT THE SUITABLE MOST CLIMATE ACTIONS FOR THE STATE.

THE CLIMATE ACTION PLAN OUTLINES OUR STRATEGIC INITIATIVES TOWARDS A LOW CARBON DEVELOPMENT, ENHANCE OUR RESILIENCE TO CLIMATE IMPACTS, AND FOSTER A CULTURE OF SUSTAINABILITY.

WE LOOK FORWARD TO COLLABORATING WITH ALL OF YOU AS WE IMPLEMENT THIS PLAN AND STRIVE TOWARD A HEALTHIER PLANET FOR CURRENT AND FUTURE GENERATIONS.

THANK YOU FOR YOUR CONTINUED SUPPORT AND COMMITMENT TO CLIMATE ACTION.

Team

Meghalaya Climate Change Centre





MEGHALAYA STATE THEMATIC SECTORS	NATIONAL MISSIONS	INDC	LT-LEDS
• Agriculture & Allied Sectors • Water Resources • Urban Habitat • Human Health • Tourism • Disaster Management • Forests & Biodiversity • Energy	• National Mission for Sustainable Agriculture • National Mission for Green India • National Mission for Enhanced Energy Efficiency • National Mission for Sustainable Habitat • National Water Mission • National Mission for Sustaining the Himalayan Ecosystem • National Mission on Strategic Knowledge for Climate Change • National Solar Mission • National Program on Climate Change & Human Health	• Sustainable Lifestyle • Cleaner Economic Development • Reduce Emission Intensity of GDP • Increase the Share of Non-Fossil Fuel • Based Electricity • Enhancing Forests Carbon Sink • Adaptation Component • Mobilizing Finance • Technology Development & Transfer	• Low Carbon Development of Electricity Systems Consistent with Enhanced Development Benefits • Low-Carbon Transport System • Sustainable Urbanisation • Low-Emission Industrial System • CO2 Removal Solutions • Enhancement of Forest and Vegetative Cover

SDG	Mission LiFE	India's Updated National Biodiversity Strategy and Action Plan 2024-2030	Coalition for Disaster Resilient Infrastructure
SDG 2 SDG 3 SDG 6 SDG 7 SDG 8 SDG 11 SDG 12 SDG 13 SDG 15	Energy consumption Water consumption Reduced consumption of single use plastic Adopting sustainable food systems Reduction of wastes (Swachhata actions) Adoption of healthy lifestyles Reduction in e-waste	NBSAP is aligned with the Kunming –Montreal Global Biodiversity Framework 4 Goals 23 National Targets	5 Strategic Initiatives 10 Thematic Area



EXECUTIVE SUMMARY

Climate change has emerged as one of the biggest challenges of the 21st Century. Looking at the details of the scientific reports on climate change across the globe, it won't be an overstatement to term climate change “the biggest threat to life and well-being” on Earth. Though the climate has always been changing in the past, its rate of change has been unprecedented in recent years. The shift in weather patterns and their effects are now more perceptible. The shifting of seasons by a fortnight to a month, coupled with episodes of extreme weather events has become more frequent.

Meghalaya is of no exemption as far as global climate change is concerned. The scientific analysis of climate trends in the State indicates that the State is already under the impacts of climate variability, and the change in temperature and rainfall is anticipated to continue with varying degrees of intensity. Apart from the changes in temperature and rainfall, the State is also expected to face extreme climatic events if the trend of change continues. Though the rate of change is slow, the impacts are of serious concern as the State is more sensitive being a hilly State. Meghalaya being a hill State with a fragile ecosystem and natural resource-based livelihood system is anticipated to be more vulnerable to the implications of climate change in the future. Climate change poses a big challenge to socio-economic development, environmental management, and sustainability. The climate uncertainty and associated threats advocate an urgency to formulate climate change strategies and actions to address potential climate change mitigations and adaptations in the State. The various climate-sensitive sectors and other development-associated sectors of the State need to be protected and made more resilient to climate impacts. It is therefore very essential to have a climate-resilient development process that aims to build the resilience of vulnerable communities against ecological, economic, and social challenges. In this context, the Government of India launched the National Action Plan on Climate Change (NAPCC) in 2008 to address the challenges of the adverse impact of climate change in the country. With the introduction of the National Action Plan on Climate Change (NAPCC), the State government was also encouraged to prepare its own State Action Plan on Climate Change (SAPCC) consistent with strategies in the NAPCC. Taking a serious note of the challenges in the State posed by climate change, the Government of Meghalaya prepared its First State Action Plan on Climate change in the year 2014 to effectively address the climate challenges in the State.

As the national and international climate action and policy landscape have evolved since the formulation of the State Action Plan on Climate Change (SAPCC), the Ministry of Environment, Forest and Climate change, Government of India (MoEF&CC) has brought out a common framework for revision of SAPCC in 2018. The common framework provides board guidelines for the revision process indicating the SAPCC needs to be revised and strengthened considering the evolving context of climate science, policies, actions and the commitments made under the

Nationally Determined Contributions (NDCs), Sustainable Development Goals (SDGs), and State's Development Priorities. The implementation of SAPCC should be in sync with the implementation cycle of NDCs i.e. 2023-2030.

Following the framework and guidelines provided by the MoEF&CC, the revision of the Meghalaya State Action Plan on Climate Change was initiated.

Common Framework issued by the Ministry of Environment, Forests & Climate Change

Formation of Core Group	• On 5th November, 2020 Govt. of Meghalaya notified a Core Group of 27 members • On 29th August, 2023 Government of Meghalaya Reconstituted the Core Group with 29 members
•Review of Sectoral Strategies	• State specific scientific studies conducted • Workshop, training programs and consultative meetings have been conducted • District level, Block level and Sectoral level Vulnerability Assessment completed
•Identification of climate Change Strategies	• Identified 199 Mitigation and 192 Adaptation Actions • Included Sectors - Sustainable Tourism & Disaster Management
•Submission to State Level Steering Committee	• First Submission on 14th December, 2022 • Fine tuning in view of the comments of the Committee • Second Submission on 26th September, 2024 • SLSCCC approved the SAPCC 2.0
Approval by Ministry	• Presented to 16th Expert Committee on climate Change on the 28th October, 2024 • Presented to 19th Meeting of the National Steering Committee on Climate Change (NSCCC) on 20 January 2025 • Resubmitted to ECCC after incorporating their recommendation

The Government of Meghalaya, on 5th November 2020, constituted the Core Group Member for the revision of the Meghalaya SAPCC, and a total of 25 members were identified which is headed by the Chairperson along with a Member Secretary. The Group was Reconstituted on the 29th August, 2023 with 29 members. The Core group held several rounds of consultative meetings to draw out the planning process for the preparation of Meghalaya SAPCC (2023-2030). The revision process includes several rounds of consultations with the State line departments, experts, and other relevant stakeholders. The socio-economic development context and priorities of the State were considered while preparing the Meghalaya SAPCC. The Meghalaya SAPCC incorporates the evolving context of State-specific knowledge on climate change, policies, and actions with consideration of achieving the commitments made under NDCs and SDGs.

The prime objective of the State Action Plan on Climate Change is to strategize adaptation and mitigation initiatives toward emission stabilization, develop the resilience of ecosystems, climate proofing the livelihood sector, and their sustainability. The State Action Plan on Climate Change serves as a guiding document to take the climate change agenda forward and infuse it into the development planning of the State. The State has prioritised the following **Eight (8)** sectors for climate change mitigation and adaptation planning. SAPCC 2.0 also sees the inclusion of ‘**Tourism**’ and ‘**Disaster Management**’ are the newly identified priority sectors for the State.



Mitigation Sector(s) & Budget	Forests & Biodiversity	₹ 829.002Cr
	Energy	₹ 3012.02 Cr
Adaptation Sector(s) & Budget	Agriculture & Allied Sectors	₹ 2400.92 Cr
	Water Resources	₹ 340.48 Cr
	Urban Habitat	₹ 2586.00 Cr
	Human Health	₹ 14.620 Cr
	Tourism	₹ 35.046 Cr
	Disaster Management	₹ 43.66 Cr

The total financial layout for the Meghalaya SAPCC is estimated to be **₹ 9,261.75 Crore (Rupees Nine Thousand Two Hundred and Sixty-One Crore and Seventy-Five Lakhs Only)**.

Out of the total estimated budget, the budget for **mitigation actions** is **₹ 3,841.02 Crore** whereas the **adaptation action** budget is estimated to be **₹ 5,420.73 Crore**.

The period of implementation is 7 (seven) years from 2023-2030.

The Meghalaya SAPCC 2.0 with a total estimated budget of 9,261.75 Cr is a compilation of proposed activities that the State intends to carry out during the implementation period.

The State has however, introduced a climate budget tagging mechanism to identify climate expenditures in the state resulting in a State Climate Action Budget (CAB) introduced in the financial year 2022-23. The CBT in its nascent stage has provided a dedicated climate funding source which is elaborated in Chapter 7. The CAB identified 13 departments which focuses on climate change mitigation and adaptation actions in the State. The 3rd edition of the CAB for the financial year 2024-25, the total budget outlay for the list of activities under the Climate Action Budget is ₹ 4501 Cr wherein ₹ 3181 Cr contributes to the Climate Adaptation activities across 12 departments while 7 departments with a budget allocation of ₹ 1320.04 Cr contributes to the Climate Mitigation activities. Based on the current estimates a budgetary extrapolation @ 20% annually for 7 years (FY

2023-FY 2030). The Total financial estimate for the ongoing & proposed activities by the State Government is ₹ 57988.48 Crores (Rupees Fifty-Seven Thousand Nine Hundred and Eighty Eight Crores and Forty Eight Lakhs)

Climate Actions Strategy	Adaptation (in ₹ Crore)	Mitigation (in ₹ Crore)	Total (in ₹ Crore)
Proposed Climate Actions	5,420.73	3,841.02	9,261.75
Climate Actions Budget (CAB) 2024 - '25 (ongoing)	3,181.00	1,320.04	4501.00
CAB (2023-2030) (extrapolated)	34,337.37	14,389.37	48,726.75
Total	39,758.09	18230.39	57,988.48

The Meghalaya State Action Plan on Climate Change aims to address the State's climate change concerns and outlines the strategies required to enhance the State's climate resilience. The Meghalaya SAPCC has taken due consideration in strategizing the climate actions that will enable climate change mitigation and adaptation inclusive development to achieve the climate goals in sync with the State's development priorities, sustainable development goals, and nationally determined contributions. The Meghalaya SAPCC is designed to serve as a policy document for the State outlining the major initiatives and strategies reflecting the commitments and proposed actions to tackle climate vulnerability and their impacts across the climate-sensitive sectors in the State.

The strategies and recommendations of the Meghalaya SAPCC will, in due course, strengthen the climate change-centric sectoral development planning of the State with policy interventions encouraging low carbon development and enhancing the overall climate resilience of the State.

Table of Contents

Chapter 1	1
1. INTRODUCTION	1
1.1. Background	1
1.2. Linkages with International and National Commitments: Shared Goals and Opportunities	2
1.3. Objective of SAPCC	10
1.4. Approach to the Preparation of SAPCC	11
1.5. Contents of SAPCC	13
Chapter 2	15
2. STATE PROFILE & SECTORAL CONCERN	15
2.1. Location, Geography, and Size	15
2.2. Demographic Profile	17
2.3. Economic Profile	18
2.4. Land Use and Land Cover	20
2.5. Sectoral Overview: Key Facts & Concerns	21
2.5.1. Agriculture & Allied Sectors	21
2.5.2. Water Resources	29
2.5.3. Forest & Biodiversity	33
2.5.4. Mining	39
2.5.5. Energy	42
2.5.6. Urban Habitat	46
2.5.7. Human Health	50
2.5.8. Tourism	54
2.5.9. Disaster Management	59
2.6. State Development issues	64
2.6.1. Carbon Emission Status	64
2.6.2. Meghalaya Developmental Path and the SDGs	68
2.6.3. Meghalaya on the path to achieving the SDGs	70
2.6.4. Meghalaya Vision 2028	71
Chapter 3	72
3. CLIMATE PROFILE	72
3.1. Climate Overview & Characteristics	72
3.2. Past Climate Change Trends and Future Climate Projections	73
3.3. Future climate projections: 2013-2100	78
3.4. Implications for Different Sectors	84
Chapter 4	85
4. VULNERABILITY ASSESSMENT	85
4.1. Background	85
4.2. Integrated Vulnerability Assessment at District level	91
4.3. Sectoral Vulnerability Assessment- District level Health sector	93
4.4. Sectoral Vulnerability Assessment- District level Water sector	95
4.5. Integrated Vulnerability Assessment at Block Level	98
4.6. Sectoral Vulnerability Assessment- District level Agriculture sector	103
4.7. Forest & Biodiversity Vulnerability	106
4.8. Risk Assessment	109
4.8.1. Risk Assessment in the Context of Climate Change	109
4.8.2. Objectives	109
4.8.3. Methodology of Risk Assessment	109
4.8.4. Assessment of Hazard, exposure and Vulnerability as components of flood and Drought Risk	110
4.8.5. District-Level Flood and Drought Risk Maps for Meghalaya	114
Chapter 5	116



5. CLIMATE CHANGE STRATEGY: MITIGATION	116
5.1. Overview	116
5.2. List of Prioritised Mitigation Actions – Sector wise	116
5.3. Barriers And Gaps in The Implementation of Mitigation Actions	119
5.4. The Implementation Plan Including the Agencies Responsible for Implementation and Budget	119
Chapter 6	120
6. CLIMATE CHANGE STRATEGY: ADAPTATION	120
6.1. Overview	120
6.2. List of Prioritised Adaptation Actions-Sector wise	121
6.3. Barriers And Gaps in The Implementation of Adaptation Actions	129
6.4. The Implementation Plan Including the Agencies Responsible for Implementation, Required Policy, and Budget	130
7. FINANCING THE SAPCC	134
7.1. Strategies for Financing the SAPCC	134
7.1.1. Sectoral Activity budget	137
7.2. Measures for mainstreaming the SAPCC	165
Chapter 8	168
8. INSTITUTIONAL MECHANISM	168
Chapter 9	172
9. MONITORING AND EVALUATION	172



Figures

FIGURE 1.1: PRIORITY SECTORS UNDER NATIONAL ACTION PLAN ON CLIMATE CHANGE (NAPCC), 2008	1
FIGURE 1.2: SECTOR WISE SDG TARGETS	7
FIGURE 1.3: GOAL WISE NUMBER OF ACTIONS, SECTORS AND DEPARTMENTS TARGETED	10
FIGURE 2.1: ADMINISTRATIVE MAP OF MEGHALAYA (GIS LAB, 2017 UPDATED BY MCCC, 2024)	15
FIGURE 2.2: TOPOGRAPHY OF MEGHALAYA (GIS LAB, 2017 UPDATED BY MCCC, 2024)	16
FIGURE 2.3: RIVERS & STREAMS IN MEGHALAYA (GIS LAB, 2017 UPDATED BY MCCC, 2024)	17
FIGURE 2.4: MEGHALAYA STATISTICS (REGISTRAR GENERAL AND CENSUS COMMISSIONER, 2011)	18
FIGURE 2.5: LAND USE & LANDCOVER MAP OF MEGHALAYA (GIS LAB, 2017 UPDATED BY MCCC, 2024)	20
FIGURE 2.6: FISH PRODUCTION IN THE STATE (2010-2018) (FISHERIES, MEGHALAYA STATE AQUACULTURE MISSION 2.0, 2018-2023)	28
FIGURE 2.7: WATERSHED IN MEGHALAYA (GIS LAB, 2017 UPDATED BY MCCC, 2024)	30
FIGURE 2.8: LOCATION OF SURVEYED SPRINGS IN MEGHALAYA (DEPARTMENT, 2024)	31
FIGURE 2.9: FOREST COVER OF MEGHALAYA (GIS LAB M. B., 2017)	35
FIGURE 2.10: RESERVE FORESTS & PROTECTED AREAS (GIS LAB M. B., 2017)	36
FIGURE 2.11: HISTORICAL PEAK DEMAND AND ENERGY REQUIREMENT	43
FIGURE 2.12: TOURIST FOOTFALL IN MEGHALAYA	55
FIGURE 2.13: WIND AND CYCLONE ZONES IN MEGHALAYA (AUTHORITY S. D., MEGHALAYA STATE DISASTER MANAGEMENT PLAN VOLUME 1, 2016)	60
FIGURE 2.14: LANDSLIDES MAPPED USING HIGH RESOLUTION SATELLITE DATA IN MEGHALAYA, WHICH OCCURRED BETWEEN 2014-2017 (SOURCE: LANDSLIDES ATLAS OF INDIA, NATIONAL REMOTE SENSING CENTRE, ISRO, HYDERABAD, 2023)	61
FIGURE 2.15: MAP SHOWING THE EARTHQUAKE HAZARD ZONE IN MEGHALAYA (AUTHORITY S. D., MEGHALAYA STATE DISASTER MANAGEMENT PLAN VOLUME 1, 2016)	61
FIGURE 2.16: EMISSION DISTRIBUTION IN THE AGRICULTURE SECTOR (CENTRE, 2017)	65
FIGURE 2.17: EMISSION DISTRIBUTION IN THE INDUSTRY SECTOR (CENTRE, 2017)	66
FIGURE 2.18: EMISSION DISTRIBUTION IN THE ENERGY SECTOR (CENTRE, 2017)	66
FIGURE 2.19: EMISSION DISTRIBUTION IN THE WASTE SECTOR (CENTRE, 2017)	67
FIGURE 2.20: NET EMISSION FROM LULUCF (CENTRE, 2017)	67
FIGURE 2.21: GROSS EMISSION (CENTRE, 2017)	68
FIGURE 3.1: CLIMATE ZONES IN MEGHALAYA AS PER KOPPEN-GEIGER CLASSIFICATION	72
FIGURE 3.2: ANNUAL MEAN SUMMER TEMPERATURE AND ITS TREND DURING 1981-2012	75
FIGURE 3.3: SPATIAL VARIABILITY IN AVERAGE CHANGES IN DAILY MEAN TEMPERATURE (°C) DURING 1981-2012 BASED ON THE DATA FROM SHEFFIELD ET AL., 2006 VERSION 2	75
FIGURE 3.4: SPATIAL VARIATIONS OF HEATWAVE EVENTS PER YEAR FOR THE PERIOD 1981-2021	76
FIGURE 3.5: AVERAGE MONSOON SEASON PRECIPITATION (IN MM) DURING 1981-2012 BASED ON CORRECTED CHIRPS PRECIPITATION DATA	77
FIGURE 3.6: STATE AVERAGE MONSOON SEASON PRECIPITATION AND ITS TREND FOR THE PERIOD 1981-2012	77
FIGURE 3.7: AVERAGE CHANGE IN MONSOON SEASON PRECIPITATION (IN MM) DURING 1981-2012 BASED ON CORRECTED CHIRPS PRECIPITATION DATA	78
FIGURE 3.8: SPI (STANDARDIZED PRECIPITATION INDEX) BASED NUMBER OF OBSERVED EXTREME (A) WET YEARS AND (C) DRY YEARS; SPEI (STANDARDIZED PRECIPITATION AND EVAPOTRANSPIRATION INDEX) BASED NUMBER OF OBSERVED EXTREME (B) WET YEARS AND (D) DRY YEARS (1981-2011)	78
FIGURE 3.9: CLIMATE VULNERABILITY HOTSPOTS CONCERNING TEMPERATURE EVENTS FOR THE STATE OF MEGHALAYA	81
FIGURE 3.10: CLIMATE VULNERABILITY HOTSPOTS CONCERNING PRECIPITATION EVENTS FOR THE STATE OF MEGHALAYA	81

FIGURE 4.1: VULNERABILITY ASSESSMENT	86
FIGURE 4.2: RISK MANAGEMENT AND ASSESSMENT FRAMEWORK (SOURCE: IPCC, 2014)	87
FIGURE 4.3: STEPS IN VULNERABILITY ASSESSMENT	88
FIGURE 4.4: DISTRIBUTION OF DISTRICTS ON A VULNERABILITY SCALE OF LOW TO HIGH VULNERABILITY CATEGORIES	92
FIGURE 4.5: DISTRICT WISE VULNERABILITY INDEX CLASS	92
FIGURE 4.6: DRIVERS OF VULNERABILITY AT STATE LEVEL	93
FIGURE 4.7: DISTRIBUTION OF DISTRICTS ON A VULNERABILITY SCALE OF LOW TO HIGH VULNERABILITY CATEGORIES (VC)	94
FIGURE 4.8: MAP SHOWING VULNERABILITY CATEGORY OF MEGHALAYA AT DISTRICT LEVEL	94
FIGURE 4.9: STACKED BAR DIAGRAM SHOWS CONTRIBUTION OF ALL INDICATORS TO THE TOTAL VULNERABILITY INDEX AT DISTRICT LEVEL	95
FIGURE 4.10: MAJOR DRIVERS OF VULNERABILITY FOR HEALTH SECTOR AND THEIR PERCENTAGE CONTRIBUTION	95
FIGURE 4.11: MAP SHOWING DISTRICTS ON A VULNERABILITY SCALE OF RELATIVELY LOW TO RELATIVELY HIGH VULNERABILITY CATEGORIES	96
FIGURE 4.12: MAP SHOWING WATER VULNERABILITY CATEGORY OF MEGHALAYA AT DISTRICT LEVEL	97
FIGURE 4.13: DRIVERS CONTRIBUTING TO WATER VULNERABILITY IN MEGHALAYA	98
FIGURE 4.14: INDICATORS OF INTEGRATED VULNERABILITY ASSESSMENT OF BLOACK	96
FIGURE 4.15: INTEGRATED VULNERABILITY MAP OF MEGHALAYA AT THE BLOCK LEVEL	100
FIGURE 4.16: PERCENTAGE SHARE OF THE DRIVERS OF VULNERABILITY AT THE STATE LEVEL	102
FIGURE 4.17: PERCENTAGE SHARE OF THE DRIVERS OF VULNERABILITY AT THE BLOCK LEVEL	102
FIGURE 4.18: 14 INDICATORS WERE CONSIDERED TO DERIVE THE VULNERABILITY	103
FIGURE 4.19: DRIVERS CONTRIBUTING TO AGRICULTURAL VULNERABILITY IN MEGHALAYA	104
FIGURE 4.20: MAP SHOWING AGRICULTURE VULNERABILITY CATEGORY OF MEGHALAYA AT DISTRICT LEVEL	104
FIGURE 4.21: MAP SHOWING AGRICULTURE VULNERABILITY CATEGORY OF MEGHALAYA AT BLOCK LEVEL	107
FIGURE 4.22: MAP SHOWING FLOOD RISK INDEX OF MEGHALAYA AT DISTRICT LEVEL	111
FIGURE 4.23: MAP SHOWING DROUGHT RISK INDEX OF MEGHALAYA AT DISTRICT LEVEL	112
FIGURE 6.1: MAJOR ACHIEVEMENTS OF EAPS	117
FIGURE 7.1: SAPCC FINANCING FRAMEWORK	136
FIGURE 7.2: SOURCES FOR FINANCING THE SAPCC 2.0	165
FIGURE 8.1: INSTITUTIONAL ARRANGEMENT FOR IMPLEMENTING THE MEGHALAYA SAPCC	168
FIGURE 9.1: SAPCC MONITORING AND EVALUATION MECHANISM	173

Tables

TABLE 1.1: SAPCC LINKAGES WITH INDIA'S NATIONALLY DETERMINED CONTRIBUTIONS (NDC)	5
TABLE 1.2: COMPOSITION OF THE CORE GROUP FOR THE REVISION OF MEGHALAYA SAPCC	11
TABLE 2.1: GENERAL DATA OF THE STATE IN COMPARISON WITH ALL INDIA FIGURES	18
TABLE 2.2: THE DETAIL GROSS STATE VALUE ADDED BY ECONOMIC ACTIVITY AT CURRENT PRICES FOR THE FY 2022-23	19
TABLE 2.3: LANDUSE/LANDCOVER (LULC) DISTRIBUTION IN MEGHALAYA	20
TABLE 2.4: AGRO-CLIMATIC ZONES OF AGRICULTURE & ALLIED SECTOR	21
TABLE 2.5: KEY CONCERNS OF AGRICULTURE & HORTICULTURE	22
TABLE 2.6: POPULATION OF LIVESTOCK IN MEGHALAYA	25
TABLE 2.7: POPULATION OF POULTRY IN MEGHALAYA	25
TABLE 2.8: CHANGES IN LIVESTOCK POPULATION, 2012-2019	25
TABLE 2.9: CHANGES IN POULTRY POPULATION, 2012-2019	26
TABLE 2.10: KEY CONCERNS OF LIVESTOCK	26
TABLE 2.11: KEY CONCERNS OF FISHERIES SECTOR	28
TABLE 2.12: KEY CONCERNS OF WATER SECTOR	31
TABLE 2.13: DISTRICT-WISE FORESTS COVER UNDER DIFFERENT CANOPY DENSITY CLASSES (AREA IN KM ²)	34
TABLE 2.14: PROTECTED AREAS OF MEGHALAYA	36
TABLE 2.15: KEY CONCERNS OF FOREST & BIODIVERSITY	37
TABLE 2.16: ESTIMATED RESERVES OF MINERALS IN MEGHALAYA	39
TABLE 2.17: PLACES OF COAL MINING/OCCURRENCE OF COAL IN THREE HILL REGIONS OF MEGHALAYA	40
TABLE 2.18: KEY CONCERNS OF MINING	40
TABLE 2.19: DETAILS OF EXISTING POWER PLANTS OF MePGCL	42
TABLE 2.20: PROJECTED ENERGY DEMAND GIVEN BUSINESS-AS-USUAL SCENARIO IN MEGHALAYA	43
TABLE 2.21: MAJOR SCHEMES AND PROJECTS THAT ARE BEING IMPLEMENTED BY THE MNREDA IN THE STATE	44
TABLE 2.22: THE OVERALL RE SECTORAL POTENTIAL VIS-À-VIS INSTALLED CAPACITY FOR THE STATE OF MEGHALAYA	44
TABLE 2.23: RENEWABLE PURCHASE OBLIGATIONS FOR MEGHALAYA TILL 2030	45
TABLE 2.24: KEY CONCERNS OF ENERGY	45
TABLE 2.25: KEY CONCERNS OF URBAN HABITAT	48
TABLE 2.26: HEALTH CARE FACILITIES IN MEGHALAYA (IN NUMBERS)	51
TABLE 2.27: HEALTH INFRASTRUCTURE IN MEGHALAYA	51
TABLE 2.28: KEY CONCERNS OF HUMAN HEALTH	53
TABLE 2.29: TRENDS IN GROSS STATE DOMESTIC PRODUCT AND CONTRIBUTION OF STATE TOURISM SECTOR	56
TABLE 2.30: KEY CONCERNS OF TOURISM	58
TABLE 2.31: DISASTER RISK PROFILE OF THE STATE	60
TABLE 2.32: KEY CONCERNS OF DISASTER MANAGEMENT	62
TABLE 2.33: LIST OF DISTRICTS IN ORDER OF PRIORITY BASED ON HAZARDS VULNERABILITY PROFILE	63
TABLE 2.34: DETAILS OF LOSS OF LIVES AND PROPERTIES DUE TO LANDSLIDE DURING THE LAST FIVE YEARS	63
TABLE 2.35: STATUS OF MEGHALAYA PER CAPITA GHGS EMISSION	64
TABLE 2.36: SECTOR WISE CONTRIBUTION TO THE TOTAL EMISSION	67
TABLE 2.37: SDG WISE INDEX SCORE AND RANKING OF MEGHALAYA BY NITIAYOG, GOI	69
TABLE 2.38: 10 OPPORTUNITIES & 10 GUARANTIES OF MISSION 10	70
TABLE 3.1: PROJECTED CHANGE IN AVERAGE ANNUAL MEAN TEMPERATURE UNDER DIFFERENT CLIMATE PROJECTION SCENARIO	79
TABLE 3.2: MEAN PROJECTED CHANGE (MM) IN AVERAGE MOONSOON RAINFALL UNDER DIFFERENT CLIMATE PROJECTION SCENARIO	79

TABLE 3.3: MEAN PROJECTED CHANGE IN FREQUENCY OF EXTREME RAINFALL EVENTS UNDER DIFFERENT CLIMATE PROJECTION SCENARIOS	80
TABLE 3.4: BLOCK LEVEL TEMPERATURE BASED VULNERABILITY INDEX (TBVI) AND PRECIPITATION BASED VULNERABILITY INDEX (PBVI) ...	82
TABLE 3.5: IMPACT OF CLIMATE CHANGE ON SELECTED SECTORS	83
TABLE 4.1: VULNERABILITY RANKING & CATEGORY WISE LIST OF BLOCKS (INSET: FIGURE48: INTEGRATED VULNERABILITY MAP OF MEGHALAYA AT THE BLOCK LEVEL)	100
TABLE 4.2: MAJOR DRIVERS OF INTEGRATED VULNERABILITY ASSESSMENT AT BLOCK LEVEL	101
TABLE 4.3: DISTRIBUTION OF DISTRICTS ON A VULNERABILITY SCALE OF VERY LOW TO VERY HIGH VULNERABILITY CATEGORIES AND CORRESPONDING RANKS OF DISTRICTS IN THE STATE OF MEGHALAYA	103
TABLE 4.4: TOP 3 MOST VULNERABLE DISTRICTS AND THE MAJOR DRIVES OF VULNERABILITY	105
TABLE 4.5: SPI VALUE CLASSIFICATION	108
TABLE 4.6: INDICATORS OF SENSITIVITY AND ADAPTIVE CAPACITY, THE RATIONAL FOR INCLUSION, AND DATA SOURCES	109
TABLE 5.1: BARRIERS AND GAPS IN MITIGATION ACTIONS	116
TABLE 5.2: IMPLEMENTATION PLANS OF MITIGATION ACTIONS UNDER MEGHALAYA SAPCC	116
TABLE 6.1: BARRIERS AND GAPS IN ADAPTATION ACTIONS	126
TABLE 6.2: IMPLEMENTATION PLANS OF ADAPTATION ACTIONS UNDER MEGHALAYA SAPCC	127
TABLE 7.1: STATE CLIMATE ACTION BUDGET OF FY 2022-23	132
TABLE 7.2: ANNUAL BUDGET UNDER CAB	132
TABLE 7.3: LISTS OF EAPS	133
TABLE 7.4: ALIGNEMENT OF THE DEPARTMENTS UNDER CAB	136
TABLE 8.1: COMPOSITION OF MEGHALAYA STATE COUNCIL ON CLIMATE CHANGE & SUSTAINABLE DEVELOPMENT	166
TABLE 8.2: COMPOSITION OF MEGHALAYA STATE LEVEL STEERING COMMITTEE FOR THE MEGHALAYA ACTION PLAN ON CHANGE ...	167



1. INTRODUCTION

1.1. Background

The National Action Plan on Climate Change (NAPCC) addresses the urgent and critical concerns of the country through a directional shift in the development pathway, including through the enhancement of the current and planned programs presented in the technical document. The NAPCC identifies measures that promote national development objectives while also yielding co-benefits for addressing climate change effectively. It also outlines several steps to simultaneously advance national development and climate change objectives.

The NAPCC was released in the year 2008 with eight-core National Missions outlining existing and future policies and programs addressing climate objectives. It identifies actions that advance our development goals while also providing co-benefits for effectively combating climate change. It lays out a series of initiatives that will help India achieve both development and climate change adaptation and mitigation goals at the same time. The NAPCC will be implemented through eight National Missions, which are at the core of the National Action Plan and include multi-pronged, long-term, and integrated strategies for attaining India's primary goals in the face of climate change. Based on India's Nationally Determined Contributions commitments and the global Sustainable Development Goals, the NAPCC and the missions therein are under revision. Three new missions viz. national mission on health, national coastal mission, and national mission on transformative mobility & battery storage are anticipated to be incorporated into the NAPCC.

National Missions

- National Mission for Sustainable Agriculture
- National Mission for Green India
- National Mission for Enhanced Energy Efficiency
- National Mission for Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission on Strategic Knowledge for Climate Change
- National Solar Mission
- National Program on Climate Change and Human Health

Figure 1.1: Priority Sectors under National Action Plan on Climate Change (NAPCC), 2008

In 2009, the concept of a sub-national action plan emerged and the Indian government directed all the State Governments and union territories to develop the State Action Plan on Climate Change

(SAPCC) in line with the National Action Plan on Climate Change's strategy. All the States and union territories were also encouraged to integrate state-level variations in ecosystems, geographic conditions, socio-economic scenarios, and other factors while converging with the existing policies and ongoing programs and schemes being implemented at the state level. The SAPCC aims at ensuring the State-level climate change mitigation and adaptation priorities align with the NAPCC missions as well as existing policies and programs of the State. The State of Meghalaya had prepared its first SAPCC and was duly approved by the National Steering Committee under the Chairmanship of Secretary, Ministry of Environment and Forests & Climate Change (MoEF&CC), Govt, of India in September 2014.

Over the years, India has pursued major domestic policies and schemes in areas of climate change mitigation and adaptation actions. Paris Agreement has been agreed upon in the year 2015 to limit the global mean temperature to 2°C and work towards limiting it to 1.5°C. India has submitted its Nationally Determined Contribution (NDC) goals for post-2020. At the same time, the scientific and socio-economic understanding and knowledge of climate change have also advanced over the last few years. The dedicated climate change institution/cells established in the State/UTs, with the active support of scientific, academic, and research institutions, have carried out several regional and sectoral vulnerability studies highlighting the impacts of climate change. The enhanced capacities and improved understanding of climate changes and their impacts on various sectors of the State will help identify and prioritize climate actions and refine the action plan.

As the climate actions and policy landscape at the national and international levels have evolved since the formulation of the SAPCC, the Ministry of Environment, Forest and Climate change, Government of India (MoEF&CC) has brought out a common framework for revision of SAPCC in 2018. The common framework provides board guidelines for the revision process indicating the SAPCC needs to be revised and strengthened considering the evolving context of climate science, policies, actions and the commitments made under the Nationally Determined Contributions (NDCs), Sustainable Development Goals (SDGs), and State's Development Priorities. The Government of Meghalaya has taken profound steps to be well equipped for the preparation of the revised State Action Plan on Climate Change. The revision of the SAPCC was done following the MoEF&CC guidelines. The evolving context of State-specific knowledge on climate change, socio-economic development context, and the priorities of the State were taken into consideration while revising the SAPCC.

1.2. Linkages with International and National Commitments: Shared Goals and Opportunities

The common framework and guideline for the revision of the SAPCC established by the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India, provides the requirements of the State climate actions to be synergized with the goals of the Nationally Determined Contribution (NDCs) under the Paris Agreement. India's updated **Nationally Determined Contributions (NDCs)** were submitted at COP 26 in Glasgow in 2021. The updated NDCs outline more ambitious climate targets for 2030, which include:

1. To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for 'LIFE'– 'Lifestyle for Environment' as a key to combating climate change [UPDATED].
2. To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
3. To reduce Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level [UPDATED].
4. To achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, with the help of transfer of technology and low-cost international finance including from Green Climate Fund (GCF) [UPDATED].
5. To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
6. To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health, and disaster management.
7. To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.
8. To build capacities, create domestic framework and international architecture for quick diffusion of cutting-edge climate technology in India and for joint collaborative R&D for such future technologies.

Additionally, the common framework mandates the alignment of SAPCC to India's **Long-Term Low Emission Development Strategy (LT-LEDS)**. This strategy was submitted to the United Nations Framework Convention on Climate Change (UNFCCC), during the 27th Conference of Parties (COP27) and focuses on seven pillars:

1. Improving energy efficiency across various sectors to reduce overall energy consumption.
2. Expanding the use of renewable energy sources such as solar, wind, and hydropower.
3. Promoting the use of electric vehicles, increasing ethanol blending in petrol, and enhancing public transportation systems.
4. Implementing smart city initiatives, green building codes, and effective waste management to ensure sustainable urban development.
5. Encouraging low-carbon development in the industrial sector without compromising energy security and employment.
6. Enhancing forest and tree cover to act as carbon sinks and contribute to carbon sequestration.
7. Investing in research and development of new technologies and innovations to support low-carbon development.

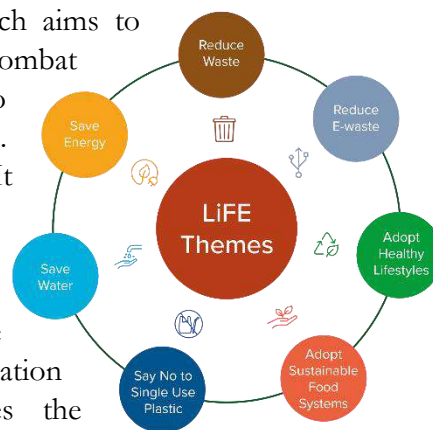
"Ek Ped Maa Ke Naam" - launched by Prime Minister Narendra Modi on World Environment Day, June 5, 2024. The initiative encourages people to plant trees in honor of their mothers, symbolizing the nurturing role mothers play in our lives and the sustenance trees provide to the planet.

The Kunming-Montreal Global Biodiversity Framework (GBF) which was adopted during the 15th meeting of the Conference of the Parties (COP 15) to the UN Convention on Biological Diversity in December 2022. The framework consists of 4 Goals and 23 Targets for 2030. These

include conserving at least 30% of the world's land and seas, reducing the extinction risk of known species, and cutting pollution risks by 50%. The framework includes a comprehensive package of decisions to support its implementation, such as a monitoring framework, financial resources, and strategic frameworks for capacity development. All parties are committed to setting national targets to implement the GBF, while other actors are invited to develop their commitments. Lastly, Signatories aim to ensure USD 200 billion per year is channelled to conservation initiatives, with wealthier countries contributing a significant portion. The GBF represents a bold step towards achieving global harmony with nature by 2050.

National Biodiversity Strategies and Action Plans (NBSAPs) are strategic plans developed by countries to conserve and sustainably use their biological diversity. These plans are a requirement under Article 6 of the Convention on Biological Diversity (CBD). NBSAPs outline a country's priorities, goals, and actions to achieve the objectives of the CBD, reflecting national circumstances and capabilities.

Mission LiFE (Lifestyle for Environment) is an initiative which aims to promote sustainable and environmentally conscious lifestyles to combat climate change. The mission encourages individuals to become "Pro Planet People" by adopting sustainable practices in their daily lives. Mission LiFE focuses on changing demand, supply, and policy. It nudges individuals to practice environment-friendly actions, encourages industries to respond to changing demands, and influences government policies to support sustainable consumption and production. It aims to mobilize one billion Indians and people worldwide to adopt sustainable lifestyles. The mission draws inspiration from India's traditional sustainable practices and emphasizes the importance of living in harmony with nature. Mission LiFE is a significant step towards making the fight against climate change a collective effort, involving everyone in their capacity. The key themes of Mission LiFE are to Save Energy, Save Water, Say No to Single Use Plastic, Adopt Sustainable Food Systems, Reduce Waste, Adopt Healthy Lifestyles, and Reduce E-waste.



The **Coalition for Disaster Resilient Infrastructure (CDRI)** is a global partnership aiming to promote the resilience of infrastructure systems to climate and disaster risks, ensuring sustainable development. The CDRI was launched by the Hon'ble Prime Minister of India during the United Nations Climate Action Summit on the 23rd September, 2019, at New York. CDRI includes national governments, UN agencies, multilateral development banks, the private sector, and academic institutions. The coalition focuses on increasing resilience in ecological, social, and economic infrastructure. It aims to achieve substantial changes in policy frameworks and future infrastructure investments.

The **Sustainable Development Goals (SDGs)** is a global action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. The SDGs consist of 17 interconnected goals, ranging from No Poverty to Partnerships for the Goals. The goals recognize that action in one area will affect outcomes in others, and that development must balance social, economic, and environmental



sustainability. Countries have committed to prioritizing progress for those who are furthest behind. The SDGs are part of the 2030 Agenda for Sustainable Development, which provides a shared blueprint for peace and prosperity for people and the planet. The SDGs aim to address global challenges such as poverty, inequality, climate change, environmental degradation, peace, and justice. In this context, efforts are taken up by the State to contribute toward achieving the SDGs by constituting an SDG Cell, developing an indicator framework for localization, and convergence of departments to develop monitoring tools for every department at the district level, which can help the State in achieving the sustainable development goals. Also, out of the eight (8) NDC targets, the Meghalaya SAPCC has addressed six (6) targets to contribute toward India's commitment to the Paris Agreement (Table 1.1). At the same time, the Meghalaya SAPCC would significantly contribute toward achieving the SDGs targets (Figure 1.2).

Table 1.1: SAPCC Linkages with India's Nationally Determined Contributions (NDC)

NDC	INDIA'S NDC CONTRIBUTION	LINKAGES WITH SAPCC
1. SUSTAINABLE LIFESTYLE	TO PUT FORWARD AND FURTHER PROPAGATE A HEALTHY AND SUSTAINABLE WAY OF LIVING BASED ON TRADITIONS AND VALUES OF CONSERVATION AND MODERATION.	ALL PRIORITY SECTORS
2. CLEANER ECONOMIC DEVELOPMENT	TO ADOPT A CLIMATE-FRIENDLY AND CLEANER PATH THAN THE ONE FOLLOWED HITHERTO BY OTHERS AT A CORRESPONDING LEVEL OF ECONOMIC DEVELOPMENT.	ALL PRIORITY SECTORS
3. REDUCE EMISSION INTENSITY OF GDP	TO REDUCE THE EMISSIONS INTENSITY OF ITS GDP BY 33 TO 35 PERCENT BY 2030 FROM THE 2005 LEVEL.	URBAN HABITAT
4. INCREASE THE SHARE OF NON-FOSSIL FUEL BASED ELECTRICITY	TO ACHIEVE ABOUT 40 PERCENT CUMULATIVE ELECTRIC POWER INSTALLED CAPACITY FROM NON-FOSSIL FUEL-BASED ENERGY RESOURCES BY 2030 WITH THE HELP OF TRANSFER OF TECHNOLOGY AND LOW-COST INTERNATIONAL FINANCE INCLUDING FROM GREEN CLIMATE FUND (GCF).	ENERGY
5. ENHANCING FORESTS CARBON SINK	TO CREATE AN ADDITIONAL CARBON SINK OF 2.5 TO 3 BILLION TONNES OF CO ₂ EQUIVALENT THROUGH ADDITIONAL FOREST AND TREE COVER BY 2030.	FOREST AND BIODIVERSITY
6. ADAPTATION COMPONENT	TO BETTER ADAPT TO CLIMATE CHANGE BY ENHANCING INVESTMENTS IN DEVELOPMENT PROGRAMS IN SECTORS VULNERABLE TO CLIMATE CHANGE, PARTICULARLY AGRICULTURE, WATER RESOURCES, THE HIMALAYAN REGION, COASTAL REGIONS, HEALTH, AND DISASTER MANAGEMENT.	AGRICULTURE WATER RESOURCES HUMAN HEALTH TOURISM DISASTER RISK REDUCTION
7. MOBILIZING FINANCE	TO MOBILIZE DOMESTIC AND NEW & ADDITIONAL FUNDS FROM DEVELOPED COUNTRIES TO IMPLEMENT THE ABOVE MITIGATION AND ADAPTATION ACTIONS GIVEN THE RESOURCE REQUIRED AND THE RESOURCE GAP.	

8.	TECHNOLOGY DEVELOPMENT & TRANSFER	TO BUILD CAPACITIES, CREATE A DOMESTIC FRAMEWORK AND INTERNATIONAL ARCHITECTURE FOR QUICK DIFFUSION OF CUTTING-EDGE CLIMATE TECHNOLOGY IN INDIA AND FOR JOINT COLLABORATIVE R&D FOR SUCH FUTURE TECHNOLOGIES.
----	---	---

The State Action Plan on Climate Change (SAPCC) has navigated mapping climate vulnerabilities, projecting future climate scenarios, demonstrating sectoral issues and implications of climate change, and consequently, advocating actionable strategies and action to address the same. Under the ambit of 'climate action', SAPCC runs parallel to SDG 13 on taking urgent action to combat climate change and its impacts. Other manifestations of SDGs penetrate SAPCC through sectoral interventions.

Adaptation

Departments	Priority Climate Actions	SDG Linkages
Agriculture	<i>Provision of subsidised road transport for enhancing market linkages for agricultural products</i>	SDG 2
	<i>Enhancing water-use efficiency for agricultural yield increase</i>	SDG 12
	<i>Promotion of farm mechanization to enhance agricultural yield and efficiency</i>	SDG 2
	<i>Construction of Farm Composting Unit</i>	SDG 12
	<i>Creation of small, private or community nursery for promotion of agricultural and horticultural crop varieties</i>	SDG 2
	<i>Promotion of low-cost and energy-neutral cold storage</i>	SDG 13
	<i>Establish Mushroom Production Unit for augmentation of farmers' income</i>	SDG 8
	<i>Promotion of Natural farming</i>	SDG 2
Animal Husbandry	<i>Promotion of improved feed and manure management to reduce total Methane emission</i>	SDG 2
	<i>Livestock Genetic Improvement</i>	SDG 2
	<i>Fodder Trees and perennial grasses in barren land to prevent soil erosion and nitrogen in soil</i>	SDG 2
	<i>Distribution of minerals mixture, Mineral blocks</i>	SDG 2
Horticulture	<i>Regional Centre for Training and Production of Mushrooms</i>	SDG 2
	<i>Vegetable Development Scheme</i>	SDG 2
	<i>Development and Maintenance of Orchard Cum Horticulture</i>	SDG 2
	<i>Fruit Development</i>	SDG 2
	<i>Spices Development (Ginger/Turmeric/Large)</i>	SDG 2
	<i>Tuber Crops Development (Potato/Tapioca/ Colacacia)</i>	SDG 2
	<i>Floriculture Development</i>	SDG 2
	<i>Maintenance of Horti Hubs</i>	SDG 2
	<i>Mission for Integrated Development of Horticulture</i>	SDG 2
	<i>Apiculture Mission</i>	SDG 2
	<i>Tea Development Scheme</i>	SDG 2
	<i>Experimental Tea Plantation</i>	SDG 2
	<i>Promoting Organic Manure</i>	SDG 2
	<i>Plant Protection including Integrated Pest Management</i>	SDG 2
Water Resources	<i>Promote micro and small hydro-electric power (HEP) units and encourage the use of solar energy in areas of groundwater-based irrigation systems</i>	SDG 7 SDG 13

	Maintenance of water harvesting structures, and conservation of water resources.	SDG 15
	Construction of dams for storage of water for irrigation and drinking water	SDG 12
SRES	Enhancing water availability by irrigation measures (canal/ open well)	SDG 6
	River rejuvenation activities (De-siltation, recharge pit)	SDG 12
Tourism	Clean energy powered aerial mobility program at tourists and urban centres	SDG 13 SDG 8
	Preserve and protect vulnerable natural heritage sites like the Living Root bridges, through capacity building, training, funding.	SDG 8
Commerce & Industries	Apiculture	SDG 8
	Handicraft promotion	SDG 8
Urban Affairs	Acquisition of Landfill site at Shillong etc	SDG 11
	Solid Waste Management	SDG 11
	Development of Green space and parks	SDG 15
	Smart Cities Mission	SDG 15
	Infrastructure Development for City Transport	SDG 15
	Individual household/ community/ toilet/ public toilet/ Aspirational toilets	SDG 11
	Used Water Management	SDG 11
	Strengthening natural ecosystem of Urban area through Urban planning	SDG 11
Health	Green Measures in Health care facilities	SDG 13
SDMA	Hazard Risk Mapping	SDG 13
	Risk reduction through implementable planning and policy development	SDG 13
	Strengthening communication Networks and Disaster Management Facility	SDG 13
	Capacity Building	SDG 13

Mitigation

Departments	Priority Climate Actions	SDG Linkages
Power Department	Energy augmentation through utilization of renewable sources.	SDG 13
MNREDA	Induction of Solar Photo Voltaic	SDG 13
	State Rooftop Solar Harvesting program	SDG 13
Forest and Environment Department	Protection of existing forests	SDG 15
	Restocking of degraded open forests	SDG 15
	Expansion of existing forests	SDG 15
	Conservation and protection of Biodiversity	SDG 15
	Capacity Building and Awareness	SDG 15
SRES	Afforestation, Reforestation & Revegetation	SDG 15
	Raising of Nursery	SDG 15

Figure 1.2: Sector-wise SDG targets

The other international and national commitments are briefly listed below.

SECTORS ALIGNMENT WITH NATIONAL & GLOBAL FRAMEWORKS					
Agriculture and Allied	National Action Plan On Climate Change • National Mission for Sustainable Agriculture (NMSA)	Sustainable Development Goals • SDG 2 • SDG 12	Mission Life	Kunming-Montreal Global Biodiversity Framework (GBF)	
Water Resources	National Action Plan On Climate Change • National water Mission (NWM)	Sustainable Development Goals • SDG 6 • SDG 13	Mission Life	'Ek Ped Maa Ke Naam/Plant4 Mother'	Kunming-Montreal Global Biodiversity Framework (GBF)
Urban Habitat	National Action Plan On Climate Change • National Mission for Enhanced Energy Efficiency (NMEEE)	Sustainable Development Goals • SDG 11 • SDG 15			
Tourism	National Action Plan On Climate Change	Sustainable Development Goals • SDG 8 • SDG 11	Long-Term Low Emission Development Strategy (LT-LEDS)-		
Disaster Management	Coalition for Disaster Resilient Infrastructure (CDRI)				
Forest and Biodiversity	National Action Plan On Climate Change • National Mission for A Green India (Green India Mission)	Sustainable Development Goals • SDG 15	Mission Life	'Ek Ped Maa Ke Naam/Plant4 Mother'	Kunming-Montreal Global Biodiversity Framework (GBF)
	Nationally Determined Contribution				
Energy	National Action Plan On Climate Change • National Mission for Enhanced Energy Efficiency	Sustainable Development Goals • SDG 7	Mission Life	Long-Term Low Emission Development Strategy (LT-LEDS)-	Nationally Determined Contribution

	(NMEEE) • National Solar Mission				
Cross-Sectoral	National Action Plan On Climate Change • National water Mission • National Mission on Sustainable Habitat • National Programme on Climate Change & Human Health (NPCCHH)	Sustainable Development Goals • SDG 3 • SDG 6 • SDG 13	Mission Life	Long-Term Low Emission Development Strategy (LT-LEDS)-	Nationally Determined Contribution
	'Ek Ped Maa Ke Naam/Plant4Mother'	Kunming-Montreal Global Biodiversity Framework (GBF)			

All these sectors are as closely influenced and connected to climate change as they are to development and socio-economic growth. These sectors not only drive the economy, sustain livelihoods, and nurture the communities, but also contribute to and are at the receiving end of the adverse climate change impacts. Undeniably SAPCC is inherently complementary to the SDGs and any strategy or action plan implemented under the banner of any of the two would significantly impact the other.



Figure 1.3: Goal wise number of Actions, Sectors and Departments targeted

1.3. Objective of SAPCC

The main objective of Meghalaya SAPCC is to strategize adaptation and mitigation initiatives toward Greenhouse gases (GHGs) emission stabilization, develop the resilience of ecosystems, climate-

proofing of the livelihood sectors, and diversification of the economy by reducing the dependency on natural resources. Simultaneously, the Meghalaya SAPCC is aimed to serve as a guiding policy document to take the climate change agenda of the State forward while contributing toward achieving the NDC targets and sustainable development goals.

1.4. Approach to the Preparation of SAPCC

The revision of Meghalaya SAPCC is guided by the framework and guidelines established by the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India. The framework and guidelines suggest the SAPCC has to be treated as a policy document and needs to be revised in the light of the State commitments made under the NDCs, and SDGs and at the same time considering the State's development priorities. The Meghalaya SAPCC intends to incorporate the actions implementable from the year 2021 through 2030 to sync appropriately with the NDC's cycle. Following the MoEF&CC guidelines, the Government of Meghalaya, on 5th November 2020 constituted the Core Group for the revision of the Meghalaya SAPCC. A total of 25 members for the Core Group were identified headed by a chairperson along with a member secretary. The details of the core group are listed in Table 1.2:

Table 1.2: Composition of the Core Group for the Revision of Meghalaya SAPCC

Sl. No	Members	
1.	Dr. Joram Beda, Addl. Development Commissioner, Commissioner & Secretary, Planning Department and Director General, Meghalaya Climate Change Centre, MBDA, Shillong	Chairperson
2.	Director/ Representative, Agriculture, Meghalaya, Shillong	Member
3.	Director/ Representative, Horticulture, Meghalaya, Shillong	Member
4.	Director/ Representative, Fisheries, Meghalaya, Shillong	Member
5.	Director/ Representative, Animal Husbandry & Veterinary, Meghalaya, Shillong	Member
6.	Director/ Representative, Tourism, Meghalaya, Shillong	Member
7.	Director/ Representative, Soil & Water Conservation, Meghalaya, Shillong	Member
8.	Chief Engineer/ Representative, Water Resources, Meghalaya, Shillong	Member
9.	Director/ Representative, Mineral Resources, Meghalaya, Shillong	Member
10.	Director/ Representative, MeECL (Generation), Meghalaya, Shillong	Member
11.	Director/ Representative, Health & Family Welfare, Meghalaya, Shillong	Member
12.	Director/ Representative, Urban Affairs, Meghalaya, Shillong	Member
13.	Director/ Representative, Community & Rural development, Meghalaya, Shillong	Member
14.	Director/ Representative, Non-Conventional and Rural Energy Development Agency (MNREDA), Meghalaya, Shillong	Member
15.	Chief Engineer/ Representative, Public Health & Engineering, Meghalaya, Shillong	Member
16.	Director/ Representative, Commerce & Industries, Meghalaya, Shillong	Member
17.	Shri Gunanka D.B. IFS, Executive Director, MBDA & Meghalaya Institute of Natural Resources, Shillong	Member
18.	Director/ Representative of ICAR Research Complex for NEH Region, Umiam	Member

19.	Nodal Officer (Climate Change), Forests & Environment, Shillong	Member
20.	Retd Prof Brajesh Kumar Tiwari, Environmental Studies Dept., NEHU, Shillong	Member
21.	Prof. H. J. Syiemlieh, Geography Dept., NEHU, Shillong	Member
22.	Dr. Amit Prakash Jha, (Economics and Public Policy) IIM, Shillong	Member
23.	Chairperson/ Representative of Meghalaya State Pollution Control Board, Shillong	Member
24.	Executive Director/ Representative, State Disaster Management Authority (SDMA), Shillong	Member
25.	Dr. Albert Chiang, Officer on Special Duty, MBDA, Shillong	Member
26.	Secretary, Executive Committee, KHADC	Member
27.	Secretary, Executive Committee, GHADC	Member
28.	Secretary, Executive Committee, JHADC	Member
29.	Shri A. B. S. Swer, Director, Meghalaya Basin Development Authority (MBDA), Shillong	Member Secretary

The State has identified **Eight (8) priority sectors** namely Agriculture & Allied Sector, Water Resources, Forest & Biodiversity, Energy, Urban Habitat, Human Health, Tourism, and Disaster Management in Meghalaya SAPCC (i.e. Meghalaya SAPCC 2023-2030). Out of the eight priority sectors 'Tourism' and 'Disaster Management' are the newly identified priority sectors for the State to be included in the Meghalaya SAPCC. The Meghalaya SAPCC has taken into consideration both the adaptation and mitigation actions across the identified sectors considering their contribution towards achieving the SDGs and NDCs as well as State's development priorities.

The Meghalaya SAPCC 2.0 has a total financial layout of ₹ 9,261.75 Crore (Rupees Nine Thousand Two Hundred and Sixty-One Crore and Seventy-Five Lakhs Only). Out of the total estimated budget, the budget for mitigation actions is ₹ 3,841.02 Crore whereas the adaptation action budget is estimated to be ₹ 5,420.73 Crore.

With climate change actions becoming increasingly central to policy and planning at a national and sub-national level, there is a need for enhanced coherence between climate change actions and development strategies at the national and sub-national levels. In the context of Meghalaya, the coherence between climate change actions and State's development priorities becomes very crucial as about 77 percent of the State's population directly depends on climate-sensitive sectors for their livelihoods. The Meghalaya SAPCC 2.0 integrates SDGs, NDCs, and State development priorities in a single policy document envisioning a climate-proof sustainable development pathway and a climate-resilient future for the State. The revision of SAPCC has been an important milestone in developing state development policies around climate change solutions. The Meghalaya SAPCC tends to serve as the guiding document for planning climate change actions for all the line departments. The implementation cycle of the Meghalaya State Action Plan on Climate Change will be 2023-2030. Keeping the Paris Agreement and national emission reduction commitments at the forefront, the Meghalaya SAPCC tends to give a substantial proportion to mitigation activities that will help the State to achieve low carbon development goals. At the same time, the Meghalaya SAPCC highlights the adaptation actions for climate-proofing of the vulnerable sectors and

enhancing the resilience of the natural systems & communities dependent on them. The Meghalaya SAPCC also strengthens the low carbon development goals and encourages policy instruments to conserve natural resources and guide the State's development pathway.

It may be noted that the Meghalaya State Action Plan on Climate Change (Meghalaya SAPCC) is a dynamic document and subject to amendments to reflect the development priorities and progress on meeting the sustainable development goals.

1.5. Contents of SAPCC

The Meghalaya State Action Plan on Climate Change is organised into 9 (nine) chapters. The structure and chapters are in consonance with the suggestion provided in the Common Framework.

The first Chapter introduces the SAPCC, its linkages with the State Developments priorities as well as with the NDCs, and SDGs. It also provides the preparation process for the revised Meghalaya SAPCC.

Chapter 2 describes the profile of the State and the sectoral descriptions of the 8 (eight) prioritised sectors for the Meghalaya SAPCC. The information is based on extensive data compiled from the State government and other sources. The Chapter also highlights the carbon emission status of the State of Meghalaya. A greenhouse gas inventory or carbon footprint for the State had been carried out in the year 2015 by CII Godrej- Sohrabji Green Business Centre, Hyderabad. According to the study, a total of 3.80 million tons of CO₂ eq. emissions was offset from the land use, land use change and forestry (LULUCF) in 2012-13. Forests & crop lands account for 3.88 million tons of net sink

Chapter 3 provides the Climate profile which gives an account of the past climate trends and future climate projections including the climate vulnerability hotspots in the State. It also highlighted the implications of climate change impacts on various crucial sectors of the State.

Chapter 4 presents the Vulnerability Assessment of the State which includes the Vulnerability & Risk Assessment using a common framework for IHR; and Forest & Biodiversity Vulnerability.

Chapter 5 and Chapter 6 are the focal chapters in the Meghalaya SAPCC document, as it provides the State's climate change mitigation and adaptation strategies, respectively. The two chapters provide the identified climate mitigation and adaptation actions across the State have 8 sectors including their expected budget and implementing agencies for the SAPCC implementation period of 2023-2030.

Chapter 7 provides financing for the Meghalaya SAPCC dealing with the mainstreaming of climate actions in the State's budget and framework for financing the SAPCC.

Chapter 8 presents the Institutional mechanism & implementation plan for implementing the SAPCC.

Chapter 9 provides the Monitoring, Evaluation and Alignment to the commitments which includes the mechanism designed and the set indicators for monitoring and evaluating the identified climate actions.

Chapter 2

2. STATE PROFILE & SECTORAL CONCERN

2.1. Location, Geography, and Size

Meghalaya is one of the 28 States of the Indian Union with Shillong as its State capital. The State is located in the north-eastern part of India. ‘Meghalaya’, the name derived from the Sanskrit word, translates as the ‘Abode of the Clouds’. The wettest places in the world are also located in the State. Meghalaya was declared as a full-fledged 21st State of the Indian Union on January 21st, 1972. The State lies between 24°58'N to 26°07'N latitude and 89°48' E to 92°51'E longitude and has an area of 22,429 sq. km which accounted for about 0.68% of the geographical area of the country. The State shares an international border with Bangladesh towards the south and southwest and inter-State boundaries to its north and east with Assam. Meghalaya has about 443 Kms. of international border with Bangladesh.

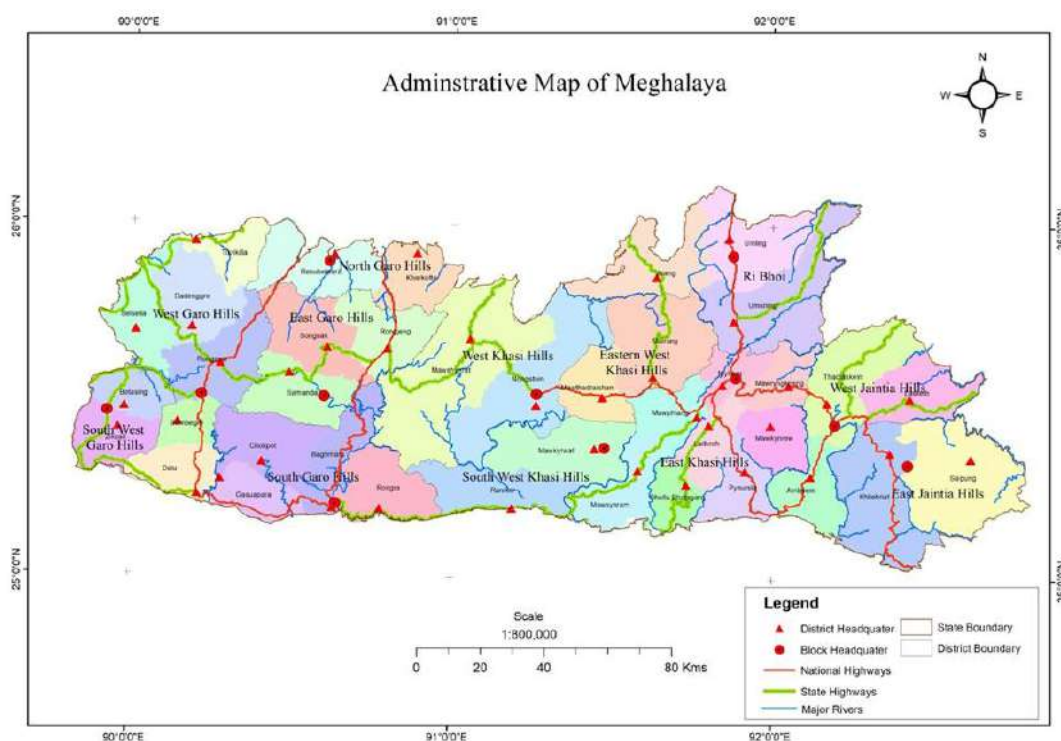


Figure 2.1: Administrative Map of Meghalaya (GIS Lab, 2017 updated by MCCC, 2024)

The State comprises 12 administrative districts, namely East Khasi Hills, West Khasi Hills, West Garo Hills, West Jaintia Hills, West Khasi Hills, East Garo Hills, Ri Bhoi, South Garo Hills, South West Garo Hills, South West Khasi Hills, East Jaintia Hills, North Garo Hills, and newly formed Eastern West Khasi Hills (Figure 2.1). Meghalaya falls under the Sixth Schedule of the

Constitution, which prescribes a separate code for the governance of tribal areas in the country. Administration of the districts in the state is undertaken by three Autonomous District Councils (ADCs) which have extensive legal and executive powers over the use of land and resources, social custom, inheritance, and other areas.

Geographically, the State is hilly, full of mountains with highland plateaus and stretched valleys. Most of the State land is covered with hills and valleys with elevations from 60 m to 1,950 m above sea level (Figure 2.2). The highest peak is the Shillong peak. The State can be divided into three physiographic zones namely the Central Plateau Region (900-2000m elevations), the Sub-montane Plateau Region (<900m) which gradually merges with the plains in the West and North, and the Southern slopes which stretches sharply from the Central Plateau to the plains in Bangladesh. Geologically, The Meghalaya plateau comprises rocks from the oldest Precambrian gneissic complex to the recent alluvium formations. The plateau also stands as a water divide with rivers draining to the 'Surma valley' and 'Meghna basin' of Bangladesh in the South and the *Brahmaputra* valley basin in the North. (Figure 2.3) shows the rivers and streams of Meghalaya.

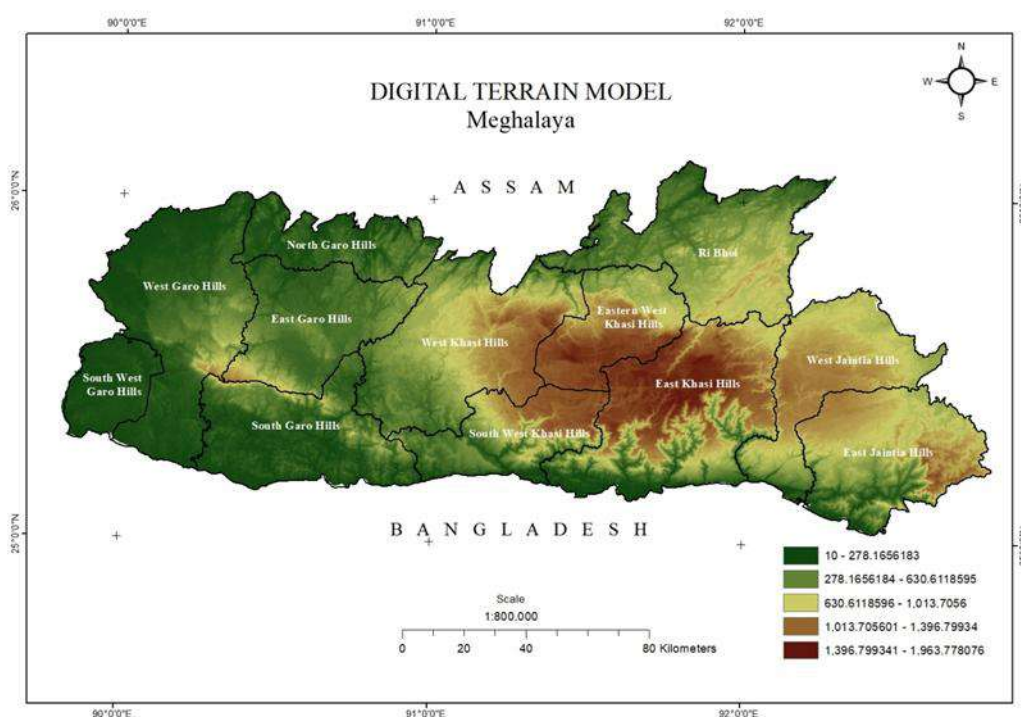


Figure 2.2: Topography of Meghalaya (GIS Lab, 2017 updated by MCCC, 2024)

The soils of the hills are derived from gneissic complex parent materials; they are dark brown to dark reddish-brown, varying in depth from 50-200 cm. The texture of soils varies from loamy to fine loamy. The soils of the alluvial plains adjacent to the northwest and southern plateau are very deep, dark brown to reddish-brown in colour and sandy-loam to silty-clay in texture. Meghalaya soils are rich in organic carbon, which is a measure of their nitrogen-supplying potential, deficient in available phosphorous, and medium to low in available potassium. The reaction of the soils varies from acidic

This map displays the Garo, Khasi, and Jaintia hills region, illustrating the spatial distribution of stream orders and district boundaries. The map is bounded by coordinates 90°0'0"E to 92°0'0"E and 24°0'0"N to 26°0'0"N. A scale bar indicates a distance of 80 Kilometers, with a scale of 1:800,000. A north arrow is located in the top right corner. The map is divided into districts: West Garo Hills, North Garo Hills, East Garo Hills, South West Garo Hills, South Garo Hills, West Khasi Hills, Eastern West Khasi Hills, South West Khasi Hills, East Khasi Hills, Ri Bhoi, West Jaintia Hills, and East Jaintia Hills. Stream orders are color-coded: 1st Order Stream (light blue), 2nd Order Stream (yellow), 3rd Order Stream (pink), 4th Order Stream (cyan), and 5th Order Stream (dark blue). District boundaries are shown as black lines. The map is labeled with 'GIS LAB, MBDA' in the bottom left corner.

2.2. Demographic Profile

17

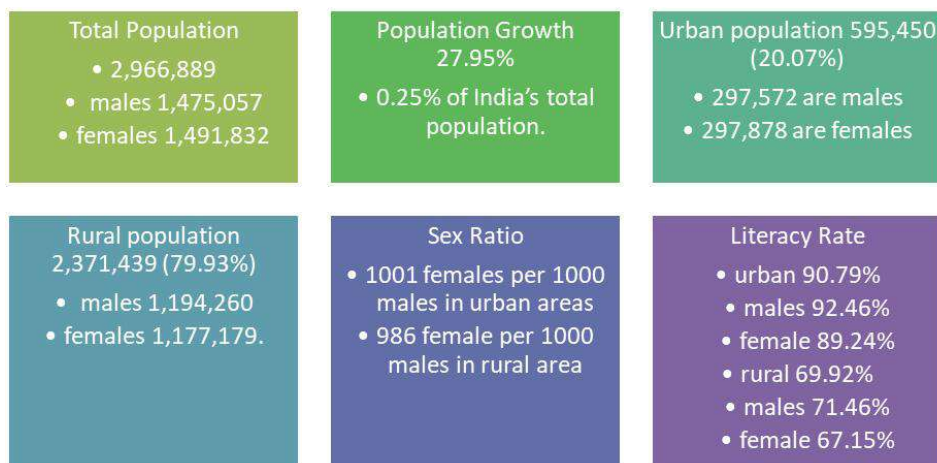


Figure 2.4: Meghalaya Statistics (Registrar General and Census Commissioner, 2011)

Table 2.1: General data of the State in comparison with All India figures

Sl. No	Particulars	Meghalaya	India
1.	Area (in sq. Km.)	22429	32,87,263
2.	Population in Lakh (2022)	33.18	14,172
3.	Density of Population	148	418
4.	Population Below Poverty Line (%)	11.87	21.92
5.	Literacy (2011 census) (%)	74.40	73.00
6.	Infant Mortality Rate	29	28
7.	Gross State Domestic Product (GSDP)/Gross Domestic Product (GDP) 2021-2022 at current prices (₹ in crore)	37,830	2,36,64,637
8.	GSDP/GDP CAGR (2012-13 to 2021-22)	6.28	10.11
9.	Per Capita GSDP/GDP (2021-22)	90,638	1,46,087

Source: Data compiled by the Economic Division, O/o the C&AG of India (https://cag.gov.in/webroot/uploads/download_audit_report/2022/State-Finance-Report-2021-22---Meghalaya-064253f8904cb39.49251931.pdf)

2.3. Economic Profile

The economy of Meghalaya is still in the initial stages of development. The Gross State Domestic Product (GSDP) at current prices increased by 8.96 per cent, from ₹ 34,719 crore in 2020-21 to ₹ 37,830 crore in 2021-22 as against the assessed growth of 11.10 per cent by the XV FC. However, the increase of GSDP of Meghalaya (8.96 per cent) was lower than the National GDP (19.51 per cent).

The economy of the State has been divided into three broad sectors viz. primary sector which includes agriculture & allied activities and forestry; secondary sectors which include industry covering mining & quarrying, manufacturing, and construction; and tertiary sectors which include trade, hotel & restaurant and others services. On analyzing the three sectors, though Meghalaya is primarily an agriculture economy with agricultural activities engaging nearly 77% percent of the total workforce, during the FY 2022-23, the contribution of this sector towards the economy in terms of State's GSVA at the current price is 21 % share. At the same time, the share of the industrial sector

is 19%. On the other hand, the share of the tertiary sector during the same period is 61%. The detailed Gross State Value Added by economic activity at current prices for the FY 2022-23 is provided below in Table 2.2.

Table 2.2: The detail Gross State Value Added by economic activity at current prices for the FY 2022-23

S.No	Item	GSVA @ Current '(Rs. in lakh)	Percentage
1.	Agriculture, Forestry and Fishing	754779	20
1.1	Crops	397254	
1.2	Livestock	115286	
1.3	Forestry And Logging	184494	
1.4	Fishing And Aquaculture	57745	
2.	Mining And Quarrying	41641	
	Primary	796420	21
3.	Manufacturing	437372	11
4.	Electricity, Gas, Water Supply & Other Utility Services	75055	2
5.	Construction	203292	5
	Secondary	715718	19
6.	Trade, Repair, Hotels and Restaurants	824845	21
6.1	Trade & Repair Services	804625	
6.2	Hotels & Restaurants	20220	
7.	Transport, Storage, Communication & Services Related to Broadcasting	222459	6
7.1	Railways	0	
7.2	Road Transport	123811	
7.3	Water Transport	0	
7.4	Air Transport	79	
7.5	Services Incidental to Transport	793	
7.6	Storage	2155	
7.7	Communication & Services Related to Broadcasting	95622	
8.	Financial Services	120367	3
9.	Real Estate, Ownership of Dwelling & Professional Services	206791	5
10.	Public Administration	530958	14
11.	Other Services	424542	11
	Tertiary	2329963	61
12.	TOTAL GSVA At Basic Prices	3842101	100
13.	Taxes On Products	399961	
14.	Subsidies On Products	64185	
15.	Gross State Domestic Product	4177877	
16.	Population ('00)	37980	

17. Per Capita GSDP (Rs.)

110002

Source: Directorate of Economics and Statistics, Government of Meghalaya. (<https://www.mospi.gov.in/GSVA-NSVA>)

2.4. Land Use and Land Cover

Meghalaya covers a geographical area of 22,429 sq. almost 0.68 percent of India's total geographical area. km. The land use and land cover map is shown in Figure 2.5.

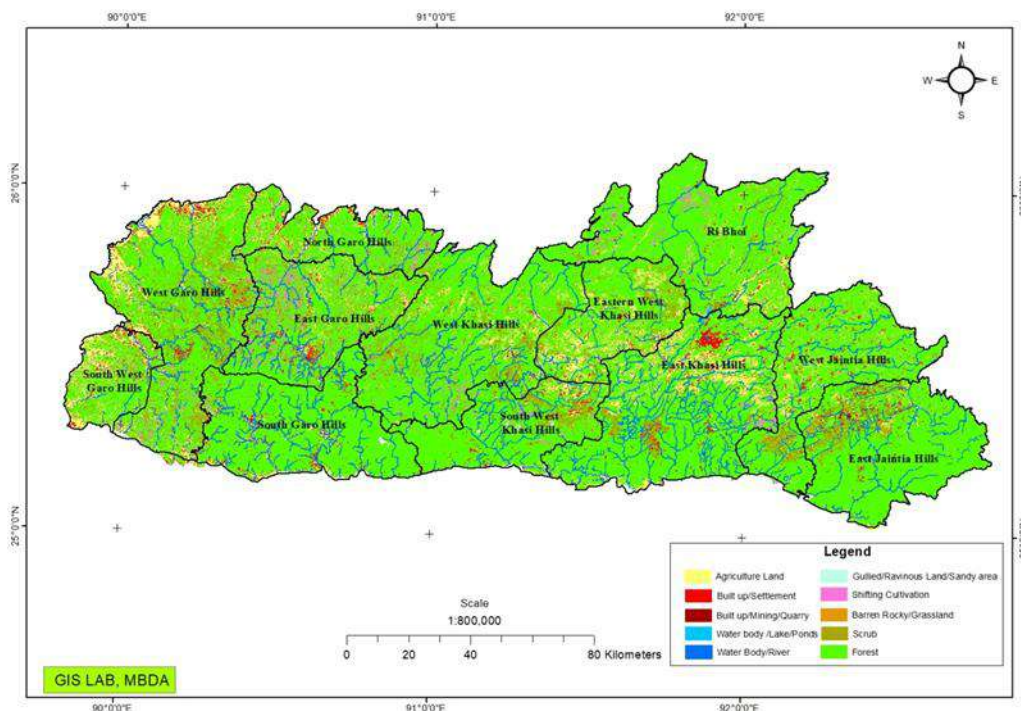


Figure 2.5: Land Use & Landcover map of Meghalaya (GIS Lab, 2017 updated by MCCC, 2024)

Out of the total land use and land cover of the State, the area under forest cover forms 77.1 percent. Next to the forest, agriculture occupies about 9.5 percent of the total land use and land cover in the State. The details of the land use and land cover distribution of Meghalaya are summarised in Table 2.3.

Table 2.3: Landuse/landcover (LULC) distribution in Meghalaya

Sl. No.	Land Use Land Cover	Area (in km ²)	% of Geographical Area
1	Agricultural Land	2123.0	9.5
2	Built up/Settlements	811.4	3.6
3	Built up/Mining/Quarry	13.1	0.1
4	Waterbodies/Lake/Ponds	12.5	0.1
5	Waterbodies/River	201.0	0.9
6	Shifting Cultivation	424.0	1.9
7	Barren Rocky/Grassland	22.5	0.1

8	Gullied/Ravenous Land/Sandy Area	41.1	0.2
9	Scrub	1494.7	6.7
10	Forest	17285.6	77.1
Total		22429.0	100.0

Source: NESAC & GIS, Lab MBDA

2.5. Sectoral Overview: Key Facts & Concerns

2.5.1. Agriculture & Allied Sectors

The agriculture sector and allied sectors in the Meghalaya SAPCC include agriculture, horticulture, livestock, and fishery as sub-sectors.

Agriculture & Horticulture: Key Facts

Agriculture is a key driver of Meghalaya's economy, with around 81% of the population depending on it for their livelihood. The sector is essential for both economic growth and the well-being of the people. The total geographical area of Meghalaya is 22, 429, 00 Ha. Approximately, out of which the net area sown is 2,54,754 ha or 11.36 % of the total State's geographical area. The entire geographic area of the State can be classified into five (5) agro-climatic zones (Table 2.4) namely:

Table 2.4: Agro-climatic zones of Agriculture & Allied Sectors

Agro-Climatic Zones	Geographical Extent	Soil Characteristics	Crops Associated
Warm and humid with medium rainfall (1270-2032mm)	Occurs in the hills and northern slopes in the north and western parts of West Garo Hills, the Northern Parts of East and West Khasi Hills, and the North-Eastern parts of the Jaintia Hills.	Light to medium texture with generally high depth.	Rice, Wheat, Jute and Mesta, Rapeseed, Mustard, Cotton, and Ginger.
Humid and moderately cold in winter with high rainfall (2800-4000mm)	Occurs in the central plateau of the Garo Hills and a portion of the central plateau of the West Khasi Hills.	Light to medium texture and is generally very deep.	Maize, Ginger, Cotton, And Tea
Humid with moderately warm summer and severe cold winter featuring high rainfall (2800-6000mm)	Comprises the central plateau of East Khasi Hills, the West Khasi Hills, and the Jaintia Hills.	Light to medium texture and is generally very deep.	Vegetables, Potato, Upland Rice, Tea, and Ginger
Humid and warm with very high rainfall (4000-10000mm)	Southern slopes comprising the eastern part of Jaintia Hills, The southern part of East Khasi Hills, and a portion of the southern edge of the West Khasi Hills.	Light to medium texture and deep to very deep.	Oranges, Turmeric, and Soybeans.
Humid and hot with high rainfall (2800-4000mm)	Southern part of the West Garo Hills and a part of the southern portion of the West Khasi Hills.	Soil depth ranges from moderate to very deep and has a light to heavy texture.	Rice, Jute, Mesta, and Oilseeds

In terms of agricultural land use pattern, gentle slopes up to 20% are put under crops such as wheat, paddy, maize, pulses, oilseeds, vegetables, etc. which not only contribute towards food security but also yield substantial revenue returns per unit of land and labour. The horticultural crops are mostly taken up in the areas having slopes above 20%. On such slopes, the Sloping Agriculture Land Technology (SALT) and watershed management activities are encouraged. Agriculture in the State is mostly rain-fed, and irrigation facilities are being provided to a certain extent. The ultimate irrigation potential of the State is approximately 2.18 lakhs hectares. The net irrigated area in the State is 31795.66 hectares. The pattern of land holdings and land tenure systems, and extensive practice of Shifting or *Jhum* cultivation, small agricultural land holding, subsistence farming coupled with a high cost of inputs and labour-intensive farming are some of the realistic dimensions of agriculture in the State.

Over the years, reduced cropping intensity, reduced and disproportionate involvement of people in agricultural operations, constraints on bringing more land under cultivation, subsistence level of agricultural operations, lack of avenues for allied activities to generate subsidiary income, etc., has made the agriculture less attractive although a large segment of the population is involved and dependent on the same for their livelihoods. Low production in sedentary agriculture causes a shift in occupation and migration to nearby cities and towns. Such a scenario has been recognized as one of the factors underlying unemployment.

Meghalaya is blessed with tropical, subtropical, and temperate climates. This variation in climate, along with the diverse edaphic conditions and geo-climatic situation creates a suitable environment for the cultivation of a wide variety of horticultural crops in the State. The State offers excellent scope for the development of horticulture including vegetables, fruits, flowers, spices, and plantation crops, medicinal and aromatic plants of high economic value contributing enormously to the State's agricultural wealth and diversity. The State produces substantial quantities of orange, peach, pineapple, plum, guava, and banana of high quality. Important cash crops produced are areca nut, turmeric, ginger, and broom grass (Dept. of Agriculture, GoM, 2019).

Table 2.5: Key Concerns of Agriculture & Horticulture

Sl. No.	Key Concern	
1.	Dependence of agriculture on Monsoon	<i>Agriculture in the State is mainly dependent on the monsoons in the Kharif and cultivation of the rabi is carried out with soil moisture retention. With the State experiencing heavy rainfall annually, the water availability is adequate for a few months however; the water retention capacity is less. Most of the agriculture in the State is rainfed thus it becomes more vulnerable to the rise in temperature and variability of rainfall. With the erratic nature of the monsoon rainfall pattern, the agriculture sector will face uncertainty in the scheduling of agricultural activities.</i>
2.	Crop production and climate variability	<i>Crop growing degree days may increase which may result in a reduced maturity period of the crop. Early maturity may result in decreased grain filling period and ultimately may result in low yield/production of the crop. The State's food grain deficit may be further aggravated by a change in temperature and rainfall. The Agriculture in the State is mostly rain-fed. Lack of irrigation facilities coupled with climatic variability will cause water stress and reduced soil fertility leading to land degradation and low crop production</i>
3.	Crop diseases	<i>Temperature rise may induce premature breaking of insects and pests dormancy which may</i>

	<i>and pest attack</i>	<i>cause insect and pest attacks on the standing crops and may further affect production. Moreover, insects and pests which are presently confined to relatively warmer regions will eventually move to temperate regions along with a shift in the areas of production of host plants. Changes in geographical distribution and incidences may affect both crop production and food security</i>
4.	<i>Land holding pattern and small land holdings</i>	<i>Meghalaya has a distinct land tenure and landholding system. Land holdings in the State are mostly operational holdings as there is little concept of permanent ownership under the traditional land tenure system. The average size of the holding is very small. A large percentage of the State's farmers have marginal or small holdings of less than one or two hectares. According to the Census 2011, the average size of the holding is 1.37 hectares and about 49% of the holdings belong to marginal farmers.</i>
5.	<i>Food grain deficit</i>	<i>The State is running a deficit in food grain as it is difficult to increase food grain production especially due to the hilly terrain. Therefore, the effort is to bring more areas under Horticultural and plantation crops that have tremendous potential for growth in the prevailing agro-climatic condition envisaging the policy of shifting the thrust from food grains production to food security.</i>
6.	<i>Land degradation & shifting cultivation</i>	<i>The State is been witnessing acute soil erosion and landscape degradation primarily due to deforestation because of shifting or Jhum cultivation, timber felling coupled with high-intensity rainfall, and soil conditions. The traditional practice of Jhum is no more considered adequate to support a large population due to the progressive decline in the Jhum cycle that has debilitating effects on soil productivity. Land degradation, soil erosion, declining fertility, and harvests have a cumulative effect on the lives and livelihoods of the communities.</i>
7.	<i>Low farm mechanization</i>	<i>The extent of mechanization in the state is currently very low as the agriculture in the State is largely manual labor oriented. With the undulating topography of the State and the considerably small average size of land holding, it may be difficult to upscale the mechanization of agriculture. The present mechanization in the State is perhaps one of the least in the country.</i>
8.	<i>Inadequate infrastructure for post-harvest management</i>	<i>The State does not yet have a robust infrastructure for post-harvest management making it difficult for farmers to process and market their produce. Further, owing to the perishable nature of most horticultural products, robust support infrastructure for storage processing, and marketing of horticultural produce is essential. This is especially true for plantation crops like tea, coffee, and rubber.</i>

Agriculture & Horticulture: Programs & Policies

Programs/ schemes for the agriculture sector

- | | |
|---|---|
| <p>a) Centrally sponsored programs/schemes</p> <ol style="list-style-type: none"> 1. Development and Maintenance of Orchard cum Horti-Nurseries 2. Development of Strawberry Cultivation 3. Fruit Processing for Horticulture 4. Horticulture Mission for North Eastern Hill (HMNEH) 5. The mission for Integrated Development of Horticulture (MIDH) Sub Scheme Horticulture Mission for North East and Himalayan Region (HMNEH) 6. National e-Governance Plan for Agriculture (NeGP-A) | <ol style="list-style-type: none"> 7. National Food Security Mission National Food Security Mission (NFSM) –Rice, Maize, Pluses, Jute, Oilseeds 8. National Horticulture Board (NHB) 9. National Mission for Sustainable Agriculture (NMSA)-Rainfed Area Development (RAD) 10. Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) 11. Promotion of Integrated Pest Management 12. Rashtriya Krishi Vikash Yojana-Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY- RAFTAAR) 13. Soil Health Card Scheme (SHC) 14. Sub-Mission on Agriculture Extension (SMAE) 15. Sub-Mission on Agriculture Mechanization (AMAM) 16. Sub-Mission on Seeds and Planting Material (SMSP) |
|---|---|

- | | |
|--|---|
| <p>17. <i>Sub-Scheme Reclamation of Problem Soil RKVY</i></p> <p>b) State Sponsored programs/schemes</p> <p>1. <i>Development and maintenance of orchard cum Horti nurseries scheme</i></p> <p>2. <i>Floriculture development scheme</i></p> <p>3. <i>Fruit development scheme</i></p> <p>4. <i>Fruit processing centre scheme</i></p> <p>5. <i>Maintenance of Horti hubs scheme</i></p> <p>6. <i>Meghalaya Agriculture Response Vehicle Scheme (2022)</i></p> <p>7. <i>Plant protection Scheme</i></p> | <p>8. <i>Plantation crop development Scheme</i></p> <p>9. <i>Post-harvest management agriculture Marketing schemes</i></p> <p>10. <i>Regional centre for training and production of mushroom</i></p> <p>11. <i>Scheme for tuber crops Potato, Tapioca, Colocasia</i></p> <p>12. <i>Spices development Ginger, Turmeric, Black pepper, Cardamon, Coriander, Cinnamon and Chillies</i></p> <p>13. <i>State Rice Mission</i></p> <p>14. <i>Tea Development Scheme</i></p> <p>15. <i>Vegetable development scheme</i></p> |
|--|---|

Livestock: Key Facts

Livestock plays a major role in sustainable food systems and is an important asset for vulnerable communities. Livestock production systems have the potential to contribute to the preservation of biodiversity and carbon sequestration in soils and biomass. At the same time, livestock is a significant contributor to global GHG emissions. Currently, the livestock sector emits an estimated 7.1 GT of CO₂ equivalent per year, representing 14.5% of human-induced greenhouse gas (GHG) emissions. Increasing the efficiency of livestock supply chains is key to limiting the growth of GHG emissions in the future (World Bank, 2022).

Meghalaya with its congenial topographical and geo-climatic characteristics and rich domesticated animal biodiversity and varied bio-resources has immense economic potential for animal husbandry activities and livestock farming along with dairy, poultry, meat, and allied agro-based industry. In Meghalaya, there is a big demand for animal products and these products are the major source of proteins of higher biological value. The gross output of animal products like milk and its various products is disproportionate to the available population of cattle and buffaloes due to the low genetic potential of the indigenous animals so far as productivity is concerned. To produce the required quantities of milk, a proportionate increase in the number of milch cattle and buffaloes are to be made besides enhancement of their genetic potentiality for increased productivity in terms of quantity and quality.

Livestock rearing is inter-woven with agricultural practices and farming communities. Livestock rearing in Meghalaya is primarily based on mixed farming with agricultural and horticultural activities using crop residues and forest grazing. Rural and hill farmers follow grazing of their animals with some amount of concentrate feed i.e., grains, agricultural crop residues, and agro-by-products depending on the resource availability of the individual farmer. In Government and commercial farms, concentrated feed and improved fodders are used for feeding the animals.

As per the livestock Census 2019, the State had 903570 cattle, 15714 buffalo, 15679 sheep, 397503 goats, 706364 pigs, and 5293187 poultry. The population of livestock and poultry are presented in Table 2.6 and Table 2.7, respectively.

Table 2.6: Population of Livestock in Meghalaya

District	Total Number of Animals in the Districts							
	Cattle		Buffaloes	Sheep		Goat	Pig	
	<i>In</i>	<i>CB</i>		<i>In</i>	<i>Ex</i>	<i>ND</i>	<i>In</i>	<i>Ex</i>
East Khasi Hills	63359	14550	779	1891	41	58783	60412	94375
Ri Bhoi	38094	16468	4259	4259	0	14629	3397	50282
West Khasi Hills	78240	271	3779	1463	6	35356	12529	53487
South West Khasi Hills	32732	0	1920	25	0	36470	26650	447
East Jaintia Hills	54649	965	1124	0	0	10170	7196	15906
West Jaintia Hills	57438	126	1706	0	50	14042	23003	37887
North Garo Hills	72653	22	20	7	0	2745	49033	9525
East Garo Hills	77196	76	0	0	0	37889	46672	7982
West Garo Hills	222108	913	937	10687	2	94962	114571	3108
South West Garo Hills	99010	14	1187	1474	0	58297	35871	278
South Garo Hills	74686	0	3	20	0	34160	50977	2776
Meghalaya Total	870165	33405	15714	15580	99	397503	430311	276053

*In-Indigenous, CB-Cross Breed, Ex-Exotic, ND-Non Descript, (Source: Livestock Census, 2019)

Table 2.7: Population of Poultry in Meghalaya

District	Total Number of Poultry in the Districts					
	Fowls		Ducks		Other Backyard Poultry	Total Population
	<i>De</i>	<i>Im</i>	<i>De</i>	<i>Im</i>		
East Khasi Hills	597787	35734	2669	629	0	636819
Ri Bhoi	430070	60545	1120	250	0	491985
West Khasi Hills	569711	53414	0	40	0	623165
South West Khasi Hills	180115	1488	338	8	13	181962
East Jaintia Hills	1255554	5192	541	11	0	131298
West Jaintia Hills	241578	12085	510	400	0	254573
North Garo Hills	613537	2674	771	10	0	616992
East Garo Hills	390119	12751	979	62	0	403911
West Garo Hills	1017792	3816	38505	6715	240	1067068
South West Garo Hills	300857	18846	5305	1163	0	326171
South Garo Hills	555032	3752	393	54	12	559243
Meghalaya Total	5022152	210297	51131	9342	265	5293187

*De-Desi, Im-Improved, (Source: Livestock Census, 2019)

The overall livestock and poultry population growth is positive over the years 2012-2019. The population of cross-bred cattle and exotic pigs has seen a significant rise with a percentage increase of 26.2 % and 100.1 %, respectively. The population of the rest of the livestock such as Buffaloes, Sheep, and Goats both indigenous and exotic varieties has declined (Table 2.8). The poultry population in the State has seen a remarkable increase with an overall 48.4 % (Table 2.9).

Table 2.8: Changes in Livestock Population, 2012-2019

Meghalaya	Total Number of Livestock								Total
	Cattle		Buffaloes	Sheep		Goat	Pig		
	In*	CB*		In*	Ex*	ND*	In*	Ex*	
2019	870165	33405	15714	15580	99	397503	430311	276053	2038830
2012	879295	26458	24894	20186	805	472325	431317	137984	1993264

Change	-9130	6947	-9180	-4606	-706	-74822	-1006	138069	45566
% Change	-1.0	26.2	-36.9	-29.6	-87.0	-15.9	-0.23	100.1	2.3

*In-Indigenous, CB-Cross Breed, Ex-Exotic, ND-Non Descript, (Source: Livestock Census, 2019)

Table 2.9: Changes in Poultry Population, 2012-2019

Table 2.7: Changes in Total Poultry Population, 2012-2019						
Meghalaya	Total Number Poultry					Total Poultry
	Fowls		Ducks		Other Poultry	
	De*	Im*	De*	Im*		
2019	5022152	210297	51131	9342	265	5293187
2012	3197559	344157	22331	514	2683	3567244
Change	1824593	-133860	28800	8828	-2418	1725943
% Change	57.1	-38.8	128.9	1717.5	-90.1	48.4

* De-Desi, Im-Improved, (Source: Livestock Census, 2019)

Meghalaya has a high demand for livestock like pigs, cattle, goats, and poultry for the overall food supply for the people. The extent of piggyery, poultry, or dairy as a large-scale commercial activity is currently limited and the State is experiencing a shortage in most food items of animal origin. In addition, inadequate feed and fodder supply, the incidence of diseases, lack of efficient and scientific management of the resources and lack of application of newer and advanced technologies for augmentation of productivity and production, inadequate adoption of processing technologies, and unorganized marketing are some of the important factors relating to lower production and supply of animal products.

Livestock: Key Concerns

The following are the key concerns for the livestock sector:

Table 2.10: Key concerns for the Livestock Sector

Sl. No.	Key Concern	
1.	Decreasing grazing land and Fodder availability	<i>A continuous decline in the grazing and pasture land is happening due to rapid land use and land cover change and other development activities. Decreasing pasture and grazing land in the State increases the dependency on imports to meet the cattle feed requirement. Also, the feed cost is considerably high to afford for the marginal farmers making livestock rearing less lucrative. This imposes a challenge for sustaining the current animal population with the limitations of resources</i>
2.	Low genetic potential and diversity	<i>To produce the required quantities of milk, a proportionate increase in the number of milch cattle and buffaloes are to be made besides enhancing their genetic potentiality for increased productivity. Sufficient genetic variation in the livestock population is necessary both for adaptation to future changes in climate and consumer demand and for continual genetic improvement of economically important traits. Unfortunately, the current trend is for reduced genetic variation, both within and across breeds.</i>
3.	Gap between meat demand and supply	<i>In Meghalaya consumption of meat is very high. About 80 - 85 % of the people of the State consume meat. There is a considerable gap in the demand and supply of meat and meat products in the State. The demand is met by importing from outside the State. As per the available statistics, about 85.46% of the demand for pork is</i>

		<i>met by the production within the State. It may be mentioned that unlike most other parts of the country, the native population in Meghalaya does not attach any taboo to the consumption of beef. The consumption of beef has increased over the period and the requirement is met by imports.</i>
4.	<i>Low milk production</i>	<i>The per capita availability of milk in Meghalaya is 74.00g per person per day only which is far below the national average and the Indian Council of Medical Research recommended a requirement of 300g per day per person. It is expected that the demand for milk and milk product will be higher on account of changing food habits and increased purchasing power of the people. The gross output of milk production is disproportionate to the available population of bovines (Cattle and Buffalo) due to their low genetic potentiality, disorganized breeding, inadequate feed and fodder supply, the incidence of diseases, lack of efficient and scientific management of the resources, lack of application of newer advanced technologies for augmentation of production, processing technologies, marketing, etc.</i>

Livestock: Programs & Policies

I. Programs/Schemes

a) Centrally

Sponsored

programs/schemes

1. Assistance to State to Control Animal Disease (ASCAD)
2. Livestock Insurance Scheme
3. National Livestock Mission
4. National Project for Cattle and Buffalo Breeding Programme
5. Professional Efficiency Development
6. Rinderpest Surveillance and Containment Vaccination Programme

7. Sample Survey of Major Livestock and Livestock Census

b) State Sponsored programs/schemes

1. Meghalaya Piggery Mission
2. Skill Development & Training of farmers
3. Artificial Insemination program
4. Vaccination Programme

II. Policies

1. Meghalaya Pig breeding policy, 2017
2. Meghalaya Bovine breeding policy, 2018

Fishery: Key Facts

The fisheries and aquaculture are important contributors to the food security, employment, and revenues of the State. Meghalaya is endowed with abundant water resources including rivers, streams, lakes, and reservoirs. The State has 3300 km length of rivers, 3734 ha of ponds and tanks, and 8400 ha of reservoirs which provide a huge potential for expansion and development of fishery and aquaculture in the State. The available data shows that the State produced about 4500 metric tons of fish during 2010-11. The annual deficit in fish production is assessed to be more than 15000 metric tons, causing a decline in the per capita availability as well (Meghalaya State Aquaculture Mission, 2012; Meghalaya State Water Policy, 2019). The share of fisheries in total agricultural GSDP is only 1.15 % as against 5.20 % at the National level in the year 2010-11. Further, its share in overall GSDP is quite low at 0.21% while the corresponding proportion at the national level is four times higher (Meghalaya State Aquaculture Mission, 2012).

To fill the fish demand and supply gap, the State launched the Meghalaya State aquaculture mission (MSAM) in 2012 which completed its tenure in 2017. The Government of Meghalaya is continuing

the successful components of MSAM 1.0 with certain new components in MSAM 2.0 (2018-2023). Under the State's aquaculture initiatives, as of 31.03.2021, about 4320.33 Ha of water area have been brought under fish farming providing livelihood opportunities to more than 25000 Fish farmers. Under the Mission, 79 numbers of fish sanctuaries, 12 numbers of eco-hatcheries, and 16 numbers of FRP hatcheries have been established throughout the State. With the conservation and breeding interventions, the State recorded an increase in fish seed production from 3.268 Million in 2012-13 to 13.79 Million in 2020-21. Overall, fish production increased from 4,799 MT in 2011-12 to 20,208 MT in 2023-24.

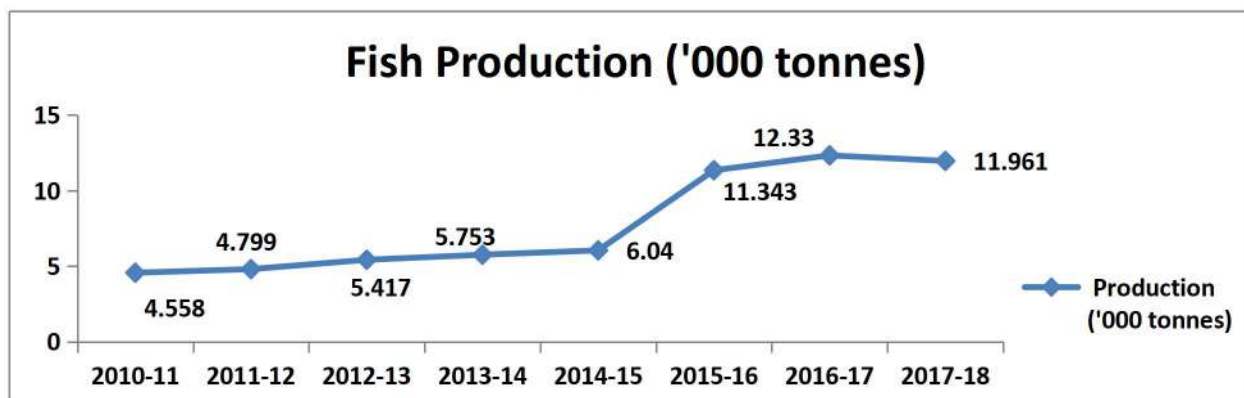


Figure 2.6: Fish Production in the State (2010-2018) (*Fisheries, Meghalaya State Aquaculture Mission 2.0, 2018-2023*)

Table 2.11: Key Concerns of Fishery

Sl. No.	Key Concern	
1.	Economic conditions of the farmers and the unavailability of finance	Poor economic conditions of the farmers and unavailability of finances discourage the farmers from taking up fisheries on large scale. Unavailability of credit and adequate financial support is a major development of fisheries.
2.	Climate Vagaries	Climate variability poses a big impediment to the development of the fishery sector in the State. Meghalaya has experienced extreme rainfall events in the monsoon season causing flash floods in several areas and leading to the washing away of fish seeds from the fish ponds. This often causes financial losses to the fish farmers and this discourages fish farming.
3.	Lack of adequate training and capacity building	Many fish farmers in the State take up fish farming without adequate technical training. The complexities involved in fishery and aquaculture need specialized training and technical exposure that may help in reducing the chances of failure in fish farming.
4.	Lack of requisite infrastructure for storage, distribution, and marketing	The State lacks a robust infrastructure for the storage and distribution of fish. As the State progresses to become a major producer of fish in the region, the infrastructure for storage, distribution, and marketing has become necessary.

Fishery: Programs and Policies

I. Programs/Schemes

a) Centrally Sponsored programs/schemes

Nil

b) State Sponsored programs/schemes

1) Meghalaya State Aquaculture Missions 2.0

2.5.2. Water Resources

Water is the primary medium through which climate change influences the earth's ecosystems and the well-being of society. Higher temperature and changes in extreme weather conditions are projected to affect the distribution of rainfall, river flows, and groundwater and further deteriorate water quality. Water resources and their management impact almost all aspects of life, the economy, and the functioning of the natural systems. The changing climate is also affecting the hydrological balance of water resources. Conserving this irreplaceable resource poses a challenge given a large number of competing forms of use in households, agriculture, industry, and ecosystems.

Meghalaya under the present climate variability, water stress is already high and this may exacerbate in anticipated climate change scenario. The State is fortunate to have abundant water resources with *Cherrapunjee* and *Mawsynram* being the wettest spots on the earth; however, it is prone to seasonal water scarcity. Water resources in the State are under tremendous pressure to meet the increasing demand for water for domestic usage, agriculture, energy production, manufacturing, and industrial processes. Climate change impacts are likely to adversely affect the existing water resources which will further exacerbate the water challenges in the State. Since the scope of these effects is unknown and unpredictable, responsive and flexible adaptation measures are the need of the hour. New and innovative approaches to water resources management and its development are vital to reduce vulnerability and livelihood insecurity among the poorest and facilitate adaptation to the uncertain effects of a changing climate.

Water Resources: Key Facts

Meghalaya is blessed with bountiful water resources that need to be harnessed. The average annual rainfall in Meghalaya is about 4100 mm from 1981 to 2012. However, there is a very high spatial variability in rainfall in the region. For instance, the southern West Khasi Hills and East Khasi Hills receive more than 8000 mm of rainfall while the rest of the State receives an average value of 3200 mm in a year. The precipitation intensities also have very large spatial variability in the State. Mawsynram, the wettest place on the earth is also located in Meghalaya.

Hydrologically, the State comprises two basins, viz., the Left Bank of Brahmaputra Basin and the Meghna/Barak Basin. The Brahmaputra River and the Meghna/Barak River share the catchment areas of Meghalaya in almost equal proportion, with the north-flowing rivers such as Simsang sharing the Brahmaputra catchment area, while the south-flowing rivers such as Kynchiang sharing the Meghna/Barak basin. The area of Meghalaya is 22,429 km², with the catchment area of Brahmaputra in the State being 52% (11,598.2 km²) and the catchment area of Meghna/Barak being 10830.8 km² (48%). The rivers/streams namely *Dilni*, *Ganol*, *Jinjiram*, *Ringgi*, *Ghagua*, *Didak*, *Damring*, *Krishnai*, *Dudhnoi*, *Ronggre*, *Umsiang*, *Umkebri*, *Umiam*, *Umiew*, *Myntang*, and *Umlarem* are the part of Brahmaputra Basin. While, the rivers/streams namely *Kangra*, *Simsang*, *Dareng*, *Darong*, *Rongik*, *Kynshi*, *Umngi*, *Myntdu*, *Umngot*, and *Lubha* are part Meghna/Barak Basin (Figure 2.3). The State has 3 major catchments, 8 sub-catchments, 35 watersheds, and 179 sub-watersheds (Central Ground Water Board, 2012). Meghalaya is sharing water resources with Assam and Bangladesh, with Meghalaya

being located upstream. The State has about 3300 km length of rivers at present with an area of 8400 ha of reservoirs, 3734 ha of tanks and ponds, and 390 ha of swamps (State Development Report, 2009).

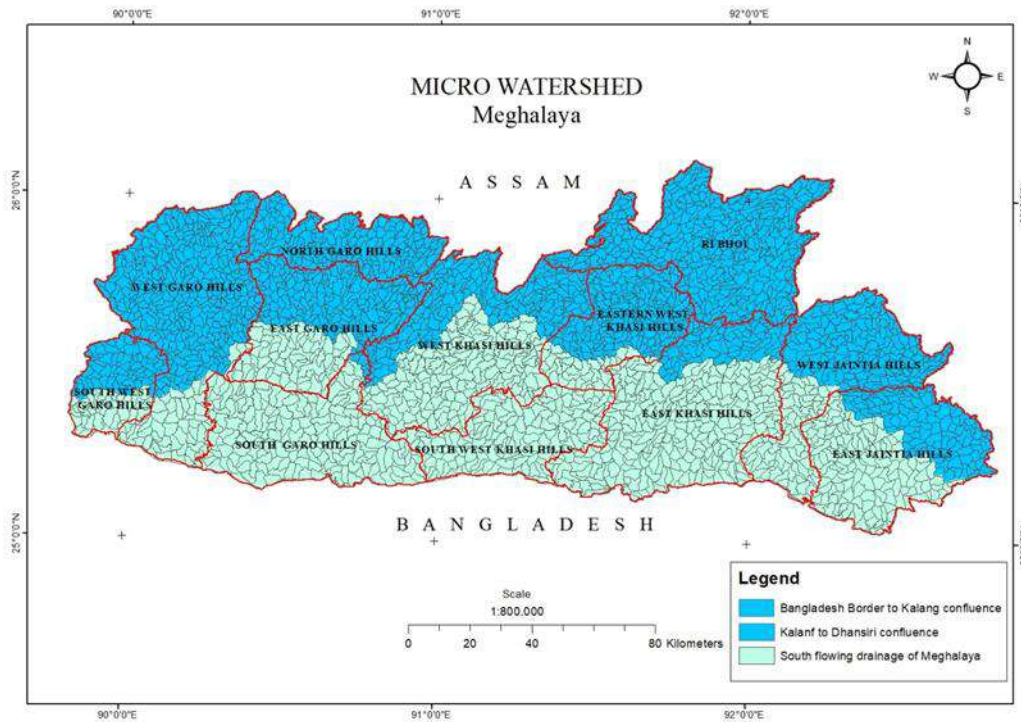


Figure 2.7: Watershed in Meghalaya (GIS Lab, 2017 updated by MCCC, 2024)

The replenishable groundwater is estimated to be 1.15 billion cubic meters (BCM). Though the groundwater in the state has not yet been over-exploited to its highest extent, water stress is building up in urban areas due to the high rate of extraction of groundwater for domestic purposes. The annual gross dynamic groundwater recharge in Meghalaya has been estimated as 1.234 BCM. The annual allocation for domestic and individual requirements up to 2025 is estimated to be 0.096 BCM as per the census 2001 which was 1.014 BCM. (*Central Ground Water Board, CGWB, 2012*). Further, the State has over 60,000 springs of which 55,915 have been mapped (Figure 2.8).

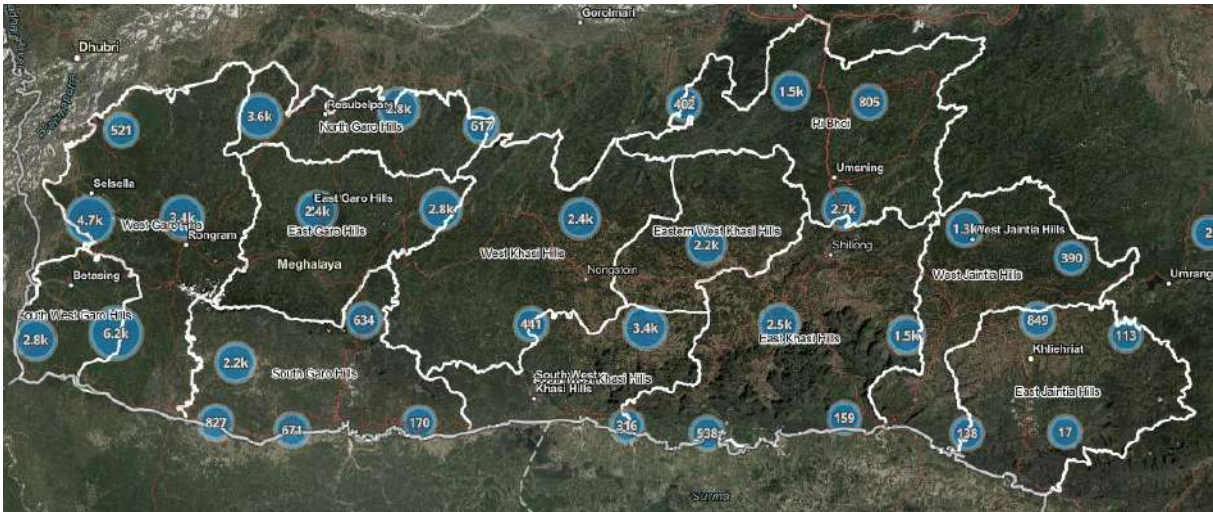


Figure 2.8: Location of Surveyed Springs in Meghalaya (Department, 2024)

The surface water resource is being tapped in several places by constructing dams across the rivers. The reservoirs, like the Umiam and Kupli, are used for irrigation, drinking water, and for generating electricity. In Meghalaya, groundwater is generally extracted through dug wells and springs (or seepage wells in valley areas/topographic depressions) and bore wells. Apart from this, tube wells are in use in the West Garo Hills district. Dug wells are generally shallow in depth. The major part of water consumption in the State is for irrigation followed by domestic and industrial needs. Surface water is abundant but limited during the non-rainy season. According to the CGWB, 18% of the available groundwater is currently utilized and there is ample potential for further increase in groundwater exploitation.

Despite being one of the wettest places on the earth, the State is experiencing a decrease in potable water availability resulting in a crisis for drinking water. This is mainly due to topographical and geomorphologic conditions apart from alterations of the natural land surface by way of development, mining, and urbanization. The hilly and steep sloping terrain conditions with localized small valleys result in very high surface runoff during the monsoon. With the pressure of rapid population growth, the available resources of water are being depleted at a fast rate.

Further, climate change may alter the distribution of natural water resources and affect the livelihood of the State’s people adversely. The current and projected climate variability may result in further intensification of temporal and spatial variations in rainfall and water availability. This will adversely affect the hydrological cycle and impact the water balance in different parts of the State. With an economy closely tied to its natural resources base and climate-sensitive sectors, such as agriculture, water, forestry, etc., the State may face a huge challenge.

Table 2.12: Key Concerns of Water Resources

Sl. No.	Key Concern	
1.	Water insecurity due to Rainfall	Both seasonal and annual mean precipitation and evaporation influence the water resources in terms of water availability to the society and ecosystems. At the same

	<i>and temperature variability</i>	<i>time, the temperature rise may cause water scarcity as well as it may have a devastating impact on water resources, particularly in low rainfall parts of the State. With the current trend in climate variability, the availability of utilisable water in the future will be under pressure resulting in potential water insecurity, especially in urban areas. In the face of climate change, long-term planning is needed for a water-secured future for the State.</i>
2.	<i>Groundwater depletion</i>	<i>The dynamic groundwater resource of the State is estimated to be 1.82 billion cubic meters (BCM) and the annual groundwater available is 1.64 billion cubic meters (CGWB, 2017). The annual groundwater extraction is 0.04 billion cubic meters (BCM) and the stage of development is 2.28% against the national average of 63% (Saha et al., 2021). However, the increasing demand for groundwater coupled with the increased climate variability and low recharge rate of aquifers may pose a challenge in the near future. In the future, groundwater may be a more reliable water supply than surface water supply. However, this is only sustainable where, over the long term, withdrawals remain well below recharge, while care must also be taken to avoid excessive reduction of groundwater outflow to rivers.</i>
3.	<i>Deterioration of spring sheds and impaired spring</i>	<i>In Meghalaya owing to anthropogenic stress and a combination of factors ranging from erratic rainfall patterns, seismic activity, and ecological degradation associated with land use change for infrastructural development causing pressures on mountain aquifer systems (MBDA, 2015). A large proportion of the population in rural areas depend on springs for their water requirements. With varying climatic conditions and rainfall patterns, a large number of springs have deteriorated and have become impaired posing water shortages in the spring's dependent areas. Besides, depletion there has been increasing concern about the sustainability of the springs as most springs have become seasonal.</i>
4.	<i>Seasonal water scarcity and competing demand for water</i>	<i>With high variability in rainfall across the State, certain areas experience water scarcity, especially during the dry season. The occurrence of such dry spells has increased in the recent past and may aggravate in the future. With the increasing pressure on water resources, the competing demands in agriculture, urban, industry, and domestic sectors have resulted in intensive and unscientific exploitation of water thereby causing depletion of ground and surface water leading to seasonal water shortages in the State.</i>
5.	<i>Heavy siltation and Floods</i>	<i>Due to current and projected climate extremes especially under the extreme rainfall conditions, the risk of floods and landslide hazards are expected to rise to cause the siltation of the water bodies/ rivers/ streams and floods in the low-lying areas in the State. The heavy silt load may further affect the operations of the hydro-based power generation in the State. The Central region (i.e. West Khasi Hills, East Khasi Hills, and South West Khasi Hills) and the South-western region (South-West Garo Hills, and West Garo Hills) are more susceptible to rainfall hazards and have a fair chance of increase in the flash flood occurrences and flooding in the downstream.</i>

6.	<i>Deterioration of Water quality and pollution</i>	<i>Water resources in the State are adversely affected by land and forest degradation, especially in Jhum and mining areas. This may lead to more floods since more water will fall than vegetation and soil can absorb. Due to inadequate water retention measures, the untapped water/ runoff drains into nearby waterways, carrying contaminants like fertilizer from the field and mining waste on the way. The runoff eventually travels to larger water bodies polluting the water.</i>
7.	<i>Lack of river monitoring and management system at basin scale</i>	<i>A healthy river ecosystem means good water quality, adequate water volumes, thriving plant and animal life, and diverse habitats. The river's ecological health must be monitored periodically. An improved understanding of river water quality is essential for better management. A short and mid-term priority should be in place to establish a network of data monitoring infrastructure for the river basins in the State, extending from its main stem to its tributaries. Accordingly, the waste management and water treatment incentives must be strategized. This is achieved through strengthening the mechanisms to bring about a holistic change in river monitoring and management system.</i>

Water Resources: Programs & Policies

I. Programs/Schemes

a) Centrally Sponsored programs/schemes

- 1) *Accelerated Irrigation Benefit Programme (A.I.B.P.)*
- 2) *Awareness Campaign and Capacity Building on Natural Resource Management (NRM)*
- 3) *Common Area Development Programme (C.A.D.P.)*
- 4) *Integrated Wasteland Development Programme (IWDP)*
- 5) *Integrated Watershed Management Programme (IWMP)*
- 6) *National Bamboo Mission (NBM)*
- 7) *National Hydrology Project*
- 8) *Pradhan Mantri Krishi Sinchayee Yojana Har Khet Ko Pani (PMKSY-HKKP)*
- 9) *R.K.V.Y. Schemes Under Water Resource Department*
- 10) *Rashtriya Krishi Vigyan Yojana (RKVY)*
- 11) *Schemes Under NABARD Loan Minor Irrigation Sector*

- 12) *Soil and Water Conservation Scheme under Rural Infrastructure Development Fund (RIDF), NABARD Loan*
- 13) *Spring shed Development Works for Rejuvenation of springs for Climate Resilient Development in Water Stressed Areas of Meghalaya.*
- 14) *Watershed Development Component of the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY-WDC)*
- 15) *Watershed Development Project in Shifting Cultivation Areas (WDPSCA)*

b) State Sponsored programs/scheme

- 1) *Cherrapunjee Ecological Project- Restoration of Degraded Lands Under Sobra Plateau*
- 2) *Normal State Plan Schemes-Surface Water*
- 3) *Soil & Water Conservation in General Areas*
- 4) *Watershed Management Programme*

II. Policies

- 1) *Meghalaya State Water Policy, 2019*

2.5.3.Forest & Biodiversity

Forest & Biodiversity: Key Facts

Meghalaya is a forest-rich State. Being a predominantly tribal State, the lives of rural people are significantly dependent on forests in socio-economic and socio-cultural contexts. Unlike other States, forests in Meghalaya are largely under community and private ownership. Only 1,113 sq km of forests, in Reserved Forests, Protected Forests, National Parks, and Sanctuaries are under the direct control of the State Forest Department. Community and private forests are under the administrative control of the three Autonomous District Councils representing the three regions *viz.* *Khasi Hills, Jaintia Hills, and Garo Hills*.

Shifting cultivation is still prevalent in the State. According to the official communication received from the State, the extent of forest area diverted for non-forestry purposes under the Forest Conservation Act, 1980 during 2014-15 to 2018-19 is 178.7 ha. The State Forest Department raised 2,982 ha of plantations in the same period. The State in the year 2012 promulgated an Act defining forests. According to the Act, 'Forest' has been defined as a compact and continuous tract of a minimum of 4 ha land, irrespective of ownership, and where more than 250 naturally growing trees per ha of 15 cm and higher diameter at breast height (DBH) over bark are present or more than 100 naturally growing bamboo clumps per ha are present. Two National Parks, four Wildlife Sanctuaries, and 65 Community Reserves constitute the Protected Area network of the State covering 2.22% of its geographical area (ISFR, 2019).

Based on the ISFR 2021 report, the Forest Cover in the State is 17,046.07 sq km which is 76.00 % of the State's geographical area. In terms of forest canopy density classes, the State has 560.16 sq km under Very Dense Forest (VDF), 9,159.89 sq. km under Moderately Dense Forest (MDF), and 7,326.02 sq km under Open Forest (OF). Forest Cover in the State has decreased by 72.72 sq km as compared to the previous assessment reported in ISFR 2019.

Table 2.13: District-wise forests cover under different canopy density classes (Area in km²)

Sl.No	Districts	GA	VDF	MDF	OF	Total	% GA	Scrub forest
1.	East Garo Hills	1714.8	16.5	148.2	1067.0	1231.8	71.8	139.1
2.	East Jaintia Hills	2041.7	102.5	223.1	1404.0	1729.6	84.7	85.1
3.	East Khasi Hills	2813.1	126.3	258.0	1813.0	2197.3	78.1	69.7
4.	North Garo Hills	1072.1	32.6	128.3	604.0	764.9	71.3	46.5
5.	Ri Bhoi	2368.7	45.8	827.6	1110.0	1983.4	83.7	54.9
6.	South Garo Hills	1964.9	53.9	182.5	1505.0	1741.4	88.6	16.9
7.	South West Garo Hills	732.0	0.1	54.1	373.0	427.2	58.4	45.1
8.	South West Khasi Hills	1320.0	62.9	318.1	682.0	1063.0	80.5	106.7
9.	West Garo Hills	2697.9	19.9	153.3	1534.0	1707.2	63.3	407.2
10.	West Jaintia Hills	1772.6	19.7	140.8	1291.0	1451.5	81.9	57.1
11.	West Khasi Hills	3931.3	34.9	699.9	2205.0	2939.8	74.8	388.9
Total		22429.0	515.4	3133.8	13588.0	17237.2		1417.2

(Source: GIS Lab MBDA 2017; GA-Geographical area; VDF-Very Dense Forest; MDF-Moderately Dense Forest; OP-Open Forest)

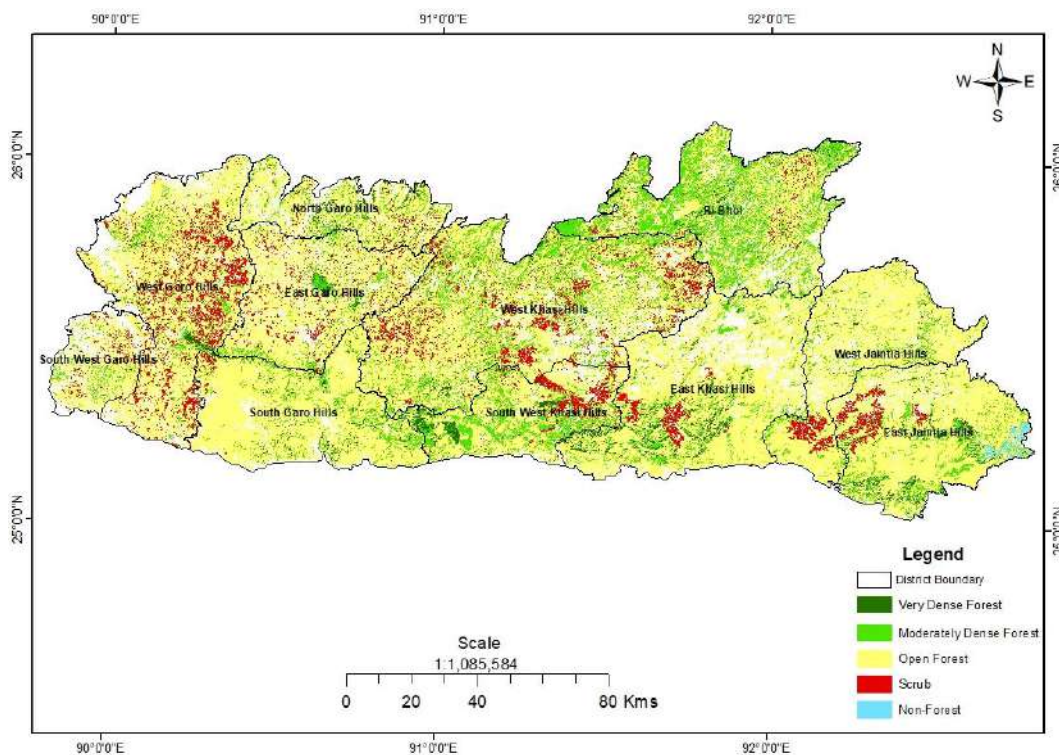


Figure 2.9: Forest cover of Meghalaya (GIS Lab M. B., 2017)

Protected Areas

Protected Areas in Meghalaya have been established by acquiring land from the local communities. Thus, these PAs are surrounded by mainly community lands or some private forests. They include National Parks, Wildlife Sanctuaries, Reserved Forests, and Conservation Reserves. These PAs constitute only 6% of the geographical area of the state and yet they provide the best protection to the biodiversity of the state as no other activities are allowed inside these PAs, except NTFP extractions according to the rights of the communities. In comparison, the larger area of forest in community lands faces a much greater threat from land use conversions, extractions, construction, etc. Most of the community forests lack any legal protection, and thus PAs is the best refuge for the flora and fauna of the state (MBSAP, 2017).

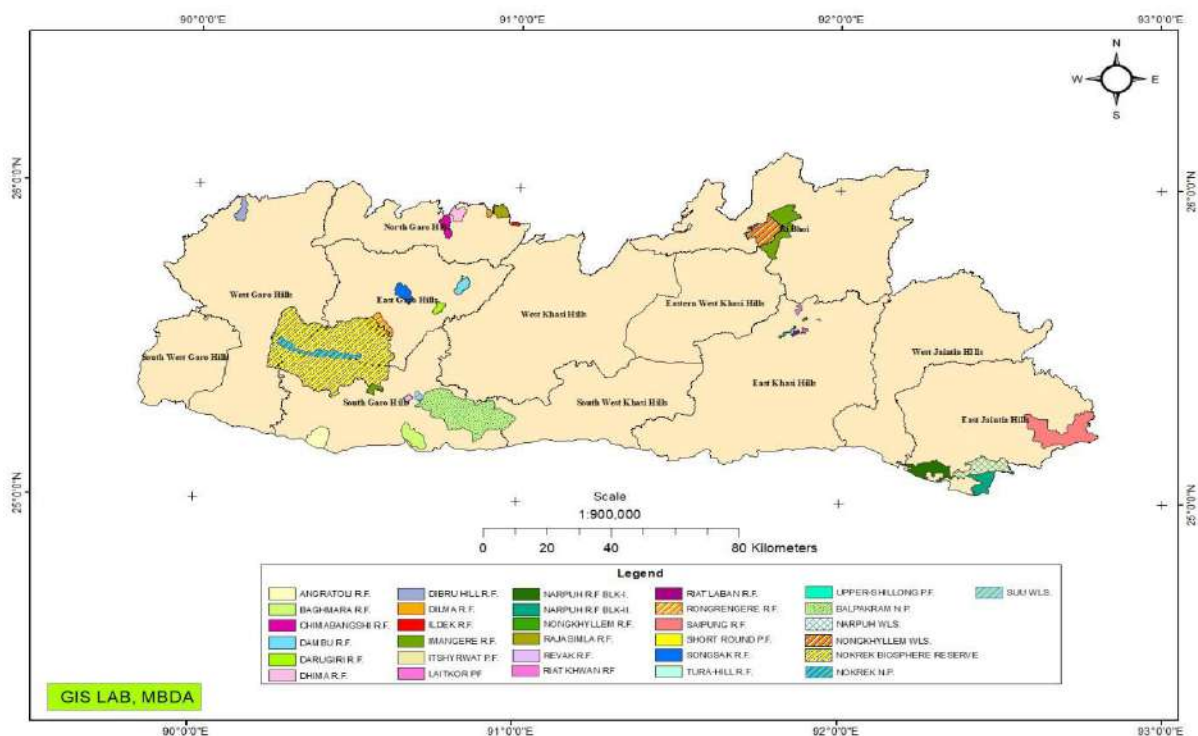


Figure 2.10: Reserve Forests & Protected areas (GIS Lab M. B., 2017)

Table 2.14: Protected Areas of Meghalaya

National Parks	District	Area In Km2
Balpakram National Park	South Garo Hills	352.00
Nokrek National Park	East Garo Hills	47.48
<i>Sub-Total</i>		<i>399.48</i>
Sanctuaries	District	Area In Km2
Nongkhylllem Wildlife Sanctuary	Ri-Bhoi, North Khasi Hills	29.00
Siju Wildlife Sanctuary	South Garo Hills	5.18
Baghmara Pitcher Plant Sanctuary	South Garo Hills	0.02
Narpuh Wildlife Sanctuary	East Jaintia Hills	59.9
<i>Sub-Total</i>		<i>94.10</i>
Total		493.58

Biodiversity

The Meghalaya is part of the Indo-Myanmar bio-geographic region which is one of the mega bio-diversity regions of the world (Rodgers & Panwar, 1988). The main bio-diversity-rich areas in the State are Balphakram National Park, Nokrek Biosphere Reserve, Nongkhylllem Wildlife Sanctuary, and Siju Wild Life Sanctuary which are conserved as protected areas (Table 11). There are 3,128 species of flowering plants including 1,237 endemic species and several valuable medicinal plant species. Some highly exploited and endangered species include *Panax pseudoginseng* and *Rauvolfia*

serpentnia. Most of the endemic and threatened species are confined to protected forests and sacred groves. Species endemic to Meghalaya include *Aeschynanthes parasiticus*, *A. superba*, *Callicarpa psilocalyx*, *Citrus latipes*, *Ilex embeloides*, *Impatiens khasiana*, *Nepenthes khasiana*, *Paramignya micrantha* and many others. Species that were common about 20 to 30 years ago have become rare (e.g., *Dipteris wallichii*, *Cyathea gigantea*, *Ilex embeloides*, *Styrax hookerii* and *Fissistigma verrucosum*) due to overexploitation, deforestation, and habitat destruction. A large number of amphibians, reptiles, fish, avian fauna, and more than 110 mammal species including elephants, wild buffalo, sambar and barking deer, red jungle fowl, hornbills, civets, etc. are found in the forests of Meghalaya. Many factors are responsible for the loss of biodiversity due to unsustainable land tenure system, poor supervision of community-owned forests, conversion of mixed forests into monoculture, mining & quarrying, urbanization, etc.

Sacred Groves

Sacred groves are forest patches, which are protected by communities based on religious beliefs, and have a significant religious connotation for the protecting community. Sacred groves are considered one of the most species-rich areas for plants, birds, and mammals. In Meghalaya, sacred groves are not only rich depositories of biodiversity but also hold a special cultural significance. The information on the floristic richness of the sacred groves of Meghalaya revealed that at least 514 species representing 340 genera and 131 families are present in these sacred forests. Many endemic, rare, endangered, and threatened species of the state are found in the sacred groves. The sacred grove biodiversity compares favourably with that of the core area of some of the biosphere reserves in this region, which are being managed by the state forest department. Considering the significance of sacred groves in maintaining ecological balance, the State has initiated a systematic inventory of sacred groves located across the State. In this pursuit, so far, 133 sacred groves have been mapped through a geographic information system spread over the State in different districts (GoM, 2016). Sacred groves provide the provisions of ecosystem services in the form of carbon sequestration, soil erosion control, water quality, and underground water balance, maintaining hydrological cycle and overall ecosystem balance.

Forest & Biodiversity: Concerns

Forests & Biodiversity are intricately linked to climate change, both as a cause and a solution. Climate change significantly has an impact on the health, distribution, and composition of forests. There is increasing evidence that forests are under climatic stress and vulnerability. In addition to an increase in vulnerability due to climatic factors, several challenges are having either direct or indirect impacts on the forest and biodiversity in Meghalaya. The health of the forest is a direct reflection of its sustainable use. Biotic pressure coupled with development pressure is continuously affecting the quality of forests in the state. Key issues of state forests are highlighted as follows:

Table 2.15: Key concern of Forest & Biodiversity

Sl. No.	Key Concern	
1.	Biotic Pressure - Overexploitation of	One of the direct and major threats to biodiversity and ecosystem services in Meghalaya is the over-exploitation of forest resources. As most of the people

	Forest Products	<i>living in and around forests are primarily dependent on forest products, there is excessive extraction of fuel wood and Non-Timber Forest Products (NTFP) from the protected areas, community forests, and village forests. Increased dependence on the forest is leading to unsustainable use & over-exploitation of forest resources</i>
2.	Habitat loss & Fragmentation	<i>This is one of the major threats to the forest and the biodiversity in the state. Forest loss and degradation are mainly caused by the clearing of forests for mining & quarrying, over-extraction of timber & firewood, agricultural expansion, and other unsustainable land use conversion. The pressure for economic development exerts enormous pressure on natural resources. The natural forest in the State is increasingly getting fragmented into smaller patches. The recent increase in Jhum, illegal felling, logging, and other activities have increased forest fragmentation and loss of old forests >30 years old (MBSAP, 2017)</i>
3.	Forest fire	<i>The forest fire is one of the most important emerging threats to the forests of Meghalaya. The incidences of forest fire may increase with the rise in temperature in the current and future climate scenarios. Agricultural land and dense bamboo vegetation were more vulnerable to forest fires, whereas, evergreen forests, scrub, and open areas had a low vulnerability to forest fires. Frequent forest fires eliminate fire-sensitive species and affect forest regeneration, soil, and wildlife. In Meghalaya, 44.25 % of total forest cover belongs to highly to extremely fire-prone forest fire prone classes (ISFR, 2019)</i>
4.	Forest Degradation due to distortion in Jhum Cultivation	<i>Meghalaya, over 7,000 sq. Km is reported to be still under Jhum. The Jhum cycle used to be longer than 15 years, which enabled the regeneration of forests before the same land was cultivated again. However, in the recent past, due to an increase in population, and social and other changes, the Jhum cycle has reduced to as little as two to three years not allowing the soil to regenerate and restore its productivity which has further resulted in continuous encroachment of the forest resources</i>
5.	Forest Degradation due to Mining	<i>Mining is the major cause of land and forest degradation. With new mining areas being discovered, the land use of the area changes drastically. The mining in many parts of the State has resulted in a large number of 'rat-hole' mines and quarries for coal and limestone. Large areas of forests are also used as temporary dump sites for coal and limestone. Even though a ban on 'rat-hole' mining in 2014 has abated further mining activities, the landscape remains scarred and may take decades to recover</i>
6.	Land ownership system	<i>Meghalaya is accorded special status under the 6th schedule that offers a distinct land ownership system. The majority of the forests in the State are owned by local communities and managed by traditional institutions, this becomes a hurdle in decision making and planning for the sector which depends on the willingness of the communities</i>

Forest & Biodiversity: Programs & Policies

I. Programs/Schemes

a) Centrally Sponsored programs/schemes

- 1) *National Mission for Green India*
- 2) *Compensatory Afforestation Fund Management and Planning Authority*

- 3) *National Afforestation Programs (NAP)*
- 4) *National Medicinal Plants Board (NMPB)*
- 5) *National AYUSH Mission*

b) State Sponsored programs/scheme

- 1) *Meghalaya Aroma Mission, 2012*

2.5.4. Mining

Mining: Key Facts

Meghalaya is rich in minerals with major deposits of coal, limestone, and kaolin. Other minerals such as uranium, sillimanite, bauxite, glass-sand, feldspar, quartz, granite, gold, rock phosphate, and gypsum are also found in small deposits. Minerals in Meghalaya are distributed all through the State however the southern part is relatively richer in coal and limestone.

Table 2.16: Estimated Reserves of Minerals in Meghalaya

Mineral	Reserves (in Million Tonnes)	Mineral	Reserves (in Million Tonnes)
Coal	576.48	Quartz	0.5
Limestone	15100	Feldspar	0.127
Kaolin	5.24	Iron	3.60 (approx)
Clay	97	Granite	50.0 *(million m3)
Sillimanite	0.045	Bauxite	1.45
Glass Sand	3.0	Rock Phosphate	0.015
Uranium	Atomic Minerals Directorate, Govt of India, has established a reserve of 9.22 million tons, higher grade 0.104% U2O3 at Domiasiat, West Khasi Hills District		

Meghalaya has an estimated coal reserve of 576.48 million tonnes (MT) which spreads over an area of 213.9 sq. km (approximately 1 % of the total geographical area of the State). The coal deposits are found in almost every district of the State. Garo Hills region has the maximum coal reserve of 390 MT, followed by West Khasi Hills (98 MT), Jaintia Hills (39 MT), and East Khasi Hills (31MT) (State of Environment Report, 2005; Coal Directory of India, 2014-15). On the other hand, the State has widely occurred limestone reserves that support cement factories in the State. Large deposits of high-quality limestone in the State are located on the southern border.

Mining in Meghalaya is mostly practiced in an unscientific manner with very little or no consideration for environmental protection and social responsibility. The absence of post-mining treatments and restoration of degraded ecosystems negatively affects the ecological integrity of the mining areas with long-term environmental and social implications.

Extraction of coal in Meghalaya is mainly done by primitive mining method commonly known as 'rat-hole' mining. This method involves land clearing and removal of the vegetation cover, followed by digging of the pits ranging from 5 to 100 m² vertically into the ground to access the coal seam.

The horizontal tunnels are made into the seam for the extraction of coal, which is brought into the pit by using a conical basket or a wheelbarrow. The coal is taken out of the pit and dumped in a nearby un-mined area, from where it is carried to the larger dumping places near highways for its trade and transportation. The entire process of mining is done manually employing small implements. Most of the coal mining activities are small-scale ventures controlled by individuals who own the land. Sometimes extraction of coal is done by making a hole at the side of the hill.

Owing to the unique land holding and property rights system prevailing in Meghalaya, the state government has a minimal role in the allocation and acquisition of land for mining purposes. The mine owners have unlimited access to the extraction of minerals without any regulation. Under the prevailing situation, rampant unregulated mining of coal, in particular, is going on and it has adversely affected the environment, biodiversity, natural resources, traditional livelihood, and human health. However, recently the Honourable Supreme court of India had directed that coal mining can only be done in Meghalaya following all relevant regulations applicable in the mining sector of the country. Thus, mining of coal in the state, henceforth shall be regulated under The Mines Act 1952, Mines & Minerals (Developments Regulation) Act 1957, Mineral Concessions Rules, 1960, Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986, etc.

Table 2.17: Places of Coal mining/occurrence of coal in three hill regions of Meghalaya

Hill Regions	Places Of Coal Occurrence
Khasi Hills	Cherrapunjee, Goalbari, Jarain, Jathang, Kushang, Laitduh, Laitryngew, Langkyrdem, Langrin Borsora, Lumbidon, Mawbehllarkar, Mawlong Shella, Mawmluh, Mawsynram, Moisingi, Mongokhorkhonjoy, Nongmaharu, Nongplu Nongjion, Rangsokham, Sohling, Um Bytit, Um Mawblei, Um Tongkut Wah Rangah, Wahlong
Jaintia Hills	Bapung, Iooksi, Jarain, Khliehriat, Lakadong, Lamare, Musiang, Pamsaru, Pamsaru, Sutnga, Tkhentalang, Umlatdoh.
Garo Hills	Agalghithim, Asilgaon Hill, Balpakram, Balpakram -Pendongru, Dapsigarogithim, Dapsikhosgiri, Dogring, Holwangbaljong, Jangkhre, Kylas Hill, Mermelsaram, Nabru, Nongalbibra, Pengdengrew, Rengotim, Rongrenggirri, Rongrenggre, Siju, Singrimari, West Darrangir

Source: Meghalaya Basin Management Agency, 2019

Mining has both positive and negative implications. On one hand, it supports the economy of the State as well as the livelihood of the local people while, on the other, it poses numerous environmental challenges in the form of GHG emissions, forest degradation, water, and air pollution, etc. At the same time, the mining sector itself is under varied climate change-induced threats. The mining of different minerals may have a different level of vulnerability based on several factors including location, type of mining, ecosystem resilience, and mine site adaptive capacity.

Table 2.18: Key Concerns of Mining

Sl. No.	Key Concern	
1.	Emission of greenhouse gases (GHGs)	Mining activity is a big source of global GHG emissions. Specific to coal mining, methane emissions take place during the extraction process (fugitive emissions). Coal mining results in fugitive emissions in the form of CO ₂ and CH ₄ . Methane (CH ₄) is the major GHG emitted from Coal mining and handling. Specific to mining activity in Meghalaya, emissions from mining are considered for calculating the carbon footprint of the sector, and coal mining results in fugitive emissions estimated to be 104133.53

		<i>tonnes of CO₂ equivalent (Carbon Footprint Study, GoM, 2017)</i>
2.	<i>Environmental Pollution and ecosystem degradation</i>	<i>Mining activity pollutes the air and water environments. Pollution especially from coal mining poses a huge threat to the ecosystems of the surrounding area. The topsoil in mining areas gets polluted due to the disposal of mine spoils and discharge of contaminated water and acid mine drainage (AMD) from mines, overburden, and coal storage sites. The mining activities along with the transportation of minerals increases suspended particulate matter (SPM) in the air and deteriorate the air quality. The spoils from these mines wash away to nearby water bodies causing siltation and pollution which further affects the health of aquatic ecology and communities dependent on them. Mining activities pollute the surface as well as the underground water. The environment particularly surface and groundwater bodies has been adversely affected by the unscientific method of coal mining coupled with limestone quarry undertaken by cement factories. The main source of this pollution in the mining area is acid mine drainage (AMD) originating from mines and spoils, and the leaching of metals from soil and rocks. The Sulphur present in the coal may change the pH level of water making the water unfit for consumption and irrigation</i>
3.	<i>Forest and landscape degradation</i>	<i>Mining activities cause a significant change in land use and land cover due to deforestation, forest fragmentation, encroachment of agricultural land, dumping of mine spoils, etc., resulting in landscape degradation and deterioration of habitat quality. In mine-affected areas the restoration process takes a comparatively longer period because of the low microbial activity, declined soil productivity, etc., this leads to slow regeneration of natural vegetation</i>
4.	<i>Effect on agricultural land and production</i>	<i>The unscientific mining practice generates a huge quantity of mine spoil in the form of gravels, rocks, sand, soil, etc., which are dumped unscientifically adjacent to mine pits and surrounding areas changing the original landscape of the area. The dumping of spoil leads to severe soil degradation. Acidity and contamination of soil with sand, coal particles, and gravels are the most serious problems leading to degradation of agricultural land and decline in crop productivity. The agricultural land is also getting degraded due to caving in and subsidence of coal mines</i>
5.	<i>Unscientific mining practices</i>	<i>Unscientific mining of minerals poses a serious threat to the environment, resulting in the reduction of forest cover and loss of biodiversity, soil erosion, and pollution of air, water, and land. The primitive and unscientific “rat-hole” method of coal mining adopted by private operators and related activities have caused environmental degradation in all three Hills regions of the state. The impact is more severe in the areas where the maximum coal mining activities take place in the state</i>
6.	<i>Risk of flooding, land subsidence, landslides, and earthquake</i>	<i>The rat hole mining in the State is unscientific and unsafe. The rat hole mining is more exposed to the risk of natural disasters such as floods, land subsidence, landslide, earthquakes, etc. With the climate change, the intensity, and the frequency of the extreme rainfall events, the mine areas especially the rat hole mine sites are at a higher risk of climate-induced hazards. This may cause huge financial loss as well as increase the risk to the miners’ safety</i>

Mining: Programs & Policies

I. Programs/Schemes

1) Centrally Sponsored programs/schemes

2) State Sponsored programs/schemes

II. Policies

1) Meghalaya Mineral Policy, 2010

2.5.5. Energy

Energy: Key Facts

The energy sector is a critical infrastructure element for the growth of an economy. The availability of reliable, quality and affordable power is vital for rapid growth in agriculture, and industry, and the overall economic development of a state. For this, an efficient, resilient and financially healthy power sector is an essential requirement for the growth of a state and the economic empowerment of the common man. At present, Meghalaya is having only hydro power generation. During non-monsoon period, availability of power becomes low and even the restricted load demand of the State has to be met through import of power from the NE grid. This is mainly due to the new liberalized industrial policy of Meghalaya that has triggered an unprecedented load growth in the industrial sector of Meghalaya, coupled with identical growth in other sectors due to accelerated power development and reform process.

Energy in the State of Meghalaya is primarily generated by the State-owned Generation Corporation viz. Meghalaya Power Generation Corporation Ltd. (MePGCL), and the power requirement is met from the State's hydro generation and the allocated power share from Central Generating Stations. There are 9 (nine) existing hydropower stations (Table 2.19) with a total Installed Capacity of 367.50 MW (Meghalaya Power Policy, 2024).

Table 2.19: Details of Existing Power Plants of MePGCL

Name of Station	Capacity (MW)	Year of Commercial Operation	Design Energy (MU)
Umiam Stage I	36.00	1965	116.00
Umiam Stage II	20.00	1970	46.00
Umiam Stage III	60.00	1979	139.00
Umiam Stage IV	60.00	1992	207.00
Sonapani Mini Hydel	1.50	2009	5.50
ML HEP	126.00	2013	486.00
New Umtru HEP	40.00	2017	235.00
Lakroh MHEP	1.50	2019	11.00
Ganol SHEP	22.50	2023	67.00
Total	367.50		

Source: Meghalaya Power Policy, 2024

Apart from the state-owned generation capacity, Meghalaya has allocation of power from the Central generating stations of NHPC, NTPC, NEEPCO and also from OTPC. The total share of allocations from the generating stations of CGS is 377.51 MW out of which the share of 49.41 MW in the Subansiri Project of NHPC is expected to be come in 2024-25, which is the likely year of commissioning of the project. The Peak demand of the state in 2023-24 has been 404 MW. 2.21. It can be observed from the figure below (Figure 2.11) that the peak demand for the State has been between 350 to 400 MW in the past years.

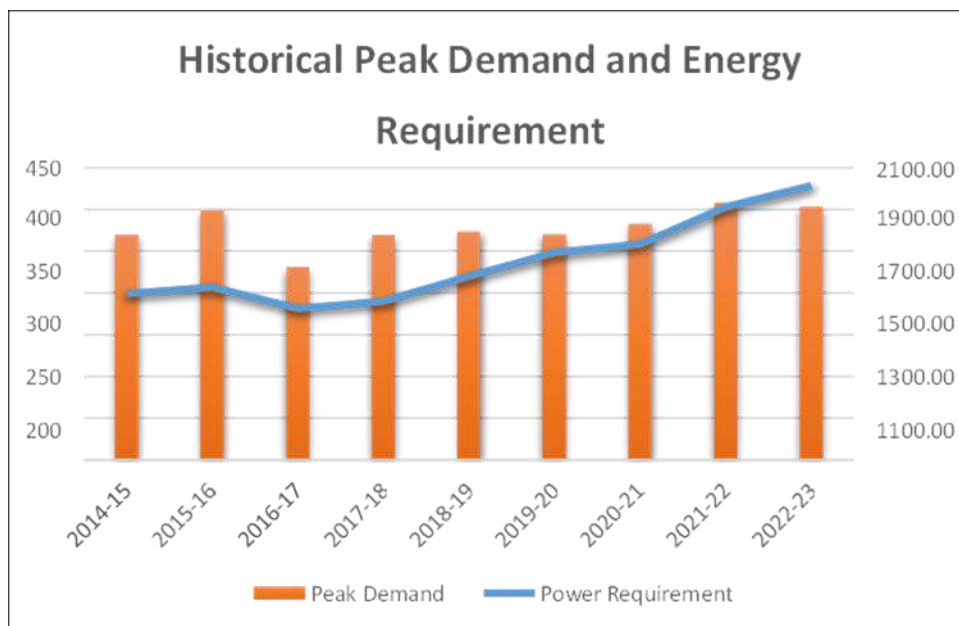


Figure 2.11: Historical Peak Demand and Energy Requirement

Based on the past trends, the demand projections have been done for the state till FY 2029-30 using the statistical methodologies such as regression analysis and least square method. The projected demand for the state is tabulated below (Table 2.20):

Table 2.20: Projected Energy Demand given Business-as-usual Scenario in Meghalaya

Sl. No.	FY	Power Requirement (MU)	Peak Requirement (MW)	Electricity Demands by EVs (MU)
1	2024-25	1795.21	422.83	9.00
2	2025-26	1917.54	440.17	9.45
3	2026-27	1743.85	390.14	9.92
4	2027-28	1858.68	402.94	10.42
5	2028-29	1981.01	416.20	10.94
6	2029-30	2111.43	429.96	11.49

Source: Meghalaya Power Policy, 2024

With the changing power scenario, where the State is facing power shortages during the lean season and that supply from outside sources cannot be guaranteed due to regulatory issues, grid constraints, deficient power, etc. The State has endeavoured to fill the energy demand and supply gap through a systematic capacity addition program with the addition of new hydroelectric projects moving toward achieving the hydropower potentials in the State. However, the State has a long way to go achieve its full hydropower potential as the total Hydro Power potential is about 3000 MW, out of which only 367.50 MW has been tapped so far. The State needs more small and multipurpose hydropower projects to add to its capacity and shorten the demand and supply gaps.

The State with its considerable potential, the State has surplus power during the monsoons and is expected to have surplus power in the future if the power potential is harnessed, it can be a hub for exporting the power to the neighbouring states as well as the country. With its considerable potential, the State has a great prospect to enter the power market in Bangladesh as it has a considerable requirement of power for which there are inadequate internal sources to meet the demand.

In addition, the State has a fair scope for tapping solar and wind energy too. The Government established Meghalaya New and Renewable Energy Development Agency (MNREDA), registered under the Meghalaya Societies Registration Act 12 of 1983, with an aim to demonstrate, experiment, formulate, promote, and implement projects related to New and Renewables Energy, such as Solar-Energy, Wind Energy, Biogas, Biomass, Micro/ Mini/ small Hydro Power, Watermill, etc. With offices spread across districts, the Agency works towards strengthening the Renewable Energy sector. Over the years, MNREDA has supported various programmes, schemes and projects with the objective of supporting sustainable economic growth, improving standard of living, secure health care facilities and generating income opportunities. Some of the schemes related to the renewable energy resources steered by the Agency are listed in the table below (Table 2.21):

Table 2.21: Major schemes and projects that are being implemented by the MNREDA in the state

Schemes /Programs	Source of Funding	Outcome achieved (2021-22)
Street lighting system	State	1500 nos.
PM-KUSUM Solar Water Pumping System	Central	85 kW
SPV Power plants	State	2504 kW
Meghalaya Power Sector Improvement Project	Asian Development Bank (ADB) Grand	Survey & Prebid completed

According to the MNRE Annual Report, the combined potential for Renewable Energy, that is inclusive of solar, biomass and hydro power, in Meghalaya is estimated to be around 6,103 MW, while only 0.8% of it has been harnessed (as of December, 2022). Thus, a huge scope for development and prioritisation of the sector is essential to realise the maximum benefits. The overall RE sectoral potential vis-à-vis installed capacity for the state of Meghalaya has been summarized in the table below.

Table 2.22: The overall RE sectoral potential vis-à-vis installed capacity for the state of Meghalaya

	Solar Power	Small hydro power	Biomass power	Total RE
Potential (MW)	5860	230	13	6103
Installed capacity (MW)	4	33	14	50
% of the potential that is harnessed	0.1%	14.1 %	106.2 %	0.8%

It is further emphasized that the state of Meghalaya is committed to contribute rigorously towards the Government of India targets of net zero. In order to fulfill its commitment, Meghalaya shall make all efforts to achieve the Renewable Purchase Obligations (RPO) targets set by Hon'ble Ministry of Power as tabulated below (Table 2.23):

Table 2.23: Renewable Purchase Obligations for Meghalaya till 2030

Sl. No.	Year	Wind RE	Hydro RE	DRE*	Other RE	Total
1	2024-25	0.67%	0.38%	0.75%	27.35%	29.15%
2	2025-26	1.45%	1.22%	1.05%	28.24%	31.96%
3	2026-27	1.97%	1.34%	1.35%	29.94%	34.60%
4	2027-28	2.45%	1.42%	1.65%	31.64%	37.16%
5	2028-29	2.95%	1.42%	1.95%	33.10%	39.42%
6	2029-30	3.48%	1.33%	2.25%	34.02%	41.08%

DRE*Distributed Renewable Energy

Table 2.24: Key Concerns of Energy

Sl. No.	Key Concern	
1.	Energy demand and supply gaps	<i>Meghalaya has a massive electricity deficit and is unable to meet demand. A power surplus state a few decades ago, it faces a severe power crisis with daily load-shedding for at least 1 hour during daytime and 3–4 hours at night, especially in the hilly areas. Despite having surplus availability, the state must regularly resort to load-shedding because its serious financial problems and resultant non-payment of dues prevent it from procuring allocated power from central generating stations on time</i>
2.	Aggregate technical and commercial (AT&C) loss	<i>The high AT&C losses, aged distribution assets, and agricultural consumers are the major reasons for the below-cost revenue recovery that has led to the poor financial state of the distribution utility. The aggregate technical and commercial (AT&C) losses of its distribution network are very high (up to 81% in the hilly areas) because many of the remote hilly areas are connected through long low-tension lines, resulting in low voltages and poor quality of power at the consumer end. (ADB, 2020). The average aggregate technical and commercial (AT&C) losses of the distribution network in 2017 were 32.65%.⁷ AT&C losses attributable to three of the six circles of the Meghalaya distribution network (Central, East Garo Hills, and West Garo Hills) are estimated to be more than 50%.</i>
3.	Vulnerability of power distribution network to climate risk	<i>Climate variability and the increasing frequency of extreme climate events have the potential to affect the power distribution network, especially in the hilly and high rainfall regions of the State. Distribution infrastructure can suffer from increased risks of flooding, storm, and landslides. High temperature may also affect the functioning and limits the power rating of overhead lines, underground cables, and transformers. The networks, including transformer and switching stations, can be affected by heavy rainfall, earthquake, cyclones, and moisture. Strong winds (over 100 km/hour) can damage electrical wires and other distribution components, mostly to the distribution systems through tree damage, with transmission much less affected</i>
4.	Lack of climate	<i>The State of Meghalaya is a multi-hazard state and is prone to disasters like earthquakes, floods, cyclonic storms, etc. Meghalaya state falls under Zone V of the seismicity map of India. Flash floods, fire, landslides, cyclonic storms and coal mine</i>

	<i>resilient power infrastructure</i>	<i>collapse, and flooding are recurrent phenomena in recent years which led to the loss of many lives and extensive damage to properties in the state. Electricity distribution networks typically have a lifetime of 30 to 50 years. The existing power distribution infrastructure needs to upgrade with climate-resilient infrastructure to optimize the current power generation and load profiles. Moreover, supply and demand must be balanced and the systems should not pose a threat to health, safety, or the environment (ADB, 2020).</i>
5.	<i>Limited potential and contribution of solar & wind-based energy</i>	<i>The power generation in the State is primarily hydro-based power projects. The climatic and topographic condition of the State limits the potential of harnessing solar and wind-based energy in the State. However, the State has initiated efforts for tapping the solar and wind power potential in the Jaintia Hills region of the State. According to the Indian Wind Atlas prepared by the National Institute of Wind Energy in collaboration with RISO DTU, Denmark, the total Wind Energy potential at the 50-meter level is estimated to be 44 MW for the State.</i>

Energy: Programs & Policies

I. Programs/Schemes

a) Centrally Sponsored programs/schemes

- 1) Ujwal DISCOM Assurance Yojana (UDAY)
- 2) Perform, Achieve & Trade (PAT)
- 3) 24X7 Power for All (PFA)
- 4) DDUGJY/RGGVY for Rural electrification
- 5) PM Kusum Solar water Pumping system

b) State Sponsored programs/schemes for Energy

- 1) Biomass Energy and Co-Generation
- 2) Energy Recovery from Urban Wastes
- 3) Solar Thermal Systems

4) Remote Village Electrification

5) Small Wind Energy and Hybrid Systems

6) Battery Operated Vehicles

7) National Biogas and Manure Management Programme

8) Recovery of Energy / Power Generation

9) Solar Water Heating System

10) Solar Street lighting

11) SPV Power plants

12) CM Solar Mission

II. Policies

1) Meghalaya Power Policy, 2007

2) Meghalaya Power Policy, 2024

2.5.6. Urban Habitat

Climate change has serious consequences on urban habitats as urbanization and unplanned growth have led to complex social, economic, and ecological challenges that the urban areas need to address, along with catering to the current demand for essential infrastructure services and resource allocation toward better urban management. With the current pace of rapid urbanization and economic growth, GHG emissions from urban areas are likely to increase as well. Therefore, cities and town development are uniquely positioned when seen through the climate lens.

On one side, cities are key contributors to climate change; on the other, they also experience the severe impact of climate change with varying degrees of risk to essential services, infrastructure, housing, livelihoods, and health. Hence, building the resilience of cities to climate change impacts

and strengthening their capacities to make more resilient from climate-related extreme events and disaster risks; at the same time, promoting a low-carbon growth towards reducing GHG emissions for achieving India's NDC is a prerequisite and an urgent challenge (NMSH, 2021).

Urban Habitat: Key facts

Over the years, the State has experienced an increasing concentration of urban population. The urban population has grown from 454,111 in 2001 to 595,450 in 2011. As per the Census 2011 out of the total population of Meghalaya, 20.07% of people lived in urban regions while 79.93% in rural areas. The State has 16 notified urban centers, comprising the Shillong Urban Agglomeration (including seven towns), *Cherrapunjee*, *Nongstoin*, *Mairang*, *Nongpoh*, *Jowai*, *Tura*, *Williamnagar*, *Resubelpara*, and *Baghmara*. The Shillong Urban Agglomeration comprises 7 (seven) towns viz. Shillong Municipality, Shillong Cantonment, and five census towns of *Mawlai*, *Nongthymmai*, *Pynthorumkbrah*, *Madanrting*, and *Nongmynsong*. The trend of concentration of urban population in the State continues in the urban agglomeration of the capital city. Shillong and Tura account for 71.93% of the total urban population (Meghalaya State Development Report, 2009).

The public health and engineering department provides the bulk of water supply in the urban areas whereas the distribution is vested either in the Department concerned or the Municipal Board as in the case of Shillong and even to the Autonomous District Council as in the case of Tura. As per Census Report, almost 71% of the households in the urban areas receive drinking water from the tap, though there are considerable inter-town variations. With the rise in population, the water demand would be a serious challenge in all the towns of the State. Major issues of drinking water include improvement in the distribution system, inequitable distribution, water resource management & treatment, and rationalization of water usage besides capacity enhancement.

There is no sewerage system in any of the urban areas in the State. The domestic wastewater, consisting of sewage and sullage, is either disposed of in individual septic tanks and soak pits or flows into the primary, secondary and natural drains and finally to the nearby rivers. Septic tank systems are used by the majority of households. A major disadvantage of these systems is the high potential for groundwater pollution.

The capital city and other district towns of the State are challenged with problems of rapid urbanization, expansion of informal settlements, inadequate infrastructure, and environmental degradation. There has been a range of consequences with the increase in the number as well as intensities of extreme events which can be directly attributed to climate change. Climate extremes such as floods and urban heat are among the most tangible consequences in urban habitats. It is expected that extreme climate events will likely increase in the future and make the urban sector more vulnerable. The state government is thus planning to mainstream climate change mitigation and adaptation in urban infrastructure development. Sustainable habitat aims at making urban areas sustainable and facilitates adaptive measures to reduce the impending climate vulnerabilities. Sustainability of habitats can be addressed through improvements in energy efficiency in buildings, urban planning, improved waste management including recycling and power generation, and modal shift in the public transport system. The Government of Meghalaya aims to address these issues

through improvements in energy efficiency in buildings, management of solid waste, and providing the infrastructure for the shift to public transport, following the National Mission.

Urban Habitat: Sectoral Concerns

The process of urbanization has created a huge gap between the demand and supply of urban services and infrastructure. The existing urban infrastructure along with the core urban public services such as water supply, sewerage systems, urban roads, and solid waste management do not suffice for the growing urban population. The Sanitation facilities in urban areas lack sewerage systems and wastewater management facilities resulting in pollution of the nearby water bodies. The present pace of urban growth has outpaced the infrastructural supply, generating a shortage in the availability of urban amenities and services. Lack of sewerage system and indiscriminate developmental activities have led to contamination of the water bodies, drains, and obstruction in the rainwater outlets. The non-existence of urban land use planning, lack of robust transport systems, the existence of multivehicle households, narrow roads, etc. posed several challenges. Also, the supply of urban infrastructure to meet the existing demand and ever-increasing demand is a huge task, which asks for better efficient management. These challenges are expected to further worsen with the advent of climate change impacts. Following are the key challenges for urban habitat:

Table 2.25: Key concerns of Urban Habitat

Sl. No.	Key Concern	
1.	Urban water supply	<i>Water availability is one of the biggest challenges faced by most of the urban population in the State. As per the 2011 Census, only 79.5% of the total urban population has access to safe drinking water. There is also a considerable variation in the inter-town water supply. With the growing population and expected variability in rainfall and temperature, the water demand would be a serious challenge in all the urban settlements. The State lacks adequate water supply infrastructure and mechanisms for water treatment, effective monitoring, water budgeting, and distribution</i>
2.	Inadequate waste management system	<i>The State faces major challenges associated with waste generation and inadequate waste collection, transport, treatment, and disposal. Solid Waste Management is managed by three different authorities for each town and village viz: (i) the Shillong Municipal Board (SMB) within the municipal area (ii) the Dorbars, outside the municipal area, and (iii) The Shillong Cantonment Board, within the cantonment area. The Meghalaya Government oversees all solid waste management in GSPA. Current systems in the State cannot cope with the volumes of waste generated by an increasingly urban population, and these impacts on the environment and public health.</i> <i>In the municipal areas collection of waste is done through primary collection from waste depots/garbage bins. However, in the non-municipal towns, the collection of garbage is not regular but managed on an ad-hoc basis and operated through the system established by the local bodies/community/NGOs. At present, Shillong is the only urban center that has a</i>

		<i>centralized waste disposal and treatment facility. Solid Waste Management facilities in two towns i.e. Tura and Nongpoh have been established through public-private partnership mode. However, operations of the existing plants are severely affected due to the absence of sanitary landfill to dispose of waste. Waste generated from urban households is normally collected and dumped in an unscientific manner at nearby dumping grounds. The absence of a proper segregation system and scientific treatment and disposal procedure leads to unhygienic conditions near the urban areas across the state</i>
3.	<i>Lack of Stormwater drainage System</i>	<i>Lack of stormwater drainage heightens the risks related to water logging and the spread of water-borne diseases during incidents of extreme rainfall. Thus, for addressing these risks, there is a need to improve the stormwater drainage infrastructure in the urban centers in the State. The drainage facilities in almost all the urban areas are either connected to open drains or no drain at all. The domestic wastewater, comprising of sewage and sullage, is either disposed into individual septic tanks and soak pits or flows into the primary, secondary and natural drains and finally to the nearby rivers.</i> <i>The State lacks an adequate drainage system posing problems of water logging and flooding in urban areas. This situation is aggravated by indiscriminate and uncontrolled developmental activities that obstruct drains and encroachments on rainwater flow paths. In addition, the lack of stormwater drainage heightens the risks related to water logging during incidents of extreme rainfall. The absence of any sewerage system in urban areas results in the release of domestic effluent into nearby rivers and streams leading to contamination of water sources. Lack of sanitation infrastructure/techniques also contributes to widespread pollution of surface and groundwater, leading to rapid environmental deterioration</i>
4.	<i>Unplanned and uncontrolled urban development</i>	<i>Most urban centers are susceptible to natural disasters as well as climate-induced hazards. Slums have emerged in several urban areas of the State. Most of them are located in low-lying and water-logged areas and are devoid of basic civic amenities and services, especially sanitation. The emergence of unplanned development may be more vulnerable to disasters such as urban floods, vector, and water-borne diseases as well as become more prone to damage in the event of fire and earthquake disasters</i>
5.	<i>Poor Urban Transport Management</i>	<i>It has been assessed that except for Shillong, the transportation facility in the other urban areas is far from satisfactory. Most of the towns are small but because of the narrow roads and increase in the number of vehicles, traffic congestion has emerged as a regular phenomenon. Further, the topographic and concentric development has aggravated the problem. The road density per 100 km² in Meghalaya is 36.66 km² which is far below the national average. The urban transport sector has been largely neglected in the State. Commuters of Shillong have already been facing severe traffic congestion hampering their smooth mobility during peak hours. With the urbanization rate; it is expected that urbanites living in towns viz. Tura, Resubelpara, Williamnagar, Baghmara, Nongstoin, Mairan, Nongpoh, Umroi, Cherrapunjee (Sobra), and Jowai will face similar urban problems such as traffic congestion, pollution, and other mobility-related problems unless</i>



	<i>robust measures are put in place.</i> <i>With the rapid increase in the number of vehicles in the State, the problem of managing transport is becoming a challenge. The lack of robust public transport systems induces fricative effects thereby hindering the development process. Moreover, an insufficient footpath network along the busy corridor of the roads also affects the smooth movement of both vehicular and pedestrian traffic. Lack of appropriate policy instruments such as the urban transport policy, urban land use policy, Formulation of Urban Parking Policy, etc. hinders/ impedes urban mobility</i>
--	--

Urban Habitat: Programs & Policies

I. Programs/Schemes

a) Centrally Sponsored programs/schemes

- 1) Minister's Special Urban Development Fund

2) State Urban Infrastructure Development Initiative Programme (S.U.I.D.I.P.)

3) Environmental Improvement of Urban Slum (EIUS)

4) North Eastern Region Capital Cities Development Investment Projects (NERCCDIP)

5) National Urban Livelihood Mission (DAY-NULM)
- 6) Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

7) Swachh Bharat Mission

8) Atal Mission For Rejuvenation and Urban Transformation (AMRUT)

9) Smart Cities Mission

10) Housing For All Mission/PMAY

2.5.7.Human Health

Climate change is already impacting health in a myriad of ways, including by leading to death and illness from increasingly frequent extreme weather events, such as heatwaves, storms, and floods, the disruption of food systems, increases in zoonosis and food, water, and vector-borne diseases, and mental health issues. Extreme weather events can result in the ideal conditions for infectious diseases, like cholera, to spread. And as global temperatures rise, diseases that were once confined to warmer regions are also expanding their range. Furthermore, climate change is undermining many of the social determinants for good health, such as livelihoods, equality, and access to health care and social support structures. These climate-sensitive health risks are disproportionately felt by the most vulnerable and disadvantaged, including women, children, ethnic minorities, poor communities, migrants or displaced persons, older populations, and those with underlying health conditions (WHO, 2021).

Human Health: Key facts

The State Department for Health and Family Welfare under the Ministry for Health and Family Welfare is responsible for maintaining and developing the health care system and guiding and supervising the Health and Family Welfare Programmes in the State. The services offered by the department are Preventive Health Care Services, Promotive Health Care Services, Routine Curative Services, Rehabilitation Services, etc. The activities of the department include the establishment and maintenance of medical institutions with necessary infrastructure, implementation of National Disease Control and Eradication Programmes, Control of communicable as well as non-communicable diseases, etc.

The district-wise distribution of these Health Care Facilities (HCFs) is presented in Table 2.26. The levels of healthcare in Meghalaya in terms of the hierarchy of highest to lowest are represented as (1) District Hospital (2) Sub district Hospital (3) Community Health Centres (4) Primary Health Centres (5) Dispensaries (6) Upper Primary Health Centres (7) Urban Health Centres (8) Sub centres

Table 2.26: Health Care Facilities in Meghalaya (in numbers)

Sl. No.	Districts	DH	SDH	CHC	PHC	St. Dispy	UPHC	UHCW	SC
1	East Garo Hill	1	0	1	8	1	0	2	33
2	East Jaintia Hills	1	0	1	6	0	0	2	36
3	East Khasi Hills	2	0	8	26	5	13	3	76
4	Eastern West Khasi Hills	1	0	1	11	0	0	1	20
5	North Garo Hills	0	0	1	11	0	0	3	50
6	Ri Bhoi	1	0	3	9	2	0	2	34
7	South Garo Hills	1	0	1	6	1	0	0	31
8	South West Garo Hills	1	0	1	9	0	0	5	27
9	South West Khasi Hills	1	0	1	4	0	0	2	24
10	West Garo Hills	2	1	6	9	3	3	3	67
11	West Jaintia Hills	2	0	3	12	1	2	2	46
12	West Khasi Hills	1	0	1	5	0	1	2	28
	Total	14	1	28	116	13	19	27	472

Source: Department of Health & Family Welfare data, 2024

The State has wide gaps in public healthcare facilities, infrastructure, and workforce. Table 2.27 shows the health infrastructure status of the State.

Table 2.27: Health infrastructure in Meghalaya

Particulars	In position	Particulars	In position
Ayush facilities in the State with Homoeopathic OPD (Regular)*	17	Total specialists at CHCs	12
Ayush facilities in the State with Ayurvedic OPD (Regular)*	12	Vaccinators**	105
ANM **	840	Pharmacist **	214
Doctor **	743	Laboratory Technicians **	179
Pediatricians at CHCs	1	Nursing Staff **	1100

Source: Department of Health & Family Welfare, Government of Meghalaya, <https://meghealth.gov.in/chc.html>

* https://meghealth.gov.in/dhs_mi/ayush_centres.pdf ** Statistical Abstract, 2023

As per the NITI Aayog Health Index, Meghalaya scored in third place among smaller states with a gap of 20 points from the leading smaller state. Meghalaya has dropped marginally on the overall health index from a score of 56.83 to 55.95 and falls in the “Not Improved” category of smaller states. Meghalaya has delivered a mixed performance with a drop in the health outcomes by 3 points from 63.4 to 60.2 from FY 15-16 to FY 17-18 and a marginal improvement in the key inputs/ processes from 38.38 to 39.8 in the same period (NITI Aayog Health Index, 2019). Meghalaya is the second worst performing state in terms of institutional deliveries in the entire north-eastern region as per NITI, GoI.

Meghalaya has brought out a State Health Policy in 2021 in alignment with the National Health Bill, 2009, National Health Policy 2017 (NHP,2017), and the National Public Health Act, 2018 (draft) which aims to ensure adequate investment in health and to increase the expenditure. The policy set out a broad framework for providing essential public health services and the power to respond to public health emergencies at the village, Block, and District levels. The Department of Health & Family Welfare formulated the Meghalaya State Action Plan for Climate Change and Human Health (2022-2027). The report identifies the following as the most prevalent climate sensitive diseases in Meghalaya:

- i. Vector-Borne diseases- Malaria, Japanese encephalitis, Dengue, Chikungunya
- ii. Water- borne and Food-borne diseases- typhoid, dysentery and others caused from micro-organisms
- iii. Emerging and re-emerging diseases- H1N1 influenza, Covid 19, Scrub typhus
- iv. Diseases related to precipitation variability based extreme events such as floods, heavy rainfall, landslides; temperature variability based extreme events like heatwave, cold wave, fog; drought, etc.

Climate Sensitive Diseases	Driving Factors	Regions/Districts most impacted
Malaria	• Rural and Semi-urban; • People inhabiting remote, hilly, and forested areas	• Garo hills, Jaintia Hills & Ri Bhoi • Between 2019-2022, Cases Reported = 5,237 • Between 2019-2022, Deaths Reported = 17
Acute Diarrheal Disease (ADD) and Typhoid	• Food-borne or water-borne; Caused by increased survival and abundance of micro- organisms associated with increase in temperature; such as <i>Vibrio cholera</i>, <i>E.Coli</i>, <i>Salmonella</i>, <i>Cryptosporidium</i>, and <i>Yersinia</i>.	• Maximum outbreaks reported in East Khasi Hills • In 2022, No. of ADD Outbreaks recorded = 8 • In 2022, No. of Typhoid Outbreaks recorded = 3 • In 2022, No. of Cases of ADD & Typhoid = 25,786
Landslides & Floods	• Areas with intense precipitation, unstable slopes or poor vegetative cover; • Slopes of Jhum land and mined areas.	• Incidences of Landslide and flash floods due to heavy rainfall were reported in 2022; caused death of 4 in EKHs, 3 in Baghmara & 1 in Siju.

Human Health: Sectoral concerns

Climate changes are likely to change frequency, lengthen the transmission seasons, and alter the geographic range of important vector-borne diseases mainly malaria and dengue. Excessive monsoon rainfall, high humidity, and gradual warming may provide more suitable environmental conditions for breeding and survival of malaria parasites which is already a major health concern in

the State. The vulnerability of the State towards vector-borne diseases is high due to an increase in temperature that multiplies the reproduction rate of the carriers. The temperature in Meghalaya has risen by 1°C during the past decades. This increases cases of malaria, and dengue as the vector population is easily multiplied in the higher temperature. High rainfall would increase the chances of weather events like flash floods further aggravating the spread of water-borne diseases, especially in flood-prone areas.

Table 2.28: Key concerns of Human Health

Sl. No.	Key Concern	
1.	<i>The gap in Manpower & Infrastructure</i>	<i>The state is experiencing persistent gaps in manpower and infrastructure, especially at the secondary and tertiary health care levels, and poor referral services. Various health institutions (Government and private) do not have appropriate manpower, sufficient drugs, diagnostic and therapeutic services. Further, being a hilly state and difficult terrain, there remains the challenge of poor connectivity, transport facilities, and communication for the remote and far-flung villages. Besides, the scarcity of health facilities coupled with a lack of water supply and proper sanitation arrangements, the challenge becomes even larger.</i> <i>Lack of Health information system</i> <i>The above issues are further accentuated by the lack of health information systems leading to poor supervision and performance management systems. The state needs to strengthen the other evolving health areas including quality assurance systems, biomedical waste management, health insurance, and emergency services</i>
2.	<i>Climate-induced health risks</i>	<i>Not everyone is equally at risk. Important considerations include age, economic resources, and location. The impacts of climate change on health are unevenly distributed, both geographically and socially. How severely individuals are affected by climate change depends on local environmental conditions, such as population density and the availability of food and water, and their socio-economic circumstances, including their financial resources, health status, access to basic services, gender, and age. Because already vulnerable populations are more susceptible to the effects of climate change and have limited capacity to adapt to climate-related stress and changes, climate change exacerbates existing socio-economic and health-related challenges</i>
3.	<i>Lack of Health Centred Planning (Climate change & Lessons from Covid Pandemic)</i>	<i>Considering the impact on human health of these increasingly common extreme environmental events and conditions, the health care system is finally beginning to feel a broad sense of urgency. As the State has identified human health as one of the priority sectors in the Action Plan on Climate Change, the action plan is strategized to reduce the exposure of human health to the impacts of climate change, combat the incidence of diseases, and promote sustainable development. It is worth mentioning that the fight against COVID-19 is ongoing and will require plenty of effort and coordination through international, national, and regional initiatives. It is clear from the global and local evidence that the pandemic outbreak will have a lasting impact</i>

on healthcare investments and delivery models for many years to come. However, the healthcare system which is already having many challenges needs extra efforts and investments for strengthening the whole health - care set up ensuring better preparedness to cope with the ongoing Covid pandemic and providing post-pandemic general health care services

Human Health: Programs & Policies

I. Programs/Schemes

a) Centrally Sponsored programs/schemes

- 1) Reproductive and Child Health Programme (RCH-II)
- 2) Universal Immunisation Programme (UIP)
- 3) National Disease Control Programme (NDCP)
- 4) Revised National Tuberculosis Control Programme (RNTCP)
- 5) National Vector Borne Diseases Control Programme (NVBDCP)
- 6) Integrated Disease Surveillance Programme (IDSP)
- 7) National Programme for Control of Blindness (NPCB)

8) National Leprosy Eradication Programme (NLEP)

9) National Iodine Deficiency Disorder Control Programme (NIDDCP)

10) National Malaria Eradication Programme (NMEP)

11) National Health Mission (NHM), Meghalaya

12) Megha Health Insurance Scheme (MHIS)

b) State Sponsored programs/scheme

- 1) Megha Health Insurance Scheme (MHIS)

c) Policies

- 1) Meghalaya Health Policy, 2021

2.5.8. Tourism

Meghalaya, with its natural beauty, offers a unique opportunity for the development of the tourism sector. The tourism sector can create new opportunities for the development of an entrepreneurial society and also jobs at all skill levels, both in urban and rural areas thus bringing benefits to the people of the state and also sustainable livelihood. The tourism sector has vast potential to contribute to the growth of the State's economy. Tourism is a largely labour-intensive industry or service, and generates employment not only across sectors, but also across the various skill levels, from the unskilled to the semi-trained, trained, highly skilled, and professionals. The sector has multiplier effects on other sectors in terms of generating employment and income for the local population. Apart from the direct employment and income effects, it has indirect expansionary effects on several other sectors and industries such as handicrafts, agriculture, food processing, construction, financial services, etc. Climate change should be considered to be one of the most important challenges currently facing the tourism industry. The tourism sector is highly vulnerable to climate change and at the same time contributes to the emission of greenhouse gases (GHG), which causes global warming. Accelerating climate action in tourism is therefore of utmost importance for the resilience of the sector. The global initiative such as the Glasgow Declaration on climate action on tourism advocates the need to accelerate climate action in tourism to cut global tourism

emissions by at least a half over the next decade and reach Net Zero emissions as soon as possible before 2050.

Tourism: Key facts

Meghalaya the “Abode of the Clouds” with its picturesque landscape of rolling hills, meandering rivers, cascading waterfalls, lush forests, diverse flora and fauna, and unique culture and tradition has great potential for the development of tourism. The State has some of the thickest surviving forests in the country and therefore constitutes one of the most important ecotourism circuits. Meghalaya has over 100 tourist spots, almost half of which are located in the East Khasi Hills district. The state also offers many adventure tourism opportunities in the form of mountaineering, rock climbing, trekking and hiking, water sports, etc. The state offers several trekking routes, some of which also offer an opportunity to encounter rare animals such as slow loris, assorted deer, and bears. Meghalaya has an estimated 500 natural limestone and sandstone caves spread over the entire state including most of the longest and deepest caves in the subcontinent. *Cherrapunji & Mawsynram* the two wettest places on the Earth are located in Meghalaya. Meghalaya is also known for its Living Root Bridges in the Khasi and Jaintia Hills region of the State. The state is also known for its sacred groves. The Mawphlang sacred forest is one of the most famous sacred forests and represents the pristine glory and wisdom of the elders of yore in preserving the ecological system. Considering these natural assets, ethnic diversity, and the societal ethos, tourism holds high potential in bringing about prosperity to the State. However, it is still at the nascent stage and has a long way to develop to its optimum potential. The State has witnessed an upward swing in tourist footfalls over the past few years as a result of Government initiatives along with increased private participation. In 2019, the tourist footfall in the State stood at about 12.7 lakhs (including 25,000 foreigners) Figure 2.12. Among the Northeastern states, this is highest after the states Assam and Sikkim. The footfalls have grown steadily over the last decade and are once again witnessing a resurgence post the COVID pandemic. It is expected that the annual tourist footfall will cross 15 lakhs by 2024.

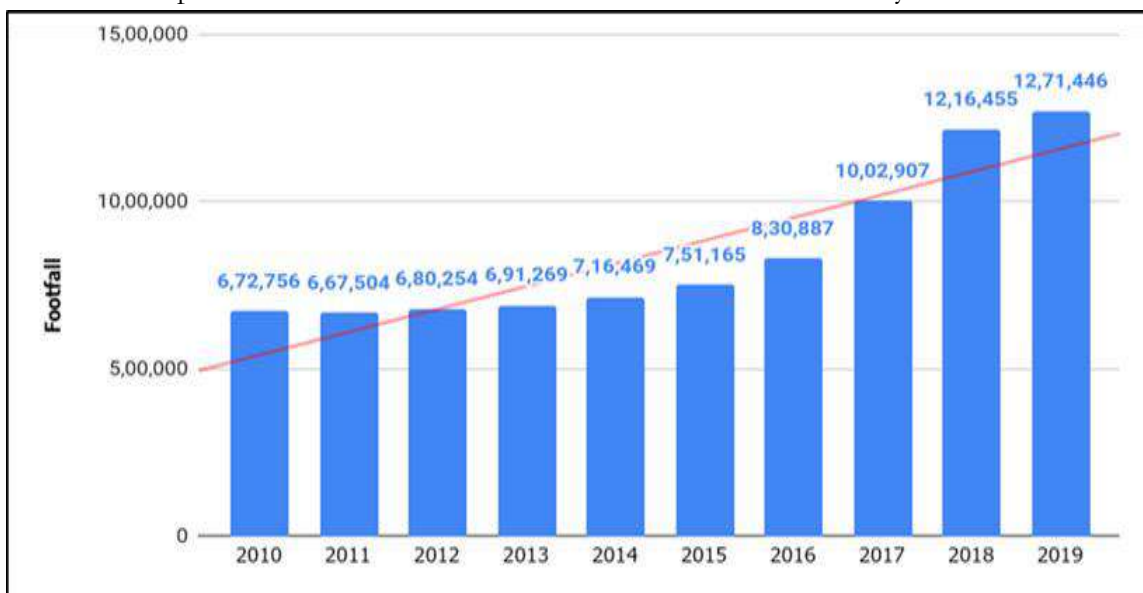


Figure 2.12: Tourist footfall in Meghalaya

Table 2.29: Trends in Gross State Domestic Product and contribution of State Tourism Sector

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
GSDP (₹ in Crore)	23235	25117	27439	30790	34389
Growth rate of GSDP (in %)	1.29	8.1	9.24	12.21	11.69
Tourism GSDP (₹ in Crore)	698	786	831	914	982
Growth rate of Tourism GSDP (in %)	10.97	12.61	5.73	9.99	7.44
Tourism Sector Contribution to Total GSDP (in %)	3.00	3.13	3.03	2.97	2.86

Source: Directorate of Economics and Statistics 2019, GoM

The tourism sector plays a prominent role in providing livelihood opportunities to almost 50,000 people in the State. According to the Meghalaya Tourism Policy 2023, the sector contributes about 4.1%¹ to the State's GSDP.

Tourism being a multi-sectoral activity can stimulate different sectors of the economy. It is evident from highly developed states and countries that tourism opens up immense opportunities for economic development, poverty alleviation, and income generation. Being labor intensive opens avenues for a host of employment opportunities. Tourism can also make a positive impact on conserving the environment, cultural enrichment, developing rural areas, and empowering women. The State is constantly endeavouring to improve tourism products and services as well as build new products to target the different categories of tourists. The Potential areas for the development of tourism products in Meghalaya include:

1) *Adventure/Sports tourism*

Meghalaya has immense potential for adventure-related activities including adventure sports like rock climbing, paragliding, zip lining, mountain cycling, canoeing, water skiing, etc. Some of the popular adventure activities being promoted in the state are hard and soft treks, rock climbing, boat race, and indigenous sports of the Khasis, Jaintias, and Garos. Caving at present is the most vibrant and visible tourism activity in the state, followed by nature walks and treks on the numerous living root bridges. While promoting adventure sports, it is important to ensure the maintenance of international standards of safety, quality, and service by strictly following guidelines issued by the Ministry of Tourism. In addition to adventure sports potential, Meghalaya has one of the oldest 18-hole golf courses in the country. The Shillong Golf Course together with very favorable climatic conditions has the potential of attracting ardent golfers from corporate houses within the country and neighboring countries. Improved air connectivity, would attract quality tourists to the State.

2) *Wildlife/Eco-tourism*

With a large area of the state covered under forest, Meghalaya has diverse wildlife. Apart from the well-known Balpakram National Park in South Garo Hills, there are the Nokrek Biosphere Reserve (West Garo Hills), the Siju Wildlife Sanctuary (South Garo Hills), and the Nongkhylllem Wildlife Sanctuary in Ri Bhoi District. Tourism facilities are to be developed around the Balpakram National Park and in other National Parks and Sanctuaries with individual specialties which shall be integrated as a tourism product.

3) *Cultural / Heritage/Pilgrimage tourism*

Meghalaya resonates with fairs and festivals which are celebrated throughout the year. The four major festivals of the three tribes of Meghalaya are the *Wangala* Dance (Garo), *Shad Suk Mynsiem*

and *Nongkrem* Dance Festival (Khasi), and the *Behdeinkhlam* Festival (Jaintia). Music is an integral part of the people of Meghalaya and it accompanies every festival and ceremony. These festivals also provide a glimpse of Meghalaya's lively collection of woven, decorative, dyed, and colorful silk and cotton, their elaborate jewellery, etc. More thrust to be given to publicity to make festivals a major attraction for tourists. There is a need to make them more attractive targeting tourists on well-defined themes and spread over all seasons. Heritage Tourism is the oldest form of travel. In Meghalaya, particularly Shillong there are several important buildings, monuments, churches, etc., associated with well-known personalities and events from the past. Meghalaya has potential for pilgrimage tourism in *Garo Hills* and *Jaintia Hills* which are already visited by many pilgrims seasonally. Promotion of pilgrimage tourism may be undertaken with basic amenities in these locations to attract more pilgrims.

4) *Homestay Rural tourism*

Village/Rural Tourism has emerged as a new concept in the tourism industry. In this context, Meghalaya is fast evolving as a responsible and sustainable tourism product with an important social objective through people's participation. Rural tourism can be effectively implemented to boost tourism in the state. Rural tourism will ensure the dispersal of tourists from the city to villages enabling them to familiarise themselves with the unique culture and heritage prevalent so that they are rejuvenated and culturally enriched.

5) *Other potential tourism products*

Apart from the above-mentioned potential tourism, there is ample scope to extend the sector to other dimensions of tourism where the State has huge potential including cuisine tourism, strawberry tourism, cherry blossom tourism, music tourism, etc.

While the growth of tourism has a positive impact on the economy, the State recognizes that unplanned growth could have adverse impacts on its fragile ecosystem. Therefore, the Government of Meghalaya has released the Meghalaya Tourism Policy, 2023 with Sustainable and Responsible Tourism as one of the main core guiding principles. Some of the key initiatives in this direction are given below.

Eco-tourism Infrastructure Development: The Government of Meghalaya aims to promote Eco-Tourism Infrastructure in the State to create comprehensive ecotourism circuits that will attract travellers from all corners of the globe while ensuring sustainable development and conservation of the state's natural resources. Through this, state-of-the-art infrastructure that complements its breathtaking landscapes, cultural heritage, and diverse flora and fauna shall be constructed. It will also contribute to reduced greenhouse gas emissions through replacement of road travels by the ropeway. The major initiatives under this are: (i) Meghalaya Eco-tourism Infrastructure Development Project (ii) Promotion of Rural Eco-Tourism Circuit/Creation of Eco Tourism Circuit (iii) Eco Tourism Development for empowering rural youth and conserving natural resources in Sohra.

Table 2.30: Key concerns of Tourism

Sl. No.	Key Concern	
1.	<i>Climate variability and Unplanned infrastructure in climate-sensitive zones</i>	<i>Climate variability and the increasing frequency of extreme climate events have the potential to affect the tourism sector in the State. Meghalaya is a hilly state and experiences heavy rainfall coupled with incidences of landslides causing damage to the tourism infrastructure as well as historic and cultural assets. The climate variability may lead to the loss of archaeological assets and other natural resources with impacts on destination attractions</i>
2.	<i>Lack of low-carbon tourism plan/policy</i>	<i>The energy sector is the second largest contributor to State's total carbon footprint. Transport as a sub-sector contributes about 62.96 percent of the total emission within the energy sector. The tourism sector is energy intensive and generates huge volumes of waste thus significantly contributing to the State's carbon footprint. Low carbon infrastructure and tourism services such as low carbon eco-friendly vehicles, and homestays need to be promoted. The State needs to encourage and devise a policy to promote low-carbon and low-waste tourism in the State</i>
3.	<i>Increase in the gap between water availability and demand</i>	<i>The State is already deficient in water availability, especially in urban areas mostly during the lean seasons. With increasing tourist inflow round the year; the State may experience more demand for water. Also, the climate change trends and projections suggest that the State is already under the influence of climate change and its implications are extending to the natural resources of the State, especially water resources. This will widen the gap between the water demand and availability thus leading to the competition over water between tourism and other sectors</i>
4.	<i>Land ownership system and lack of adequate Private Partnership</i>	<i>Tourism is an emerging industry with vast potential for expansion; however, the limited private partnership in the sector confines its scope to grow to its optimum potential. The land is the most vital requisite for the setting of the tourism unit. As per the audit report on social & Economic Sector, 2019, GoM, the tourism expansion is constrained as the land is either owned privately or by the community. It is thus imperative that the State should encourage and involve the private/community landholders for further expansion of the tourism sector</i>
5.	<i>Traffic and mobility management</i>	<i>Traffic congestion happens when demand surpasses the transportation system's capacity. Traffic congestion especially in urban centers in the State is a perpetual concern, while the increased inflow of tourists put additional pressure on existing traffic management and mobility infrastructure. The traffic problem is not only confined to the urban centers but also extends to the neighbouring areas leading to the popular tourist destinations (Eg. Dawki and Sohrah., etc.). The hilly topography further limits the scope of an alternative mode of transport</i>

Tourism: Programs & Policies

I. Programs/Schemes

a) Centrally Sponsored programs/schemes

- 1) *Tourism Development Plan for Meghalaya, 2010*
- 2) *Meghalaya Tourism Development and Investment Promotion Scheme, 2012*
- 3) *Meghalaya Eco Tourism Infrastructure Development Project (MEIDP)*
- 4) *Pilgrimage Rejuvenation and Spirituality Augmentation Drive (PRASAD)*
- 5) *Swadesh Darshan*
- 6) *Meghalaya Homestay Scheme*

b) State Sponsored programs/schemes for Tourism

c) Policies

- 1) *Meghalaya Tourism Policy, 2011*
- 2) *Meghalaya Tourism Policy, 2023*

2.5.9. Disaster Management

Climate-induced hazards such as floods, droughts, cyclonic storms, and landslides afflict many parts of the world, but their impact falls most heavily on developing countries. Climate change threatens to heighten these impacts in many areas, both by changing the frequency and intensity of extreme events and by bringing changes in mean conditions that may alter the underlying vulnerability of the population to hazards. The result in the decades to come may be an increase in the global burden of climate-related disasters. These events can threaten the sustainability of development processes and slower the progress toward poverty reduction. Holistic management of disaster risk requires action to reduce the impacts of extreme events before, during, and after they occur, including technical preventive measures and aspects of socio-economic development designed to reduce human vulnerability to hazards. Approaches toward the management of climate change impacts also have to consider the reduction of human vulnerability under changing levels of risk. A key challenge and opportunity, therefore, lies in building a bridge between current disaster risk management efforts aimed at reducing vulnerabilities to extreme events and efforts to promote climate change adaptation. There is a need to understand better the extent to which current disaster management practices reflect future adaptation needs and assess what changes may be required if such practices are to address future risks.

Meghalaya is a multi-hazard state, the unique geography characterized by undulating topography and high slope landforms significantly adds to the vulnerability of the State to climate variability hazards. With the ongoing climate variability and projected increase in precipitation extremes; the risk of hydro metrological hazards is expected to increase in the future. The occurrence of high-intensity rainfall events may lead to rainfall-driven hazards like landslides in high gradient areas of the hilly regions of the State. The mountain ecosystems are fragile to climate hazards with multifarious implications which are most hazardous to the environment and well-being of society.

Disaster Management: Key Facts

Meghalaya is prone to hydro metrological hazards and disasters such as floods, droughts, landslides, cyclonic storms, etc. Apart from the climate-driven hazards, the State is also vulnerable to forest fire, coal mine collapse, and earthquakes. The disaster risk profile of the State is highlighted below:

Table 2.31: Disaster risk profile of the State

Floods

The State with its hilly terrain does not suffer from a major problem of floods. However, due to heavy rain, flash floods may be caused resulting in riverbank erosion and some local damage. In Meghalaya, floods occur in river valleys, when the flow exceeds the capacity of the river channel, particularly at bends or meanders.

The plain areas of Meghalaya adjoining Assam are affected by floods due to the backflow of water from the River Brahmaputra during the flood season between June and October. The tributaries like Krishna, Jinari, Jingirani, Rongai, Dudhnoi, Ringgi, Gobai, Dilni, etc., cause floods in the plain areas of the State

- i. *Western part of Meghalaya like Tikrikilla, Phulbari, Rajabala, Garobadha, Hallidaygunj, Bhaitbari, Fersakandi, Magurmari, Silkata, Mahendraganj etc.*
- ii. *Plain areas near Bangladesh like Baghmara, Balat, Shella, Dawki, etc*
- iii. *Urban Flooding in localized areas of Shillong, Williamnagar, Tura, etc*
- iv. *Localized areas of West Khasi Hills, South West Khasi Hills, East Khasi Hills Jaintia Hills, and in Ri-Bhoi Districts*

Cyclones

Meghalaya is situated in the north-eastern direction of Bangladesh which is highly prone to cyclones/winds. Every year about 60% of the area is affected by cyclones in Bangladesh. The Districts of West Jaintia Hills and East Jaintia Hills may experience a wind speed of up to 55m/s. Occasional cyclones do occur in western Meghalaya their severity being more during monsoon season

The Districts close to Bangladesh like South West Garo Hills, South Garo Hills, South West Khasi Hills, and West Khasi Hills, fall in a very high cyclonic zone due to proximity to the Bay of Bengal which is a cyclone basin. In this zone wind speed can reach up to 50 m/s, which can cause large-scale damage to the infrastructure, property, and even lives.

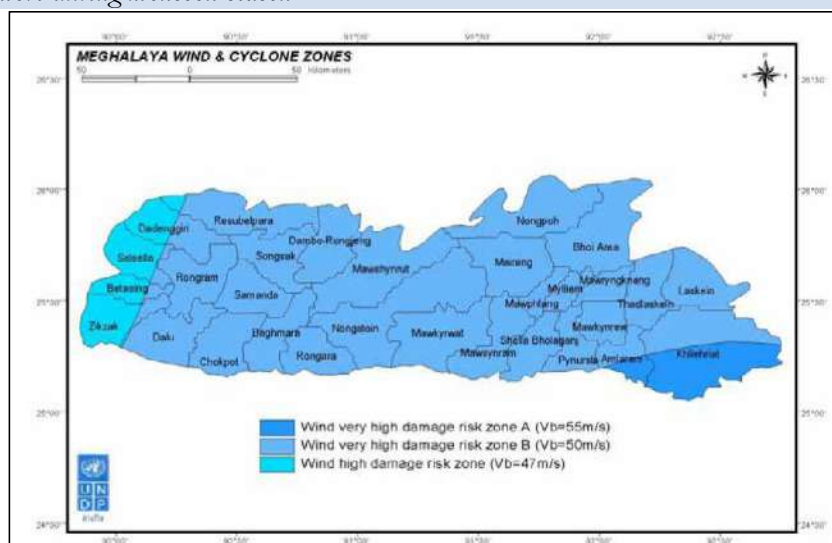


Figure 2.13: Wind and Cyclone Zones in Meghalaya (Authority S. D., Meghalaya State Disaster Management Plan Volume 1, 2016)

Landslides

Meghalaya being a hilly terrain is prone to landslides. Every year several landslides have been reported from various localities. These cause a lot of misery to the public, resulting in loss of lives and properties, and disruption of communication networks, besides causing an economic burden on society.

Landslides generally occur during heavy rains that are during June to October in Meghalaya. National Remote Sensing Centre, ISRO, Hyderabad, has carried out the landslide exposure analysis with the database corresponding to the year 2014 and 2017 during the rainy season in India (June-September). The result shows that the district of West Garo Hills, East Khasi Hills, East Garo Hills, West Khasi Hills, Ri Bhoi, South Garo Hills are rank at 31, 34, 64, 66, 67 and 90 respectively out of 147 districts in 17 states and 02 UTs of India for their exposure to landslides in terms of key socio-economic parameters (Landslides Atlas of India, 2023).

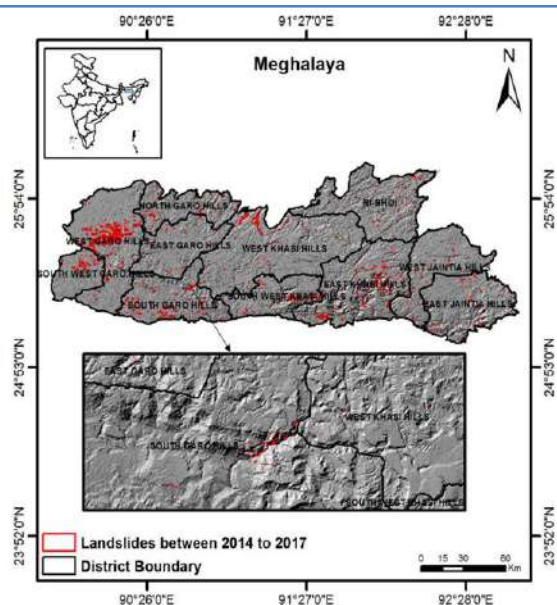


Figure 2.14: Landslides mapped using high resolution satellite data in Meghalaya, which occurred between 2014-2017 (Source: Landslides Atlas of India, National Remote Sensing Centre, ISRO, Hyderabad, 2023)

Earthquake

According to Global Seismic Hazard Assessment Program (GSHAP) data, the State of Meghalaya falls in a region of high to very high seismic hazard. As per the 2002 Bureau of Indian Standards (BIS) map, this State also falls in Zone V.

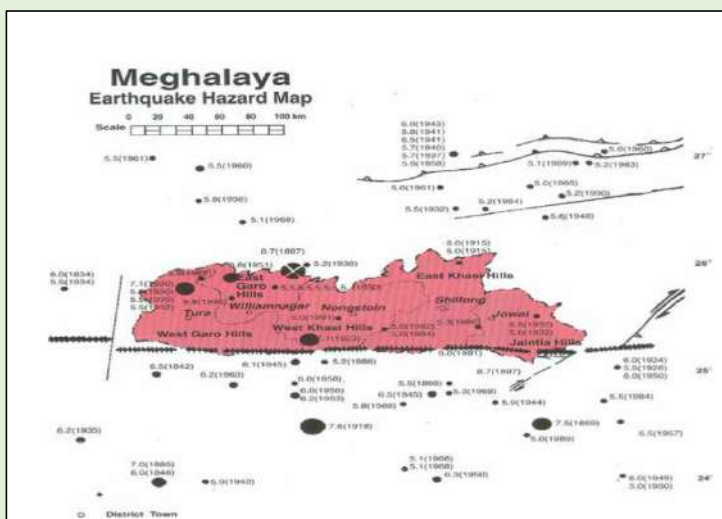


Figure 2.15: Map showing the earthquake hazard zone in Meghalaya (Authority S. D., Meghalaya State Disaster Management Plan Volume 1, 2016)

Other hazards

Fire hazards	Urban areas in Meghalaya are vulnerable to fire accidents due to various reasons, most of which have been attributed to accidents caused by erroneous human activities leading to the
---------------------	---

	<i>outbreak of fire. Most urban areas have a high density of population and narrow lanes making those localities highly vulnerable to fire incidents</i>
Lightning	<i>Lightning occurs during the monsoon months and can strike at any place</i>
Hailstorms	<i>Hailstorms generally occur in the pre and post-monsoon months. Some loss of crops' lives and properties due to lightning and hailstorms are reported in the state.</i>

Table 2.32: Key Concerns of Disaster Management

Sl. No.	Key Concern	
1.	<i>Lack of disaster risk reduction and management plan/roadmap for the climate-sensitive sector</i>	<i>Weather and climate-related risks, which potentially cause loss and damage, have increased dramatically over the past few decades. The recent climate projections indicate a significant increase in the frequency, duration, and intensity of extreme weather events which increases the risk to the climate-sensitive sectors mainly agriculture, urban habitat, water resources, etc. The sectoral disaster management plan would help in strengthening the sectoral resilience towards disaster risks. Also, it is a prerequisite to 'mainstream' the sectoral disaster management plan into the existing and future development policy and planning. At the same time, disaster mitigation, recovery procedures, and disaster risk reduction measures must be routinely integrated into the work of all sectors at all levels</i>
2.	<i>Strengthening of disaster response preparedness and climate risk management at all levels</i>	<i>Climate change and disaster risk reduction are closely linked. More extreme weather events in the future are likely to increase the number and scale of disasters. The State is equipped with the State, district, and block level mechanism for disaster risk reduction and management; however, the community and village level involvement can be strengthened through capacity building, training programs, etc. Local Disaster Risk Management Plan and Community Based Disaster Risk Management Plan, with the active participation of vulnerable communities, need to be prepared as a step towards mainstreaming risk reduction in development planning. These plans enable communities to prevent, reduce and effectively respond to stresses, shocks, and potentially disastrous events. Community participation in the development and implementation of these plans ensures ownership which contributes to their sustainability. Further, certain institutional strengthening actions such as revising preparedness plans and contingency plans for the existing hazards and new hazards which are not been experienced before (viz. Covid-19); building evacuation mechanisms and shelter facilities; developing specific preparedness plans for areas where settlements and livelihoods are under threat of permanent change; and supporting community-based preparedness initiatives. The Resilience building and early warning systems also contribute to this objective</i>
3.	<i>Disaster knowledge gap</i>	<i>Expert scientific knowledge is fast becoming an integral part of disaster risk reduction & management, and planning. State-specific Knowledge and updated information are pre-requisite for an informed and effective disaster risk reduction & management Plan. The State lacks up-to-date disaster risk mapping for floods, landslides, earthquakes, cyclones, etc. This knowledge gap may hamper the decision-making process and plan for disaster management. Also, disaster risk and management is a</i>

		<i>cross-sectoral concern with varying degrees of vulnerability. This necessitates sector-specific multi-hazard hazard, exposure, vulnerability, and risk assessments for each climate-sensitive sector</i>
4.	<i>Preparedness for unconventional disasters</i>	<i>Disasters triggered by natural, biological, and industrial hazards, and further exacerbated by climate extremes may affect the communities, ecosystems, and economies. Unconventional disasters such as the COVID-19 pandemic which were quickly accelerated from a public health emergency to a socio-economic crisis hold the potential to enhance the vulnerability of the communities and also the health of the economy. It is important to continue to focus on integration and coherence in efforts to reduce disaster risks while also strengthening the mechanism to enhance the preparedness to cope with such health disasters</i>
5.	<i>Mainstreaming the disaster risk reduction and management in development planning</i>	<i>Mainstreaming disaster risk reduction and management in development planning is essential for long-term sustainability and economic growth. Disaster risk reduction measures need to be made a formal part of development processes and budgets and should be factored into relevant sector programs and projects</i>

The table below (Table 2.33) illustrates the 11 districts of Meghalaya in order of priority based on hazards vulnerability profile, as presented in the Meghalaya State Disaster Management Plan, 2016, Volume 1

Table 2.33: List of districts in order of priority based on hazards vulnerability profile

Sl. No.	District	Hazards			
		Floods	Landslides	Cyclonic wind	Earthquake
1	East Garo Hills	Very High	Low	Very High	Very High
2	East Jaintia Hills	Low	Low	Medium	Very High
3	East Khasi Hills	Very High	Low	Very High	Very High
4	North Garo Hills	Low	Low	Very High	Very High
5	Ri Bhoi	Medium	Low	Very High	Very High
6	South Garo Hills	Very High	Low	Very High	Very High
7	South West Garo Hills	Low	Low	Low	Very High
8	South West Khasi Hills	Low	Low	Very High	Very High
9	West Garo Hills	Very High	Medium	Very High	Very High
10	West Jaintia Hills	Very High	Medium	Very High	Very High
11	West Khasi Hills	Low	Low	Very High	Very High

Source: Meghalaya State Disaster Management Plan, 2016, Vol-1.

The details of loss of lives and properties due to landslide during the last five years *i.e* from the year 2019 to 2024 as recorded by the State Disaster Management Agency in Meghalaya are as follows (Table 2.34):

Table 2.34: Details of loss of lives and properties due to landslide during the last five years

Year	Loss of Lives	Damage to Properties		
		House Damage (nos.)	Infrastructure Damage (nos.)	Crops Affected (hectare)
2019-20	2	316	65	934.7
2020-21	10	226	1	689.51
2021-22	0	36	0	5.5
2022-23	23	1155	152	1756.79
2023-24	4	28	1	9.2
Total	39	1761	219	3395.70

Disaster Management: Programs & Policies

a) Programs/Schemes Centrally Sponsored programs/schemes

- 1) National Disaster Management Plan
- 2) National Calamity Contingency Fund
- 3) Early Warning System (IMD Network)

b) State Sponsored programs/schemes

- 1) State Disaster Management Authority

- 2) Meghalaya State Disaster Management Plan, 2016

- 3) Disaster Management Plan (Civil Defence & Home guards), 2012

- 4) District Disaster Risk Management Programme

I. Policies

1. State Policy on Disaster Management, 2013, GoM

2.6. State Development issues

2.6.1. Carbon Emission Status

A greenhouse gas inventory or carbon footprint of a State is an accounting procedure for the greenhouse gases (GHGs) emitted to (or removed from) the atmosphere as a result of the state's resources and operations (in the selected baseline year). State government policymakers can make use of the GHG inventories to establish a baseline for tracking the emission trend, develop enabling policies and strategies for GHG emission mitigation, and assess the progress regularly. The GHG Emission Inventorisation for Meghalaya was carried out based on the IPCC Guidelines for National Greenhouse Gas Inventory. This includes various sources and removal sinks that fall under geographical boundaries. The carbon footprint study of Meghalaya was done in collaboration with CII Godrej-Sohrabji Green Business Centre, Hyderabad.

Table 2.35: Status of Meghalaya per capita GHGs emission

Country / State	Total Emission (million tCO ₂ eq.)	Per Capita Emission (tCO ₂ per capita)
India (2010)	1884.4	1.6
Tamil Nadu (2009)	133.0	1.6
Andhra Pradesh (2010)	150.3	1.8
Odisha (2011)	98.0	2.3
Meghalaya (2012)	3.0	0.99

Agriculture

Agricultural practices release significant amounts of methane (CH_4) and nitrous oxide (N_2O). Methane is produced largely from microbial activity in oxygen-deprived conditions, notably from fermentative digestion by ruminant livestock (enteric fermentation), through manure management practices, and paddy fields.

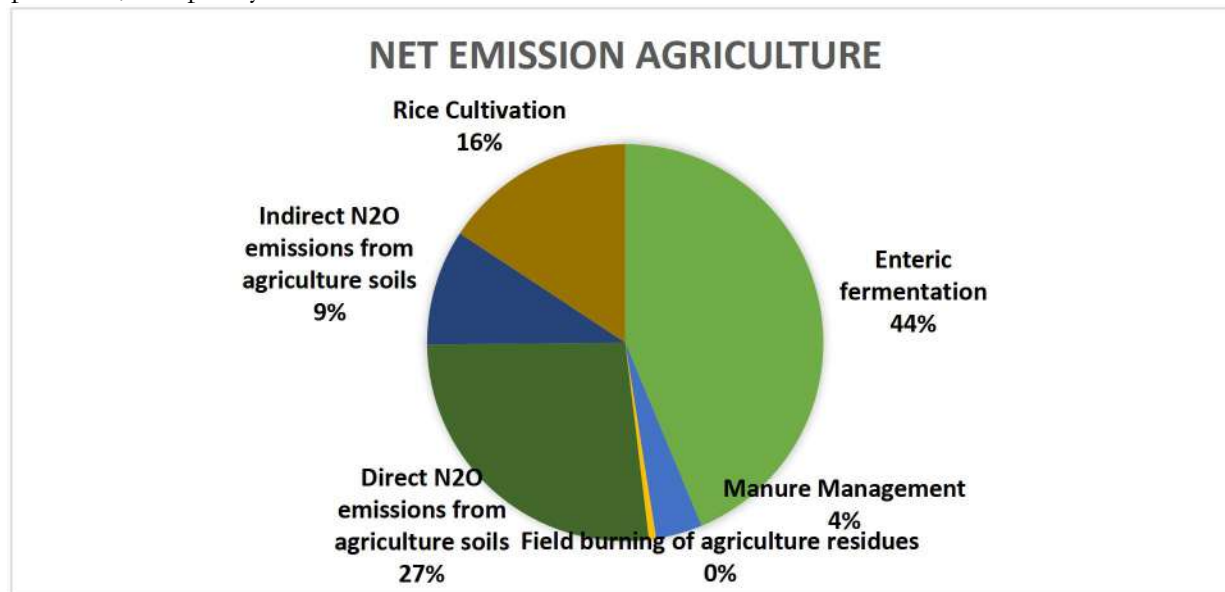


Figure 2.16: Emission distribution in the agriculture sector (CII Godrej Green Business, 2017)

N_2O is produced from the microbial transformation of nitrogen in the soils and manures, and this activity is enhanced further when available nitrogen exceeds the plant requirements. The agriculture sector emitted 1.23 million Tons of CO_2 Eq. emissions. Enteric Fermentation and Direct N_2O emissions were the largest contributors, collectively amounting to about 77% of emissions from agriculture. Emissions generated through manure management and crop residue burning formed a smaller 12%, in addition to the emissions from agriculture.

Industry

Meghalaya's industrial sector contributes to 26 percent of GSDP. The industrial sector includes cement, ferroalloys, and other miscellaneous industries (distilleries, food processing, etc.). There are 19 cement plants in Meghalaya with an installed capacity of 6 million TPA.

Emissions from the industry sector in the State amount to 3.8 million tons of CO_2 eq., of which the cement industry contributes 3.45 million Tons (92%) of CO_2 eq. during the year 2012-13. This accounts for more than 90% of Meghalaya's overall GHG emissions and includes both process and fuel emissions.

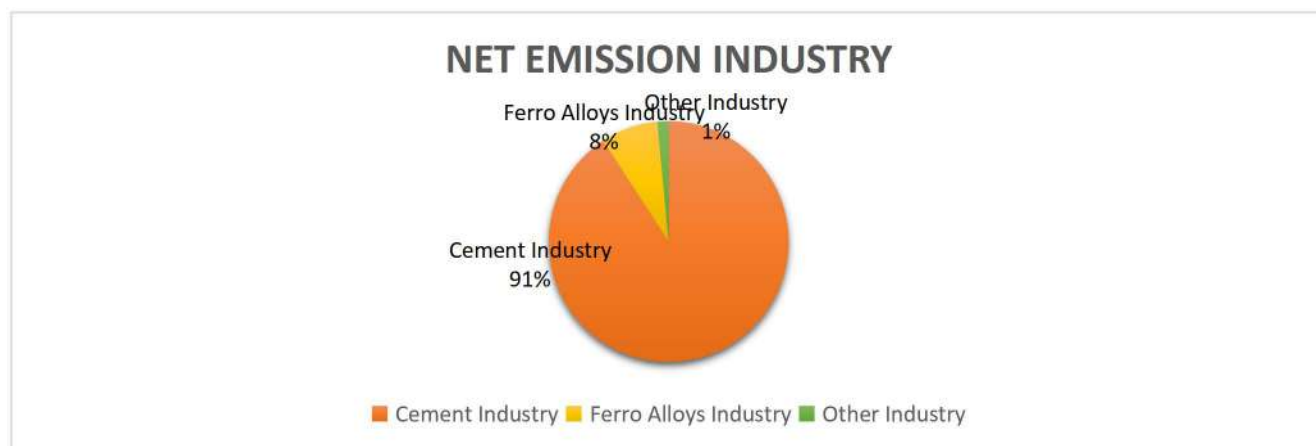


Figure 2.17: Emission distribution in the Industry sector (CII Godrej Green Business, 2017)

Energy

The emission from the energy sector includes:

- Thermal Power Generation
- Transportation – Road, Rail, and Aviation
- Residential and Commercial Sector
- Other Sector Emission – Energy Consumption in agriculture, mobile towers
- Fugitive Emissions – Emissions associated with coal mining

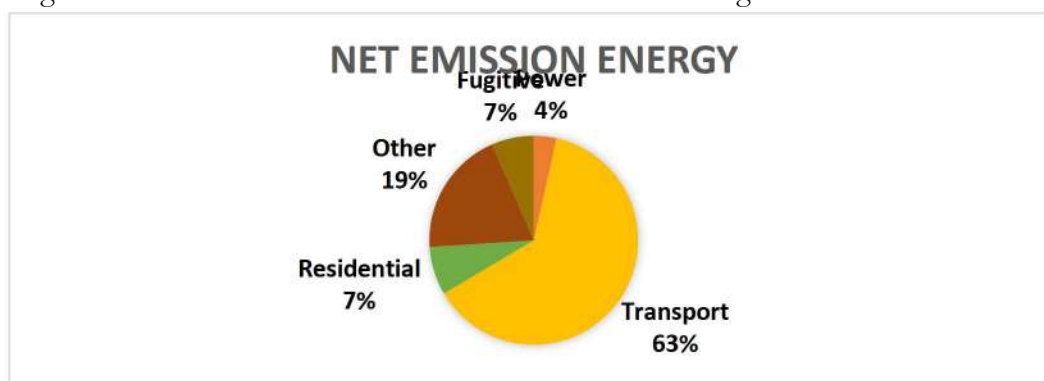


Figure 2.18: Emission distribution in the Energy sector (CII Godrej Green Business, 2017)

In 2012-13, the energy sector in Meghalaya was the second-largest source of emissions in the State with over 1.59 million tons of CO₂ eq. Unlike other states, Meghalaya does not have thermal power plants and thus has relatively lesser emissions from the power generation sector.

Waste

Waste generation is closely associated with population, urbanization, and lifestyle. Waste is one of the major sources of methane emissions. It is generated as a result of the anaerobic decomposition of organic matter by methanogenic bacterial groups. In addition, it is also a source of N₂O emissions in the case of domestically generated wastewater.

The total GHG emitted from the waste sector in 2012, in Meghalaya, was 0.13 million tons of CO₂ eq. Industrial wastewater has been the dominant source of CH₄ emission in Meghalaya and amounts

to 67% of the total CO₂ eq. from waste. Domestic wastewater and municipal solid waste constituted 15% and 18% of the emissions respectively.

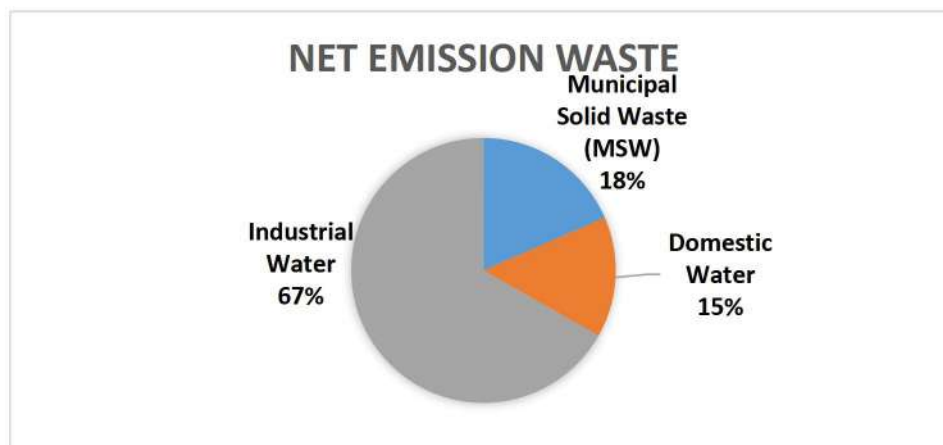


Figure 2.19: Emission distribution in the Waste sector (CII Godrej Green Business, 2017)

Land Use Land Use Change and Forestry (LULUCF)

In the context of global climate change and sustainable development, forest management activities play a major role in alleviating the effects of climate change. Socio-economically, forests are of prime importance as they provide both tangible and intangible resources. Hence, its preservation becomes an activity of prime importance. However, forests are also affected by climate change and their contribution to mitigation strategies is in turn under stress.



Figure 2.20: Net Emission from LULUCF (CII Godrej Green Business, 2017)

Net GHG emissions and removals are shown in Table 2.23. Removal from forest land during the base year was about 3.38 million tons of CO₂ and removal from cropland was 0.56 million tons of CO₂, while emissions from non-forest land were around 0.15 million tons of CO₂ specifically from the removal of grasslands during the year 2012-13. The net sink constituted 3.88 million tons of CO₂ eq. while net emissions were 0.15 million tons of CO₂ eq. In totality, around 3.79 million tons of CO₂ eq. emissions were sequestered during 2012-13 from land use, land-use change & forestry.

The key findings are:

- The industry sector is the largest contributor to GHG emissions which accounts for 56% of the total emissions generated in the state of Meghalaya.
- Emissions from the Waste sector amounted to 0.12 million tons of CO₂eq. The largest contributor to these emissions was waste generated by industries which accounted for 66% of the total waste emissions.
- Domestic wastewater contributed 14% while municipal solid waste's share was 18% of the total emissions from waste.
- Land Use Land Use Change and Forestry (LULUCF) by estimation of carbon stock changes, CO₂ emissions, and removals and Non-CO₂ GHG emission was estimated to be about 3.79 million tons of CO₂ sequestered.
- Total sequestration from Crop Land was estimated to be 0.56 million tons of CO₂ & that from forest land was 3.3 million tons of CO₂ Grassland emissions were 0.15 million tons of CO₂ respectively.

Table 2.36: Sector-wise contribution to the total emission

Emission Sector	t CO ₂ (eq.)	Overall %
Energy	1594871	23.59
Agriculture	1233194	18.25
Industry	3800543	56.23
Waste	129766	1.92
Gross emissions	6758374	100.00
LULUCF	-3798040	-
Net Emission	2960334	-

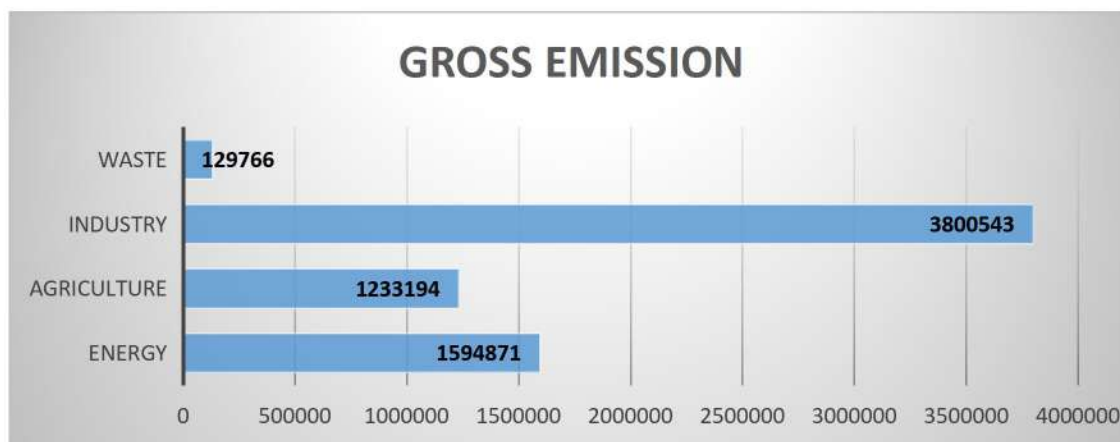


Figure 2.21: Gross emission (CII Godrej Green Business, 2017)

2.6.2. Meghalaya Developmental Path and the SDGs

The State has many developmental challenges and overcoming those will require a systematic approach and a well-planned strategy and a synchronized action plan. The State action plan on climate change (SAPCC) provides much-suited scope for aligning the climate action plans with the development goals of the State. Keeping the climate change, natural resources management, and

sustainability challenges parallel with the mainstream development goals, it is important to have a synchronized and time-bound, well-coordinated, and all-inclusive action plan. The Government of Meghalaya has been very instrumental and has been proactive to devise an elaborate strategy to achieve the SDGs that also cater to the Climate actions and natural resource management aspects. The initiatives taken up could be summarised in the following points:

- I. *Setting up an SDG Team: The Government of Meghalaya has formed an SDG Cell with the Planning Department as its Nodal Department at the State level for coordinating and implementing SDGs including the organization of capacity-building programs, preparing knowledge products and progress reports, and playing an overall support-oriented role.*
- II. *Linking SDGs with the State's Vision: The State of Meghalaya has 6 Strategy Pillars around which it wants to focus to ensure the State continues to thrust forward its development agenda. To achieve this vision, six strategic pillars viz. Human Development, Infrastructure, Primary Sector, Entrepreneurship, Governance, and Environment have been identified. For example, Human Development would incorporate areas such as health, education, skill development, etc., which also have relevant SDG indicators for certain goals. Hence, working on these indicators will in turn help achieve the State's motive of focusing on the six strategic pillars.*
- III. *Concurrent Training and Capacity Building: The initiative for capacity building of all the stakeholders is done in an Incremental Approach. Workshops are held at the State and District levels to sensitize the stakeholders for taking forward SDGs and developing an understanding of the SDGs. Since the SDG was a new policy for most of the departments and districts, they are encouraged to look forward with coordination to understand the main concept of SDG and identify the challenges and its solutions. The SDG team in its efforts to improve the performance of the State in SDGs has undertaken an in-depth study and analysis of the entire SDGs index and Framework in consultation with various departments and districts for the last year and has put in place strategies that can be adopted towards improving the ranking of the state in the next SDG ranking. This was then followed by a High-level review at the level of the Chief Secretary.*
- IV. *Developing Localized SDG Monitoring Framework: A District Indicator Framework has been adopted by adapting the MOSPI's National Indicator Framework and through consultation with various departments. The Indicator Framework comprises localized/ disaggregated District and Block level performance indicators. The Meghalaya District Indicator Framework consists of 130 Indicators against 89 Targets of 15 Goals.*
- V. *Developing District and Department Action Plan and providing funding support: The state has also initiated a process of ranking the Districts based on the SDG scores and preparing a District level SDG Action Plan to identify the priority areas of improvement. Additionally, a Department Action Plan has also been developed so that each department can strategize its activities to bring an improvement in the performance of relevant indicators and turn, an overall improvement in the SDGs.*
- VI. *Providing support through Catalytic Fund: The Hon'ble Chief Minister of Meghalaya has announced a Catalytic Fund to each District for taking immediate measures to improve the SDG performance in the Districts. This untied fund will be given to each DC to be used for taking up any initiative/project or meeting any expenditure of a capital nature to improve the performance of the SDG indicators which in turn will contribute to the improvement in the SDG ranking of the District.*
- VII. *Using Digitized Applications for setting baseline and target: The process of monitoring progress against the SDGs has been initiated by establishing the Baseline and setting the Targets for 2030 against each Indicator through a digitized app.*
- VIII. *Scheme Management System: The Scheme Management system (SMS) envisions facilitating departments to apply for sanction of new schemes, monitor sanction status, and review sanction proposals. This system would also have unique project monitoring features such as the facility to add sub-schemes, and projects under an approved scheme. The SMS*

has also been assigned with the provision to link SDGs. Apart from this, the option of KPIs linked to proposals is also provided as part of the system. This would enable the State Government to track the proposals and help in achieving SDGs and improving the KPI's wise performance.

2.6.3. Meghalaya on the path to achieving the SDGs

The third edition of the SDG India Index and Dashboard 2020–21 was released by NITI Aayog on the 3rd of June, 2021. Since its inaugural launch in 2018, the index has been comprehensively documenting and ranking the progress made by States and Union Territories towards achieving the Sustainable Development Goals. The state of Meghalaya has seen advancement in its ranking from the 25th position, in the NITI Aayog SDG India Index 2019-20, to the 23rd position with an improvement in its composite score, from 54 to 60. Progress is seen in 9 goals which led to a positive push in our overall performance towards achieving the SDGs. The state came out as the front runner in SDG 10 (Reduced Inequality) and a performer in SDG 13 (Climate Action) among the states.

Table 2.37: SDG-wise Index score and ranking of Meghalaya by NITI Ayog, GoI

Sustainable Development Goal	Index score		Growth	Rank
	2020- 21	2019- 20		
1. No Poverty	77	68	9	9
2: Zero Hunger	37	35	2	25
3: Good Health & Well Being	70	53	17	15
4: Quality Education	48	55	-7	20
5: Gender Equality	51	34	17	11
6: Clean Water & Sanitation	75	70	5	24
7: Affordable & Clean Energy	50	52	-2	28
8: Decent Work & Economic Growth	63	65	-2	10
9: Industry, Innovation & Infrastructure	25	22	3	27
10: Reduced Inequality	88	76	12	1
11: Sustainable Cities & Communities	51	22	29	25
12: Responsible Production & Consumption	73	60	13	18
13: Climate Action	62	36	26	8
15: Life on Land	64	99	-35	14
16: Peace, Justice & Strong Institutions	72	59	13	15
Overall Performance	60	54	6	
The rank of the State	23	25		
<i>Aspirants- 0 to 49</i>				
<i>Performer- 50 to 64</i>				
<i>Front Runner- 65 to 99</i>				

While improvements were seen in many SDGs, the state, however, needs to improve and focus on the goals in aspirant's categories such as Goal 2 (Zero Hunger), Goal 9 (Industry, Innovation & Infrastructure), Goal 4 (Quality Education) and Goal 15 (Life on Land).

2.6.4. Meghalaya Vision 2028

Meghalaya's Vision 2028 is an initiative aimed at doubling the state's Gross State Domestic Product (GSDP) to \$10 billion by 2028. Mission 10, a key part of this vision, outlines strategies and initiatives to achieve this economic goal. The 2024-25 budget, also called Mission 10, aims for transformation through revenue generation, infrastructure development, and social welfare. Presented by Chief Minister Conrad K. Sangma, the budget has a deficit of ₹2,029 crores, with total receipts of ₹27,072 crores and expenditures of ₹25,574 crores. Mission 10 introduces ten opportunities and ten guarantees for the 3.8 million residents, including enhanced infrastructure, accessible healthcare, quality education, and sustainable livelihoods. The vision looks beyond 2028, with a commitment to making Meghalaya a USD 150 billion economy by 2052, relying on the talent and dedication of its people to drive future growth (*Meghalaya Next Vision, 2028*).

Table 2.38: 10 Opportunities & 10 Guarantees of Mission 10

Sl No.	10 Opportunities for Mission 10	Sl. No.	10 Guarantees of Mission 10
1.	Investment Promotion & Private Sector Development	1.	Improved Physical Connectivity and Seamless Mobility
2.	Regional Connectivity & Border Trade	2.	Piped Drinking Water to All
3.	Urban Transformation	3.	High Speed Internet Connectivity
4.	IT and ITes- Meghalaya as a Tech Hub	4.	Housing for All Eligible Beneficiaries
5.	High value horticulture and allied	5.	Reliable and Quality Power Supply
6.	Economic Environment and Engagement of Women	6.	Affordable and Quality Health Care for all
7.	Engaging and Employing Youth	7.	Joyful and Quality Learning at All Levels
8.	Country's Best Sustainable Ecotourism Destination	8.	Easing Service Delivery and Grievance Redressal
9.	Climate Resilient Green Economy	9.	Caring and Empowering State
10	Power Generation	10.	Building Community Infrastructure

Chapter 3

3. CLIMATE PROFILE

3.1. Climate Overview & Characteristics

Meghalaya has three well-defined physiographic regions *i.e.* Khasi Hills form the central part, Jaintia Hills in the eastern part, and Garo Hills in the western part. The Khasi Hills and Jaintia Hills which form the central and eastern part of the State are an imposing plateau with rolling grassland, hills, and river valleys with distinct marks of deep gorges and abrupt slopes towards the southern face of the plateau. The Garo Hills which form the southern part is lower in elevation (450-600m) and drop steeply towards Brahmaputra valley on the north and Bangladesh plain on the south.

The climate of Meghalaya is vastly influenced by its diverse and peculiar physiographic characteristics. Three distinct climate zones can be identified across the State *i.e.*, Tropical Monsoon (West Garo Hills, East Garo Hills, and South Garo Hills), Hot humid subtropical (West Khasi Hills and Ri-Bhoi), and Warm humid subtropical (East Khasi Hills) as per modified Koppen-Geiger climate classification (Peel *et al.*, 2007).

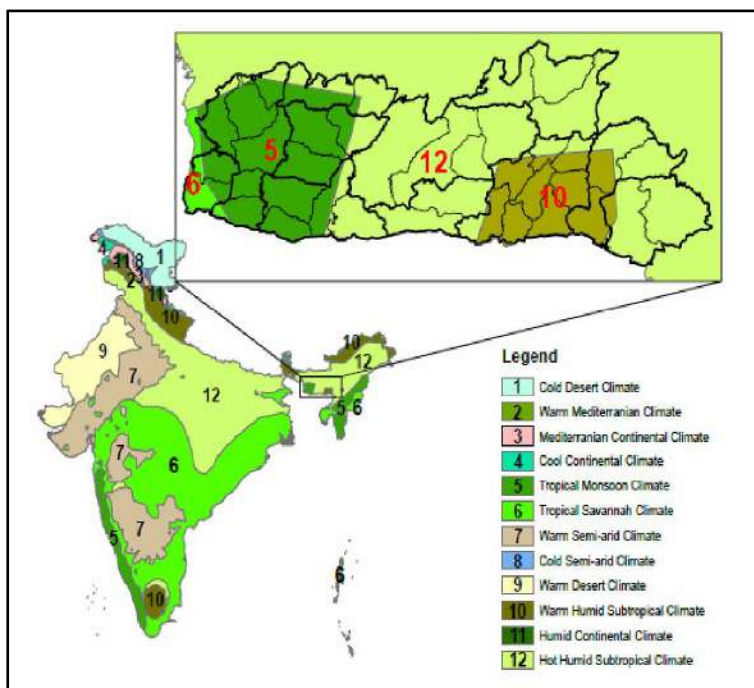


Figure 3.1: Climate Zones in Meghalaya as per Koppen-Geiger classification

In general, spring in Meghalaya lasts for a brief period from March to April, summer for a period of about 5 months from May to September with torrential rains caused by South West Monsoon, autumn from October to November, and winter from December to February. In summer, the

atmosphere gradually warms up with the advent of spring, by the middle of April, the temperature starts rising to the maximum by June and then decreases gradually. The maximum temperature recorded is 34 °C at Tura in the West Garo Hills district and 28°C at Shillong. However, between November and February, the temperature comes down to as low as 2°C in the Khasi Hills.

Meghalaya is directly influenced by the South-West monsoon and the North-East winter winds. Generally, the State starts receiving rainfall by the third week of May and continues right up to the end of September and sometime till the middle of October. The average annual rainfall in Meghalaya State is in the range of 4,000 mm to about 11,500 mm. There exists a very high spatial variability in rainfall across the State. For instance, the southern West Khasi Hills and East Khasi Hills receive more than 8000 mm of rainfall while the rest of the State receives an average value of 3200 mm in a year. The precipitation intensities also have very large spatial variability in the State. *Cherrapunjee* and *Mawsynram* are situated on the southern slopes of East Khasi Hills of Meghalaya and have the distinction of being the wettest places on the Earth. Mawsynram with an average annual rainfall of 1300cm has been identified as the wettest place on Earth. Also, *Sohra (Cherrapunjee)* has been identified as the second wettest place on Earth. Rainfall in the last two decades has ranged from 11,995 mm to 14,189 mm in *Cherrapunjee* and between 10,689 mm to 13,802 mm in *Mawsynram* (Mishra *et al.*, 2017).

3.2. Past Climate Change Trends and Future Climate Projections

To generate state-specific knowledge on past climate change trends and future climate projections, the State had taken up a scientific study titled “Identification of climate vulnerability hot-spots in Meghalaya using high-resolution climate projections” in collaboration with IIT Gandhinagar.

The study used high spatial resolution observed datasets and climate projection models. The climatic variables considered for the study were precipitation and temperature on a daily scale. Precipitation data was obtained from Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS, Funk *et al.*, 2015) at 0.05° (~5x5 km) resolution; and temperature data at 0.25° (~25x25 km) from Sheffield *et al.* (2006) version 2 were used for the analysis of the past climate of the State. Data were statistically downscaled and bias corrected to 0.05° resolution using the SYMAP algorithm (2002) and APHRODITE (Yatagai *et al.*, 2012), respectively. The data for analyzing the past climate for the period 1981-2012 were taken into consideration and serve as baseline years for comparing the future climate scenarios.

For the future climate projections, five models that participated in the Climate Model Intercomparison Project (CMIP5) were selected. The five models selected for the future projection were CCSM4, GFDL-ESM2M, MIROC5, NorESM1-M, and NorESM1-ME of ensemble number r1i1p1 in gridded format with a resolution of 0.05° (i.e.~5kmx5 km). The future climate projections are from 2013 to 2100, with a reference dataset (historical period) from 1981 to 2012. The future climate projections are made for four indicative pathways/scenarios i.e. RCP 2.6, RCP 4.5, RCP 6.0, and RCP 8.5. These pathways are a means to represent alternative scenarios based on economy, scientific advancement, and mitigation efforts. The RCP 2.6 represents a mitigation intensive

scenario with very low forcing or in simpler terms a low warming scenario. The RCP 4.5 and RCP 6.0 are mild or stabilization scenarios where considerable efforts are made to minimize the emissions. While RCP 8.5 is generally referred to as the extreme scenario where no or minimal effort is made to curb the emissions. Further, for each scenario, the climate projections are made from 2013 to 2100 which are divided into near term covering the period between 2013 to 2040, mid-term which includes the period between 2041 to 2070, and long term for the period between 2071 to 2100. All the projected changes in temperature and rainfall are relative to the baseline period (1980-2012) which enables us to compare the past and various climate scenarios in the future.

The findings of the study provided important information on the past climate trend and future scenarios as well as the climate vulnerability of the State. This high-resolution climate information and knowledge have significantly contributed to strategizing and prioritizing the climate actions of the State.

Past Climate Analysis: 1981-2012

To understand the past climate change trends for the State of Meghalaya; historical climate data for the period 1981-2012 were analyzed considering various attributes of climate trends such as temperature, rainfall, and extreme events. The past climate analysis suggested that the State has been experiencing climate change in the past too and the trend in the change is continuing. Following are the key highlights from the State's past climate analysis.

Past climate analysis: Temperature

- 1) During the period 1981-2012, the State experienced an increase in the average annual mean temperature of 0.031°C per year. Cumulatively, this trend resulted in an overall increase of $\sim 1^{\circ}\text{C}$ during the observation period (Figure 3.2).
- 2) The years 1991 and 1992 experienced a temperature below normal level; however, for the rest of the observation period, the temperature increased consistently throughout.
- 3) An overall rise in average daily mean temperature has been observed across the State. However, in terms of spatial variability, the rise is more pronounced in the central and northern parts of the State (Figure 3.3).
- 4) The temporal analysis of the spatial average of annual mean temperatures shows highly fluctuating frequencies of hot days, hot nights, cold days, and cold nights. The number of extreme hot nights has a high frequency (43 days per year). The high values increased in the latter part of the observed period (1981-2012). While the number of hot and cold days showed inconclusive changes, the number of cold nights declined from the period 1981-2012 (Figure 3.4).
- 5) The State stood comfortable with heatwaves, as the region faced an average of 4 heatwaves in 30 years from 1981-2012.

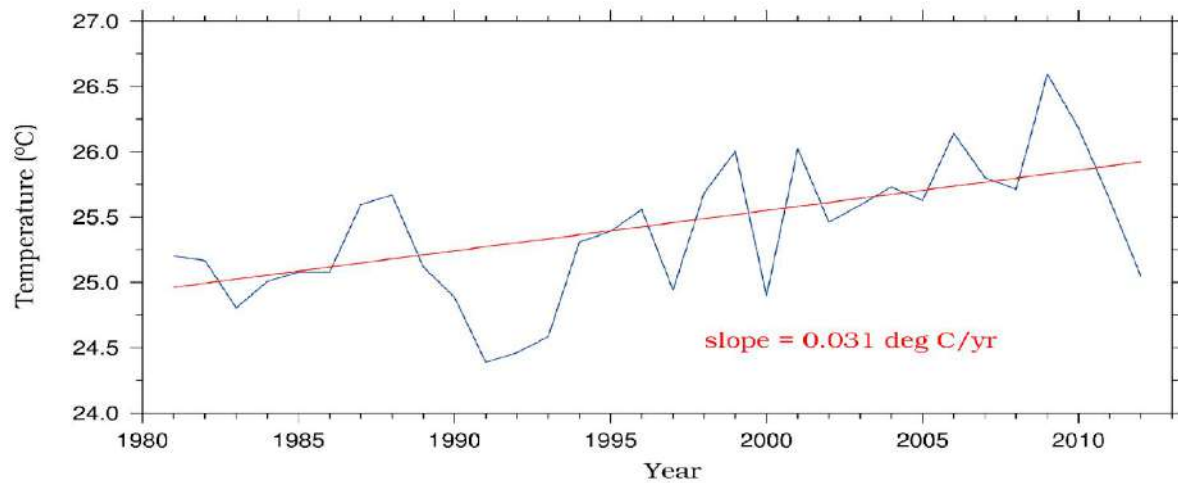


Figure 3.2: Annual mean summer temperature and its trend during 1981-2012

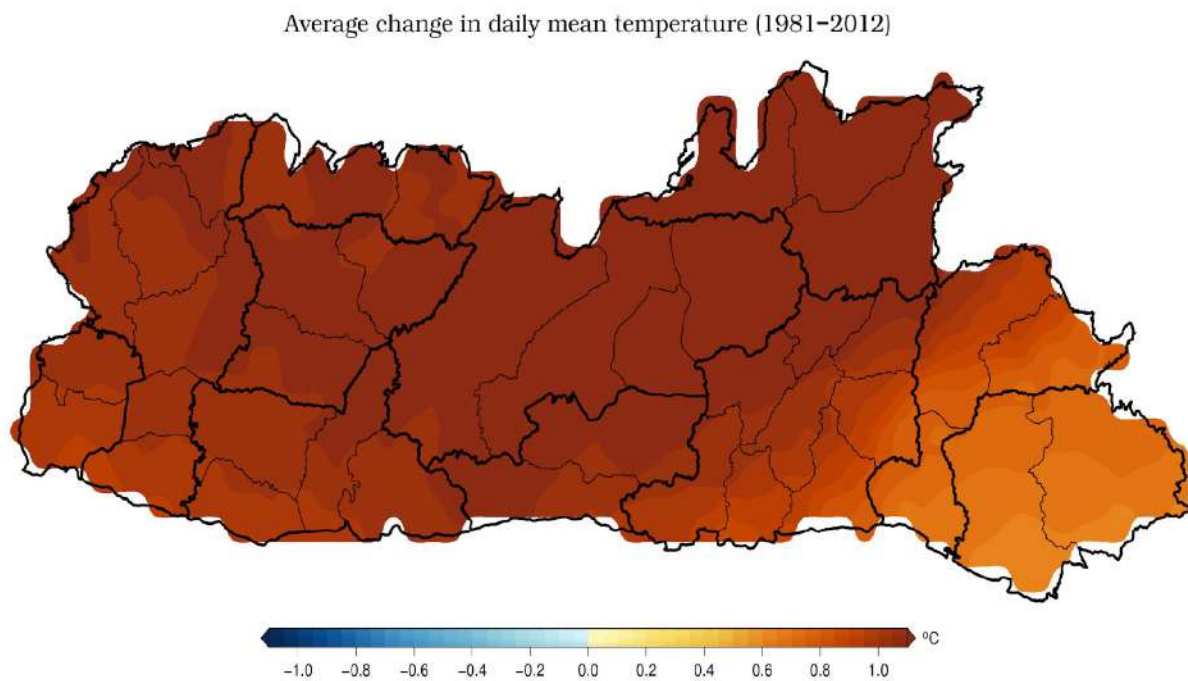


Figure3.3: Spatial variability in Average changes in daily mean temperature (°C) during 1981-2012 based on the data from Sheffield et al., 2006 Version 2

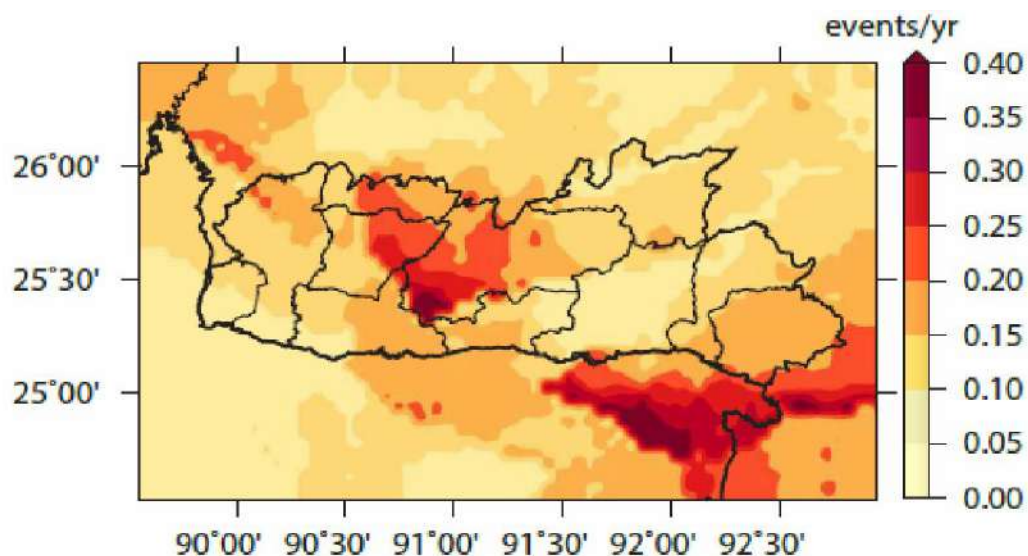


Figure 3.4: Spatial variations of heatwave events per year for the period 1981-2021

Past climate analysis: Rainfall

- 1) The State received an annual average rainfall of 4085 mm during the observed period i.e. 1982-2012. Out of the total rainfall, around 72% i.e. 2950 mm was received during the monsoon season. The amount of rainfall received in different parts of the State varies considerably. The central plateau regions received 4000-8000 mm, and the rest of the State received relatively moderate rainfall of 2000 mm (Figure 3.5).
- 2) The average monsoon annual rainfall in the State showed an increasing trend at the rate of 11.56 mm per year during 1981-2012 (Figure 3.6). However, this change was not uniform throughout the State. The central districts, West Khasi Hills, South West Khasi Hills, and East Khasi Hills experienced higher rainfall than the rest of the State (Figure 3.7).
- 3) The change in the frequency of extreme rainfall events was mostly uniform across the State. However, the East Khasi Hills district experienced a higher frequency of extreme rainfall events.
- 4) South-West Garo Hills, South Garo Hills, West Khasi Hills, East Khasi Hills, and southern parts of West Garo Hills experienced 3-4 wet years, while the rest of the State faced fewer surplus periods. Most parts of the State were safe in terms of extreme drought events (Figure 3.8).

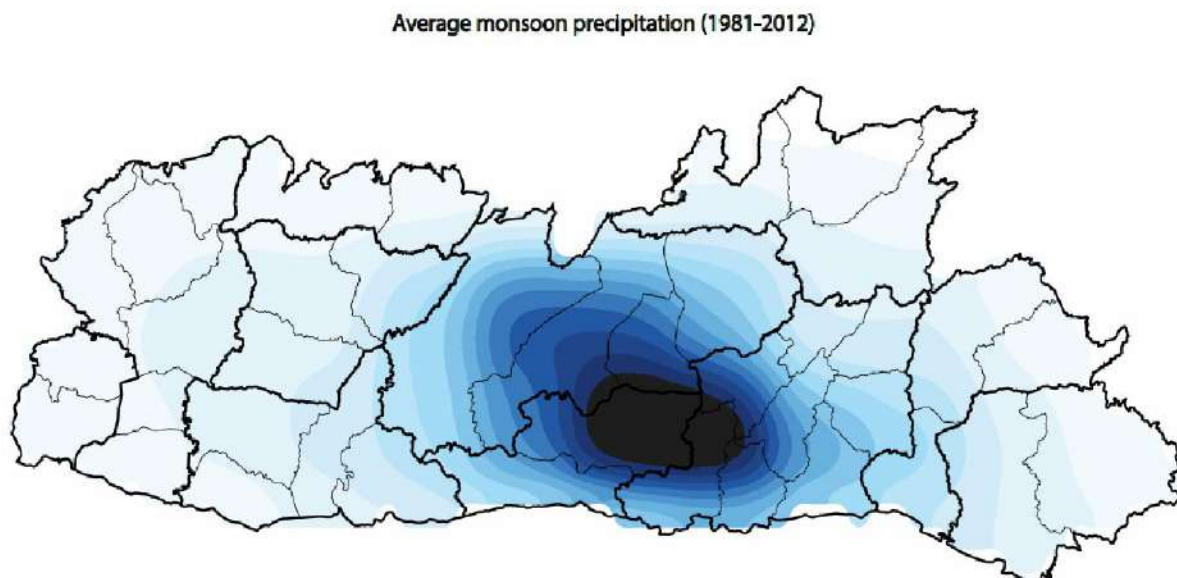


Figure 3.5: Average Monsoon season precipitation (in mm) during 1981-2012 based on corrected CHIRPS precipitation data

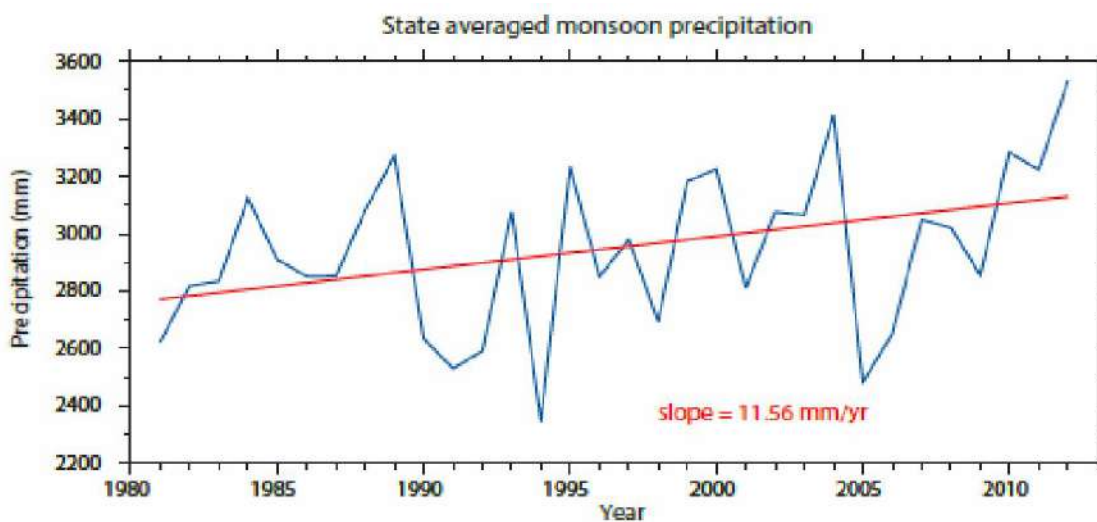


Figure 3.6: State average monsoon season precipitation and its trend for the period 1981-2012

Average change in monsoon precipitation (1981–2012)

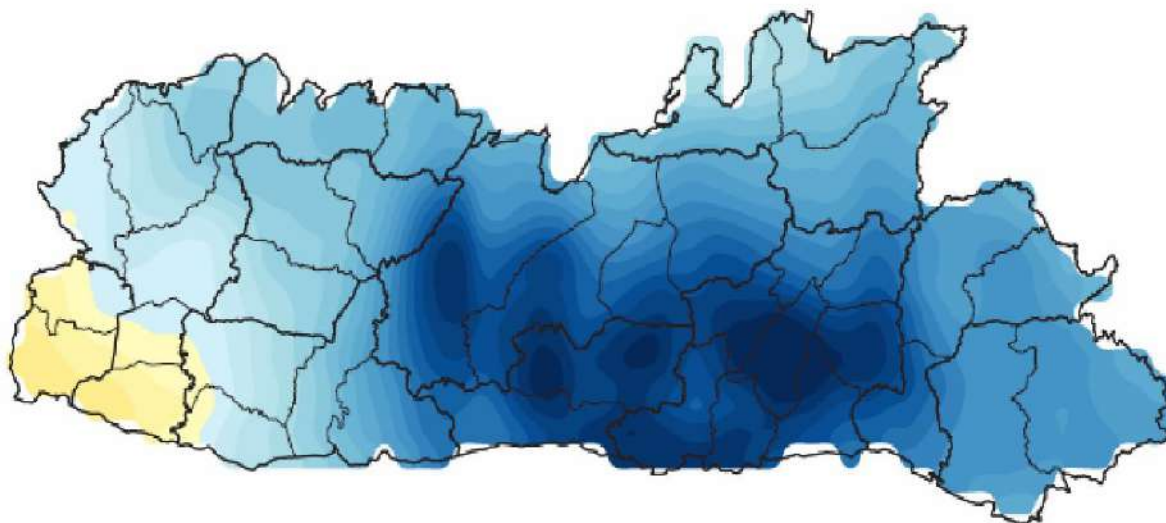


Figure 3.7: Average change in Monsoon season precipitation (in mm) during 1981-2012 based on corrected CHIRPS precipitation data

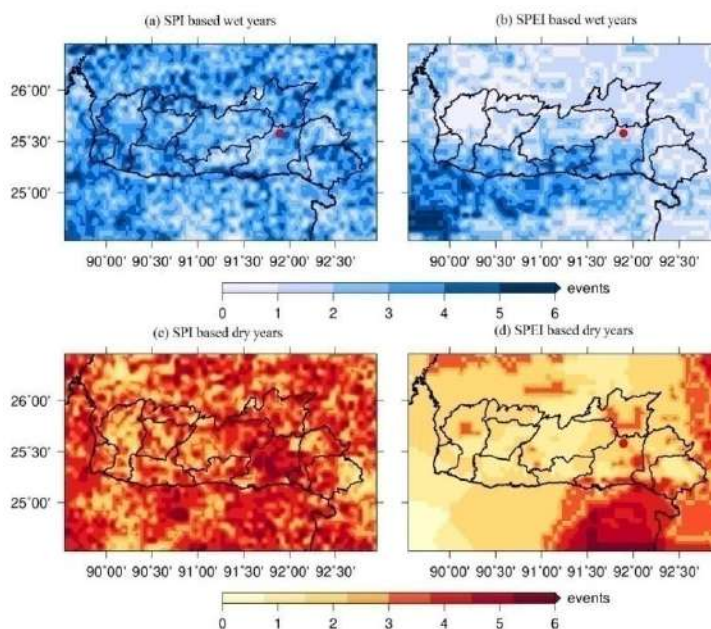


Figure 3.8: SPI (Standardized Precipitation Index) based number of observed extreme (a) wet years and (c) dry years; SPEI (Standardized Precipitation and Evapotranspiration Index) based number of observed extreme (b) wet years and (d) dry years (1981-2011)

3.3. Future climate projections: 2013-2100

To understand the future climate scenarios for the State of Meghalaya; the climate projections are made from 2013 to 2100 which are divided into near term covering the period between 2013 to 2040, mid-term which includes the period between 2041 to 2070, and long term for the period between 2071 to 2100. Various attributes of climate trends such as temperature, rainfall, and extreme

events were considered. The future climate change scenarios suggested that the State is likely to experience climate change in terms of increase in temperature and rainfall as well as the frequency of extreme events under all the future climate scenarios. The following are key highlights indicating the future climate scenarios in the State.

Climate projections: Temperature

- 1) As per the projections, the trend of temperature change tends to continue as it has been in the observation period. Also, the State is anticipated to experience an increase in temperature under all scenarios for the whole projection period.
- 2) The mean temperatures are projected to increase up to 3.7 °C in the extreme scenario (RCP 8.5), while in the mild scenario (RCP 4.5.), the increase in maximum temperature is limited to 2.5 °C in the long term (Table 3.1). Similarly, an increase is projected in the minimum air temperature under the projected future climate in the State of Meghalaya.
- 3) The temperature rise may also increase the number of severe hot days and nights. Hot days are projected to rise by as much as 180 and 105 days/year under the RCP 8.5 and RCP 4.5 scenarios respectively.
- 4) The increase in temperature may lead to an increase in extremely hot days and nights and may result in a decrease in the number of extremely cold days and nights.
- 5) Heatwaves in the past were very few, however, in the future, a rise in the occurrence of heatwaves are projected.

Table 3.1: Projected change in Average Annual Mean Temperature under different climate projection scenarios

Scenarios	Time Period		
	Near Term (2013-2040)	Mid Term (2041-2070)	Long Term (2071-2100)
RCP 2.6	0-1.5°C		
RCP 4.5	0.9-1.7°C		1.3-2.2°C
RCP 6.0	0.7-0.8°C	1.4-2.5°C	
RCP 8.5	0.7-0.9°C	1.4-2.2°C	3.7°C

a) Climate change scenarios: Projection of possible changes in Rainfall

- 1) The rainfall is projected to increase in the State under the future climate change scenarios.
- 2) The central plateau regions are projected to experience an increase in rainfall at a higher rate than the rest of the State. An increase in rainfall is projected to be about 3-7% in the near term, 3-6% in the mid-term, and 5-13% in the long term under various scenarios.
- 3) The number of extreme wet monsoons is projected to rise in the long term in all scenarios.
- 4) Extreme precipitation frequency may rise in all RCPs in the mid and long term, and this change is prominent in the southern and north-eastern regions of the State in long term.
- 5) The projections suggest changes in the frequency of droughts are negligible.

Table 3.2: Mean projected change (mm) in average monsoon rainfall under different climate projection scenarios

Scenarios	Period		
	Near Term	Mid Term	Long Term

	(2013-2040)	(2041-2070)	(2071-2100)
RCP 2.6	40-300	30-180	78-180
RCP 4.5	50-160	80-190	95-350
RCP 6.0	92-287	45-178	120-270
RCP 8.5	100-269	86-212	181-420

Table 3.3: Mean projected change in frequency of extreme rainfall events under different climate projection scenarios

Scenarios	Period		
	Near Term (2013-2040)	Mid Term (2041-2070)	Long Term (2071-2100)
RCP 2.6	0.6-1.5	0.6-1	0.4-1.3
RCP 4.5		0.3-2	
RCP 6.0		0.3-2	
RCP 8.5		0.8-3.5	

Climate Vulnerability Hotspots: Temperature and Rainfall

The State of Meghalaya is best known for its richness in natural resources and biodiversity. However, the geographic location and topography combined with the ongoing climate variability poses threat to the resilience of natural systems and communities with varying degrees of implications across the State. The State being a hilly terrain is more vulnerable to the climate vagaries that may further aggravate in the face of climate extremes. Hence, the State needs to identify areas i.e. Climate vulnerability hotspots that are likely to be more vulnerable to climate change and its impacts. This identification of the vulnerable hotspots will help in strategizing and prioritizing the areas for climate action. The identification of climate vulnerability hotspots based on temperature and precipitation considering the past trend, future projection, and the frequency of extreme events was carried out.

Climate vulnerability hotspots are those regions that are more susceptible to changes in climate. The climate vulnerability hotspots were computed using two indices viz. Temperature Based Vulnerability Index (TBVI) and Precipitation Based Vulnerability Index (PBVI) for temperature and precipitation, respectively to identify the regions that are vulnerable to climate change hazards. The TBVI computation has taken the historic mean temperature (1981-2012), projected temperature change (2013-2100), and projected frequency of extremely hot days and hot nights (2013-2100) into account. While, the PBVI computation has taken into consideration the historic median monsoon precipitation (1981-2012), changes in projected precipitation (2013-2100), and projected frequency of extreme precipitation events (2013-2100). Based on the severity of the vulnerability, the indices (TBVI and PBVI) were categorized as mild (0 to 0.4), high (0.4 to 0.7), and extreme (0.7 to 1) (Figure 3.9 and Figure 3.10). Therefore, a higher value represents a region at higher risk regarding climate change hazards based on precipitation or temperature events and vice versa. The following are the key highlights of climate vulnerability hotspots of the State at the district level:

- 1) Districts such as East Jaintia Hills and some parts of East Khasi Hills and Ri-Bhoi are at high risk while the rest are at mild risk concerning temperature vulnerability. The central plateau and Garo Hills regions may face mild risk concerning temperature-based hazards (Figure 3.9).
- 2) South West Khasi Hills, West Khasi Hills, some parts of East Khasi Hills, South West Garo Hills, and West Garo Hills are at high risk concerning precipitation-based vulnerability. East Jaintia Hills, Ri Bhoi, and South Garo Hills are at moderate risk while the rest of the State is at mild risk (Figure 3.10).

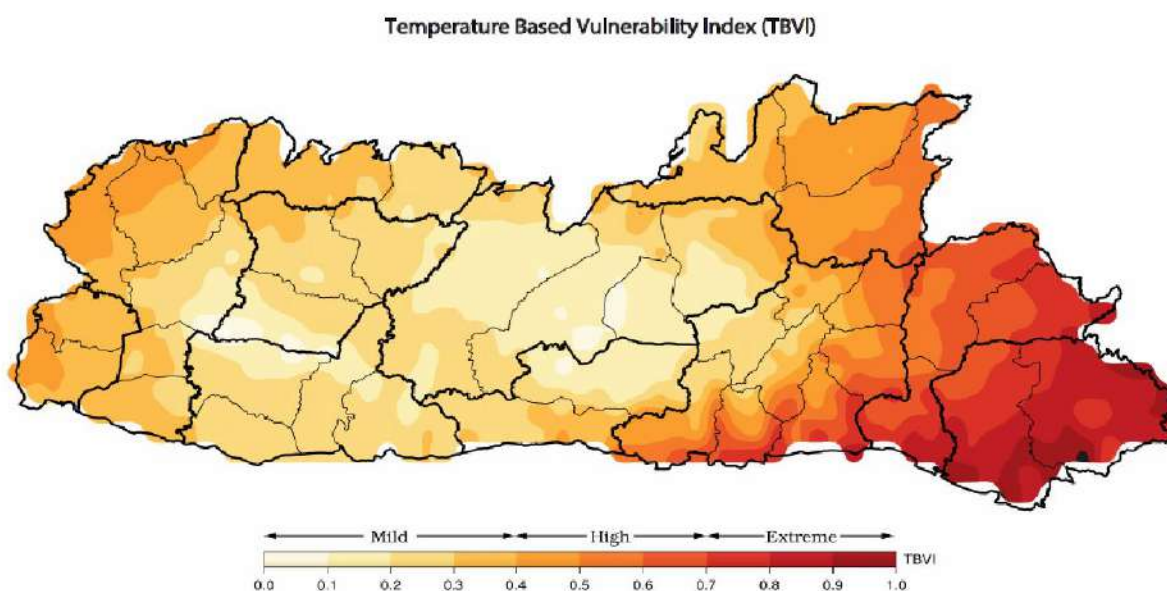


Figure 3.9: Climate vulnerability hotspots concerning temperature events for the State of Meghalaya

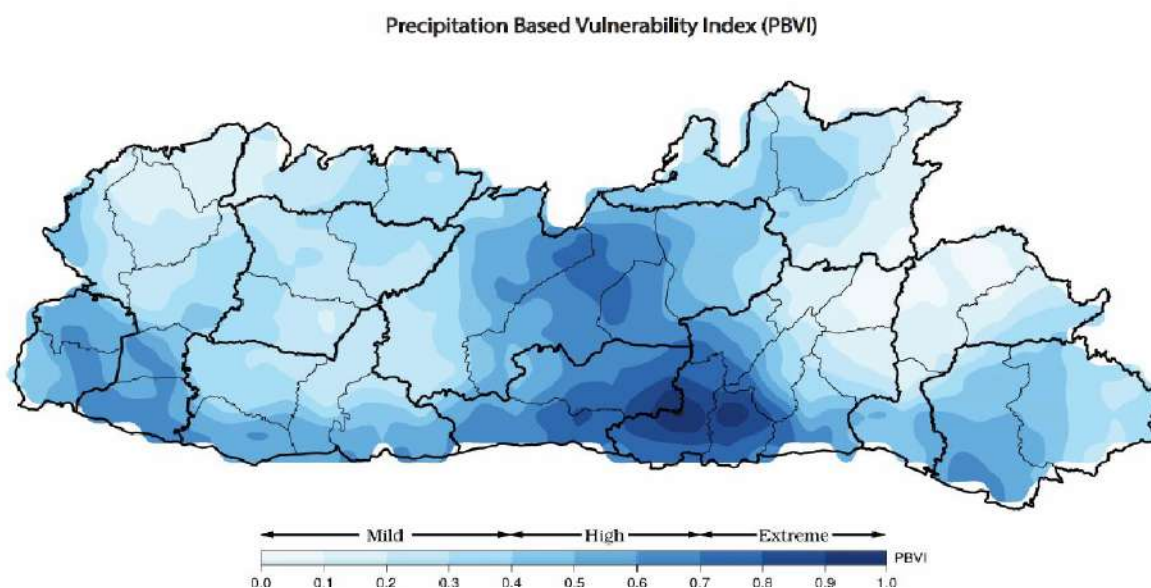


Figure 3.10: Climate vulnerability hotspots concerning precipitation events for the State of Meghalaya

The climate temperature and rainfall vulnerability hotspots categorization at the block level is provided in Table 3.4. The table shows median values of Temperature Based Vulnerability Index

(TBVI) and Precipitation Based Vulnerability Index (PBVI) for each block in the State of Meghalaya. The values in red represent high (0.6-1), blue show moderate (0.3-0.6), and black shows mild (0-0.3) vulnerability of the blocks concerning temperature or precipitation. The following are the key highlights of climate vulnerability hotspots of the State at the block- level:

- 1) Saipung, Khliehriat blocks of East Jaintia Hills district and Laskein block of West Jaintia hills are at high risk concerning precipitation-based vulnerability.
- 2) Mawkyrwat and Ranikor blocks of South West Khasi Hills districts are at high risk concerning precipitation concerning rainfall vulnerability.

Table 3.4: Block-level Temperature Based Vulnerability Index (TBVI) and Precipitation Based Vulnerability Index (PBVI)

<i>District</i>	<i>Block</i>	<i>Median PBVI</i>	<i>Median TBVI</i>
South West Garo Hills	<i>Zikzak</i>	0.462	0.23
	<i>Betasing</i>	0.472	0.23
West Garo Hills	<i>Dalu</i>	0.523	0.24
	<i>Gambegre</i>	0.507	0.24
	<i>Rongram</i>	0.347	0.22
	<i>Dadengre</i>	0.287	0.24
	<i>Selsella</i>	0.363	0.24
	<i>Tikrikilla</i>	0.330	0.24
North Garo Hills	<i>Kharkutta</i>	0.357	0.22
	<i>Resubelpara</i>	0.312	0.24
East Garo Hills	<i>Samanda</i>	0.354	0.21
	<i>Rongjeng</i>	0.327	0.22
South Garo Hills	<i>Songsak</i>	0.323	0.23
	<i>Gasuapara</i>	0.472	0.23
	<i>Baghmara</i>	0.338	0.22
	<i>Chokpot</i>	0.356	0.21
West Khasi Hills	<i>Rongra</i>	0.475	0.23
	<i>Mairang</i>	0.436	0.30
	<i>Mawshynrut</i>	0.405	0.20
	<i>Mawthadraishan</i>	0.513	0.17
South West Khasi Hills	<i>Nongstoin</i>	0.539	0.20
	<i>Mawkyrwat</i>	0.672	0.27
Ri-Bhoi	<i>Ranikor</i>	0.640	0.31
	<i>Jirang</i>	0.358	0.37
	<i>Umsning</i>	0.179	0.48
East Khasi Hills	<i>Umling</i>	0.261	0.44
	<i>Shella Bholaganj</i>	0.408	0.56
	<i>Pynursla</i>	0.372	0.58
	<i>Mawsynram</i>	0.593	0.47
	<i>Mawsynrew</i>	0.269	0.54
	<i>Manphlang</i>	0.439	0.46
	<i>Myllem</i>	0.335	0.47
	<i>Mawryngkneg</i>	0.202	0.54
	<i>Laitkroh</i>	0.369	0.52
	<i>Thadlaskein</i>	0.131	0.59
West Jaintia Hills	<i>Amlarem</i>	0.335	0.59
	<i>Laskein</i>	0.259	0.62
East Jaintia Hills	<i>Saipung</i>	0.357	0.81
	<i>Khliehriat</i>	0.487	0.70

*(*The values in red represent high (0.6-1), blue show moderate (0.3-0.6), and light green shows mild (0-0.3) vulnerability of the blocks concerning temperature or precipitation)*

3.4. Implications for Different Sectors

Global climate change has adverse effects on the different sectors with varying degrees of impact. While there is a need for a separate impact assessment for the key sectors, the potential impacts of climate change on the selected sector are highlighted below:

Table 3.5: Impacts of climate change on the selected sectors

AGRICULTURE & ALLIED SECTORS	WATER RESOURCES	FORESTS & BIODIVERSITY	HUMAN HEALTH
MOST OF THE AGRICULTURE IN THE STATE IS RAIN-FED THUS IT BECOMES MOST VULNERABLE TO A RISE IN TEMPERATURE. THE CROPS' RESPONSE TO RISING TEMPERATURE MAY VARY FROM CROP TO CROP. HOWEVER, AS A GENERALIZED TREND WITH THE TEMPERATURE RISE, CROP GROWING DEGREE DAYS MAY INCREASE WHICH MAY RESULT IN A REDUCED MATURITY PERIOD OF THE CROP, ESPECIALLY AT THE LOWER ALTITUDES. EARLY MATURITY MAY RESULT IN DECREASED GRAIN FILLING PERIOD AND ULTIMATELY MAY RESULT IN LOW YIELD/PRODUCTION OF THE CROP. THE TEMPERATURE RISE MAY ALSO INDUCE PREMATURE BREAKING OF INSECTS AND PESTS DORMANCY WHICH MAY CAUSE INSECTS AND PESTS TO ATTACK THE STANDING CROPS AND MAY FURTHER AFFECT PRODUCTION. NET CROP YIELD IS EXPECTED TO DECLINE WITH AN INCREASE IN THE NIGHT TEMPERATURE AS IT BRINGS PHYSIOLOGICAL CHANGES LEADING TO THE INCREASED RATE OF RESPIRATION AND DECREASED RATE OF BIOMASS ACCUMULATION. THIS MAY ALSO IMPACT POLLINATION IN CERTAIN CROPS LIKE MAIZE. RICE ALSO SHOWS A SIMILAR TEMPERATURE RESPONSE TO MAIZE BECAUSE OF POLLEN VIABILITY AND PRODUCTION DECLINE AT DAYTIME MAXIMUM TEMPERATURE. SIMILAR TO THE EFFECTS OF INCREASING TEMPERATURES AND EXTREME RAINFALL EVENTS CROPS; LIVESTOCK IS ALSO AT RISK. THE MORTALITY RATE IS EXPECTED TO RAISE ON ACCOUNT OF AN INCREASING NUMBER OF HIGH-IMPACT DISEASE OUTBREAKS SUCH AS FOOT-AND-MOUTH DISEASE (FMD), PESTE DES PETITS RUMINANTS (PPR), AVIAN FLU, SWINE FLU, ETC. THE RESILIENCE OF PATHOGENS DUE TO ADAPTATION AND FREQUENCY OF OUTBREAKS IS EXPECTED TO RISE.	TEMPERATURE RISE HAS VARIOUS IMPLICATIONS FOR THE WATER RESOURCES SECTOR. A CAREFUL SECTOR-WISE IMPACT ASSESSMENT IS NEEDED TO DEVELOP POLICIES FOR ADAPTATION FOR THE STATE. HOWEVER, SOME IMPLICATIONS CAN BE EXPECTED IN THE LIGHT OF SCIENTIFIC STUDIES CONCERNING CLIMATE CHANGE AND PROJECTIONS. DUE TO A SIGNIFICANT INCREASE IN AIR TEMPERATURE, EVENTS OF FOREST FIRES MAY BE MORE FREQUENT, ESPECIALLY IN PINE AND BAMBOO FORESTS. UNCHECKED SHIFTING CULTIVATION (JHUM) MAY LEAD TO AN INCREASE IN FOREST BLANKS AND SCRUBS IN THE STATE. THIS MAY FURTHER CAUSE LAND DEGRADATION AND SOIL EROSION. IN THE EVENT OF EXTREME PRECIPITATION EPISODES, IT MAY ALSO INCREASE THE RISK OF LANDSLIPS AND LANDSLIDES IN HIGH-ALTITUDE HILLY AREAS AND SILTATION OF WATER BODIES IN DOWN STREAMS. THE SILTATION OF STREAMS AFFECTS AQUATIC ECOSYSTEMS AND THEIR PRODUCTIVITY. THE SITUATION MAY WORSEN WITH AN INCREASE IN THE PRECIPITATION INTENSITIES AS PROJECTED. THE TEMPERATURE RISE MAY CAUSE WATER SCARCITY AS WELL AS MAY HAVE A DEVASTATING IMPACT ON WATER RESOURCES IN LOW RAINFALL PARTS OF THE STATE. ADOPTION OF WATER CONSERVATION MEASURES IS SUGGESTED FOR RETENTION OF WATER/SOIL MOISTURE TO AVOID DRY SPELLS/DROUGHT SITUATIONS.	MEGHALAYA IS PROJECTED TO EXPERIENCE A TEMPERATURE RISE AND THIS MAY CAUSE A GRADUAL LOSS OF BIOLOGICAL DIVERSITY. HABITAT LOSS COUPLED WITH FOREST/HABITAT FRAGMENTATION INCREASES THE RISK OF BIODIVERSITY LOSS IN THE STATE. MEGHALAYA IS THE HOUSE OF SOME ENDEMIC AND ENDANGERED/THREATENED PLANT SPECIES WHICH BECOME MORE VULNERABLE DUE TO THEIR RESTRICTED GEOGRAPHIC AND CLIMATIC RANGE. IN MEGHALAYA, FEW OF THE ENDEMIC PLANT SPECIES LIKE ADINANDRA FRIFFITHII, CLEMATIS APICULATA, ILEX VENULOSA, AND CEROPEGIA ARNOTTIANA HAVE BECOME EXTINCT IN RECENT DECADES. THE TEMPERATURE RISE MAY CAUSE A LOSS OF FLORAL WEALTH OF THE STATE TO A CERTAIN EXTENT. THE REGION IS ECONOMICALLY HIGHLY DIFFERENTIATED, AND LAND HOLDINGS ARE LIMITED TO SOME PEOPLE. THE LOCAL SOURCE OF INCOME FOR THE MAJORITY OF THE POPULATION IS NATURAL RESOURCES BASED, FOR INSTANCE, AGRICULTURE AND LIVESTOCK, WHICH ARE IN ITSELF AT RISK UNDER THE CHANGING CLIMATE.	WITH THE RISE IN TEMPERATURE AND WETTER MONSOONS, PEOPLE DIAGNOSED WITH DISEASES SUCH AS DIARRHOEA, MALARIA, AND OTHER WATER/VECTOR-BORNE DISEASES ARE PROJECTED TO RISE. THE RISK ASSOCIATED WITH MORTALITY RELATED TO EXTREME HEAT IN THE HIGHLY VULNERABLE REGIONS OF THE STATE IS ALSO EXPECTED TO RISE. THE EFFECTS OF DISEASES AND DISCOMFORT WILL BE MORE PRONOUNCED AND CHALLENGING FOR THE LOW-INCOME GROUPS AS WELL AS RURAL COMMUNITIES THAT HAVE LIMITED ACCESS TO SAFE DRINKING WATER, SANITATION FACILITIES, AND MEDICAL SERVICES. A GENERAL RISE IN THE POPULATION BELOW THE POVERTY LEVEL FOR BOTH RURAL AND URBAN POPULATIONS WAS OBSERVED BY PLANNING COMMISSION. THIS SUGGESTS THAT THE NUMBER OF PEOPLE WHO ARE LESS LIKELY TO BE ABLE TO ADAPT TO CLIMATE CHANGE IS INCREASING.

Chapter 4

4. VULNERABILITY ASSESSMENT

4.1. Background

Vulnerability is an ‘internal property of a system’ (IPCC-AR5, 2014). It represents the “Propensity or predisposition of the system to be adversely affected.” IPCC 4th Assessment Report (2007) considered ‘exposure’ as one of the three elements of ‘vulnerability’ other two being sensitivity and adaptive capacity. However, post-2007, this conceptualization of vulnerability has been modified and ‘exposure’ is no longer considered to be a component of ‘vulnerability’. Vulnerability of a natural ecosystem or socio-economic system is assessed as a function of its sensitivity (S) and its lack of adaptive capacity (AC). Sensitivity is defined as the “susceptibility to harm from the first-order impact of a hazard/stressor on the system.” Adaptive capacity refers to “the ability or potential of a system to respond successfully to climate variability and change.” For example, a high prevalence of water-borne diseases in a geographical location would reflect high sensitivity in anticipation of a flood (hazard), and if further, the area lacks public healthcare systems, that would imply a low adaptive capacity, adding to the vulnerability. Thus, vulnerability is a positive function of sensitivity (S) and a negative function of the adaptive capacity (AC) of a system. The higher the sensitivity, the higher will be the vulnerability, and the lower the adaptive capacity, the higher will be the vulnerability. Vulnerability is multidimensional and context-specific and is assessed independently of hazard and exposure. However, hazard-specific, and integrated vulnerability assessments are essential for adaptation planning.

The definitions of key terminologies used in the AR5 framework, which guide the overall assessment and analysis, are:

Adaptive capacity: The ability of people, institutions, organizations, and systems, using available skills, values, beliefs, resources, and opportunities, to address, manage, and overcome adverse conditions in the short to medium term.

Vulnerability: The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Sensitivity: Sensitivity can be defined as the degree to which a system or species is affected, either adversely or beneficially, by climate

variability or change. Predisposition of society and ecosystems to suffer harm because of intrinsic and context conditions making it plausible that such systems once impacted will collapse or experience major harm and damage due to the influence of a hazard event.

Hazard: The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss of property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources.

Risk: The potential for consequences where something of value is at stake and where the outcome is uncertain, recognising the diversity

of values. Risk is often represented as the probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends were to occur. Risk results from the interaction of vulnerability, exposure, and hazard. In this report, the term risk is used primarily to refer to the risk of

climate-change impacts.

Exposure: The presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected.

Vulnerability Assessment is required under the following conditions:

1. Exposure to climatic stressors
2. Importance of the (vulnerable) system
3. Ability to take adaptive measures
4. Persistence of vulnerable conditions and degree of irreversibility (of consequences)
5. Presence of factors making societies vulnerable to cumulative stressors

Although, there is no hard and fast rule that all five conditions must be present.

Vulnerability Assessment

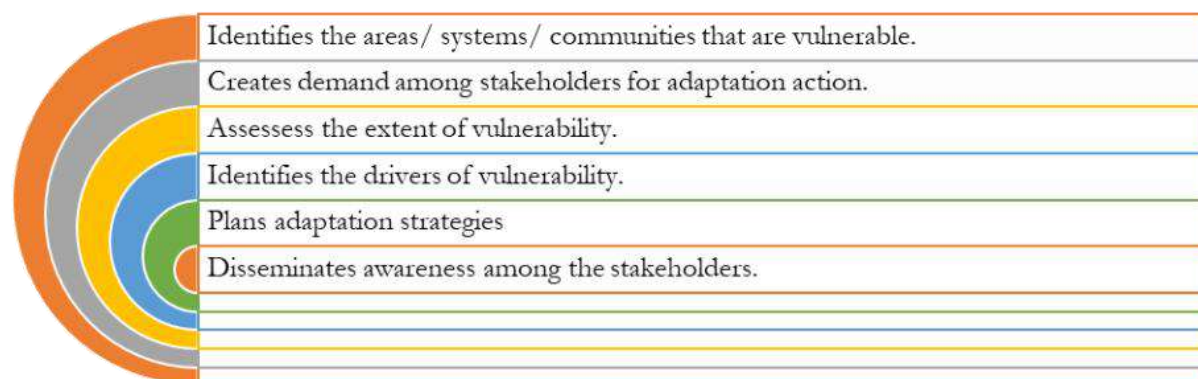


Figure 4.1: Vulnerability Assessment

It is useful to assess vulnerability under both the scenarios i.e. under current climate change and future (long-term) climate change scenarios. In the current assessment, we focus on the assessment of current climate vulnerability, as evolving adaptation strategy based on the current climate vulnerability assessment is a reliable and ‘no-regret’ approach to reduce current vulnerability and build long-term resilience under climate change. This is, in fact, the first step of any vulnerability assessment undertaken with the aim to reduce the risk under an uncertain future.

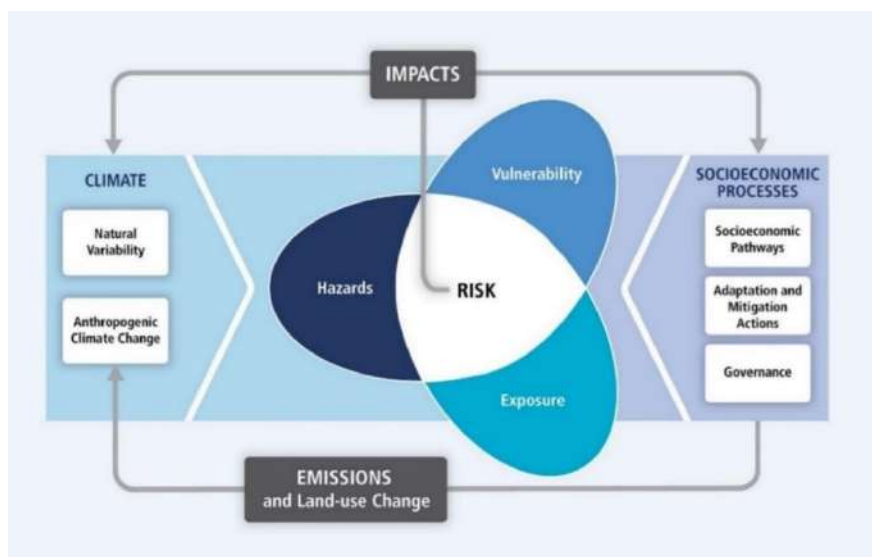


Figure 4.2: Risk management and assessment framework (Source: IPCC, 2014)

The Vulnerability Assessment framework and methodology was developed as part of a pan Himalayan study on Climate Vulnerability Assessment for the Indian Himalayan Region Using a Common Framework Submitted by Indian Institute of Technology Guwahati & Indian Institute of Technology Mandi in collaboration with Indian Institute of Science Bangalore under the project Capacity Building on Climate Change Vulnerability Assessment in the States of Indian Himalayan Region published in the year 2018-19. A detailed methodology was also published as a manual entitled “Climate Vulnerability and Risk Assessment: Framework, Methods and Guidelines for the Himalayan Regions” (Sharma *et al.*, 2018). The manual provides different methodological approaches (or steps) for assessing the risk depending upon the objective or scope, tier, or level etc., of assessment. The methodological steps adopted in this assessment are illustrated below.

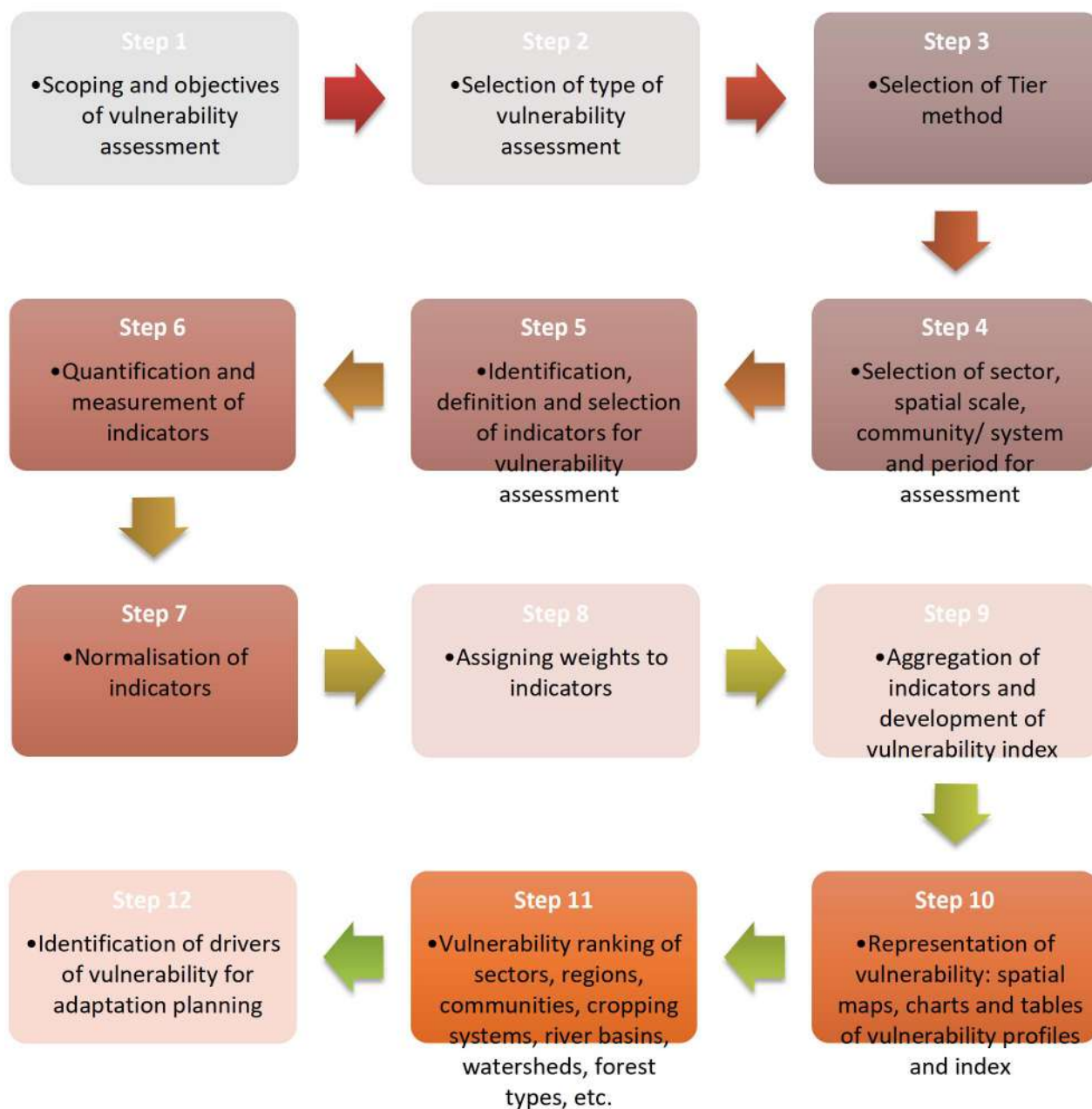


Figure 4.3: Steps in vulnerability assessment

The following are the steps adopted in assessing the vulnerability for the State of Meghalaya at district level:

Step 1: Scoping of vulnerability assessment

One of the first steps in vulnerability assessment is the scoping, and thereby, to identify the objective or purpose of the assessment and the target audience for whom the vulnerability assessment is being carried out. The scope and objective was to identify and rank the vulnerable

district of Meghalaya, and also to prioritise the most vulnerable districts for formulating adaptation planning and awareness creation. The target audience are the policy maker for formulating adaptation planning and rural population for awareness creation.

Step 2: Selection of type of vulnerability assessment:

For the selection of type of vulnerability assessment, the referred manual describes about three board typology for vulnerability assessment i.e. (a) bio-physical vulnerability or Socio-economic, including institutional vulnerability, (b) Integrated vulnerability, in which both the bio-physical and socio-economic/institutional, and (c) hazard-specific vulnerability. In this assessment, the second type of vulnerability assessment is chosen i.e. the integrated vulnerability in which both the bio-physical socio-economic were included.

Step 3: Selection of Tier methods

As per the manual, a vulnerability assessment can be carries out simply using secondary data or by utilizing secondary and primary data sources, GIS techniques and climate model output. Three types of Tier has been identified and given in the models i.e. (a) Tier 1 which is a top-down approach and is largely based on secondary data, (b) Tier 2 involves a combination of top-down and bottom-up data, approaches or studies, (c) Tier 3 involves largely bottom-up approach, along with spatial remote sensing and GIS information/data. Further, the choice of the tier for assessing the vulnerability also dependent on: (a) objective of the assessment, (b) availability of time, skills, and resources for the assessment, (c) availability of access data, and (d) rigour of methods and information needed for the assessment.

In this assessment report, Tier 1 was chosen for the present assessment which is a top-down approach and based on secondary data. It was chosen considering the due to the availability of secondary data to quantify the indicators, and this tier is ideal methods for rapid assessment of vulnerability.

Step 4: Selection of Spatial scale and period for vulnerability assessment

Vulnerability assessment could be carried out at a different spatial scale i.e. micro scale (village level) or macro scale (district level, watershed or district). It can also be carried out for different time period i.e. short-term (2030s), mid-term (2050s), and long-term (2100).

The present assessment is done at the macro scale for short-term i.e. district level for 2030s. This was done so that the vulnerability amongst the districts can be compared across the State.

Step 5. Identification, definition, and selection of indicators for vulnerability assessment

The fifth step is the Identification, definition, and selection of indicators for vulnerability assessment. This step is one of the most crucial steps in vulnerability assessment as the outcome will be highly dependent on the choice of indicators. While choosing the indicators, several things were considered viz. type of indicator (i.e. weather it capture ‘sensitivity’ or ‘adaptive capacity’; ‘bio-physical’ or ‘socio-economic’ etc.).

Step 6: Quantification and measurement of indicators

The next step is the quantification and measurement of all the indicators (data) so that it can express in terms of numbers for applying mathematical operations. For this all the data were quantified.

Step 7: Normalization of indicators

All the vulnerability Indicators are expressed in different units (e.g. area under Forest in terms of sq. km, MGNREGA in terms of days/year etc.). As the VA is about ranking the indicators have to bring in common units. For this the normalization equation of each indicator depending on the nature of relationship with the vulnerability (positive or negative relationship). The following two cases has been used to normalise the indicators:

Case I: The indicator has positive relationship with vulnerability:

$$\text{Normalized Value (NV)} = \frac{(\text{Actual indicator value} - \text{Min. indicator value})}{(\text{Max. indicator value} - \text{Min. indicator value})} \quad \dots\dots (1)$$

Case II: The indicator has negative relationship with vulnerability

$$\text{Normalized Value (NV)} = \frac{(\text{Max. indicator value} - \text{Actual indicator value})}{(\text{Max. indicator value} - \text{Min. indicator value})} \quad \dots\dots (2)$$

Step 8: Assigning weights to indicators

Assigning proper weights is very crucial for obtaining reliable results. In this assessment, weightage were assigned after thorough discussion and consultation of the nature and importance of indicators with respect to the State with the experts. While, assigning the weight it was ensured that the weight or proportion assigned to all the indicators, add up to 100. Weight was assigned to each indicator according to their importance in determining vulnerability of a system.

Step 9: Aggregation of indicators and development of vulnerability index

Aggregation of different indicators with weight is necessary to obtain a composite aggregated index or value. For this, the weight was multiplied with the normalised indicator value and aggregated. Normalised and weight values of indicators were aggregated to obtain the overall vulnerability index value for each district in the State.

Step 10: Representation of vulnerability; spatial maps, charts and tables of vulnerability profiles and index

The vulnerability index value obtained were represented in the form of tables and map.

Step 11: Vulnerability ranking of the districts in the state

The vulnerability ranking was categorised or grouped according to their level/degree of vulnerability into low, medium, high.

Step 12: Identification of drivers of vulnerability for adaptation planning

Identifying the drivers of vulnerability is crucial for adaptation planning. The drivers of vulnerability or factors contributing to the assessed vulnerability index value were plotted in percentage and it was graphically represented.

Based on the common framework, three vulnerability assessments for Meghalaya were carried out by the state climate change centre. Integrated Vulnerability Assessment at District level (where the

erstwhile 7 districts were considered), Integrated Vulnerability Assessment at Block Level (46 Blocks) and Sectoral Vulnerability Assessment for Agriculture.

The findings of the assessments are summarised as follows

4.2. Integrated Vulnerability Assessment at District level

Vulnerability index (VI) indicates the level of vulnerability of the districts based on the index value to have a comparative ranking. Higher the value of VI, higher will be the vulnerability.

The Integrated Vulnerability Assessment at District level comparative ranking is being carried for seven districts based on the eight indicators that have been considered.	Area with more 30 Degree Slope	Percentage area under Forest	Average Person Days Per Household under MGNREGA	Infant Mortality Rate
	Female Literacy Rate	Population Density	Multidimensional Poverty Index	Yield Variability

The Integrated Vulnerability Assessment at District level is being carried for eleven districts based on the eight indicators (Annexure) that have been considered under biophysical and socio-economic indicators from concerned department. The vulnerability distribution for Meghalaya is categorised under three classes viz., high, medium and low. Vulnerability index (VI) indicates the level of vulnerability of the districts based on the index value to have a comparative ranking. Higher the value of VI, higher will be the vulnerability. The two districts with vulnerability index > 0.48 are identified as highly vulnerable districts; these include West Khasi Hills, East Garo Hills. However, the districts of West Garo Hills and East Khasi Hills with VI between 0.45 – 0.47 are identified as comparatively moderately vulnerable districts. The comparatively lower vulnerability districts are Ri Bhoi, South Garo Hills, West Jaintia Hills, North Garo Hills, South West Garo Hills, South West Khasi Hills, East Jaintia Hills which have a VI of < 0.38 .

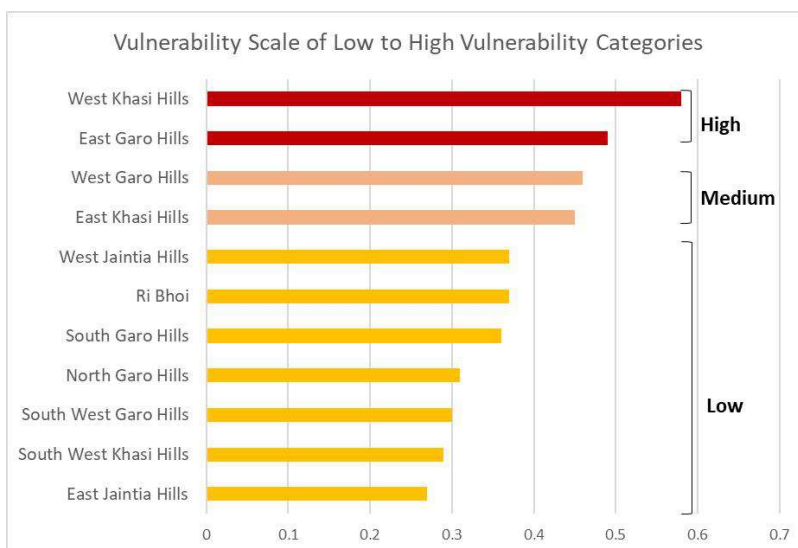


Figure 4.4: Distribution of districts on a vulnerability scale of Low to High Vulnerability Categories

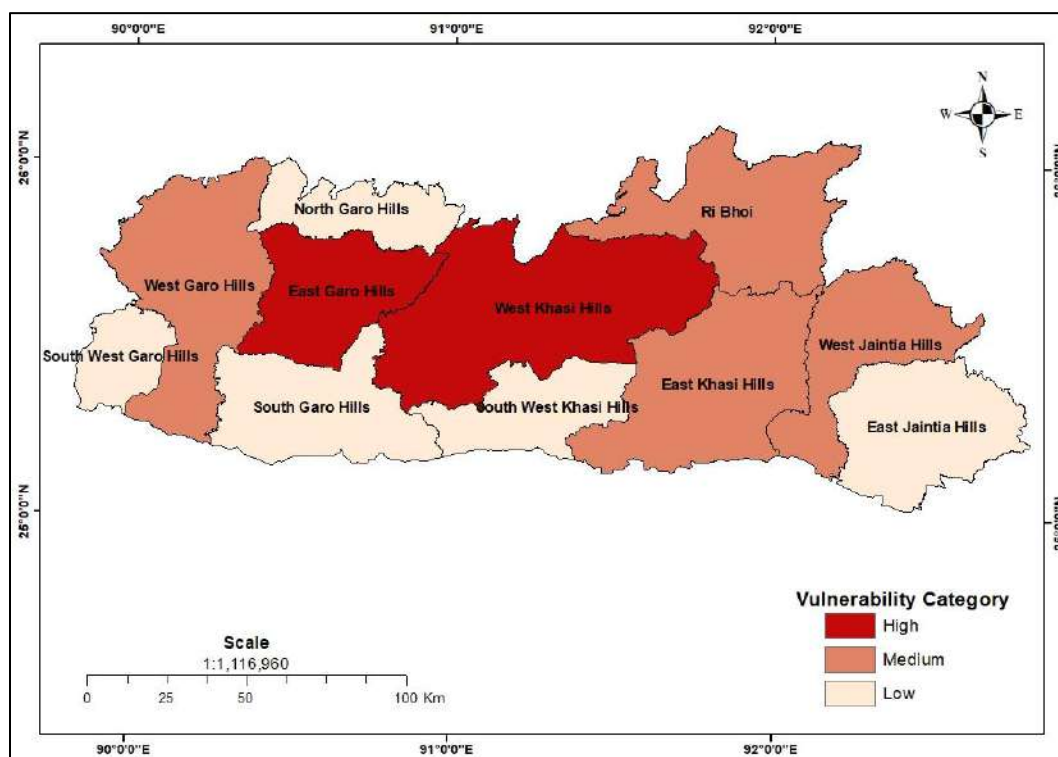


Figure 4.5: District wise Vulnerability Index Class

Major drivers of vulnerability for the districts in different vulnerability classes are presented in Figure 4.6. The vulnerability of West Khasi Hills' district is driven by a high multidimensional poverty index, deforestation, and steep slopes. East Garo Hills, ranked second, and West Garo Hills, ranked third, both face significant vulnerability due to limited forest cover.

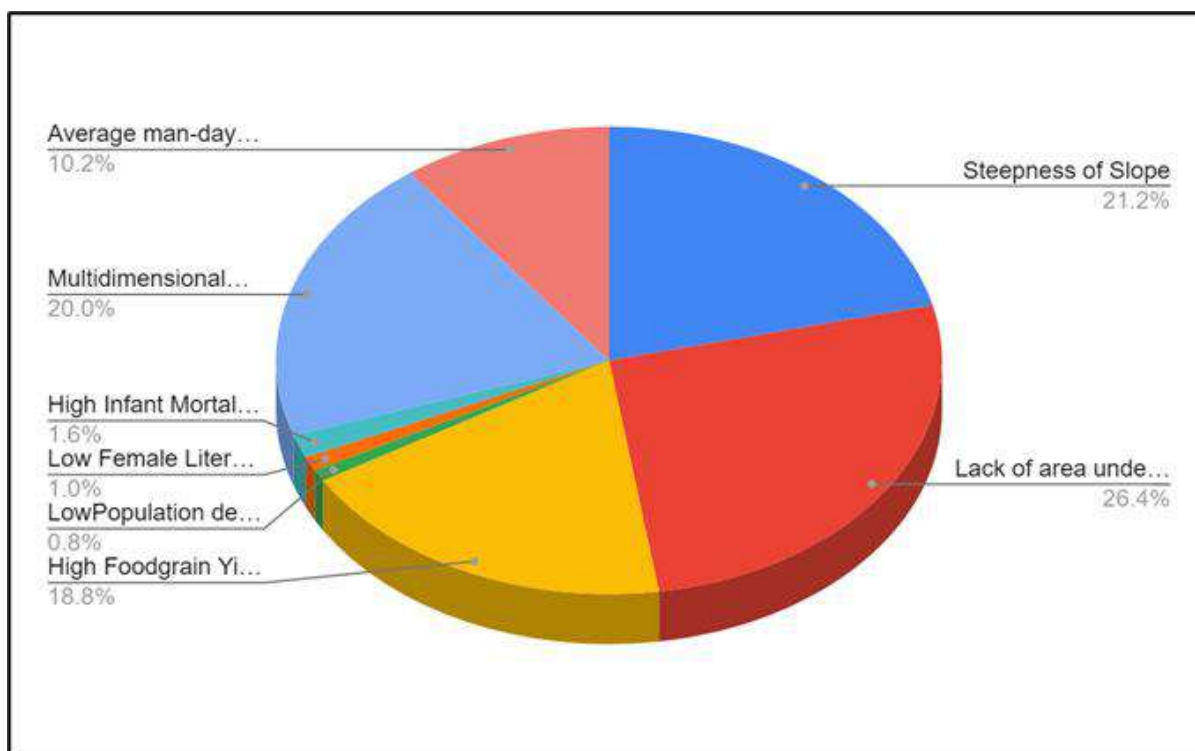


Figure 4.6: Drivers of Vulnerability at State level

Major Drivers Contributed to Meghalaya's Vulnerability

Steepness of Slope	Multidimensional Poverty Index	Lack of Area under Forests
Higher slope proportion contributes to higher soil erosion and sedimentation, inaccessibility and cause more damage during disasters and extreme climate events.	Poorer communities are more vulnerable to climate change, with 48.90% of the population in Meghalaya living in poverty. These marginalized groups depend heavily on natural resources, which are also at risk. Climate events create poverty traps affecting health, education, and assets through droughts, irrigation failures, and crop diseases. The extreme poor, especially in remote areas, struggle to accumulate assets. Children are particularly at risk, facing food insecurity, poor sanitation, and inadequate shelter.	The State has over 76% forest cover, with district levels between 63%-89%. However, 25% of these forests are highly vulnerable due to disturbances, fragmentation, biodiversity loss, and precarious mountain slopes. Climate change will exacerbate these issues. Other significant drivers include steep southern slopes and inconsistent MGNREGA coverage. High infant mortality, low female literacy, and low population density are less significant drivers.

4.3. Sectoral Vulnerability Assessment- District level Health sector

Climate Vulnerability Assessment on Health Sector for district level was carried out based on 7 indicators. The findings show that **West Garo Hills** has the highest vulnerability index value (0.534) compared to the other eleven districts in the state of Meghalaya which place it in vulnerability rank 1 indicating it to be the most vulnerable district. Similarly, the **East Jaintia Hills** with vulnerability index value of (0.530) was placed in rank 2 followed by **East Khasi Hills** in rank 3 (0.524). Whereas the district of **East Garo Hills** was found to be the least vulnerable district with an index value of 0.166. This is presented in Figure 4.7 and Figure 4.8 below.

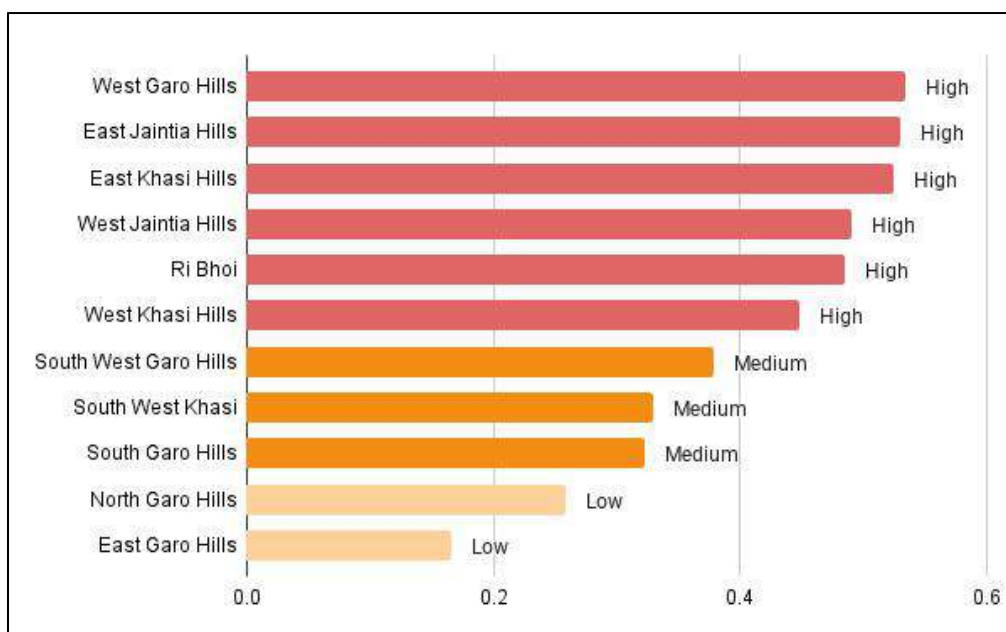


Figure 4.7: Distribution of Districts on a Vulnerability Scale of Low to High Vulnerability Categories (VC)

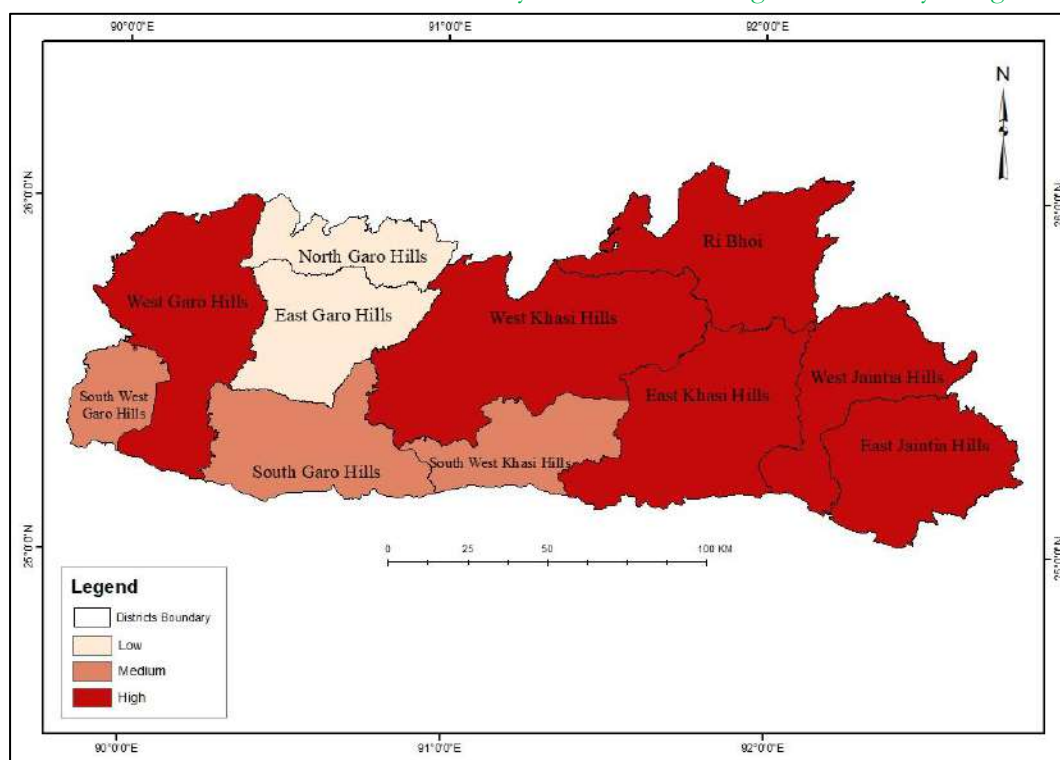


Figure 4.8: Map showing Vulnerability Category of Meghalaya at District level

As the ranking are based on the indicators it can be seen that the main indicators contributing to the vulnerability of **West Garo Hills** district are low number of PHC coverage per 1000 population (0.20), high cases of Dengue (0.12) and low numbers of doctors per 1000 population (0.11). Also, **East Jaintia Hills** being the second most vulnerable district, the main indicators contributing to its vulnerability low number of doctors per 1000 population (0.22) followed by high cases of Scrub typhus and low numbers of PHC coverage per 1000 population. However, **East Khasi Hills** district

which falls under rank 3, the main indicators contributing to its vulnerability are low number PHC coverage (0.144) & low number of doctors per 1000 population (0.142). Similarly, a cluster of seven districts: **West Jaintia Hills, Ri Bhoi, West Khasi Hills, South West Garo Hills, South West Khasi Hills, South Garo Hills** and **North Garo Hills** share similar indicator contributing to their vulnerability are the low number of doctors per 1000 population. **East Garo Hills** which scored the lowest is primarily affected by low numbers of PHC coverage per 1000 population (0.09) Figure: 4.9

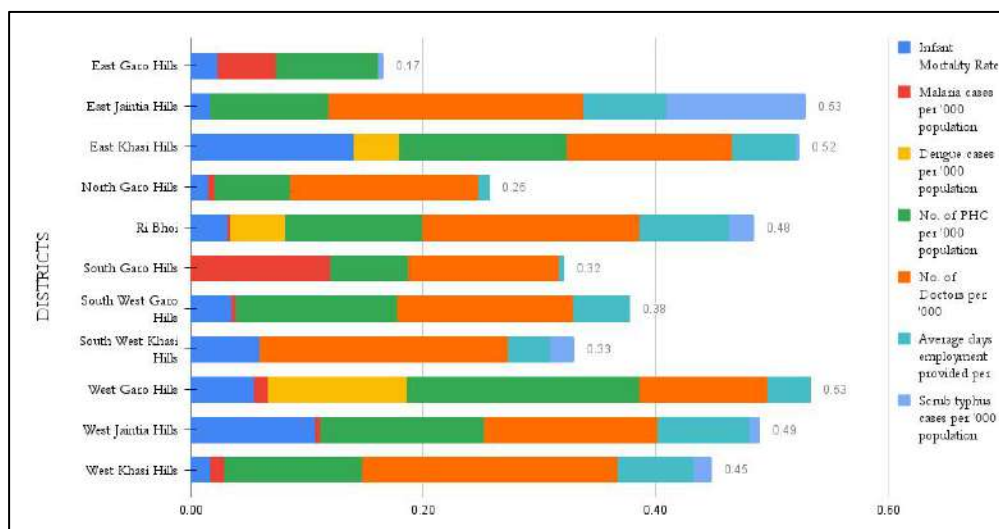


Figure 4.9: Stacked bar diagram shows contribution of all indicators to the total vulnerability index at district level

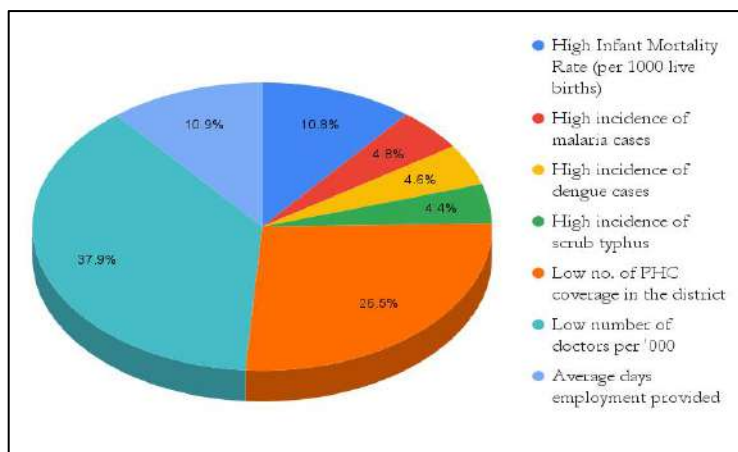


Figure 4.10: Major drivers of vulnerability for health sector and their percentage contribution

4.4. Sectoral Vulnerability Assessment- District level Water sector

A total of 5 indicators were considered to derive the Water Vulnerability Index (WVI) at the district level. Based on the indicators the district with the highest index value is said to be the most vulnerable out of all and hence is ranked first. Further, based on the vulnerability index value, the districts had been categorised into 3 classes namely high (0.713 to 0.476), medium (0.476) to 0.30),

low (0.30 to 0.24). Out of 11 districts, 3 districts fall under the relatively high vulnerability category. South West Garo Hills has the highest vulnerability index value (0.713) compared to the other eleven districts in the state of Meghalaya and hence place at rank 1, indicating to be the most vulnerable district against climate variability and climate change in terms of water. Similarly, the North Garo Hills district with vulnerability index value of (0.507) was placed in rank 2 followed by East Khasi Hills in rank 3 with VI value of 0.506. Ri Bhoi scored the least number vulnerability index values (0.247) making it the least vulnerable district. (Figure 4.11 and Figure 4.12)

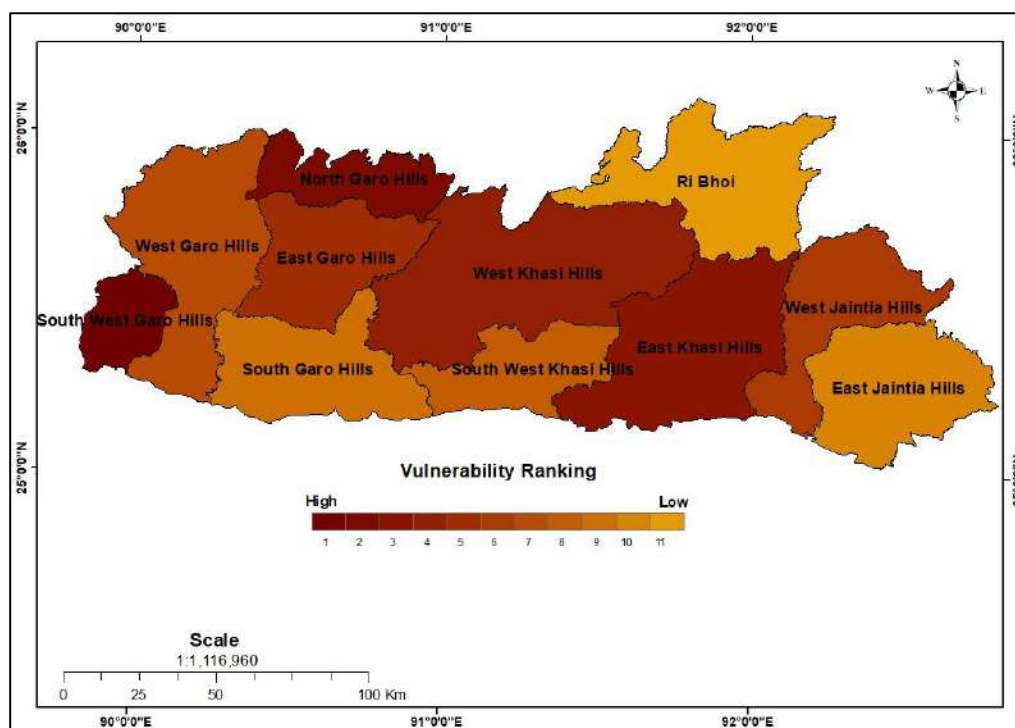


Figure 4.11: Map showing districts on a vulnerability scale of relatively Low to relatively High Vulnerability Categories

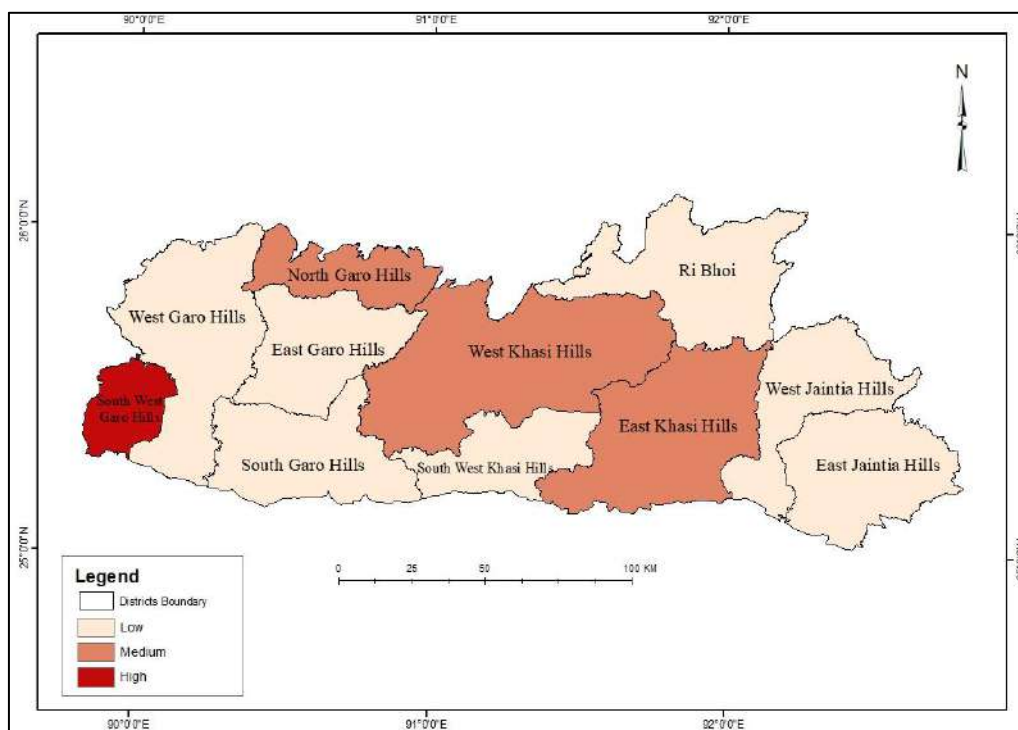


Figure 4.12: Map showing Water Vulnerability Category of Meghalaya at District level

Major drivers of vulnerability

The assessment has been crucial for identifying the different drivers which contribute in varying proportions to the vulnerability across the state of Meghalaya. District level information about the vulnerability drivers elaborated through this study would be useful in prioritizing development and implementation of sustainable adaptation measures and aid in reducing the climate vulnerability of the people and water sector in the State of Meghalaya.

In this assessment, each of the 11 districts was found to have a combination of drivers that added to its high vulnerability. Based on the percent contribution of each indicator across all districts to aggregated vulnerability index value of all indicators averaged across all districts, less forest cover contributors highest (36.25%) to overall vulnerability followed by limited piped-water connection for household (23.17%) lack of springs per household (20.38%), lack of groundwater (20.22%) and water stress index (11.29%).

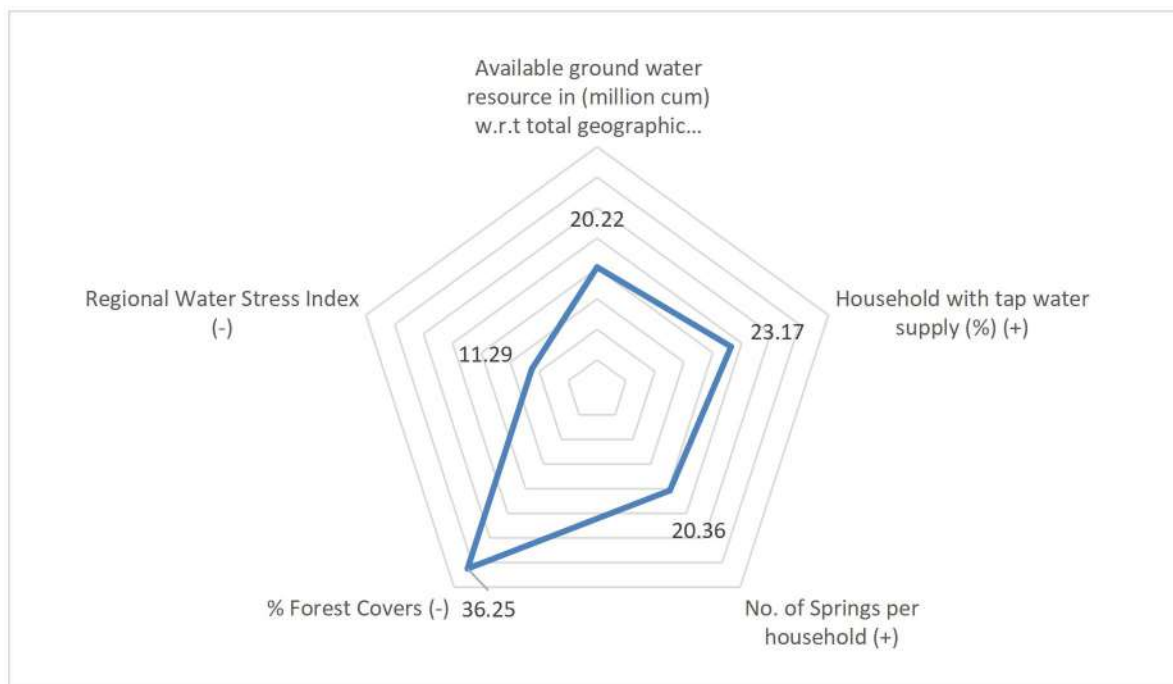


Figure 4.13: Drivers contributing to Water Vulnerability in Meghalaya

4.5. Integrated Vulnerability Assessment at Block Level

With the findings of the district level vulnerability profile, the need to further downscale the assessment was crucial to improve the understanding over various sectors. Thus, the integrated vulnerability assessment at Block level was carried out using the same common framework. For this assessment a total of 15 indicators covering State's crucial sector i.e. Agriculture, Forests, Water, Infrastructure, Health, and Livelihood. The selected indicators are listed below;



Figure 4.14: Indicators of Integrated Vulnerability Assessment at Block Level

Vulnerability profile and ranking of Blocks

The assessment of the vulnerability showed that 25 Blocks, out of 39, were found to be categorised as Very High and High. The remaining blocks i.e 14, were categorised as Moderately vulnerable (9 Blocks), Low vulnerable (2 blocks) and Very Low vulnerable (3 blocks). Thadlaskein Block was found to be most vulnerable followed by Ranikor, Laskein and Mawkynrew. While the least vulnerable blocks were Zigzag, followed by Betasing and Myllem. The following table provides a summation of the vulnerability profile and the vulnerability ranking of the blocks.



Vulnerability profile and ranking of Blocks

Table 4.1 : Vulnerability Ranking & category wise list of Blocks (*inset: Figure 4.15: Integrated Vulnerability Map of Meghalaya at the Block level*)

BLOCK	Rank	Vulnerability Category	BLOCK	Rank	Vulnerability Category	BLOCK	Rank	Vulnerability Category	BLOCK	Rank	Vulnerability Category
		Very High			High			Medium			Low
Thadlaskein	1		Rongara	11		Mawsynram	26		Samanda	36	
Ranikor	2		Gasuapara	12		Mawshynrut	27		Selsella	35	
Laskein	3		Dalu	13		Tikrikilla	28				
Mawkynrew	4		Khliehriat	14		Songsak	29				
Mawthadrai shan	5		Jirang	15		Mawkyrwat	30				
Mairang	6		Rongram	16		Umling	31				
Saipung	7		Khatarshnong Laitkroh	17		Baghmara	32				
Mawryngkneng	8		Kharkutta	18		Dambo Rongjeng	33				
Amlarem	9		Mawphlang	19		Resubelpara	34				
Shella Bholaganj	10		Dadenggre	20							
			Pynursla	21							
			Umsning	22							
			Chokpot	23							
			Nongstoin	24							
			Gambegre	25							

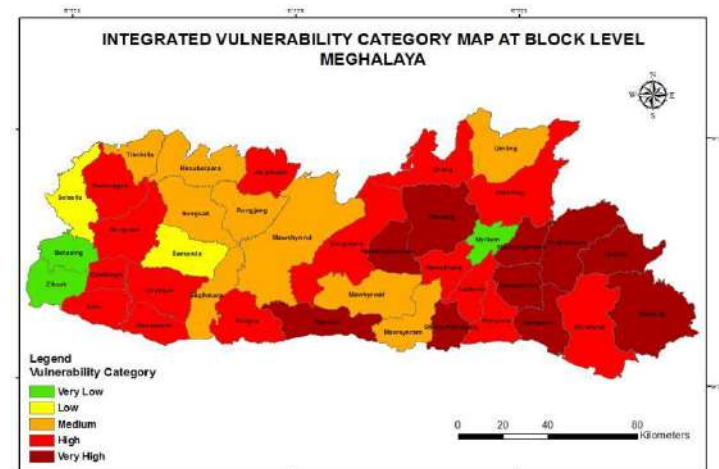


Figure 4.15: Integrated Vulnerability Map of Meghalaya at the Block level

Major drivers of vulnerability

The integrated vulnerability assessment show the State of Meghalaya is a vulnerable state with 25 out of 39 blocks falling under the High and Very High Vulnerability Categories. The vulnerability is majorly driven by 5 indicators with high indices ranging between 8.28 to 9.57, these being;

Table 4.2: Major Drivers of Integrated Vulnerability Assessment at Block Level

Ranking	Driver	Description
1.	Angamwadi Centres per 1000 ha	<i>The strongest driver is the Number of Angamwadi Centres per 1000 ha where it is seen that 20 out of 39 blocks have less than 26 centres per 1000 ha of area which is the State's calculated average. The difference between Myllem block in East Khasi Hills and Saipung in East Jaintia Hills is 145 centres.</i>
2.	Households having kisan credit card with the credit limit of Rs.50,000 and above (%)	<i>It was noted that in all the Blocks the percentage of HHs having kisan credit card with the credit limit of Rs.50,000 was less than 2% except for Zikzak which, surprisingly, has 16% of its households with kisan credit card with the credit limit of Rs.50,000. Thus, showing the degree of vulnerability of the farming households in the State.</i>
3.	Monthly income of highest earning household member is < 5000 (%)	<i>According the SECC, in 32 out of 39 blocks the percentage of HHs having Monthly income of highest earning household member is < 5000 is above 70% with the Block of Dadenggre having the highest percentage of above 92%. The vulnerability of the rural population is accentuated by the exceeding low-income levels.</i>
4.	Forests Area per '000 Rural Population	<i>With less than 25% of the geographical area under Forests area, the availability of forests resources to the population is limited. The availability of Forests area per 1000 rural population ranges from 25.32 sq km in Saipung block of East Jaintia Hills to a mere 1.21 sq km in Myllem Block. 28 Blocks have less than 10 sq km of forests area per 1000 rural population.</i>
5.	% Net Irrigated by Net Sown	<i>The State has 14.45 % of Net Sown area under Net Irrigated area. Irrigation is almost non-existent in some blocks with as low as 0.72 % net sown area under net irrigated area in Saipung Block, while the maximum stand at 67.61 % in Amlarem Block of West Jaintia Hills. 29 Blocks have less than 20% area under net irrigated.</i>

It may be noted that the indicators are broadly categorised under Socio-economic and livelihood, Bio Physical, Institution & Infrastructure and Health. The assessment shows that 5 sub indicators under Institution & infrastructure contribute 35.52% to the vulnerability of the State. While, 5 sub indicators under Bio Physical and 4 sub indicators under Socio-economic and livelihood contribute 28.23% and 26.68% respectively. With only 1 sub indicator, Health alone contributes 9.57% to the States' vulnerability. The figures below show the percentage contribution to vulnerability by each sub indicator at both the State level and Block level. The Block assessment also clearly defines the drivers of vulnerability for each Block. This downscaling of drivers can support in making informed decisions towards building resilience of the sector, block and state.

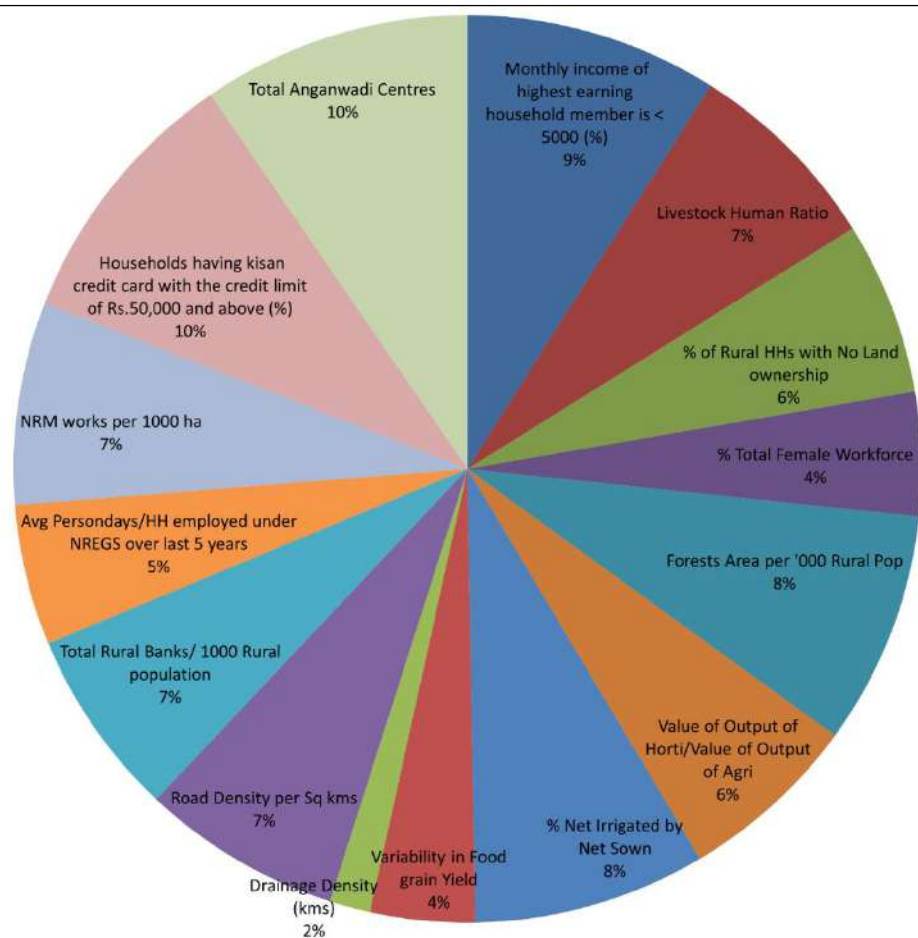


Figure 4.16: Percentage share of the Drivers of vulnerability at the State level

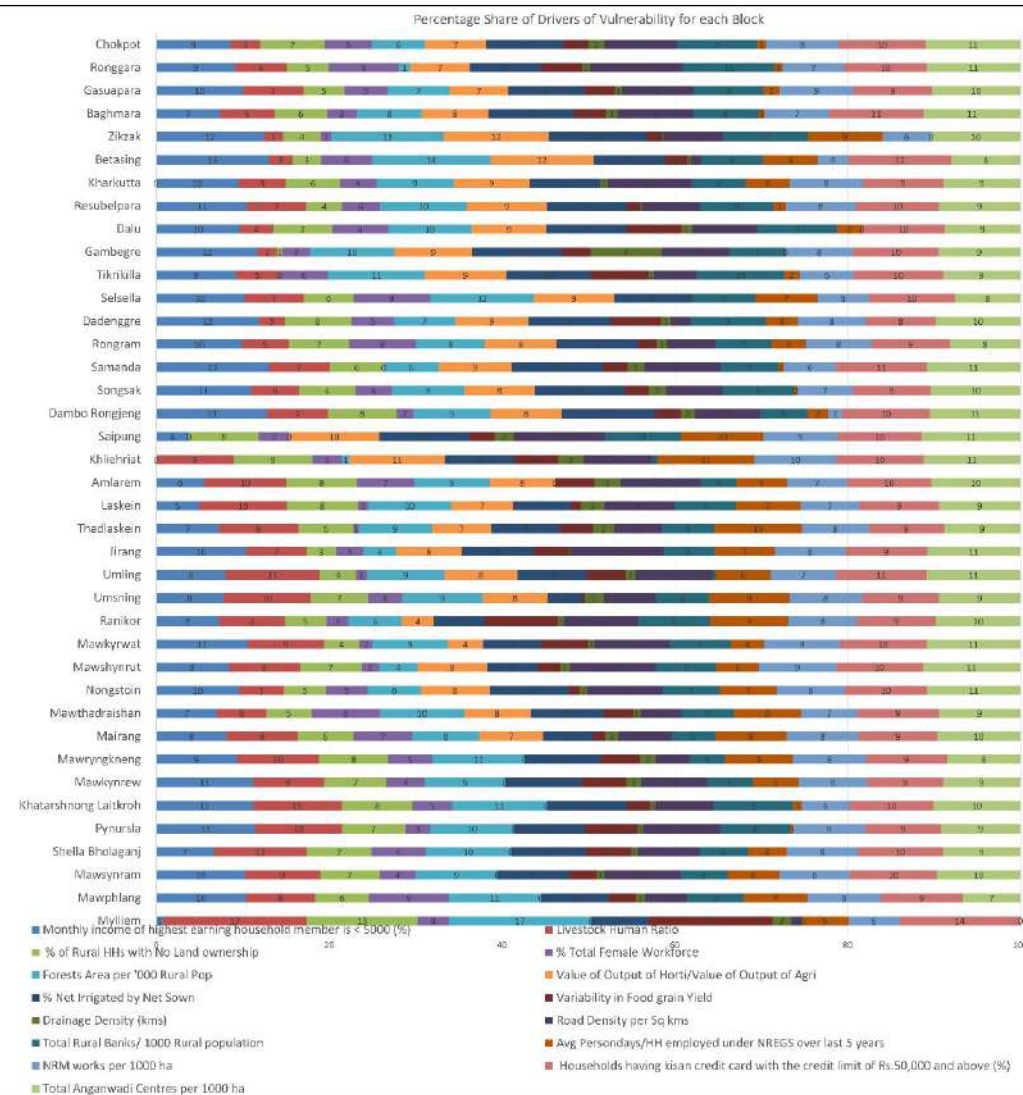


Figure 4.17: Percentage share of the Drivers of vulnerability at the Block level

4.6. Sectoral Vulnerability Assessment- District level Agriculture sector

With 81% of the state's population depends on Agriculture, employment and income generation also depends on Agricultural developmental activities to a great extent. The State is yet to realise the National Level in economic and agricultural growth rate. A slowly and steadily progressing sector despite the numerous constraints and limiting factors is chosen to derive its vulnerability to the impacts of climate change. Using the common framework, the Meghalaya Climate Change Centre carried out a sectoral vulnerability assessment of the agriculture sector.

An exhaustive list of 14 indicators were considered to derive the vulnerability. These indicators are;

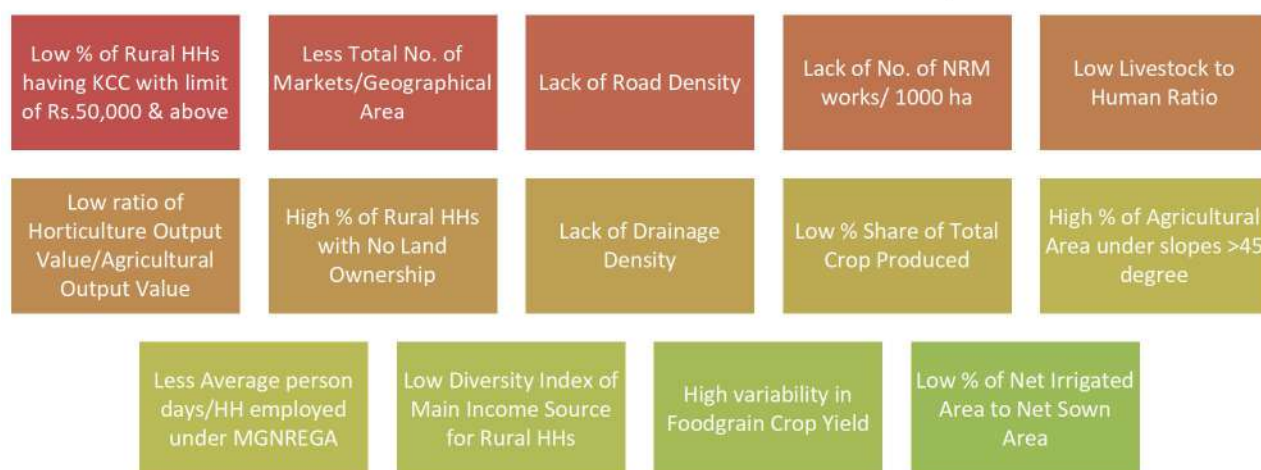


Figure 4.18: 14 indicators were considered to derive the vulnerability

Based on the indicators the Vulnerability Index (ranging between 0 to 1) was determined. The district with highest index value is said to be the most vulnerable out of all and hence is ranked first. Further, based on the vulnerability index value, the districts had been categorised into 5 classes namely Very High (0.68 to 0.78), High (0.57 to 0.68), Medium (0.46 to 0.57), Low (0.35 to 0.46) and Very Low (0.11 to 0.35).

Table 4.3: Distribution of districts on a vulnerability scale of Very Low to Very High Vulnerability Categories and corresponding ranks of districts in the state of Meghalaya

Districts	Ranking of Districts based on VI	Agriculture Vulnerability Index	Vulnerability Category
East Jaintia Hills	1	0.784	Very High
South West Khasi Hills	2	0.778	
West Khasi Hills	3	0.674	High
Ri Bhoi	4	0.655	
East Khasi Hills	5	0.631	
West Jaintia Hills	6	0.622	
South Garo Hills	7	0.612	
North Garo Hills	8	0.581	
East Garo Hills	9	0.562	Medium
West Garo Hills	10	0.428	Low
South West Garo Hills	11	0.245	Very Low

Major drivers of vulnerability

It is vital to understand the drivers of vulnerability which in other words are factors contributing to the high index value. Identification of vulnerability contributors is a crucial step towards addressing the gaps, prioritising adaptation strategies and in making well informed policy decisions. In the current assessment, out of 14, five indicators which contributes to **50% of the State's sectoral vulnerability** are - low percentage of Rural HHs having KCC with limit of Rs.50,000 & above (12%), less number of Main & Local Markets per Geographical Area (11%), lack of Road Density (10%), lack of number of NRM works per 1000 ha (9%) and low Livestock to Human Ratio (8%). It is interesting to observe that out of these five major contributors, top four can broadly be categorised as sub-indicators of 'Infrastructural Facilities and Amenities'.

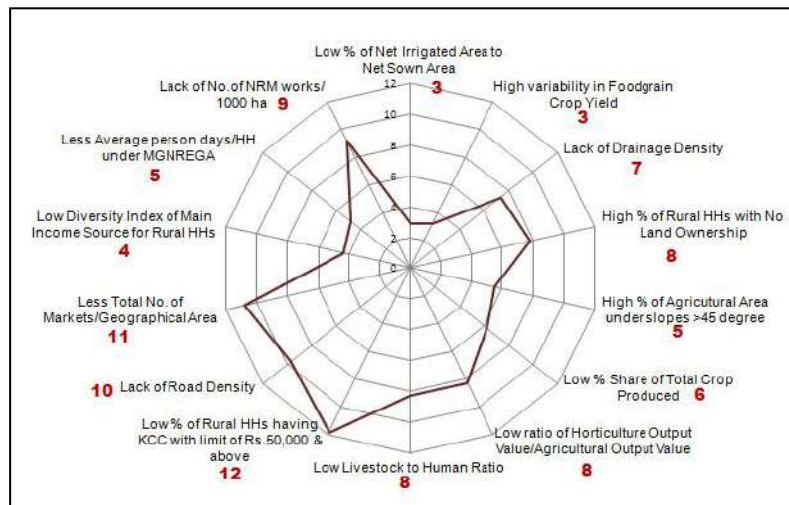


Figure 4.19: Drivers contributing to Agricultural Vulnerability in Meghalaya

In this assessment of agriculture sector's vulnerability, each of the 11 districts was found to have a combination of drivers that added to its high vulnerability.

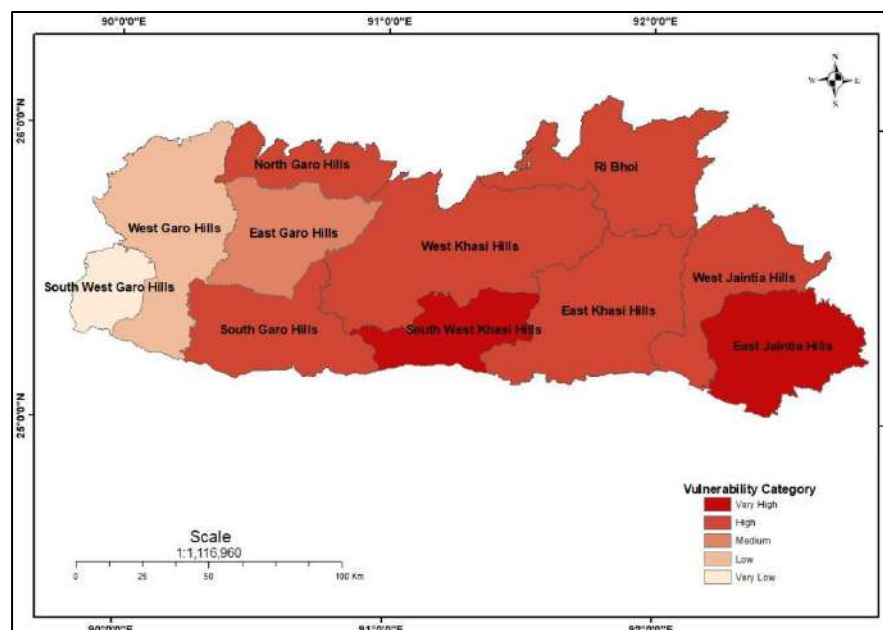


Figure 4.20: Map showing Agriculture Vulnerability Category of Meghalaya at District level

The vulnerability assessment indicated that agriculture in the majority of the districts in the State is vulnerable. Out of 11 districts, 7 districts fall under the very high vulnerability category the East Jaintia Hills District is the most vulnerable. The entire district in the Garo hills region except for South Garo Hills falls under the moderate and low vulnerability category. South West Garo Hills district is assessed to be the least vulnerable district in the State as far agriculture sector is concerned. A deeper analysis is presented in the table below;

Table 4.4: Top 3 Most Vulnerable Districts and the major drives of vulnerability

District (Vulnerability Index)	Category of Vulnerability	Major Drivers
East Jaintia Hills (0.784)	Very High	• Road Density (0.09) • % of Rural Hhs With No Land Ownership (0.08) • Livestock To Human Ratio (0.08) • % Of Rural Hhs Having Kisan Credit Card With Limit Rs.50,000 & Above (0.08) • No. of Main & Local Markets/Geographical Area (0.08) • No. of NRM Works/1000 Ha (0.08)
South West Khasi Hills (0.778)	Very Highly Vulnerable	• % of Rural HHs Having Kisan Credit Card with Limit Rs.50,000 & Above (0.08) • Road Density (0.08) • No. Of Main & Local Markets/ Geographical Area (0.08) • No. of NRM Works/1000 Ha (MGNREGS)
West Khasi Hills (0.674)	Highly Vulnerable	• % of Rural HHs Having Kisan Credit Card with Limit Rs.50,000 & above (0.08) • No. of Main & Local Markets/ Geographical Area (0.08) • Road Density (0.07)

The analysis reflects that all the 3 districts ranking highest in the agricultural vulnerability of Meghalaya i.e., EJH, SWKH and WKH, have four major drivers in common which are – % of Rural HHs having Kisan credit card with limit Rs.50,000 & above, Road Density, No. of Main & Local Markets/Geographical Area, and No. of NRM works/1000 ha.

The above assessments clearly indicate that vulnerability of the State is derived from multiple factors and the interplay of these indicators further define the vulnerability of individual District and Block. While acknowledging that the assessment is characterised by deficiency in both spatial and temporal aspects, it none the less provides an understanding of the capacity of the State's system.

Further assessments are required to understand the vulnerability of other equally important sectors. The State is also preparing Risk assessments that will further broaden the understanding of the States' system under the impacts of climate change. Risk assessments along with Risk projections will prepare the State in taking necessary corrective measures during and beyond the planning period.

4.7. Forest & Biodiversity Vulnerability

Given the Paris agreement (COP 21), forest and terrestrial ecosystems are increasingly assuming a more prominent role both as a very important carbon sink as well as an adaptation option due to their positive role in diversifying the livelihood opportunities the rural communities along with its moderating impacts on climate extremes, land degradation, water resources, and biodiversity conservations. However, climate change is likely to further add to the current stresses and vulnerabilities in the forest ecosystems of Meghalaya. It is well-established fact that addressing the current vulnerabilities leads to the reduction in future vulnerabilities. Therefore, in this direction, the first step is to assess the current vulnerability of the forests along with the drivers contributing to the vulnerability. The vulnerability assessment for forests & biodiversity of Meghalaya was conducted using the climate impact assessment models supplemented by the field-based measurements by IISc Bangalore. The study has assessed the state of the forest & forest diversity, change in the forest in the last decade (2000-2016), and the current vulnerability of the forest in Meghalaya.

The state of forest & biodiversity was assessed by using MODIS data and field sampling. The change in forest cover was assessed using high-resolution satellite data for the period 2000-2016. The inherent vulnerability of the forest of Meghalaya was assessed using the IPCC, 2014 methodology following the approach developed by Sharma *et al.*, 2017. The parameters used were biodiversity index, disturbance index, canopy and biomass index, and slope as an indicator for inherent vulnerability. The impact of climate change in the future was assessed by using a vegetation dynamics model *Land Postdam and Jena (LPJ)* and high-resolution multi-model climate change projections.

The following are the key finding of the current or inherent vulnerability of the forest:

- 1) The overall Net Primary Productivity (NPP) during the period (2000-2015) has declined which indicates an increase in forest stress and disturbance.
- 2) 50% of the total forests in the State had experienced a negative change as per Normalized Difference Vegetation Index (NDVI) change detection. The negative change in NDVI indicates a decrease in forest quality (Figure 4.6).
- 3) It is estimated that about 25% of the total forested area in Meghalaya has a high inherent vulnerability. About 64% of the forested area in the State is estimated to have a low inherent vulnerability, indicating higher resilience in these areas.
- 4) Forests in the districts of North Garo Hills and Ri-Bhoi are the districts with the most vulnerable forests in the state, while the forests from East Jaintia Hills and East Khasi Hills districts were identified as the most resilient during the assessment period i.e. 2000-2015.
- 5) The assessment concludes that the vulnerability of the forests in Meghalaya arises from forest disturbances, fragmentation, patchiness, low biodiversity, and precarious mountain slope. The fragmented and isolated forests in low-diversity areas are especially vulnerable to climate change.

- 6) The model base projection suggests that Climate change presents both an opportunity and a threat to the forests in the state. The opportunity arises from the projections of increased productivity, increased biomass, and increased soil organic carbon in some parts of the state. However, the threat comes from the projections of shifting vegetation boundaries. Shifting vegetation boundaries in combination with the lack of biodiversity, and disturbed and fragmented habitats, poses serious threats to forest ecosystems.

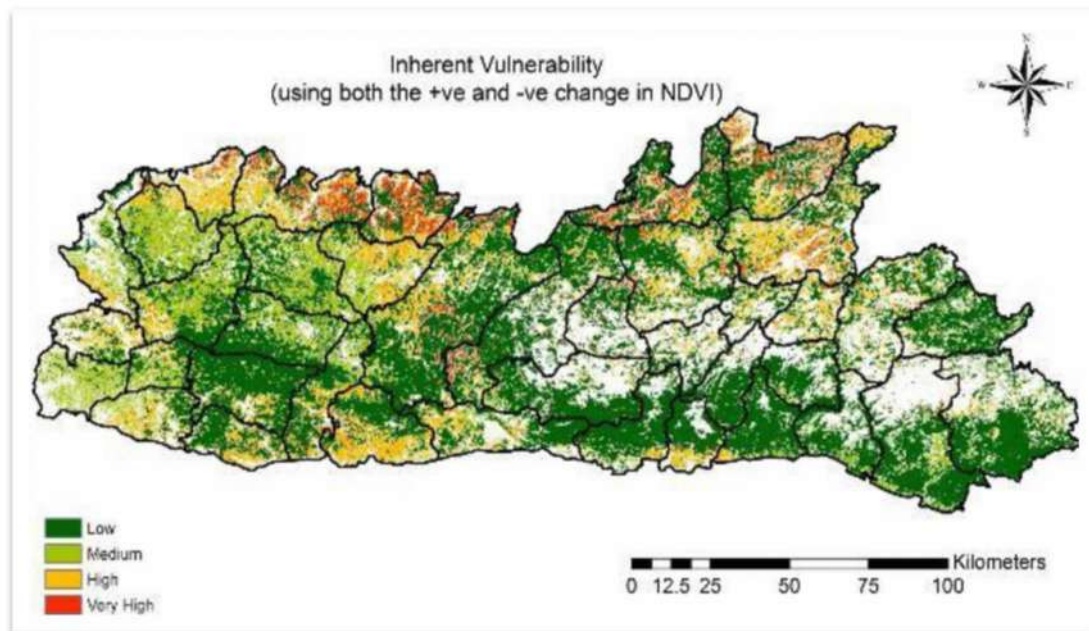


Figure 4.21 : Map showing Agriculture Vulnerability Category of Meghalaya at Block Level

Being a part of the Indo-Myanmar bio-geographical region, which is one of the mega biodiversity regions of the world, the State represents a rich biodiversity wealth with a high level of endemism. Meghalaya is a forest-rich State having a total of about 76.33% of its geographic area under forest cover, which is more than three times higher than the national average of about 21.67%. Forest ecosystems are intrinsically linked to climate; past and projected changes in climate have impacts on the forest and biodiversity on the other hand, as it helps in maintaining the global carbon balance, forests play a key role in climate change mitigation and adaptation.

In the future, climate stress is likely to manifest itself in the form of reduced productivity in the long term and in form of projections of shifting vegetation boundaries. Shifting vegetation boundaries in itself may not be a big problem, however, in combination with the lack of biodiversity, and disturbed and fragmented habitats, it possess a serious threat to forest ecosystems. The fragmented and isolated forests in low biodiversity areas are especially vulnerable to the impacts of climate change, which in turn, could hamper the dispersal and migration of the species. Thus, it is required to address the current vulnerabilities, their drivers, and climate change vulnerabilities.

It is important to carry out afforestation and forest restoration activities, keeping in mind the need to build corridors to link isolated and fragmented forests. While building the corridors, a mix of

native and relevant species should be selected. Such corridors will not be only useful for building the resilience of the forest ecosystems, but they will also provide crucial points for the movement of fauna as well. It needs to be understood that the needs of plants are in synergy with the needs of the animals including the large mammals. Since water and nutrients are a critical bottleneck for realizing the benefits of increases in NPP, It is important to promote water conservation activities in the forests of the State. At the same time, there is a need to accelerate the forest conservation activities in a way that these activities increase the overall biodiversity richness of the forest, by the planting of a mix of native species.

Govt. of India has proposed large-scale afforestation and reforestation activities in its INDC. Afforestation and reforestation activities, proposed as mitigation activities, provide opportunities for adaptation as well. Therefore, it is important to increase the forest cover by intensive and large-scale plantations so that the State contributes significantly to the INDC in terms of carbon storage in the forest systems in the State. Also, the forest conservation, afforestation/reforestation activities in the state should be designed such that these activities reduce the fragmentation and degradation of the existing forests. Anticipatory planting and assisted natural migration through transplanting plant species could also be considered.

In the State, a large number of rural communities depend on forest resources for their livelihood. However, with climate change, increasing climate extremes have the potential to disrupt the supply of NTFPs in the short and long terms. Hence, the livelihood of the forest-dependent communities must be diversified and modernized via market linkages.

4.8. Risk Assessment

According to IPCC AR6 (2022), approximately 3.4 billion people in rural areas are highly vulnerable to climate change. Climate-related risks arise from both the direct impacts of climate change and societal responses, leading to adverse effects on lives, livelihoods, health, economic stability, cultural assets, infrastructure, ecosystems, and biodiversity.

The IPCC (2014) risk framework, adopted in IPCC AR6 (2022) defines risk as the result of dynamic interactions between climate-related hazards and the exposure and vulnerability of human or ecological systems. Hazards, exposure, and vulnerability are influenced by uncertainties in magnitude, likelihood, socio-economic development, adaptation, and decision-making, and they evolve over time and space.

4.8.1. Risk Assessment in the Context of Climate Change

The International Centre for Integrated Mountain Development (ICIMOD) highlights the critical need for institutions and governments in the Hindu-Kush Himalayan (HKH) region to adopt a standardized, multi-hazard risk and vulnerability assessment approach (Wester et al., 2019). Despite its importance, challenges such as data limitations, capacity constraints, and resource gaps persist. This project aims to address these challenges by conducting a hazard-specific vulnerability assessment for the IHR states, building on the framework developed in the previous project. This assessment will form a core part of the broader climate change risk assessment initiative.

4.8.2. Objectives

The project aimed to assess flood and drought risks in India under historical and current climate conditions and strengthen state capacity for adaptation planning.

Specific Objectives:

1. Create district-level flood and drought hazard, exposure, and vulnerability maps for India and its states/UTs.
2. Develop a comprehensive flood and drought risk map for India.
3. Build capacity of state climate-change cells and allied departments in risk assessment.

4.8.3. Methodology of Risk Assessment

Hazard

- Obtain historical and projected data for chosen hazards
- Select a method or equation to calculate the hazard index (Ex: SPI for flood and drought)
- Calculate the probability of occurrence of the hazard under current and future climate scenarios

Exposure

- Select hazard specific exposure indicators for the appropriate scale
- Obtain data for the chosen indicators for current and future climate scenarios
- Normalise the indicators and aggregate the exposure index

Vulnerability

- Select hazard specific vulnerability indicators for the appropriate scale
- Obtain data for the chosen indicators for current and future climate scenarios
- Normalise the indicators and aggregate the vulnerability index

Risk Index

- Calculate the risk index using: $\text{Risk} = \sqrt[3]{(\text{Hazard index} \times \text{Exposure index} \times \text{Vulnerability index})}$
- Rank the districts based on the risk index values and prepare a risk map

4.8.4. Assessment of Hazard, exposure and Vulnerability as components of flood and Drought Risk

Hazard-specific risk assessment

A climate hazard refers to a climate extreme or trend with the potential to cause adverse effects on specific elements of an affected system (Reisinger et al., 2020). Hazards arise from climate extremes, such as temperature-related events (extreme heat or cold) and precipitation-related events (rainfall or snow), encompassing heat, cold, wet, and dry conditions, as well as cryosphere (snow cover, ice, permafrost) and oceanic hazards (marine heatwaves). Some hazards are gradual, like drought and desertification, while others, such as cyclones and floods, occur abruptly. Although rapid-onset hazards attract more attention due to their visible impact, slow-onset hazards like sea-level rise and desertification are equally critical.

The focus of the current assessment is on two predominant hazards—droughts and floods, due to the large-scale socio-economic impacts in India.

Flood: IPCC (2012)¹ defines flood as ‘the overflowing of the normal confines of a stream or other bodies of water, or the accumulation of water over areas that are not normally submerged’. Meteorological floods can be caused by unusually heavy rain and the same has been considered in this assessment to calculate the flood hazard indicator.

Drought: IPCC (2012)⁴ defines meteorological drought as “a period of abnormally dry weather long enough to cause a serious hydrological imbalance”. Indian Meteorological Department (IMD) declares drought in an area when the rainfall deficiency is $\geq 26\%$ of its long-term normal. It is further classified into moderate and severe drought depending upon whether the deficiency is between 26 to 50% or more than 50% respectively.

¹ Seneviratne, S.I., N. Nicholls, D. Easterling, C.M. Goodess, S. Kanae, J. Kossin, Y. Luo, J. Marengo, K. McInnes, M. Rahimi, M. Reichstein, A. Sorteberg, C. Vera, and X. Zhang, 2012: Changes in climate extremes and their impacts on the natural physical environment. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 109-230.

Hazard Index for flood and drought

The Standard Precipitation Index (SPI) (McKee, 1993) is widely used for assessing drought and flood risks. SPI is based on the probability of observed precipitation over a specific time scale, converted into an index. Historical data from IMD (1969–2019) and future projections from CMIP5-CORDEX models (2030–2080) at a 25x25 Sq km resolution are used for SPI calculations (future climate risk assessments will follow later).

SPI compares precipitation over a given period to historical records for the same period. As a normalized index, it captures both wetter conditions (floods) and drier conditions (droughts), representing varying severity levels.

SPI for drought and flood is expressed as an index for different levels of severity of drought or flood as given in Table 4.5

Table 4.5: SPI Value Classification

SPI VALUE	CLASSIFICATION
≥ 2.0	Extremely wet
1.5 to 1.99	Very wet
1.0 to 1.49	Moderately wet
-0.99 to 0.99	Near Normal
-1.0 to -1.49	Moderately Dry
-1.5 to -1.99	Severely Dry
-2 and less	Extremely Dry

Hazard-Specific Exposure Assessment

“Exposure” is “the presence of people, livelihoods, species or ecosystems, environmental functions, services and resources, infrastructure or economic, social or cultural assets in places and settings that could be adversely affected” (IPCC 2014)². If population and economic resources were not located in (exposed to) potentially dangerous settings, the risk is less. Thus, Exposure can also be defined as the presence of the vulnerable system at a location where hazard occurs, therefore hazard can also be considered as the cofactor of the exposure. For the present analysis, the current climate exposure is considered.

Indicators of hazard-specific exposure

For flood and drought hazards, key exposure indicators include:

1. **Population Density:** Represents the population exposed in hazard-prone areas.
2. **Proportion of Agricultural Land:** Indicates livelihoods highly vulnerable to climate hazards.
3. **Proportion of Land with Slope >30°:** Highlights infrastructure at higher risk of damage in steep areas.

An indicator is categorized as exposure if it cannot be influenced by short- to medium-term policy changes, such as relocating populations, shifting livelihoods, or relocating infrastructure. The

² IPCC 2014 Summary for policymakers In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change ed C B Field et al (Cambridge) (Cambridge University Press) (Cambridge, United Kingdom and New York, NY, USA) pp 1–32.

rationale, functional relationship with exposure, data sources, and years are detailed in supporting documentation.

Hazard-Specific Vulnerability Assessment

Vulnerability, an internal property of a system (IPCC-AR5, 2014), reflects its propensity to be adversely affected. It is determined by two factors:

1. **Sensitivity (S):** The system's susceptibility to harm from a hazard (e.g., high prevalence of waterborne diseases indicating high sensitivity to floods).
2. **Adaptive Capacity (AC):** The system's ability to respond to climate variability and change (e.g., lack of public healthcare implies low adaptive capacity).

Vulnerability increases with higher sensitivity and decreases with greater adaptive capacity. It is multidimensional, context-specific, and assessed independently of hazard and exposure. Hazard-specific and integrated vulnerability assessments are critical for effective adaptation planning.

Indicators of hazard-specific vulnerability

In vulnerability assessment, we have indicators of different types (i.e., biophysical, socio-economic, and institutional). Table 4.6 presents the selected indicators under sensitivity and adaptive capacity, the rationale for considering these indicators, and the data sources.

Table 4.6: Indicators of sensitivity and adaptive capacity, the rationale for inclusion, and data sources

Indicator	Rationale for selection	Dimension	Data source
Monthly income of highest earning HH member is <5000 (%)	People with extremely low incomes are among the most vulnerable. They have little to no financial capital, so they have the least capacity to adapt to the impacts of climate risk (O'Brien, et.al.,2008).	Sensitivity (Positive)	Census of India, 2011
No of Anganwadi Centres per 1000 ha	Districts with less no of AWCs will mean that people will have to travel far distance to receive medical assistance.	Sensitivity (Negative)	Ministry of Health and Family Welfare, 2021
Share of horticulture in agriculture (Horticulture)	Horticulture trees are hardy and more resilient to climate variations compared to agricultural crops. They provide alternative income sources to agriculture. Once established they are far less sensitive to the impacts of climate risks, particularly	Adaptive capacity (Negative)	

	rainfall variability and droughts (IHAP, 2019).		
Forest area/1000 population (FA)	Forests are an important source of alternative livelihood and food through the extraction of non-timber forest products (NTFPs).	Adaptive capacity (Negative)	Forest Survey of India, 2021; Census of India, 2011
Road density (RD)	Under extreme weather events, the role of transport becomes crucial. The indicator focuses on accessibility and connectivity and provides the idea of the overall development of a region.	Adaptive capacity (Negative)	Ministry of Road Transport and Highway Research. Wing, GOI.

Normalization of Exposure and Vulnerability Indicators

Indicators considered for exposure and vulnerability are measured or expressed in different units and cannot be compared. Therefore, indicators are to be normalized. Normalization serves two purposes:

- i) It makes the indicators dimension-less, and comparable across districts,
- ii) It does the cardinal positioning of indicator values that would range between 0 and 1 across districts.

4.8.5. District-Level Flood and Drought Risk Maps for Meghalaya

India's diverse landscape requires state-level flood and drought risk assessments to gain localized insights into climate hazards, vulnerabilities, and exposures. These assessments help design tailored adaptation and mitigation strategies to address the specific challenges faced by different regions and communities. By conducting district-level risk assessments, Meghalaya can identify areas and populations most at risk, allowing for targeted interventions and efficient resource allocation. This ensures that adaptation and resilience measures are effectively prioritized and implemented, addressing the unique vulnerabilities of each district. Additionally, the findings can guide the development of state-specific policies and strategies, ensuring interventions are aligned with local contexts and needs for enhanced effectiveness.

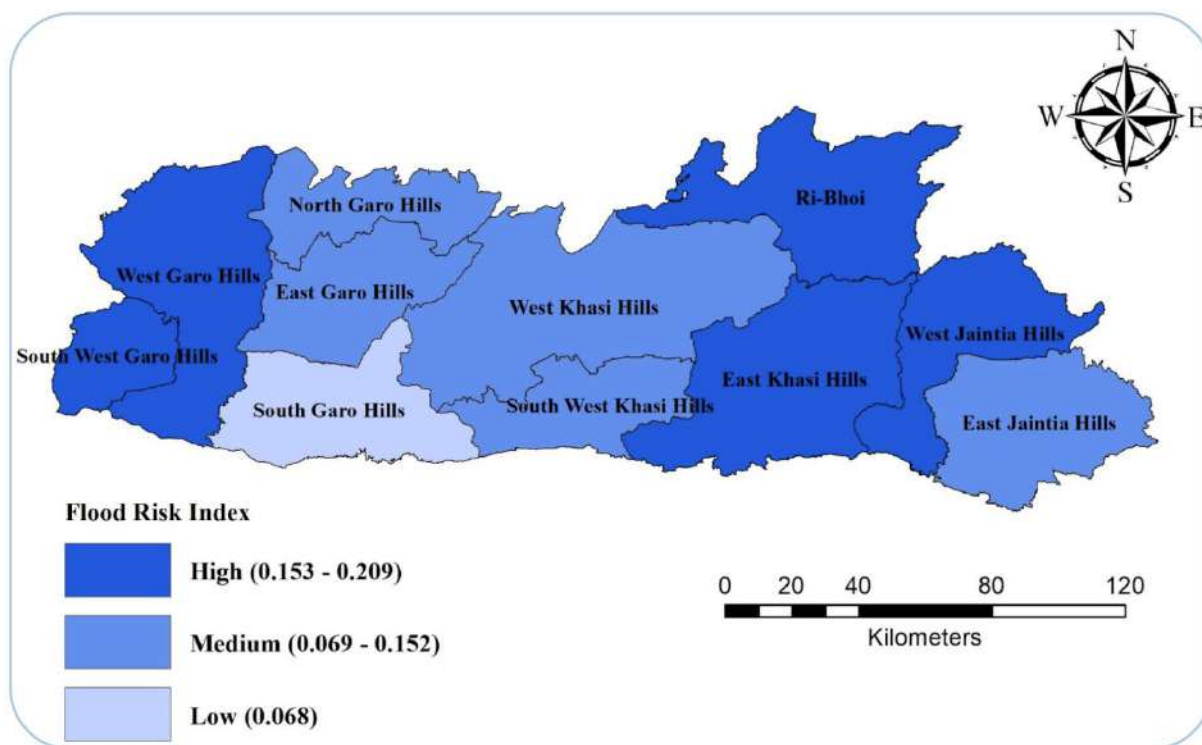


Figure 4.22: Map showing Flood Risk Index of Meghalaya at District level

Meghalaya's hilly terrain doesn't face major flooding issues, but heavy rainfall can cause flash floods, leading to riverbank erosion and localized damage. Floods occur in river valleys when water exceeds the river channel's capacity, especially at bends. The plains near Assam are affected by backflow from the Brahmaputra River during the flood season, between June and October.

The above map represents the Flood Risk Index for Meghalaya, showcasing different levels of flood susceptibility across the state's districts:

High Flood Risk (0.153–0.209): Found primarily in West Garo Hills, South West Garo Hills, Ri Bhoi, West Jaintia Hills, and East Khasi Hills, signifying a greater vulnerability to flooding.

Medium Flood Risk (0.069–0.152): Includes districts such as East Garo Hills, West Khasi Hills, South West Khasi Hills, North Garo Hills, and East Jaintia Hills indicating moderate flood risk.

Low Flood Risk (0.068): Predominantly located in South Garo Hills, where the flood risk is minimal.

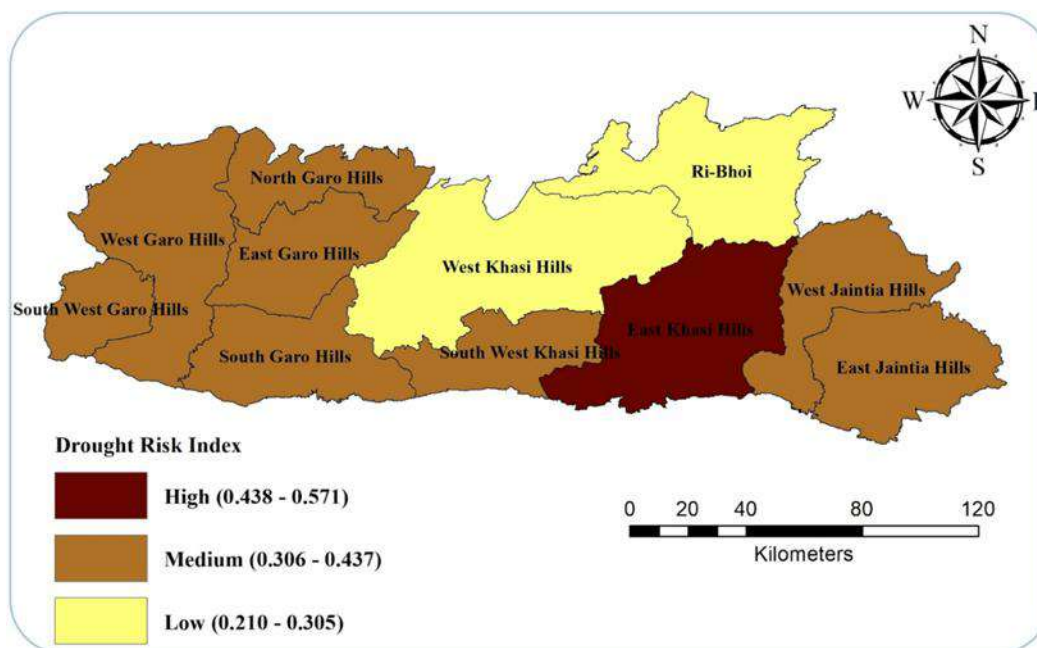


Figure 4.23: Map showing Drought Risk Index of Meghalaya at District level

Drought in Meghalaya, while not as prevalent as in other regions, can still cause considerable impacts due to irregular rainfall and dry spells. The state's hilly terrain and reliance on seasonal monsoons make it vulnerable to water shortages during periods of low rainfall. Droughts typically result in reduced water availability, crop failure, and threats to livelihoods, particularly in areas dependent on rain-fed agriculture.

This map represents the Drought Risk Index for Meghalaya, showcasing different levels of flood susceptibility across the state's districts:

High Risk (0.438 – 0.571): East Khasi Hills are marked as high drought risk zones.

Medium Risk (0.306 – 0.437): Districts like East Garo Hills, West Garo Hills, South West Khasi Hills, West Jaintia Hills, East Jaintia Hills, North Garo Hills, South Garo Hills, South West Garo Hills, fall into the medium drought risk category. These regions experience moderate vulnerability due to rainfall variability.

Low Risk (0.210 – 0.305): Areas such as Ri Bhoi and West Khasi Hills exhibit low drought risk. These regions might have more reliable water availability and resilience to dry conditions.

5. CLIMATE CHANGE STRATEGY: MITIGATION

5.1. Overview

Climate change mitigation is a long-term measure aiming to reduce the anthropogenic emissions of greenhouse gases (GHGs). The emission reductions may be achieved by: a) increasing the capacity of carbon sinks through reforestation; b) improving the existing energy (electricity) generating unit to low carbon emission; c) curbing the growth in demand for energy; d) increasing insulation of buildings; d) ensuring that new buildings use more of natural air and sunlight, etc. The State of Meghalaya is Carbon positive with a per capita emission of 0.99 tonnes per capita, it is much below the National Average of 1.18 tonnes of CO₂ (CII-Godrej GBC, 2016). The recent total Carbon Stock of Forest is 1,83,388 thousand tonnes, which accounted for 2.54 % of the Country's total carbon stock (ISFR, 2021).

The State's mitigation actions stem out of the sustainable practices mainly in the forests and agricultural sector. The Government of Meghalaya recognises these Nature based Solutions are crucial and hence is exploring the potential of bringing its NbS forests and agricultural land management under the carbon financing market. Recent preliminary assessments shows that a minimum of 1,50,000 Ha forests of the State can be brought under the Reduced Emissions from Deforestation and Degradation (REDD+) program. These forests constitute Community Reserve Forest, National Park, Wildlife Sanctuary, Private-forest, Sacred Grove, Village Reserve Forest and forests registered under the state scheme of GREEN Meghalaya. Additionally, more than 14,000 Ha of agricultural land is under the practice of either organic or natural farming.

Green power generation in the State has found its momentum with the solar project and the mini hydro project which have generated a minimum additional renewable energy of 5,700 kW through Solar Street Lights, Cold storage & Processing unit, Solar Pumps (PM KUSUM), SPV Power Plants, Solar Systems at the Health Centre and Pico Turbine installations. However, the State is yet to provide 100 percent clean energy and is dependent on external sources whose primary source is either hydro or thermal.

5.2. List of Prioritised Mitigation Actions – Sector wise

The prioritised mitigation activities/actions under Meghalaya SAPCC for the implementation period of 2023-2030 are listed as follows:

Sector: Energy

Department: Power

Priority Climate Actions	Sub-activities
Energy augmentation through utilization of renewable sources.	Myntdu Leshka HEP St-II (210MW), Gan ol Stage-II SHP (14MW), Nan-Ramnian Umkhynri Stage-I SHP (3x3000 KW), Umrina Stage-I SHP (3x2000 KW), Umkynrem Stage-I SHP (3x2000), Amkshar Stage-I SHP (3x2250 KW), Umshampu SHP (2x2000 KW), Amkshar Stage-II SHP (21 MW), Umrina Stage-II SHP (15 MW), Lower Rongdi SHP (15 MW), Nan-Pamnian Umkhynri Stage-II SHP (15 MW), Riango Stage-II SHP (10 MW), Umsiang Stage-II SHP (10 MW), Wahriat SHP (4.5 MW), Rongdi SHP (4 MW), Kynshi Stage-I SHP (4MW)

Department: Meghalaya New and Renewable Energy Development Agency (MNREDA)

Priority Climate Actions	Sub-activities
Induction of Solar Photo Voltaic	-
State Rooftop Solar Harvesting program	-

Sector- Forests & Biodiversity

Department: Forest and Environment Department

Priority Climate Actions	Sub-activities
Protection of existing forests	a) Sponsoring the studies to predict and assess potential impacts of climate change on flora, fauna and forest ecosystem in Meghalaya b) Prevention, minimization and mitigation of forest fires c) Survey, boundary demarcation, restocking and documentation of flora, fauna and traditional belief/knowledge associated with sacred groves d) Promoting scientific management of natural forests by preparation, periodic revision and implementation of working plans and working schemes e) Notification of sacred groves and other community owned natural forests as Community Reserve under Wild Life (Protection) Act, 1972 and survey, mapping, boundary demarcation and restocking of notified sacred groves f) Obtaining commitment of respective owners for protection and improvement of natural forests; habitats of rare, endangered and threatened (RET) species of flora and fauna and areas falling within migratory corridors of wildlife on payment of eco-system services (PES) g) Reducing the demand for timber and other forest produce by improving efficiency in use and life span of these products and developing and promoting non-forest-based alternatives h) Strengthening of machinery for protection of natural forests vulnerable to illegal felling, encroachment and illegal mining etc. by deployment of additional staff i) Extraction/removal of invasive weeds from natural forests j) Promotion of ecologically prudent and environmentally sustainable livelihood practices including eco-tourism for forest dependent communities to reduce pressure on natural forests

	k) Monitoring of species invasion and insect outbreak
	l) Development of a strategy, action plan and institutional capabilities to deal with insect outbreak and invasion of exotic species in natural forests
	m) Creation of awareness about the importance of the protection of natural forests to combat and mitigate impacts of climate change
Restocking of degraded open forests	a) Development of cost-effective scientific models for assured restocking of open degraded forests of different types located in different areas
	b) Establishment of a supply chain to ensure assured supply of seeds and other plant propagules of forestry species of superior genetic make up
	c) Strengthening and upgradation of planting stock production infrastructure
	d) Restocking of community and privately owned open degraded forests, especially those located in catchment areas of important rivers, streams, water supply schemes and hydro power projects; areas located in and around local heat islands, towns, cities, villages and other human settlements through natural regeneration and assisted natural regeneration of native species with active participation of local communities
	e) Anticipatory planting of species along the altitudinal and latitudinal gradient
Expansion of existing forests	a) Development of cost-effective scientific models for assured afforestation of wasteland and other blank areas located in different parts of the State
	b) Afforestation of community and privately owned wasteland and other blank non-forested areas, especially those located in catchment areas of important rivers, streams, water supply schemes and hydro power projects and areas located in and around local heat islands, cities, towns, villages and other human habitations by planting of native species with active participation of local communities
	c) Promotion of Agro-forestry by supply of seedling of superior genetic make up to farmers
	d) Intensive plantation in land owned by government and other institutions such as schools, hospitals, cantonments, police and para-military establishments etc.
Conservation and protection of Biodiversity	a) Survey and documentation of natural presence and distribution of Rare, Endangered, Threatened (RET) and other economically important species in the State
	b) Establishment of Arboretums, Botanical Gardens, Herbal Gardens, Medicinal Plants Conservation Areas etc. in different parts of the State
	c) Establishment of Long-Term Ecological Monitoring Plot in each Agro-Climatic Zones in the State
	d) Establishment of Forest Monitoring Plot in each Forest Type in the State
Capacity Building and Awareness	a) Development and distribution of IEC materials on likely impacts of climate change on flora, fauna and forest ecosystem in Meghalaya and measures to be taken to prevent, minimize, mitigate and adapt with these impacts
	b) Development of course content on possible impacts of climate change on flora, fauna and forest ecosystem and measures to be taken to prevent, minimize, mitigate and adapt with these impacts for incorporation in periodic training courses organised for officials dealing with conservation, protection and management of flora, fauna and forest ecosystem

Department: Community & Rural Development

Priority Climate Actions	Sub-activities
Afforestation, Reforestation & Revegetation	Afforestation/ Plantation
Raising of Nursery	Nursery

5.3. Barriers And Gaps in The Implementation of Mitigation Actions

Implementing climate change adaptation and mitigation is the key to increasing community resilience to pressing climate change risks and to making the State climate-proof. However, numerous barriers and gaps remain despite concerted efforts to strengthen the implementation of the action plan especially when it comes to mitigation. The challenges and gaps in the implementation process of mitigation actions for the State are highlighted below:

Table 5.1: Barriers and Gaps in Mitigation Actions

Categories	Barriers and gaps in Mitigation Actions
Institutional	a) Lack of human resources and experts
Financial	a) Shortage of funds and non-availability of financial resources
Regulatory	a) Management plan and strategies especially at the grass-roots level b) State policy for strictly incorporating the mitigation perspective while planning
Stakeholder's Capacity/ Co-operation	a) Capacity and experts especially at various levels viz. community level, village level b) Lack of awareness and apprehension at the community/village level

The foremost challenge in the implementation of the mitigation is the non-availability and shortage of funds for mitigation actions.

5.4. The Implementation Plan Including the Agencies Responsible for Implementation and Budget

This section provides the details of the agencies responsible and the budget estimated (in ₹ Crore) for implementing the mitigation actions under Meghalaya SAPCC.

Table 5.2: Implementation Plan of Mitigation Actions under Meghalaya SAPCC

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Power Department	Energy augmentation through utilization of renewable sources.	2,212.02
MNREDA	Induction of Solar Photo Voltaic	2.00
	State Rooftop Solar Harvesting program	800.00

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Forest and Environment	Protection of existing forests	445.54
	Restocking of degraded open forests	224.57
	Expansion of existing forests	139.40
	Conservation and protection of Biodiversity	8.60
	Capacity Building and Awareness	1.27
SRES	Afforestation, Reforestation & Revegetation	4.80
	Raising of Nursery	4.80

Chapter 6

6. CLIMATE CHANGE STRATEGY: ADAPTATION

6.1. Overview

The Government of Meghalaya has taken several steps in building the resilience of its citizens. Adaptation actions through projects dedicated to conserve and develop the natural resources of the state has been taken up. Several externally aided projects have added and continuing to add to the resilience of the communities. Through these EAPs, the State has witnessed major achievements which are synthesised in the figure below.



Figure 6.1: Major Achievements of EAPs

The Adaptation program listed out in the SAPCC 2.0 will leverage on these existing works and enhancing the community's coping mechanism.

6.2. List of Prioritised Adaptation Actions-Sector wise

The prioritised sector-wise adaptation activities/actions under Meghalaya SAPCC for the implementation period of 2022-2030 are listed as follows:

Agriculture Sector

Department: Agriculture and Framers' Welfare

Priority Climate Actions	Sub-activities
Digital Agricultural advisories for Farmers' Welfare	a) Development of Integrated Agricultural Information Systems
	b) Implementation of Precision Agriculture Technologies
	c) Creation of Digital Advisory Services
	d) Enhancement of Climate-Resilient Infrastructure
	e) Promotion of Farmer Registries and Traceability Systems
	f) Capacity Building and Training Programs
	g) Facilitation of market Access and Supply Chain Efficiency
Provision of subsidised road transport for enhancing market linkages for agricultural products	Machineries and Equipment
Enhancing water-use efficiency for agricultural yield increase	a) Increase the area under micro- irrigation technologies to enhance water use efficiency in the country. b) Increase productivity of crops and income of farmers through precision water management. c) Make potential use of micro- irrigation system for promoting fertigation. d) Promote micro-irrigation technologies in water scarce, water stress and critical ground water blocks/districts.
Promotion of farm mechanization to enhance agricultural yield and efficiency	a) Precision farming
	b) Renewable energy mechanization
	c) Conservation Tillage
Organic Manure as inputs for promotion of Organic Farming	
Integrated Pest and Insect Management	a) Promote use of Bio-Pesticides/ Bio agents
	b) Pheromone traps/ Light trap
	c) Machinery and equipment/ Sprayers
Provision of Farm Composting Unit	a) Production of Organic manure
	b) Framing of criteria for site identification – based on assessing region-wise need and viable market.
	c) Awareness programs at district level
Creation of small, private or community nursery for promotion of agricultural and horticultural crop varieties	a) Protect, conserve and encourage plantation of indigenous fruit species
	b) Maintain germplasm of different local species of vegetables
	c) Provide good quality planting materials
	d) Enhance the income and livelihood of the farmers
Promotion of low-cost and energy-neutral cold storage	-
Establish Mushroom Production	-

Priority Climate Actions	Sub-activities
Unit for augmentation of farmers' income	
High density plantation of fruit plants	-
Creation of water storage units like ponds, dugout wells, etc. for water conservation	-
Promotion of Natural farming	-
Establish Mushroom Production Unit for augmentation of farmers' income	-

Department: Animal Husbandry and Veterinary

Priority Climate Actions	Sub-activities
Promotion of improved feed and manure management to reduce total Methane emission	a) Government Farm (3 units) b) Progressive Livestock Farmers and Dai Co-Operative society (8 units)
Livestock Genetic Improvement (Improvement of germplasm through planned breeding programme to reduce unproductive animals)	Induction of Pure Breed Milch Cows in 3 (three) Government Farms (3 nos. in each farm) and maintenance for 1 year
Fodder Trees and perennial grasses in barren land to prevent soil erosion and nitrogen in soil	a) Government Farm (15 acres) b) Progressive Livestock Farmers and Dairy Co-operative Society (5 acres)
Distribution of minerals mixture, Mineral blocks	a) Government Farm (5 units) b) Progressive Livestock Farmers and Dairy Co-operative Society (15 units)
Capacity building of farmers and exposure visits outside the State for impact assessment studies on climate changes issue affecting Livestock health	a) Year 1 i. Exposure visits to Kudumbashree, Kerala progressive Livestock farmers shall be taken for exposure trip. ii. Participation in Poultry India, Hyderabad. b) Year 2 i. Participation in Dairy Livestock Poultry Expo (yearly event) Gujarat. ii. Participation in Northeast Agri/Horti Livestock show. c) Year 3 i. Participation in Poultry India, Hyderabad. ii. Exposure visits to Venkataswara Hatcheries, Pune. d) Year 4 i. Exposure visits to Kudumbashree, Kerala: progressive Livestock farmers shall be taken for exposure trip. ii. Exposure visits to project areas of BAIF, Pune and interaction with farmers to learn the best practices in

Priority Climate Actions	Sub-activities
	Livestock rearing. e) Year 5 i. Exposure visit.to Pradan, Jharkhand to understand various Livestock activities and interaction the farmers. ii. Participation in India International Dairy Expo (location changes every year).

Department: Horticulture

Priority Climate Actions	Sub-activities
Regional Centre for Training and Production of Mushrooms	a) Training to the farmers on mushroom cultivation and compost production
	b) Producing & selling of quality spawn to the growers at 50% subsidy
	c) Producing & selling of pasteurized Compost to the button mushroom growers at SOP subsidized rate
Vegetable Development Scheme	a) Increasing the production and productivity by assisting the farmers with 75% assistance for vegetable seeds.
	b) Cultivation of high value and off-season vegetable in protected cultivation by providing shade net house 100sq.mtrs (low-cost polyhouse).
	c) Assistance for UV film & shade nets for reviving the damaged low-cost polyhouse of unit size of 100sqm
	d) 50% assistance for sprayer, polythene pipe, watering can, tools, etc
	e) Assistance for Trellis of Squash (Biskot) other creeper vegetables.
	f) Demonstration of seed kits in institutions (schools, orphanages, etc), ICDS centres, etc.
	g) Training for farmers on vegetable seed production, high value low volume vegetables, etc.
Development and Maintenance of Orchard Cum Horticulture	a) Maintaining the existing Govt. run farms and nurseries
	b) Increasing the production and multiplication of quality high yielding, disease free planting materials from existing high yielding mother plants suitable to the different areas of the state.
Fruit Development	a) Providing quality planting materials to farmers at 50% assistance. This subsidy Is given with the objective of making prices more affordable to the farming community and go in for more fruit plantation.
	b) Training and capacity building for farmers.
Spices Development (Ginger/Turmeric/Large)	a) Providing of good diseased free planting materials to farmers.
	b) Imparting training and motivating productivity with full package of practices.
Tuber Crops Development (Potato/Tapioca/ Colocasia)	a) Providing 50% assistance to the farmers on the supply of potato seeds as planting material.

Priority Climate Actions	Sub-activities
	b) Purchase of plant protection equipment such as sprayers, bio insecticides/ bio fungicides, stickers, tools implement etc.
Floriculture Development	a) Supporting the floriculture farmers with infrastructure like polyhouse, irrigation facilities etc, for an area of 100 sqm and planting materials.
Maintenance of Horti Hubs	a) Supporting the Horti - Hubs across the State which has been acting as knowledge and demonstration centres. Therefore, in order for the Hubs to continue serving the farming community and also act as Horticulture beacons, it is of immense importance that the Hubs be provided with sufficient assistance to meet the wages of the farm workers, purchase of inputs like manures and planting materials, payment of electricity bills, repair and maintenance of assets created. Training and for purchase of machineries and equipment
Apiculture Mission	a) Setting up of the Integrated Bee Development Centre (IBDC), b) DCIC and the horticulture directorate shall undertake training exercises for the bee-keepers and the bee-breeders in their respective clusters. c) Providing assistance to the bee keepers through bee boxes, bee equipment etc d) Setting up processing plants at the cluster level.
Tea Development Scheme	a) Maintenance of existing tea development centres. b) To raise quality planting materials from seeds and clones (tea seedlings in the nurseries) for subsequent release to the farmers for commercial plantation. c) Bio- Fertilizers, bio-pesticides, brush cutter, harvesters etc are also provided at 50% subsidy to the farmers.
Experimental Tea Plantation	a) Maintenance of existing tea development centres. b) To raise quality planting materials from seeds and clones (tea seedlings in the nurseries) for subsequent release to the farmers for commercial plantation.
Integrated Development of Horticulture	a) Production of Planting materials. b) Area Expansion through providing 50% assistance of vegetables seeds, spices, fruits etc.
	a) Rejuvenation- For old and Senile plantation of Khasi mandarin and Cashew @ 50%
	b) Creation of water resources- (a) water harvesting system 50% of cost
	c) Under the Coconut Development Scheme (MIDH), coconut seedlings are being raised in the nurseries of Horti farms and are then distributed for planting in farmer's field.
Promoting Organic Manure	a) Providing of 75% Govt assistance for establishment of Composting unit of minimum size of 3x2x1 (LxBxH) @ Rs. 25,000 per unit. (ii) Training of farmers on vermi composting and other methods of composting.
Plant Protection including	a) Providing of Bio-pesticides and Bio-agents for promotion

Priority Climate Actions	Sub-activities
Integrated Pest Management	through demonstration in Farmers' Fields to create awareness regarding bio-control methods and to reduce the dependence on chemicals pesticides. (ii) Providing Plant Protection Equipment for sale at 50% subsidized rate.
State Mission Organic Value Chain Development	a) Value Chain Production: Assistance for formation of FPO, Planting materials, On farm, Off farm inputs. b) Value Chain Processing: Subsidy of 75% for FPOs and 50% for entrepreneurs for Integrated Processing unit, 50% subsidy for four-wheeler, Collection aggregation centres etc. c) Value Chain Marketing: Support for branding labelling, workshop, training etc. d) Value Chain Production: Assistance for formation of FPO, Planting materials, On farm, Off farm inputs. (ii) Value Chain Processing: Subsidy of 75% for FPOs and 50% for entrepreneurs for Integrated Processing unit, 50% subsidy for four-wheeler, Collection aggregation centres etc. (iii) Value Chain Marketing: Support for branding labelling, workshop, training etc.

Department: Fisheries & State Rural Employment Society

Priority Climate Actions	Sub-activities
Promotion of ecologically healthy, economically viable, and socially inclusive development of the fisheries sector	Establishment of New Fresh Water Finfish Hatcheries
Upliftment of the rural economy through fisheries	Construction/Renovation of Fishery Ponds
	Establishment of Fish Sanctuaries/Rejuvenating Existing fish sanctuaries/Establishment of regulated fishing zones
	Training/workshops/seminars/conference/exposure visits for Fish farmers, Entrepreneur/Govt. officials etc
	Establishment of Aquaparks

Sector Water Resources

Department: Water Resources

Priority Climate Actions	Sub-activities
Development and expansion of the network of Early Warning Systems (EWS)	a) Identification of sites for setting up Automatic Weather Stations (AWS) across the state at the district/block level and setting up of AWS
	b) Setting up of river health system monitoring system at basin level
	c) Site identification and setting up of automatic water stations in major rivers and streams
	d) Develop hydrodynamic models for major rivers to improve EWS
	e) Develop a plan for preventive and adaptive measures for hydrological hazards
	f) Adoption of preventive and adaptive measures at the village cluster level
Improvement of the Flood Management System in rural areas	a) Construction of anti-erosion protection wall, gabion walls etc.
	b) Preparation of Flood Management Plan at Village or village cluster level
	c) Training of village community members and Village Resource Persons (VRP) in disaster preparedness and response
Rejuvenation of springs and aquifers	a) Delineation of springs and spring sheds on digital GIS maps
	b) Identification of recharge areas and site-specific issues
	c) Develop plans for rejuvenation measures to be taken up for spring-sheds
	d) Construction of staggered trenches and spring chamber
	e) Integration of springshed management strategies and practices with other MGNREGS works like afforestation
Promote micro and small hydro-electric power (HEP) units and encourage the use of solar energy in areas of groundwater-based irrigation systems	a) Installation of micro and small HEP units as a pilot initiative at feasible sites that are identified based on a set of criteria
	b) Promotion of solar water pumps among farmers through awareness programmes on incentives provided by the government
Maintenance of water harvesting structures, and conservation of water resources.	a) Maintenance and upgradation of water harvesting structures
	b) Monitoring the Groundwater levels by installation of Piezometer
	c) Awareness programmes on the conservation of water resources
Construction of dams for storage of water for irrigation and drinking water	These activities are to cater the culturable area through assured irrigation with regard to climate adaptation, the impound structure will help for slow water percolation which in turn will increase the ground water table and enhance soil moisture content

Departments SRES

Priority Climate Actions	Sub-activities
Water conservation measures like check dams, rooftop RWH structures, Watershed Management (bund)	a) Construction of Check Dam
	b) Roof Top Rain Water Harvesting Structure
Enhancing water availability by irrigation measures	Bund
River rejuvenation activities (De-siltation, recharge pit)	a) Canal
	b) Open Well
Water conservation measures like check dams, rooftop RWH structures	De-siltation, Recharge Pit
Watershed Management	Water Harvesting Pond

Sustainable Habitat Sector

Department Urban

Priority Climate Actions	Sub-activities
Acquisition of Landfill site at Shillong etc	-
Solid Waste Management	-
Development of Green space and parks	-
Smart Cities Mission	-
Infrastructure Development for City Transport	-
Individual household/community/toilet/public toilet/Aspirational toilets	-
Used Water Management	-
Strengthening natural ecosystem of Urban area through Urban planning	-
Assistance to Municipal Boards for Shillong, Jowai, Tura, Williamnagar, Baghmara & Resubelpara for special purpose and for Construction of Footpaths, Drains, Waste Management and under EIUS	-
GIS based Master Plan	-

Health Sector

Departments Health

Priority Climate Actions	Sub-activities	
Green Measures in Health care facilities	a) Energy Efficiency Upgrades b) Renewable Energy Integration	c) Water Conservation d) Waste
Information Education Communication (IEC) Content	a) Awareness Campaign b) Online Resources	c) Community Engagement
Training Programme & Capacity Building	a) Staff Training b) Emergency Preparedness	c) Research & Innovation d) Skills Development
Programme Management & Others Including Operating Costs (OOC)	a) Establishment of Green Teams b) Performance Tracking c) Financial Incentives	d) Cost-Benefit Analysis e) Policy Support
General Awareness	a) Public Campaign	b) Partnership

Tourism Sector

Department: Tourism

Priority Climate Actions	Sub-activities
Clean energy powered aerial mobility program at tourists and urban centres	a) Set up ropeway system b) Sewerage and Solid waste management to treat waste generated at the ropeway site c) Develop Green Belt around the terminal stations
Preserve and protect vulnerable natural heritage sites like the Living Root bridges, through capacity building, training, funding.	a) Increase the growth & construction of Living Root Bridges by engaging with the community. i. Capacity building ii. Financial incentives

Department: Commerce & Industries

Priority Climate Actions	Sub-activities
Apiculture	a) Detailed Training calendar including number of target farmers, identify centres of training, duration, and season, engagement for institutional support, assess machineries or technology required
	b) Number of master trainers and instructors trained
	c) CFCs supported for setting up of honey processing units
	d) Inventory and procurement of tools and equipment and their maintenance
	e) Increase in bee population / improved availability of queen bees
	f) Increased production of Honey post intervention
	g) Number of farmers with enhanced skill in apiculture
Handicraft promotion	a) Detailed Training calendar including number of target farmers, identify the centres of training, duration, engagement for institutional support, assess machineries or technology required
	b) Number of master trainers trained
	c) Inventory and procurement of tools / equipment and their maintenance
	d) Assess the varied types of handicraft products introduced / improved quality of existing products based on market demands through skilling programmes
	e) Number of individuals / local communities with enhanced skill in handicrafts at block level across Meghalaya
	f) Increased production / availability of handicraft products in the market

Sector: Disaster Management

Department: State Disaster Management Authority

Priority Climate Actions	Sub-activities
Hazard Risk Mapping	Seismic micro-zonation study and vulnerability assessment of Shillong City
Risk reduction through implementable planning and policy development	Preparation/updating of Plan at State Districts and all plans at all levels
Strengthening communication Networks and Disaster Management Facility	Procurement of essential search, rescue, evacuation equipment including communication equipment for the state emergency operations centre (SEOC), District Emergency operations centres (DEOC)
Capacity Building	a) Conduct of Mock exercises
	b) Training & Capacity Building
	c) Observance of Disaster Day
	d) IEC

6.3. Barriers And Gaps in The Implementation of Adaptation Actions

The range of barriers and gaps concerning the implementation of the adaptation actions has been prepared after the overall consideration of the operational and financial under various strategies in the SAPCC. The barriers and gaps were categorized into 4 (four) groups considering the nature and areas of the barriers and gaps in the implementation of the climate actions. The identified barriers and gaps in implementing the climate adaptation actions for the State are listed below:

Table 6.1: Barriers and gaps in Adaptation Actions

Categories	Barriers and gaps in Implementation Actions
Institutional	a) Management plans and strategies are poor or almost missing at the local/village level b) Poor monitoring and evaluation mechanism c) Lack of human resources and experts
Financial	a) Shortage of funds and non-availability of financial resources
Regulatory	a) Management plan and strategies especially at the grass-roots level b) State policy for strictly incorporating the adaptation perspective while planning
Stakeholder's Capacity/ Co-operation	a) Capacity and experts especially at various levels viz. community level, village level b) Lack of awareness and apprehension at the community/village level

6.4. The Implementation Plan Including the Agencies Responsible for Implementation, Required Policy, and Budget

This section provides the details of the agencies responsible and the budget (in ₹ Crore) estimated for implementing the adaptation actions under the Meghalaya SAPCC.

Table 6.2: Implementation Plan of Adaptation Actions under Meghalaya SAPCC

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Agriculture	Digital Agricultural advisories for Farmers' Welfare	24.79
	Provision of subsidised road transport for enhancing market linkages for agricultural products	181.02
	Enhancing water-use efficiency for agricultural yield increase	316.22
	Promotion of farm mechanization to enhance agricultural yield and efficiency	10.00
	Organic Manure as inputs for promotion of Organic Farming	30.43
	Integrated Pest and Insect Management	1.00
	Provision of Farm Composting Unit	0.30
	Creation of small, private or community nursery for promotion of suitable agricultural and horticultural crop varieties	1.80
	Promotion of low-cost and energy-neutral cold storage	0.96
	Establish Mushroom Production Unit for augmentation of farmers' income	0.30
	High density plantation of fruit plants	0.60
	Creation of water storage units like ponds, dugout wells, etc. for water conservation	2.16
	Promotion of Natural farming	25.00

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Animal Husbandry	Promotion of improved feed and manure management to reduce total Methane emission	14.00
	Livestock Genetic Improvement	7.00
	Fodder Trees and perennial grasses in barren land to prevent soil erosion and nitrogen in soil	4.20
	Distribution of minerals mixture, Mineral blocks	4.20
	Capacity building of farmers and exposure for impact	7.00

	assessment studies on climate changes	
Horticulture	Regional Centre for Training and Production of Mushrooms	36.93
	Vegetable Development Scheme	1.51
	Development and Maintenance of Orchard Cum Horticulture	93.14
	Fruit Development	24.94
	Spices Development (Ginger/Turmeric/Large)	118.42
	Tuber Crops Development (Potato/Tapioca/Colocasia)	29.29
	Floriculture Development	636.63
	Maintenance of Horti Hubs	58.99
	Apiculture Mission	1.40
	Tea Development program	8.38
	Experimental Tea Plantation	63.24
	Integrated Development of Horticulture	473.88
	Promoting Organic Manure	9.40
	Plant Protection including Integrated Pest Management	6.27
	State Mission Organic Value Chain Development	1705.55

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Fisheries & SRES	Promotion of ecologically healthy, economically viable, and socially inclusive development of the fisheries sector	860.70
	Upliftment of the rural economy through fisheries	

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Water Resources	Development and expansion of the network of Early Warning Systems (EWS)	0.84
	Improvement of the Flood Management System in rural areas	168.00
	Rejuvenation of springs and aquifers	120.00
	Promote micro and small hydro-electric power (HEP) units and encourage the use of solar energy in areas of groundwater-based irrigation systems	12.00
	Maintenance of water harvesting structures, and conservation of water resources.	15.00
	Construction of dams for storage of water for irrigation and drinking water	
SRES	Water conservation measures like check dams, rooftop RWH structures	5.32

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
	Watershed Management (bund)	11.76
	Enhancing water availability by irrigation measures (canal/open well)	11.20
	River rejuvenation activities (De-siltation, recharge pit)	10.08
	Water Related Works (water harvesting pond)	5.60

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Urban Affairs	Acquisition of Landfill site at Shillong etc	104.00
	Solid Waste Management	104.00
	Development of Green space and parks	22.50
	Smart Cities Mission	1222.00
	Infrastructure Development for City Transport	75.00
	Individual household/community/toilet/public toilet/Aspirational toilets	71.00
	Used Water Management	240.00
	Strengthening natural ecosystem of Urban area through Urban planning	264.00
	Assistance to Municipal Boards for Shillong, Jowai, Tura, Williamnagar, Baghmara & Resubelpara for special purpose	274.00
	Assistance to Municipal Boards for Construction of Footpaths, Drains, Waste Management etc.	165.00
	Assistance to Municipal Boards under Environmental Improvement of Urban Slums	15.50
	GIS based Master Plan	29.00

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Health & Family Welfare	Green Measures in Health care facilities	7.54
	Information Education Communication (IEC) Content	1.16
	Training Programme & Capacity Building	2.67
	Programme Management & Others Including Operating Costs (OOC)	2.67

	General Awareness	0.58
--	-------------------	------

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
Tourism	Clean energy powered aerial mobility program at tourists and urban centres	3.19
	Preserve and protect vulnerable natural heritage sites like the Living Root bridges, through capacity building, training, funding.	1.50
Commerce & Industries	Apiculture	18.45
	Handicraft promotion	11.90

Implementing Department	Priority Climate Actions	Budget (₹ Cr) FY 2023-'24 to 2029-'30
SDMA	Hazard Risk Mapping	11.14
	Risk reduction through implementable planning and policy development	6.73
	Strengthening communication Networks and Disaster Management Facility	33.64
	Capacity Building	35.80

Chapter 7

7. FINANCING THE SAPCC

7.1. Strategies for Financing the SAPCC

Climate finance is needed for mitigation because large-scale investments are required to reduce the emissions significantly. Climate finance is equally important for adaptation, as financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate (UNEP, 2022). The State is proposing a framework for financing the SAPCC as illustrated in **Figure 7.1**, and the main financial sources for carrying out the climate actions identified in the SAPCC are described as follows:

State Budget: The state budget would be the most potent available resource for the SAPCC budget. The State budget is, however, restricted to the department's budget provision and inadequate to address the challenges of climate and development on both fronts separately. A State's dedicated climate fund to support climate actions is proposed. In addition, a mechanism for convergence of the climate actions with the departmental development schemes, the State's flagship programs, and centrally sponsored programs would be considered for the execution of SAPCC.

Significant financial resources would be needed to guarantee that the climate targets are implemented. The State's participation is vital, even though the expense of climate change will need private investments. In order to be in the forefront of climate action, the Meghalaya government has launched a number of initiatives in the areas of integrated water management, community-led development, environmental protection, energy conservation, and sustainable livelihood creation. The Climate Action Budget (CAB) facilitates the State's integration of its climate obligations into public spending.

As part of the State budget, the Government of Meghalaya has prepared a Climate Action Budget to integrate climate action into the State's budgeting process ensuring the use of public resources effectively and efficiently to address one of the most significant challenges facing society today.

The Climate Action Budget has been introduced since the financial year 2022-23, The CAB identified 13 departments which focuses on climate change mitigation and adaptation actions in the State. The 3rd edition of the CAB for the financial year 2024-25, the total budget outlay for the list of activities under the Climate Action Budget is ₹ 4501 Cr wherein ₹ 3181 Cr contributes to the Climate Adaptation activities across 12 departments while 7 departments with a budget allocation of ₹ 1320.04 Cr contributes to the Climate Mitigation activities.

Table 7.1: State Climate Action Budget (CAB) of FY 2022-23

(In ₹ Cr)

Department	Climate Adaptation	Climate Mitigation	Total
Planning, Investment Promotion, and Sustainable Development Department	1,152.33	590.00	1,742.33
Community and Rural Development Department	645.32	0.00	645.32
Power Department	0.00	477.50	477.50
Agriculture Department	336.04	2.55	38.59
Forest and Environment Department	202.18	58.74	260.92
Soil and Water Conservation Department	247.96	0.00	247.96
Urban Department	53.07	168.99	222.05
Water Resources Department	221.19	0.00	221.19
Revenue and Disaster Management Department	185.05	17.00	202.05
Home Police Department	74.67	0.00	4.67
Fisheries Department	38.10	0.00	8.10
Transport Department	16.00	5.27	21.27
Public Works Department	9.10	0.00	9.10
Total	3,181.00	1,320.04	4,501.04

While drafting the SAPCC 2.0, it was also observed that the proposed activities submitted by the departments are planned to be place by the respective departments before the Finance Department for approval and inclusion in the annual budget and allocated under the CAB. This is testimony to the fact that over the last 3 years the government has been allocating a higher percentage of the State budget towards its climate action program. A summary of the annual budget allocation is given below.

Table 7.2: Annual Budget under the CAB

(In ₹ Cr)

Department	Actuals 2022-23	Revised Estimates 2023-24	Budget Estimates 2024-25
CAB A	2,168.81	2,750.2	3,181.00
CAB M	549.45	1,281.38	1,320.04
% of State Budget	13.55	18.17	19.14
Grand Total	2,718.24	4,032.08	4,501.04

Union Budget: SAPCC will also leverage funds from the national ongoing departments or sector-specific programs, policies, schemes, and convergence with national programs and funds. In addition, additional funds from existing central schemes to implement climate-related action at the state level would also be sought for addressing the climate actions in the State, for instance, National Clean Energy Fund (NCEF), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), etc. The State would also seek budgetary support under the National Climate Fund viz. National Adaptation Fund for Climate Change (NAFCC).

External Funds and Donors: The State will also seek additional financial support from external funds to achieve the sector-specific mitigation and adaptation goals. These will include international funds &

donors, and public climate finance. The various windows for seeking support through international funds and donor are highlighted as follow:

- International Climate Funds: Adaptation Fund (AF), Global Environment Facility (GEF), Green Climate Fund (GCF), Clean Technology Fund (CTF), etc.
- Bilateral Cooperation: Japan International Cooperation Agency (JICA), Swizz Agency for Development and Cooperation (SDC), GIZ, UK's International Climate Fund, etc.
- Multilateral facilities: Asian Development Bank (ADB), World Bank, International Fund for Agricultural Development (IFAD), KfW, etc.

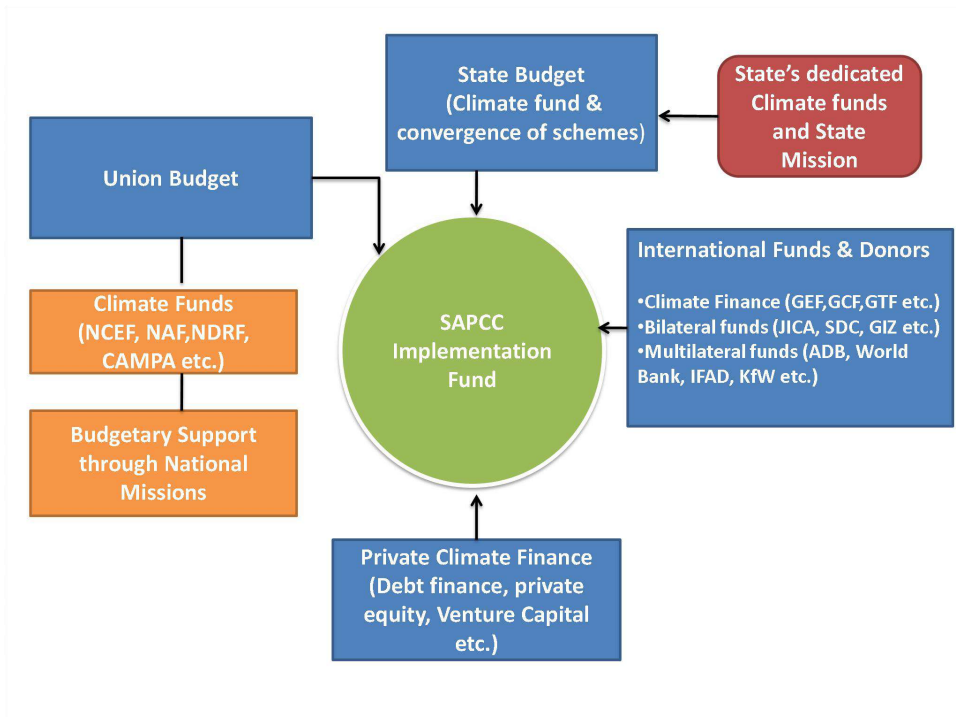


Figure 7.1: SAPCC financing framework

The State has always been proactive on the environment and climate action fronts. The State is adopting an all-inclusive climate action plan which will not only serve the climate and development goals of the State but also will significantly contribute to achieving the nationally determined contributions for emission reductions (NDC) targets and sustainable development goals of the United Nations.

The State is implementing large-scale projects which are externally funded. These projects are sector specific and are designed to thrust the agenda of combating climate change. The list of EAPs that are currently under implementation are summarized in the table below.

Table 7.3: List of EAPs that are currently under implementation

Sl. No.	Name of the Project	Funded by	Implementing Department/Agency	Project Status	Budget allocation
1	Meghalaya Livelihood and Access to Markets Project (Megha-LAMP)	IFAD (International Fund for Agricultural Development).	Meghalaya Management (MBMA)	Basin Agency Active	INR 1331.35 Crore

Sl. No.	Name of the Project	Funded by	Implementing Department/Agency	Project Status	Budget allocation
2	Meghalaya Community Led Landscape Management Project (MCLLMP)	Government of Meghalaya and World Bank	Meghalaya Management (MBMA) Basin Agency	Completing in 2024	USD 407 Crore
3	Community-based Forest Management and Livelihood Improvement in Meghalaya (MegLIFE)	JICA (Japan International Cooperation Agency)	Meghalaya Management (MBMA) Basin Agency	Active	INR 838.18 Crore
4	Meghalaya Ecotourism Infrastructure Development Project (MEIDP)	Government of Meghalaya and New Development Bank (NDB)	Meghalayan Age Limited (MAL)	Active	INR 730 Crore
5	Climate Adaptative Community-based Water Harvesting Project in Meghalaya	Asian Development Bank (ADB)	The Meghalaya State Watershed and Wasteland Development Agency (MSWWDA)	Active	USD 80 million
6	Protection of Vulnerable Catchment Areas in Meghalaya-Meg-ARISE	KfW	Meghalaya Management (MBMA) Basin Agency	Active	INR 344.4 Crore
7	Sustainable Land Management - Farmers Mobilization	KfW	Meghalaya Management (MBMA) Basin Agency	Active	INR 41.65 Crore
8	Meghalaya Power Distribution Sector Improvement Project	Asian Development Bank (ADB)	Meghalaya Power Distribution Corporation Limited (MePDCL)	Active	USD 166 Million
9	Meghalaya Health Systems Strengthening Project (MHSSP)	World Bank	Department of Health and Family Welfare, Government of Meghalaya	Active	USD 100 million
10	Dam Rehabilitation and Improvement Project (DRIP) Phase II and III	World Bank & AIIB as loan and support by the 19 participating States and three Central agencies (CWC, BBMB and DVC)	Department of Water Resources, River Development and Ganga Rejuvenation through Central Water Commission (CWC)	Active	INR 10211 Crore

The implementation period of these projects coincides with the implementation period of the SAPCC 2.0. These projects will aid in contributing towards the state's climate goals while also strongly addressing both the SDGs and NDCs.

7.1.1. Sectoral Activity budget

The Proposed Climate Actions for each sector as provided by the departments are succinctly explain as follows;

- A.** The agriculture & allied sectors which requires a total budget of ₹ 2400.92 Cr to implement its climate actions which will promote sustainable agriculture, food security, and nutrition, including through support for small-scale farmers and rural development.

The actions will also promote agricultural productivity and protect farmer's incomes, increased investment in agricultural infrastructure, research, and market linkage while also promoting high value crops.

- B.** The Water Resources with a proposed budget of ₹ 340.48 Cr aiming to improve and enhance availability of water, including through investments in infrastructure, water management, and water conservation. The sectoral action will also focus on involving community stakeholders in water management.
- C.** Urban Habitat with a budget of ₹ 2586.00 Cr aims to promote sustainable urbanization through investments in infrastructure, green spaces, and sustainable transportation. The areas of focus include ensuring access to safe, affordable and accessible transportation, supporting economic and social links between urban and rural areas through development planning.
- D.** Human Health sector with a proposed budget of ₹ 14.62 Cr is based on the Meghalaya State Action Plan for Climate Change & Human Health, 2023, focuses on the three main areas, firstly, developing adaptation plan for green and climate resilient healthcare facilities which involves environmentally sustainable (green) measures at health care facilities and climate resilient infrastructure at health care facilities including retro fitting of existing health care facilities. Secondly, the sector focuses on adaptation plan for disaster management and extreme weather events by awareness generation. Lastly, sectoral action plans address heat related illness by awareness generation and capacity building.
- E.** The newly added Tourism sector with a proposed budget of ₹ 35.04 Cr focuses its adaptation action to promote sustainable economic growth, including through investments in infrastructure, skills development, entrepreneurship, industrial development and innovation, including through investments in research and development, technology transfer, and support for small and medium-sized enterprises. These actions will improved economic growth due to enhanced tourism infrastructure in the state while also increasing availability of livelihood opportunities.

- F.** Like the earlier sector Disaster Management with a proposed budget of ₹ 43.66 Cr is a new addition to the action plan. The sector actions highlight its focus on identification of risk prone areas in the state. Risk reduction measures, planning and policies will build in reducing the sectors vulnerability. The sector will also invest in institutional strengthening and building the capacity.
- G.** The Forests & Biodiversity sector with a proposed budget of ₹ 829.002 Cr focuses its efforts in protecting, restoring, and promoting sustainable use of terrestrial ecosystems, forests, and biodiversity, including through the expansion of protected areas and the promotion of sustainable land use practices. The sector also points to the increased participation of the community in forest management and local resource management, and increased uptake of sustainable conservation practices.
- H.** The Energy sector with a proposed budget of ₹ 3012.02 Cr will prioritise the promotion of renewable energy, including through incentives for the adoption of clean technologies. Much focus is on the expansion of energy infrastructural capacity of the state to provide sustainable energy services to ensure enhanced power distribution capacity of the state and improve access to energy for various household and commercial activities.

The State Climate Action Budget (CAB)

“The Climate Action Budget was prepared to integrate climate action into the State’s budgeting process ensuring the use of public resources effectively and efficiently to address one of the most significant challenges facing society today. The total budget allocated to climate action for Meghalaya has increased from ₹ 3411.93 cores in 2023-24 to ₹ 4501.04 crores in 2024-25 (budget estimates) constituting 16.6% of the total State Budget for the FY 2024-2025. Further, the Climate Action Budget for FY 2024-2025 has increased by 32% from the last financial year.”

The State Climate Action Budget consists of thirteen departments which aligns with SAPCC prioritized sectors for addressing climate issues. The following table shows the alignment of the departments to the sectors.

Table 7.4: Alignment of the Departments to the sectors under the CAB

Departments identified in the CAB	Sectors identified in the SAPCC
Agriculture and Farmers’ Welfare Department	Agriculture & Allied
Fisheries Department	
Forest Department	Forest & Biodiversity
Water Resource Department	Water Resources

Soil and Water Conservation Department	
Urban Affairs Department	Urban Habitat
Transport Department	
Power Department	Energy
Revenue and Disaster Management	Disaster Management
Home (Police) Department	
Community & Rural Development Department	Inter Sectoral- these departments address more than one sector. (Forest & Biodiversity, Agriculture & Allied, Tourism, Water resources, Disaster Management)
Planning, Investment Promotion & Sustainable Development Department	
Public Works Department	

The Climate Action Budget entails the objectives of the State wherein each department is expected to carry out. The basis of the budget lies in these objectives which have been carefully elucidated as follows. In corresponding to the objectives is the budget allocation to each department. The allocation beyond the current fiscal year is made on an extrapolation rate of 20% increase in budgetary allocation over the following years up to 2030.

Agriculture and Farmers' Welfare Department

- Agricultural zoning and capacity building of farmers
- Capacity building to train farmers in latest cropping techniques specially evolved to counter adverse effects of climate change
- Promotion of organic farming through usage of compost and vermi compost
- Increasing the area under perennial fruit plantation crops and low volume high value crops to help cope with uncertain weather patterns
- Assessment of soil quality & soil moisture content for better productivity through generation of climatic information

Fisheries Department

- Impact assessment of climate change on fishery and development of watershed vulnerable to climate variations
- Conservation of indigenous and endemic fisheries resources

Agriculture Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
------------------------	-----------------	------------	------------	------------	---------	---------	---------	---------	---------

Agriculture Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	186	253	409	336	403	484	588	697	833
Agricultural Marketing Organisation including subsidy.	5	7	2	7	8	10	12	14	17
Agricultural Studies	0	0	0	0	0	1	1	1	1
Directorate of Agriculture.	6	7	1	7	8	10	11	14	17
Directorate of Research, Training & Technology Induction (RTTI)	-	-	20	0	0	0	0	0	0
Directorate of Research, Training and Technology Induction (RTTI)	0	0	2	0	0	0	1	1	1
Fruit Research Station	0	0	1	1	1	1	1	1	1
Land Use Survey.	2	2	0	2	2	3	3	4	5
Local Green Manure and Rural Composition	0	0	1	0	0	0	0	1	1
Plant Protection for Epidemic Control Measures including Sale of Pesticides etc.,at Subsidised Rates	2	2	0	2	2	3	4	4	5
Plant Protection for Epidemic Control Measures including Sale of Pesticides etc.,at Subsidised Rates	-	-	31	0	0	0	0	0	0
Upper Shillong Farm	0	0	0	0	1	1	1	1	1
Vegetable Development including Sale of Vegetable seed rates	6	6	5	5	7	8	9	11	14
Vegetable Development including Sale of Vegetable seed rates-	-	-	19	0	0	0	0	0	0
Agricultural Census	1	1	0	1	1	1	2	2	2
Agricultural Census-	-	-	1	2	3	3	4	5	6
Agricultural Engineering(Mechanical)	90	10	50	10	13	15	18	22	26
Agriculture Information Units & e-Governance(Agri)	0	-	-	0	0	0	0	0	0
Agriculture Information Units and eGovernance(Agri)	1	1	0	1	2	2	2	3	3
Corpus Fund on Crop Insurance(RKBY)	0	0	0	0	0	0	0	0	0
Development of Ginger and Turmeric including Sale of Plants at Subsidised Rates	0	0	-	0	0	0	0	0	0
Development of Ginger and Turmeric including Sale of Plants at Subsidised Rates-	-	-	4	0	0	0	0	0	0
District Offices	23	23	35	25	30	37	44	53	63
District Offices-	-	-	1	0	0	0	0	0	0
Fruit Processing Centre	3	3	2	3	4	5	6	7	8
Research Project on Rice	2	2	0	2	2	3	3	4	5
Research Project on Rice Previously(05)	-	-	0	0	0	0	0	0	0
Seeds Farms.	4	4	1	4	5	6	7	8	1

Agriculture Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
									0
Shillong Fruit Garden	0	0	1	1	1	1	1	1	1
Development in Horticulture including Sale of Fruit etc at Subsidised Rates	8	8	0	9	1 0	1 2	1 5	1 8	2 1
Directorate of Horticulture	3	3	2	3	4	5	6	7	8
Farmers Training Centre	3	3	0	3	4	5	5	7	8
Farmer's Training Centre	-	-	0	0	0	0	0	0	0
Potato Development including Sale of Seeds at Subsidised Rate	3	3	1 1	3	4	4	5	6	8
Scheme for Intensive Agriculture in Selected Areas	2	2	3	2	2	3	3	4	5
Agricultural Research Stations and Laboratories	5	5	6	6	7	8	1 0	1 2	1 4
Agricultural, Economics & Statistics.(Agri)	0	-	-	0	0	0	0	0	0
Agricultural, Economics and Statistics.(Agri)	1	0	1	1	1	1	2	2	2
Assistance To K.V.K.	0	0	0	0	0	0	0	0	0
Basic Agriculture Training Centre	3	4	1	4	5	6	7	8	1 0
Demonstration in Cultivators Field	1	1	0	1	1	1	2	2	3
Demonstration in Cultivator's Field	-	-	2	0	0	0	0	0	0
District Offices (Horticulture)	1 0	1 1	3	1 1	1 3	1 6	1 9	2 3	2 7
Land Reclamation Scheme(Including Subsidy on Hire	5	6	2	5	6	8	9	1 1	1 3
Mission for Integrated Development of Horticulture (MIDH) Coconut Development Board (CDB)	-	0	0	0	0	0	0	0	0
Implementation of EGovernance (Hort)	0	0	0	0	0	0	0	0	0
Plant Protection including IPM (under Agriculture)	3	2	2	2	2	2	3	3	4
Seed Production and Multiplication	-	0	0	0	0	0	0	0	0
State Share	1	4	4	4	4	5	6	8	9
Central Share	7	2 7	1 1	2 6	3 1	3 7	4 4	5 3	6 4
Agril. Economic and Statistics (Hort)	0	0	0	0	0	0	0	0	0
Experimental Tea Plantation	3	3	2	4	4	5	6	8	9
Experimental Tea Plantation	0	-	-	0	0	0	0	0	0
Plant Protection including IPM (under Horticulture)	1	0	0	0	0	1	1	1	1
Agricultural Information Units (Hort)	0	0	0	0	0	0	0	0	0
Establishment of Regional Progeny Orchard Cum Horticulture Nursery for SubTropical Fruits(Mynkre)	0	0	4 3	0	0	0	1	1	1
Establishment of Regional Progeny Orchard Cum Horticulture Nursery for Sub Tropical Fruits(Mynkre)	-	-	2	0	0	0	0	0	0
Regional Centre for Training & Production of Mushrooms	0	0	0	0	0	0	0	0	0

Agriculture Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Regional Centre for Training & Production of Mushrooms	4	-	1	0	0	0	0	0	0
Regional Centre for Training and Production of Mushrooms	2	2	1	2	2	2	3	3	4
Horticulture Mission for Strengthening Development Schemes	-	2	1	1	1	1	1	1	1
Integrated Technology Enabled Agri Management (ITEAM)	-	1	2	4	4	5	6	7	9
National Food Security Mission (NFSM)	1	5	1	0	0	0	0	0	0
National Food Security Mission Jute	-	0	0	0	0	0	0	0	0
National Food Security Mission (Oil seed)	0	-	-	0	0	0	0	0	0
National Food Security Mission (Oilseeds)	0	-	-	0	0	0	0	0	0
National Food Security Mission Oilseeds	0	0	0	0	0	0	0	0	0
National Food Security Mission (NFSM) (General)	-	-	-	0	0	0	0	0	0
National Food Security Mission NFSM General	-	-	-	1	1	1	1	2	2
National Food Security Mission NFSM Schedule Caste	-	-	-	0	0	0	0	0	0
National Food Security Mission (NFSM) (Schedule Tribe)	-	-	-	0	0	0	0	0	0
National Food Security Mission NFSM Schedule Tribe	-	-	-	5	6	7	8	1	1
								0	2
National Food Security Mission (Jute) (General)	-	-	-	0	0	0	0	0	0
National Food Security Mission Jute General	-	-	0	0	0	0	0	0	0
National Food Security Mission Jute Schedule Caste	-	-	0	0	0	0	0	0	0
National Food Security Mission (Jute) (Schedule Tribe)	-	-	-	0	0	0	0	0	0
National Food Security Mission Jute Schedule Tribe	-	-	0	1	1	1	1	1	2
National Food Security Mission Oilseeds General	0	-	0	0	0	0	0	0	0
National Food Security Mission Oilseeds Schedule Caste	0	-	0	0	0	0	0	0	0
National Food Security Mission Oilseeds Schedule Tribe	-	-	0	1	1	1	1	1	2
ACA under RKVY	1	2	2	0	0	0	0	0	0
Rashtriya Krishi Vikas Yojana (RKVY)	-	8	-	0	0	0	0	0	0
Rashtriya Krishi Vikas Yojana (RKVY) (General)	-	-	-	2	3	3	4	4	5
Rashtriya Krishi Vikas Yojana (RKVY) (Schedule Caste)	-	-	-	1	1	2	2	2	3
Rashtriya Krishi Vikas Yojana (RKVY) (Schedule Tribe)	-	-	-	1	2	2	3	3	4
				9	2	7	2	9	7
Soil Testing Lab	2	2	1	2	2	3	3	4	4
Soil Testing LabPreviously(09)	-	-	2	1	1	1	1	2	2
State Soil Survey Organisation	3	3	2	3	4	5	6	7	9
State Soil Survey OrganisationPreviously(10)	-	-	-	0	0	0	0	0	0
Seed Testing Lab	1	1	1	1	1	2	2	2	3
Seed Testing LabPreviously(11)	-	-	2	0	0	0	0	0	0
Vegetable Development Scheme	-	0	0	0	0	0	0	0	0
Agri Hort. Society	-	0	0	0	0	0	0	0	0
Mission Organic Value Chain Development for North Eastern Region	-	2	2	2	2	2	3	4	4
Development and Maintenance of OrchardCumHorticulture	5	5	5	5	6	8	9	1	1

Agriculture Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Nurseries								1	3
Pradhan Mantri Krishi Yojana Krishi Sinchayee Yojana (PMKSY)	-	1	-1	0	0	0	0	0	0
Pradhan Manti Krishi Sinchayee Yojana (PMKSY) (General)	-	-	-	1	1	1	1	2	2
Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) (General)	-	-	-	0	0	0	0	0	0
Pradhan Manti Krishi Sinchayee Yojana (PMKSY) (Schedule Caste)	-	-	-	0	0	1	1	1	1
Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) (Schedule Caste)	-	-	-	0	0	0	0	0	0
Pradhan Manti Krishi Sinchayee Yojana (PMKSY) (Schedule Tribe)	-	-	-	6	8	9	1 1	1 3	1 6
Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) (Schedule Tribe)	-	-	-	1	1	1	1	1	2
Creation of Rural Market Hub.	-	0	0	3	4	4	5	6	7
Fruits Development	3	3	3	3	4	4	5	6	8
Reclamation of Problem Soil	0	-	-	0	0	0	0	0	0
Area Expansion of Cashew Nuts	0	-	-	0	0	0	0	0	0
Spices Development (Ginger/Turmeric/Large Cardamon/ Black Pepper)	5	1 0	6	6	7	9	1 0	1 3	1 5
Tuber Crops Development (Potato/Tapioca/Colacacia)	2	2	2	2	2	2	3	3	4
Floriculture Development	5	5	5	4 1	4 9	5 8	7 0	8 4	1 0 1
Regional Centre for Training and Production of Mushroom	-	0	4	4	4	5	6	8	9
NABARD Loan for Development of Horticultural Crops	5	-	1 1	5	6	7	9	1 0	1 2
Paramparagat Krishi Vikas Yojana (PKVY)	0	-	-	0	0	0	0	0	0
Paramparagat Krishi Vikas Yojana (PKVY)Previously(15)	-	-	-	0	0	0	0	0	0
Maintenance of HortiHubs	3	3	3	3	4	5	6	7	8
Maize Development through Cluster Approach	-	1	1	1	1	1	1	1	1
Special Central Assistance (Mission Organic)	3	3	3	3 0	3 6	4 3	5 2	6 2	7 5
Integrated Agriculture Training Center	0	0	0	0	0	0	1	1	1
Mission for integrated Development of Horticulture (MIDH) Coconut Development Board (CDB)	-	0	0	0	0	0	0	0	0
National Mission on Agri Extension and Training (NMAET)	-	-	3	0	0	0	0	0	0
National Mission on Agricultural Extension & Technology (NMAET)Previously(15)	0	-	1	0	0	0	0	0	0
SubMission on Seed and Planting Materials (SMSP)	-	2	6	0	0	0	0	0	0
Sub Mission on Agri Extension (SMAE)	4	1 0	1 2 7	0	0	0	0	0	0
Sub Mission on Seed & Planting Materials (SMSP) (General)	-	-	-	0	0	0	0	1	1

Agriculture Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Sub Mission on Agri Extension SMAE General	-	-	0	1	1	1	1	1	2
Sub Mission on Agri Extension (SMAE) (General)	-	-	1	0	0	0	0	0	0
Sub Mission on Seed & Planting Materials (SMSP) (Schedule Caste)	-	-	1	0	0	0	0	0	0
Sub Mission on Seed & Planting Materials (SMSP) (Schedule Tribe)	-	-	-	2	2	2	3	4	4
Sub Mission on Agri Extension SMAE Schedule Caste	0	-	1	0	0	0	0	0	0
Sub Mission on Agri Extension (SMAE) (Schedule Caste)	-	-	0	0	0	0	0	0	0
Sub Mission on Agri Extension SMAE Schedule Tribe	2	-	0	2	2	3	3	4	5
Sub Mission on Agri Extension (SMAE) (Schedule Tribe)	-	-	1	0	0	0	0	0	0
Project under Ministry of Tribal Affairs (MoTA)	-	1 3	-	4	5	6	8	9	1 1
Project under Ministry of Tribal Affairs (MoTA)Previously(06)	5	-	-	0	0	0	0	0	0
Apiculture Mission	5	5	0	0	0	0	0	0	0
Apiculture Mission General Areas during 2022-23	0	-	-	0	0	0	0	0	0
Tea Development Scheme	-	0	0	0	0	1	1	1	1
Tea Development Scheme Previously(41)	-	-	2	0	0	0	0	0	0
State Rice Mission	3	4	3	3	4	5	6	7	9
Sub Mission on Agro Forestry	-	0	0	0	0	0	0	0	0
Sub Mission on Agro ForestryPreviously(47)	-	-	-	2	2	3	3	4	5
National Bamboo Mission	-	0	0	0	0	0	0	0	0
National Bamboo Mission.	-	2	2	0	0	0	0	0	0
Rainfed Area Development	1	1	1	0	0	0	0	0	0
Soil Health Card	0	-	-	0	0	0	0	0	0
Soil Health Management	0	0	0	0	0	0	0	0	0
National Bamboo Mission (General)	0	-	-	0	0	0	0	0	0
National Bamboo Mission (Schedule Caste)	-	-	-	0	0	1	1	1	1
National Bamboo Mission (Schedule Tribe)	-	-	-	1	2	2	2	3	3
Rainfed Area Development (General)	-	-	-	0	0	0	0	0	0
Rainfed Area Development (Schedule Caste)	-	-	-	0	0	0	0	0	0
Rainfed Area Development (Schedule Tribe)	-	-	-	1	1	2	2	3	3
Soil Health Management (General)	-	-	-	0	0	1	1	1	1
Soil Health Management (Schedule Caste)	-	-	-	0	0	0	0	0	0
Soil Health Management (Schedule Tribe)	-	-	-	2	3	4	4	5	6

Agriculture Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Mitigation	2	3	3	3	3	4	4	5	6
Organic Manures Fertilizers	-	0	0	0	0	1	1	1	1
Production of Bio	1	1	1	1	1	1	1	1	2
Organic Manure	1	1	1	1	2	2	3	3	4
Organic Manure Previously(37)	0	0	0	0	0	0	0	0	0

Fisheries Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	7	1	1	3	4	5	6	7	9
Construction of Departmental Fish farms	0	3	5	8	6	5	6	9	5
Fish Seed Production, Demonstration Cum Research Centre	0	-	-	3	3	4	4	5	6
Fish Seed Production, Demonstration Cum Research Centre	0	0	0	0	0	0	0	0	0
Marketing and Transport of Fish and Fish Seed	0	0	0	0	0	0	0	0	0
Fisheries Training and Extension	-	0	0	0	0	0	0	0	0
Stipend for Trainees in Fisheries	-	0	0	0	0	0	0	0	0
Fish Farming Centres	-	0	0	0	0	0	0	0	0
Expenditure Relating to Chairman/Deputy Chairman/Vice Chairman of Fish Farmer Development Agency.	0	0	0	0	0	0	0	0	0
Fish Seed Production and Demonstration Centre.	0	0	0	0	0	0	0	1	1
Conservation and Legislation for Protection of Fis	-	0	0	0	0	0	0	0	0
Trout Culture	0	0	0	0	0	0	0	0	0
Culture and Development of Mahaseer and Trout	-	-	-	0	0	0	0	0	0
Welfare of Fishermen	0	0	0	1	1	1	1	1	1
Regional Fish Seed Farm,Jamge I	-	0	0	0	0	0	0	0	0
Reclamation of Bheel Fisheries	-	0	0	0	0	0	0	0	0
Reclamation of Bheel Fisheries	-	-	-	0	0	0	0	0	0
Mini Mission II Critical Infrastructure Development	-	1	1	5	6	7	9	1	1
								0	2
M I S and Knowledge Management	-	0	0	0	0	0	0	0	0
Mini Mission V Mass Media Campaign Documentation and Outreach	0	1	1	0	0	0	0	0	0
Mini Mission IV Capacity Building and HRD	0	1	1	0	0	0	0	0	0
Mini Mission III Establishing Sanctuaries Conserving I Indigenous and Endemic Species	-	1	1	0	0	0	0	0	0
Mini Mission I Area And Productivity Expansion	1	2	2	0	0	0	0	0	0
Mini Mission VI Emerging Opportunities in the Fisheries Sector	-	2	2	0	0	0	0	0	0

Fisheries Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Convergence of Aquaculture Mission with other Schemes, Agencies and Departments.	-	0	0	2	3	3	4	5	6
Pradhan Mantri Matsya Sampada Yojana	6	4	8	2 3	2 8	3 3	4 0	4 8	5 7
Special Central Assistance to Tribal Sub Schemes	-	2	-	4	5	6	7	8	1 0

Forest Department

- Afforestation-Reforestation for emission reduction and sustainable livelihood
- Development of green spaces as carbon sinks
- Conservation of natural resources and ecosystem

Forest and Environment Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	1 4 5	1 8 8	2 0 7	2 0 2	2 4 3	2 9 1	3 4 9	4 1 9	5 0 3
Establishment of Forest Statistical Division	1	1	1	2	2	2	3	3	4
Financial Assistance to Forest Development Corporation of Meghalaya	2	3	3	3	3	4	5	6	7
Forest Resources Survey Division	1	2	1	2	2	3	3	4	5
Head Quarters Organisation	1 0	1 1	2	1 2	1 4	1 7	2 0	2 4	2 9
Roads and Bridges	0	0	4	1	1	1	2	2	2
Statistical , Planning and Evaluation Unit	1	1	0	1	1	1	2	2	2
Studies and Training in Forest Colleges	1	0	2	1	1	1	2	2	2
Meghalaya State Authority Net Present Value of Forest Land	0	1	2	4	4	5	6	8	9
Net Present Value of Forest Land	7	1 2	2 3	1 0	1 2	1 5	1 8	2 2	2 6
Construction and Maintenance of Departmental Buildings.	1	1	1	2	2	2	3	3	4
Demarcation and Consolidation (Excluding Extension) of Forest	1	1	2 2	1	1	1	1	2	2
Ecology and Environment	0	0	1	0	0	0	0	0	1
Establishment of Forest Research Division including Laboratory	2	3	2	3	4	5	6	7	8

Forest and Environment Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Establishment of Forest Research Division including Laborat Ory	-	-	1	0	0	0	0	0	0
Financial Assistance to the Meghalaya State Medicinal Plants Board	0	1	1	1	1	1	1	1	1
Forest Utilisation Office	1	1	2	1	1	1	2	2	2
Other Wild Life Preservation Works	9	1 3	4	1 3	1 6	1 9	2 3	2 8	3 3
Studies & Training in Forest School	-	-	0	0	0	0	0	0	0
Studies and Training in Forest School	2	2	0	2	2	3	3	4	5
Timber Treatment and Seasoning Plant	1	1	0	1	1	1	2	2	2
Divisional Forest Officer	4	5	1	5	6	7	9	1 0	1 3
Ecology and Environment	2	4	9	5	6	7	8	1 0	1 1
Financial Assistance to Meghalaya State BioDiversity Board	-	0	0	1	1	1	1	1	1
Mass Education and Cultural Operation for Preservation of Forest	0	0	3	0	0	0	1	1	1
Protection of Area with rare plant	-	0	0	0	0	0	0	0	0
Recreation Forestry	3	1	1	2	2	2	3	3	4
Regeneration of Plants in Garo Hills	0	0	0	0	0	0	0	0	0
Regenaration of Plants in Jaintia Hills.	-	0	0	0	0	0	0	0	0
Regeneration of Plants in Khasi Hills	0	0	0	0	0	0	0	0	0
Expenditure on Account of District Councils Share in lieu of Royalties Collected from Minor Minerals.	3 5	4 0	5 1	4 0	4 8	5 8	6 9	8 3	1 0 0
Forest Ranges and Beat Offices	1 1	1 3	1	1 3	1 6	1 9	2 3	2 7	3 3
Setting up of Corporation and Project Formulation Cell for Development of Forest	0	1	5	1	1	1	1	1	1
Social Forestry	2 2	2 7	1 3	2 8	3 4	4 0	4 9	5 8	7 0
Tree Improvement Development	0	0	1	0	1	1	1	1	1
Financial Assistance to State Environment Impact Assessment Authority (SEIAA)	-	1	1	1	2	2	2	3	3
Forest Protection Schemes and Works	1 7	2 0	1 6	2 0	2 4	2 8	3 4	4 1	4 9
Forest Protection Schemes and Works	-	-	2	0	0	0	0	0	0
Project Elephant	-	5	5	7	8	1 0	1 2	1 4	1 7
Contribution to Eco. Dev. Society	1	3	3	3	3	4	5	6	7
Integrated Forest Villages Development	0	0	0	0	0	0	0	0	0
Financial Assistance to Meghalaya State Wetlands Authority	0	1	1	1	1	1	1	2	2

Forest and Environment Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Sports (All India Forest Sports Meet at Chennai)	0	0	0	0	0	0	1	1	1
Umbrella Project/Ecological Sohra Restoration Project	1	1	4	1	1	2	2	2	3
Conservation of Orchids and Multiplication Project	1	1	4	1	1	1	1	1	2
Financial Assistance to Meghalaya Zoo Project Implementation Society	2	2	4	5	6	8	9	1	1
								1	3
Construction of Departmental Buildings	0	1	1	1	1	2	2	2	3
Expenditure of Chariman/Dy. Chairman./Vice Chairman (Meghalaya Forest Dev. Corp.)	0	1	3	1	1	1	2	2	3
Provision for Deputed Forest Staff to District Councils and Meghalaya Forest Authority	0	0	3	0	0	0	0	0	0
Intensification of Forest Management	0	3	3	4	5	6	7	8	1
									0
Intensification of Forest Management Previously(11)	-	-	-	0	0	0	0	0	0
Operation Soil Watch.	2	3	0	3	3	4	5	6	7
Operation Soil Watch.	-	-	0	0	0	0	0	0	0
Ecological Restoration of Cherrapunjee	0	1	1	1	1	1	1	1	2
National Mission on Medicinal Plants	-	1	1	2	2	2	3	3	4

Forest and Environment Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Mitigation	26	57	104	59	70	85	102	122	146
Establishment of Parks and Botanical Gardens	1	1	8	1	2	2	2	3	3
Establishment of Wild Life Sanctuary	9	11	5	11	14	16	20	23	28
Forest Nurseries	1	1	1	2	2	2	3	3	4
Garden Superintendent Park and his Establishment	0	0	11	0	0	0	0	0	0
Parks Development	0	0	0	1	1	1	1	1	1
Compensatory Afforestation	1	1	1	3	4	4	5	6	8
Lady Hydari Park Establishment	0	0	3	1	1	1	1	1	1
Financial Assistance to Meghalaya State Pollution Control Board(MSPCB)	8	13	13	13	15	18	22	26	31
Wards Lake Establishment * *	1	1	0	1	1	2	2	2	3
Wards Lake Establishment * *	-	-	7	0	0	0	0	0	0
Payment for Compensation for Depredation by Wild Animals	0	0	0	0	0	0	0	1	1
Pinewood Park and Other Garden	0	0	5	0	0	0	0	0	0

Forest and Environment Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Establishment of Park and Sanctuaries	-	12	0	6	7	8	10	11	14
Conservation of Natural Resources and Eco System	-	3	3	3	4	5	6	7	8
Other Gardens and Parks under Khasi Hills Division	0	0	0	0	0	0	0	0	0
Teak Wood Plantations	0	0	0	0	0	0	1	1	1
Teak Wood Plantations	-	-	0	0	0	0	0	0	0
Plywood Plantations	1	1	0	1	1	1	1	2	2
Plywood Plantations	-	-	0	0	0	0	0	0	0
Salwood Plantations	0	0	5	0	0	1	1	1	1
Plantation of Quick Growing Species	0	1	3	1	1	1	1	1	2
Plantation of Medicinal Plants	1	1	5	2	2	2	3	3	4
Miscellaneous Afforestation Schemes.	0	0	0	1	1	1	1	1	1
Miscellaneous Afforestation Schemes.	-	-	4	0	0	0	0	0	0
Afforestation of Critical Catchment Areas.	0	0	0	1	1	1	1	1	2
Afforestation of Plan Catchment Area of Umiam Hydro Electric Project	1	1	0	1	1	1	2	2	3
Afforestation of Catchment Area of Kopili Hydro Electric Project.	1	1	0	1	1	1	1	1	1
Afforestation of Catchment Area of Kopili Hydro Electric Project.	-	-	19	0	0	0	0	0	0
Expenditure on Environmental Forestry and Vonomohotsava.	1	1	1	2	2	2	3	3	4
Forestry Mission under the IBDP	0	0	0	1	1	1	1	1	2
National Afforestation Programme	-	3	3	3	4	5	6	7	8
Green India Mission	-	3	3	3	4	5	6	7	8
National Mission on Medicinal Plants	-	1	1	2	2	2	3	3	4

Water Resource Department

- Flood control and management
- Water harvesting practices

Soil and Water Conservation Department

- Development of water management in minor irrigation through construction of check dams, rainwater harvesting and revival of existing water bodies as adaption measures
- Afforestation, Avenue Plantation, Terracing
- Soil conservation and erosion mitigation

Water Resources Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	133	221	691	221	265	319	382	459	550
Flow Irrigation Works	1	2	2	3	4	4	5	6	7
Flow Irrigation Works	-	-	-	0	0	0	0	0	0
Investigation and Development of Ground Water Resources/Jal Kranti Abhiyan	-	0	0	0	0	0	0	0	0
Purchase of Machinery and Equipments for Irrigation	-	0	0	0	0	0	0	0	0
State Water Informatic Centre (SWIC)	-	-	1	0	0	0	0	0	0
Survey and Investigation	0	0	0	0	0	0	0	0	0
Water Resources Development Agency	2	2	2	2	3	3	4	5	6
Works	1	2	2	4	4	5	6	7	9
Establishment of Division and SubDivision(Minor I Works)	9	10	9	10	12	14	17	20	24
Establishment of Division and Sub Division(Minor I Works)	-	-	-	0	0	1	1	1	1
Special Repairs	-	0	0	0	0	0	1	1	1
Critical Flood Control and AntiErosion Schemes	1	3	3	3	4	5	6	7	9
Establishment of Irrigation Wing	18	20	23	21	25	30	36	44	52
Establishment of Irrigation Wing	-	-	-	0	0	0	0	0	0
Work Charge Establishment	4	0	3	4	4	5	6	7	9
Micro Irrigation	0	2	1	2	2	3	3	4	5
Strenghtening of Surface WaterMinor Irrigation or (Investigation Division)	17	19	22	20	23	28	34	41	49
Census of Minor Irrigation Scheme	0	0	0	1	1	1	1	1	1
Creation of Statistical Cell	0	0	0	0	0	0	0	0	0
NABARD Loan for Construction of MIPS	2	8	8	9	11	13	16	19	23
Improvement Modernisation of existing Minor Irrigation Schemes	0	1	1	2	2	2	3	4	4
Improvement of Modernisation of Existing Irrigation	1	2	2	2	2	2	3	4	4
Establishment Maintenance of existing Minor Irrigation Schemes	0	0	0	1	1	1	1	1	2
Pradhan Mantri Krishi Sanchai Yojana (PMKSY)	60	136	97	119	143	172	206	244	291
National Bank for Agriculture and Rural Development (NABARD) Loan for construction and improvement of Minor Irrigation Schemes	10	6	6	6	8	9	11	13	16
Flood Damage Restoration of Minor Irrigation Projects	0	1	1	2	2	2	3	3	4
Flood Management and River Training Works	-	1	1	1	2	2	2	3	3
NABARD Loan for Construction of MIP	4	-	-	3	4	5	6	7	9
NABARD Loan for Construction of MIP Previously(10)	-	-	-	0	0	0	0	0	0
Flood Damage Restoration of Mips	0	0	0	0	0	0	0	0	0

Water Resources Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Monitoring and Evaluation of Minor Irrigation Schemes.	-	0	0	0	0	0	0	0	0
Repairs Renovation and Restoration of Water Bodies Pradhan Mantri Krishi Sinchai Yojana	-	1	0	2	2	2	3	3	4
Promotion of Water Efficiency	-	0	0	0	0	0	0	0	0
Water Quality Management in Water Resources.	-	0	0	0	0	0	0	0	0
Flood Management and River Training Works	-	0	0	0	0	0	0	0	1
Integrated Development of Water Resources (IWRM)	0	0	0	0	0	0	1	1	1
Water Harvesting	0	2	2	2	3	3	4	5	5
Climate change study and Adaptation for Water Resources Sector including infrastructure and procurement of equipment	0	0	0	1	1	1	1	1	1
Command Area Development Activities	0	1	1	1	1	1	1	1	2
Water Harvesting Previously(27)	0	-	-	0	0	0	0	0	0
Command Areas Development Activities	0	1	1	0	0	0	0	1	1

Soil and Water Conservation Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	208	279	206	248	298	357	428	514	617
Conservation Training Institute	2	2	1	2	3	3	4	4	5
Directorate of Soil Conservation	4	5	3	5	6	7	9	10	12
Soil Conservation Research Centre	1	1	1	1	1	1	1	1	1
Soil Conservation Survey Schemes	1	1	2	1	2	2	2	3	3
Works	1	5	5	6	7	8	10	12	14
Divisional Soil Conservation Offices	19	21	4	22	26	31	37	45	54
Natural Resources Improvement Intervention	-	0	0	0	0	0	0	0	0
Soil Testing Works	0	0	0	0	0	0	0	0	1
Training at Soil Conservation Centres	3	3	2	3	4	5	5	7	8
Ordinary Repairs	1	1	1	1	1	1	2	2	3
Soil Conservation Range Offices	18	19	3	19	23	28	34	40	48
Erosion Control Works	0	1	1	1	1	1	1	2	2
Project Formulation Cell	3	3	0	3	4	4	5	6	8
Afforestation	33	30	30	10	12	14	17	21	25
Commercial Crops Development Board	1	1	1	1	1	1	1	1	2

Soil and Water Conservation Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Soil Conservation Engineering Division	1	1	3	1	2	2	2	3	3
Establishment of Evaluation Units	0	0	0	0	1	1	1	1	1
Cash Crop Division	10	11	1	11	13	16	19	23	27
Water Conservation and Distribution Works	0	1	1	1	1	1	1	2	2
Cash Crop Development Works	5	4	4	4	5	6	8	9	11
Watershed Management Division	6	7	0	6	8	9	11	13	16
Conservation Works* in Urban Area	-	1	1	1	1	1	1	1	1
Soil Survey Division	2	2	2	2	3	3	4	5	6
Water Harvesting Works/Farm,Ponds etc.,	1	1	1	1	1	1	1	2	2
Integrated Watershed Management Programme (IWMP)	53	48	82	0	0	0	0	0	0
Cash Horticultural Crops Development Works	2	3	2	3	3	4	5	6	7
Cultivation/Intercultural Works	1	2	-	2	2	2	3	3	4
Soil and Water Conservation Schemes under NABARD	17	20	20	20	24	29	35	41	50
Accelerated Irrigation Benefits Programme (AIBP)	10	20	10	0	0	0	0	0	0
Maintenance of Roads to Works Areas	0	0	0	0	0	0	0	0	0
Meghalaya State Watershed & Wasteland Development Agency	8	59	19	78	93	11	13	16	19
Nursery	1	2	2	2	2	2	3	4	4
Sloping Agriculture Land Technology (SALT)	3	6	6	7	9	10	12	15	18
Springs Conservation and Rejuvenation Works	-	-	-	5	6	7	9	10	12
PMKSY WDC (General)	-	-	-	21	26	31	37	44	53
PMKSY WDC (Scheduled Tribe)	-	-	-	7	9	11	13	15	18

Urban Affairs Department

- Solid and liquid waste management
- Smart Cities Mission

Transport Department

- Adoption of Electric Vehicles
- Green and sustainable alternate mobility such as cable cars and ropeways

Urban Affairs Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
--------------------------	-----------------	------------	------------	------------	---------	---------	---------	---------	---------

Urban Affairs Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	20	17	47	53	64	76	92	110	132
Assistance to Municipal Board for Shillong/Jowai/Tura etc. for Special Purposes.	14	2	32	27	32	39	47	56	67
Capacity Building, Skill Development & Knowledge Management (General)	-	-	-	1	2	2	3	3	4
Shillong Municipal Board.	-	3	3	7	8	10	11	14	16
Jowai Municipal Board.	3	2	2	1	2	2	3	3	4
Tura Municipal Board.	-	3	3	4	5	5	7	8	9
Williamnagar Municipal Board.	-	1	1	1	2	2	2	3	3
Baghamara Municipal Board.	-	1	1	1	1	1	1	2	2
Resubelpara Municipal Board.	-	1	1	1	1	2	2	2	3
Assistance to Meghalaya Urban Development Authority.	2	2	2	3	4	4	5	6	7
Assistance to Meghalaya Urban Development Agency.	1	1	1	1	1	1	2	2	2
Assistance to Town Committees etc. for Special Purposes.	0	0	0	0	0	0	1	1	1
Preparation of Base Map and Master Plan form Shillong/Jowai/Tura etc.	-	1	1	1	1	1	1	1	1
Preparation Master Plan for Shillong/Jowai/Tura etc.	-	1	0	1	1	2	2	2	3
EIUS at Jowai/ Khliehriat etc	0	0	0	1	1	1	1	1	1
EIUS at Tura/Williamnagar/Baghmara etc.	0	0	0	1	1	1	2	2	2
GIS Based Master Plan General	-	-	0	1	2	2	3	3	4
GIS Based Master Plan Schedule Caste	-	-	-	1	1	1	1	1	2

Urban Affairs Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Mitigation	164	132	257	169	203	243	292	350	421
Acquisition of Landfill site at Shillong,etc.	2	5	5	8	10	12	14	17	20
Infrastructure Development for City Transport at Shillong.	4	1	1	3	4	4	5	6	7
Solid Waste Management	0	4	-	0	0	0	0	0	0
Sewerage System & Treatment Plants	38	-	-	0	0	0	0	0	0
Sewerage System and Treatment Plants	4	-	-	0	0	0	0	0	0
Septage Management.	1	-	-	0	0	0	0	0	0
Septage Mangement	0	-	-	0	0	0	0	0	0

Urban Affairs Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Development of Green Space and Parks	0	-	-	0	0	0	0	0	0
Development of Green Spaces and Parks.	1	-	-	0	0	0	0	0	0
Smart Cities Mission	11	12	23	12	14	17	21	25	30
	5	0	3	2	6	6	1	3	4
Infrastructure Development for City Transport	0	1	1	2	2	2	3	3	4
Infrastructure Development for City Transport	0	1	1	2	2	2	3	3	4
Individual House Holds/Community Toilet/Public Toilet/Aspirational Toilets (General)	0	-	1	1	1	1	1	2	2
Individual House Holds/Community Toilet/Public Toilet/Aspirational Toilets (Scheduled Caste)	0	-	-	0	0	0	0	0	0
Individual House Holds/Community Toilet/Public Toilet/Aspirational Toilets (Scheduled Tribe)	0	-	-	0	0	0	0	0	1
Used Water Management (UWM) (General)	0	-	11	16	19	23	27	33	39
Used Water Management (UWM) (Scheduled Caste)	0	-	-	2	3	3	4	5	6
Used Water Management (UWM) (Scheduled Tribe)	0	-	-	5	5	7	8	9	11
Solid Waste Management (SWM) (General)	0	-	4	6	8	9	11	13	16
Solid Waste Management (SWM) (Scheduled Caste)	0	-	-	1	1	1	2	2	2
Solid Waste Management (SWM) (Scheduled Tribe)	0	-	-	2	2	3	3	4	5

Transport Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Climate Adaptation	16	17	17	16	19	23	28	33	40
Assistance to the Meghalaya Transport Corporation	16	17	17	16	19	23	28	33	40

Transport Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Climate Mitigation	0	0	3	5	6	8	9	11	13
Capital Contribution to Meghalaya Transport Corporation	-	-	3	5	6	7	9	10	12
Pooled Transport Organisation	0	0	0	0	0	0	0	0	0

Transport Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Meghalaya Electric Vehicle Adoption Fund (MEVAP)	-	0	0	0	0	0	0	0	0
Ropeways	-	0	0	0	0	0	0	0	0
Inland Water Ways	-	0	0	0	0	0	0	0	0
Cable Cars	-	0	0	0	0	0	0	0	0

Power Department

- Energy efficient Street Lighting
- Facilitating overall village electrification
- Promoting Energy Efficiency Practices in the State
- Maximizing harnessing of Renewable Energy for the purpose of Power Generation

Power Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Mitigation	147	224	224	478	573	688	825	990	1188
Domestic Home Lighting System	-	2	2	4	5	6	7	8	10
Modernisation, Renovation and Upgradation of Umiam Project	-	45	45	125	150	180	220	260	311
Cooking and lighting purposes	-	2	2	1	1	1	2	2	2
Dam Rehabilitation and Improvement Project (DRIP)	-	18	18	78	93	112	135	161	194
Solar Thermal	0	1	1	2	2	2	3	3	4
Urban Areas SPV Demonstration	-	0	0	0	0	1	1	1	1
Biomass Gasification	-	1	1	2	2	2	3	3	4
Meghalaya Power Sector Improvement Project under Asian Development Bank (ADB) funding	-	135	135	200	240	280	340	400	498
Street Lighting System	4	2	2	1	1	1	2	2	2
Village Electrification	-	0	0	0	0	0	0	0	0
MyntduLeshka Hep (StageIi) (280 Mw)	0	-	-	0	0	0	0	0	0
Energy from Waste	-	-	-	0	0	0	0	0	0
SPV Power Plant	-	2	2	2	2	2	3	3	4

Power Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
State Energy Conservation	-	0	0	0	1	1	1	1	1
Solar Lantern	-	1	1	1	1	1	2	2	2
Promotion Of Tourism Through Energy Application	0	1	1	3	4	4	5	6	7
Central Home Heating System through Briquetting Technology and Solar Fan	-	0	0	1	1	1	1	1	1
Solar Water R.O Purification	-	0	0	0	0	1	1	1	1
Preparation Of DPR	-	2	2	3	4	4	5	6	7
Windmill Programme	-	0	0	0	0	0	0	0	0
KUSUM Solar Water Pumping System	1	2	2	2	2	3	3	4	5
Preparation Of DPR	-	0	0	4	4	5	6	8	10
				0	8	8	9	3	0
State Dam Safety Cell	1	-	-	0	0	0	0	0	0
Construction of Riangdo SHP(3x1000)KW	-	1	1	1	1	1	2	2	
		0	0	3	6	9	2	7	32
Dam Rehabilitation and Improvement Project(DRIP) under Externally Aided Project.	-	2	2	0	0	0	0	0	0
Meghalaya Power Sector Improvement Project under Asian Development Bank (ADB) fundingPreviously(77)	1 4 1	-	-	0					
					0	0	0	0	0

Revenue and Disaster Management

- Disaster Risk Reduction

Home (Police) Department

- Disaster Risk Reduction

Revenue and Disaster Management Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	3 3	13 0	5 1	18 5	2 2 2	2 6 6	3 2 0	3 8 4	4 6 0

Revenue and Disaster Management Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Assistance for repairs reconstruction of houses	5	-	3	2 0	2 4	2 9	3 5	4 1	5 0
Construction of Emergency Operation Centres(EOCs)	0	2	2	1 5	1 8	2 2	2 6	3 1	3 7
Creation of Website for Disaster Management.	0	0	0	0	0	0	0	1	1
Financial Assistance to the Victims of Natural Calamities	3	-	3	2 1	2 5	3 0	3 6	4 3	5 1
Other Disaster Management Projects	0	-	-	0	0	0	0	0	0
Refund of Overpayment Pertaining to Previous Financial Year	0	-	-	0	0	0	0	0	0
Drought	-	0	0	0	0	0	0	0	0
Flood	-	9	-	0	0	0	0	0	0
Food and Clothing	1 2	-	1	1	1	2	2	2	3
Cyclone	-	5	-	0	0	0	0	0	0
Supply of Medicines	-	-	-	0	0	0	0	0	0
Earthquake	-	0	0	0	0	0	0	0	0
Supply of Seeds fertilizers and agriculture implements	-	-	-	0	0	0	0	0	0
Hailstorm	-	2	-	0	0	0	0	0	0
Supply of Fodder	-	-	-	1	1	1	2	2	2
Landslide	-	2	-	0	0	0	0	0	0
Other Items	3	-	1	0	0	0	0	0	0
Cloud Burst	-	0	0	0	0	0	0	0	0
Fire	-	2	-	0	0	0	0	0	0
Tsunami	-	0	0	0	0	0	0	0	0
Avalanche	-	0	0	0	0	0	0	0	0
Pest Attack	-	0	0	0	0	0	0	0	0
Cold Wave and Frost	-	0	0	0	0	0	0	0	0
Other State Specific Disasters	-	0	0	0	0	0	0	0	0
Others	-	0	0	0	0	0	0	0	0
Deduct Amount Met From State Disaster Response Fund	- 2 2	-	-	0	0	0	0	0	0
Strengthening of SDMA and DDMA.	0	0	0	0	0	0	0	0	0
Training on Disaster Mangement.	0	1	1	4	4	5	6	7	9
Acquisition of land at New Shillong Township for allotting to the National Disaster Response Force (NDRF)	2	-	-	0	0	1	1	1	1
Human Resource Support in Disaster Management	0	0	0	6	7	8	1 0	1 2	1 4
Transferred to 8121 General and other Reserved Fund 122 State Disaster Response Fund	3 0	1 0 6	4 0	1 1 7	1 4 0	1 6 8	2 0 1	2 4 2	2 9 0

Revenue and Disaster Management Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Conduct of State & District Level Mock Exercise	-	-	0	0	1	1	1	1	1
Establishment of Emergency Operation Centre (EOC)	0	-	-	0	0	0	0	0	1
Implementation of the Sendai Frame Work for Disaster Risk Reduction	0	0	0	0	0	0	0	0	0

Revenue and Disaster Management Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Climate Mitigation	0	17	0	17	20	24	29	35	42
Mitigation Projects Works	-	17	-	0	0	0	0	0	0
Mitigation Projects/Works	-	-	-	17	20	24	29	35	42

Home (Police) Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Climate Adaptation	58	74	128	75	90	108	129	155	186
Protection and Control (Fire Service Station)	55	60	113	62	75	90	108	130	155
Construction of Residential Buildings for Fire Emergency Services Accomodation/Facilities.	-	2	1	1	1	1	1	1	1
Training (Training of Fire service personnels within and outside the State).	-	0	0	0	0	0	0	0	0
Construction of Administrative Buildings for Fire and Emergency Services/Facilities.	-	1	1	1	1	1	1	1	1
Modernisation of Fire Service	-	0	0	1	1	1	1	1	2
Modernisation of Fire Service	-	-	6	0	0	0	0	0	0
Procurement of fire fighting equipments	0	0	0	0	0	0	1	1	1
Construction other than Buildings for Fire and Emergency Services.	-	1	1	1	1	1	2	2	2

Home (Police) Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Disaster Management	-	0	0	1	1	1	1	1	1
Acquisition for Land for Fire and Emergency Services/Facilities	-	-	-	2	2	3	3	4	5
Acquisition of Land for Fire and Emergency Services Facilities	-	-	1	0	0	0	0	0	0
National Emergency Response System (NERS)	0	0	0	1	1	1	2	2	2
National Emergency Response System (NERS) Previously (08)	-	-	0	4	4	5	6	7	9
Computerisation of Fire Service Station (FSS)	-	0	0	0	0	0	0	0	0
Security and Fire Services at Shillong Airport	3	1 0	4	2	2	3	3	4	5
Requisition of Vehicle for National Emergency Response System (NERS)	-	-	0	0	0	0	0	0	0

Community & Rural Development Department

- Encourage continuance of existing community forests by way of giving inputs towards sustainable livelihood options
- In convergence with MGNREGA, management of natural resources through VECs is being carried out.
- Promotion of zero budget natural farming

Planning, Investment Promotion & Sustainable Development Department

- Community-based natural resource management
- Green mobility
- Innovative, climate-informed, and nature-based transport solutions
- Eco-tourism infrastructure development
- Research and development on technologies to adapt to climate change

Public Works Department

- Flood control measures
- Irrigation schemes

Community and Rural Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	7	9	7	6	7	9	11	13	16

Community and Rural Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
	38	85	50	45	74	29	15	38	06
The National Rural Employment Guarantee.	596	730	617	604	725	870	1044	1253	1503
Tribal Area Development Programme under Article 275(1)	-	-	-	6	7	8	10	11	14
National Rural Livelihood Mission	141	248	127	30	36	43	52	62	75
Agriculture (including Reclamation).	0	0	0	1	1	1	1	1	1
Smart Villages Project	0	0	0	0	0	0	0	0	0
Integrated Value Chain Development Project of Silk Cluster under Innovation Fund Component of National Rural Livelihood Mission	1	2	1	5	6	7	9	10	12
Tribal Area Development Programme under Article 275 (1)	-	5	5	0	0	0	0	0	0

Community and Rural Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Mitigation	0	1	1	0	0	0	0	0	0
Construction of Ropeways	-	1	1	0	0	0	0	0	0

Planning, Investment Promotion, and Sustainable Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Climate Adaptation	624	1054	746	1152	1383	1695	1991	2399	2877
Science and Technology Cell	-	0	0	0	0	0	0	0	0
Meghalaya Eco Tourism Infrastructure Development Project (MEIDP)	-	85	18	13	15	18	22	27	32

Planning, Investment Promotion, and Sustainable Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
			5	0	6	7	5	0	3
Science Technology and Environment Council	1	2	2	1	1	2	2	2	3
Meghalaya Livelihood To Market Projects (Megha Lamp)	-	1 2 0	1 2 0	2 9 2	3 5 1	4 2 1	5 0 5	6 0 6	7 2 7
Popularisation of Science and Technology.	1	1	1	0	0	0	0	0	0
Scientific Research and Development of Appropriate Technologies	1	1	1	0	0	0	0	0	0
Implementation of e Office in Meghalaya Secretariat	-	-	-	1 0	1 2	1 4	1 7	2 1	2 5
Meghalaya State Capability Enhancement Project	1	5	3	0	0	0	0	0	0
Eco Tourism Development for empowering rural youth and conserving natural resources in Sohra Cherrapunji Meghalaya	-	4	-	2 0	2 4	2 9	3 5	4 1	5 0
Meghalaya Eco Tourism Infrastructure Development Project (MEIDP)	-	1 5	-	0	0	0	0	0	0
Promotion and Incubation Market Driven Enterprises (PRIME)	-	-	-	5 0	6 0	7 2	8 6	1 0 4	1 2 4
Mission under the Integrated Basin & Livelihood Development	-	-	-	1	1	1	1	1	1
Institute of Natural Resources	-	-	-	5	6	7	9	1 0	1 2
Science and Technology and Environment Council	-	-	-	1	1	1	1	1	2
Science Centre	2	2	2	1	1	1	1	2	2
Popularisation of Science and Technology	-	-	-	1	2	2	3	3	4
Meghalaya Livelihood To Market Projects (Megha Lamp)	-	-	-	1 4 0	1 6 8	2 0 2	2 4 2	2 9 0	3 4 8
Scientific Research and Development of Appropriate Technologies	-	-	-	1	2	2	3	3	4
BioResources Development.	2	2	2	2	2	3	3	4	5
Community Led Eco System Management Project	-	-	-	2 0	2 4	2 9	3 5	4 1	5 0
Remote Sensing	-	-	-	0	0	0	0	0	1
community Forestry Project	-	-	-	2 3 0	2 7 6	3 3 1	3 9 7	4 7 7	5 7 2
Science Centre	-	-	-	1	1	1	1	2	2
Bio Resources Development	-	-	-	1	1	1	1	1	2
Integrated Basin Development Project Cum Livelihood Programme	-	-	1 0	0	0	0	0	0	0
Meghalaya Farmers Mobilisation Project EAP	-	-	-	1 2	1 4	1 7	2 1	2 5	3 0

Planning, Investment Promotion, and Sustainable Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Promotion of Bio Technology	-	-	-	2	2	3	3	4	5
Smart Village Project	-	-	-	5	6	7	9	10	12
Meghalaya State Promotion Board	-	-	-	10	12	14	17	21	25
Promotion and Incubation Market Driven Enterprises (PRIME)	27	23	15	0	0	0	0	0	0
Implementation of the scheme Meghalayan Age Limited	-	-	-	60	72	86	100	124	149
Farmers Collectivisation for upscaling of Production and Marketing Systems (FOCUS) Programme	-	-	-	100	120	144	177	214	259
Mission under the Integratedbasin & Livelihood Development Programme	5	-	-	0	0	0	0	0	0
Aroma Mission.	-	6	-	0	0	0	0	0	0
Institute of Natural Resources	0	10	0	0	0	1	1	1	1
Promotion of BioTechnology	1	2	-	0	0	0	0	0	0
Meghalaya Livelihood To Market Projects(Megha Lamp)	30	40	20	0	0	0	0	0	0
Central Share For Eap	60	80	75	0	0	0	0	0	0
Community Led EcoSystem Management Project	13	10	-	0	0	0	0	0	0
Central Share For Eap	75	80	20	0	0	0	0	0	0
Communitybased Forest Management and Livelihood Improvement with financial assistance from Japan International Cooperation Agency (JICA).	47	110	100	0	0	0	0	0	0
Promotion of Herbal, Aromatic & Medicinal Plants	0	1	0	1	1	2	2	3	3
Implementation of e Office in Meghalaya Secretariat	19	-	-	0	0	0	0	0	0
Experiential Eco Tourism Infrastructure Development for empowering rural youth and conserving natural resources and indigenous culture with financial assistance from New Development Bank (NDB)Previously(77)	35	-	-	0	0	0	0	0	0
Meghalaya Farmers Mobilisation Project EAP	-	7	-	0	0	0	0	0	0
Protection of Vulnerable Catchment Areas (Kfw) (EAP)	-	7	-	35	42	50	60	73	87
Implementation of the scheme Meghalayan Age Limited	77	30	89	0	0	0	0	0	0
Farmers Collectivisation for upscaling of Production and Marketing	2	4	1	0	0	0	0	0	0

Planning, Investment Promotion, and Sustainable Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Systems (FOCUS) Programme	20	00	00						
Sustainable Development Goals	60	10	-	20	24	29	35	41	50

Planning, Investment Promotion, and Sustainable Development Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Climate Mitigation	210	540	690	590	708	850	1020	1223	1468
Integrated Transport Development Programme	-	500	690	580	696	835	1002	1203	1443
Sustainable Transport and Efficient Mobility Society	10	20	-	10	12	14	17	21	25
Integrated Transport Development Programme	200	20	-	00	00	00	00	00	00

Tourism Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Climate Mitigation	-	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Shillong Peak Ropeway.	-	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00

Public Works Department	Actuals 2022-23	BE 2023-24	RE 2023-24	BE 2024-25	2025-26	2026-27	2027-28	20228-29	2029-30
Climate Adaptation	1	0	5	9	11	13	16	19	23

Works	1	0	2	4	5	6	7	9	10
Works.	-	0	4	5	6	7	9	10	12

7.2. Measures for mainstreaming the SAPCC

Implementing the State Action Plan on Climate Change requires substantial financial resources to fund the identified actions. These investments are essential to reduce greenhouse gas emissions, promote sustainable development, and safeguard against the adverse effects of climate change.

To ensure the successful implementation of the State Action Plan, it is crucial to secure adequate funding from both public and private sources.

The Government of Meghalaya is allocating sufficient budgetary resources to support climate action initiatives, while also leveraging private sector investments through innovative financing mechanisms. Furthermore, international cooperation and financial support from multilateral institutions can play a vital role in scaling up climate finance and facilitating technology transfer to developing countries. By mobilizing resources effectively and efficiently, the State can accelerate the transition to a low-carbon and climate-resilient future. The Government of Meghalaya has therefore identified the following sources to fund its climate actions



Figure 7.2: Sources for Financing the SAPCC 2.0

By leveraging a combination of these funding sources, governments, businesses, and other stakeholders can raise the necessary resources to implement actions that address climate change effectively. The institutions providing climate finance in India include the national government, state government, Civil Society Organizations (CSOs), international donor agencies, bilateral development agencies, private investors, and public and private banks (Singh, 2017). There are broadly three different sources of climate finance in India available to States: public (domestic), private and international public finance.

a) *Public (domestic) climate finance*

Public climate (domestic) finance is in the form of budgetary outlays (both at the national and the sub-national level), taxes, subsidies, and government-backed market mechanisms. The government of India finances climate action through (1) Climate Funds (routed through the Union Budget); (2) Direct Budgetary Allocations, and (3) Mechanisms aimed at leveraging private climate finance.

Climate funds support climate actions both under the national climate missions and outside it. These are (1) National Clean Energy Fund (NCEF), (2) National Adaptation Fund (NAF), (3) Compensatory Afforestation Funds, and (4) National Disaster Response Fund (NDRF). Some of these funds are financed by levying cesses while others are budgeted for by the Government. These funds are routed through the Union Budget.

The Government of India also supports a number of adaption and mitigation actions through the national missions under the NAPCC. The funding for the National Missions is routed through the Union Budget in form of sectoral funding for the ministries and departments, which are the executing agencies of these missions. The following NAPCC missions are financed through budgetary support under the union budget:

- | | |
|---|---|
| 1. <i>National Solar Mission</i> | 6. <i>National Mission for Green India</i> |
| 2. <i>National Mission for Enhanced Energy Efficiency</i> | 7. <i>National Mission for Sustainable Agriculture</i> |
| 3. <i>National Mission on Sustainable Habitat</i> | 8. <i>National Mission on Strategic Knowledge on Climate Change</i> |
| 4. <i>National Water Mission</i> | 9. <i>National Program on Climate Change and Human Health</i> |
| 5. <i>National Mission for Sustaining the Himalayan Ecosystem</i> | |

Apart from the above, the Government of India also makes allocations towards other low carbon strategies and environmental policies pursued by the various line ministries through the union budget. These are climate interventions, which do not fall under the purview of the National Missions. These include the budgetary outlays towards ministries such Ministry of New and Renewable Energy (MNRE), Ministry of Environment, Forests and Climate Change (MoEF&CC), and Ministry of Agriculture (MoA) for their various interventions, schemes, and policies, which have direct relevance for climate objectives but are not covered under the Missions.

b) Private climate finance

Private climate finance exists in the form of loans (local and foreign currency loans), private equity, venture capital, partial risk guarantees, green bonds. Most private climate finance in India has been leveraged by domestic and international public funds. A broad range of institutions is involved in mobilizing private climate finance in the country. These include - Multilateral Development Banks and Bilateral Financial Institutions which then mobilize commercial finance to be given to the Indian Financial Institutions for them to further lend it for climate action in India.

c) International funds and donors

Apart from the different domestic resources and mechanisms of climate finance in India, several climate-related projects or activities in India receive money from international funds or multilateral and bilateral agencies. Funding from international sources is usually in the form of grants, loans, soft loans, technical capacity, and capacity-building assistance. These flows are mostly project or sector-specific. However, each of these funding channels has its own structure and rules of access.

International climate finance flows to India through a number of channels. The UNFCCC had created dedicated climate funds like the Adaptation Fund (AF), Global Environment Facility (GEF), and the Green Climate Fund (GCF) which finance specific adaptation and mitigation actions.

Climate Investment Funds (CIFs), established and operated by the World Bank, also finance climate action in India but do not operate under the purview of UNFCCC. Also, international organizations such as the World Bank (WB), UNDP, or ADB, as well as bilateral aid agencies like GIZ from Germany or Department for International Development (DFID) from the United Kingdom to name a few, operate concurrently alongside central ministries, state governments, non-governmental organizations (NGOs) and civil society organizations (CSOs) to implement climate-related projects and programs in the country (Jha, 2014, Singh, 2017).

Chapter 8

8. INSTITUTIONAL MECHANISM

The institutional arrangement has been enshrined in the notification and has been approved by the Cabinet. The Meghalaya State Council on Climate Change and Sustainable Development (MSCCC & SD) has been constituted under the chairmanship of the Honourable Chief Minister of the State. The Meghalaya State Council on Climate Change and Sustainable Development will be the apex body for guiding and approving the climate actions in the state. The council i.e. MSCCC&SD will be advised by the State Level Steering Committee on Climate Change (SLSCC) headed by the Chief Secretary, at the same time the SLSC will also guide the implementing line departments on the implementation of the SAPCC.

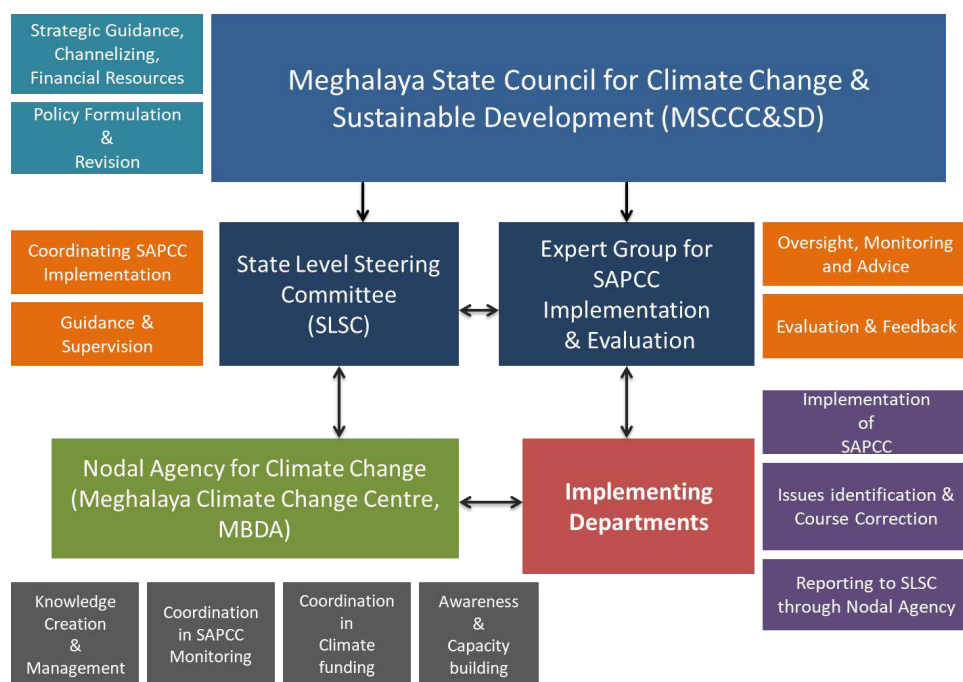


Figure 8.1: Institutional Arrangement for implementing the Meghalaya SAPCC

Each of the implementing departments will appoint a nodal officer on climate change to coordinate with the State climate change nodal agency and under the guidance of the State level steering committee (SLSC). As the revised state action plan on climate change (SAPCC) intends to sync with the actions contributing to achieving the SDGs, the SDG Cell established in the State is proposed to be a part of the State Level Steering Committee which will support and oversee the SDG related climate actions.

The nodal agency will closely engage with the state line departments in providing knowledge and technical support for preparing the climate projects for the State. The Centre will also collaborate with different stakeholders for knowledge building & sharing and awareness creation. The institutional mechanism for the implementation of the SAPCC is illustrated in Figure 57. The framework provides the structure of institutional arrangement with its constituent bodies and their respective roles. The roles of each constituent body are detailed below.

Meghalaya State Council on Climate Change and Sustainable Development (MSCCC & SD)

Meghalaya Council on Climate Change and Sustainable Development (MSCCC & SD) is headed by the hon'ble Chief Minister accompanied by the members representing different ministries and departments. The composition of the MSCCC & SD is presented in Table 27.

Table 8.1: Composition of Meghalaya State Council on Climate Change & Sustainable Development

Sl. No	Incumbent	Position
1.	Hon'ble Chief Minister of Meghalaya	Chairperson
2.	Chief Executive Member, KHADC	Member
3.	Chief Executive Member, JHADC	Member
4.	Chief Executive Member, GHADC	Member
5.	Chief Secretary to the Government of Meghalaya	Member
6.	Principal Secretary, Planning Department	Member
7.	Principal Secretary, Finance Department	Member
8.	Principal Secretary, forest and Environment Department	Member
9.	Principal Secretary/ Commissioner & Secretary, Agriculture Department	Member
10.	Principal Secretary/ Commissioner & Secretary, Water Resources Department	Member
11.	Principal Secretary/ Commissioner & Secretary, Soil and Water Conservation Department	Member
12.	Principal Secretary, Power and Non-Conventional Energy Resources Department	Member
13.	Principal Chief Conservator of Forest and HoFF, Meghalaya	Member
14.	Vice Chancellor NEHU, Shillong	Member
15.	Two Expert Members as may be nominated by the Chairperson	Member
16.	Commissioner & Secretary & CEO, Meghalaya Basin Development Authority	Member Secretary

The overall role of the Meghalaya State Council on climate change & sustainable development (MSCCC & SD) is comprised of providing strategic guidance, channelizing the funds & resources, policy formulation & revisions, and guidance on the effective implementation of the State action plan on climate change. To execute the above role, the State Council for climate change & sustainable development is mandated to:

- *Strategize a coordinated response to the issues relating to climate change*

- *Provide strategic guidance for the formulation of action plans, policies on climate change adaptation and mitigation as well as revision of the policies in the evolving climate scenarios*
- *Channelizing the funds & resources for the implementation of the identified climate actions*
- *Guide bridging the climate actions with SDGs, NDC, and State development priorities*
- *Periodically guide monitoring of the SAPCC implementation and steer the State's climate change program in sync with the national climate and development commitments*

State Level Steering Committee on Climate Change (SLSCCC)

The State Level Steering Committee is the top executive body responsible for steering the State's climate change program with the specific responsibility of coordinating the implementation and monitoring of SAPCC, and providing specific guidance and feedback to ensure the planned implementation of the climate actions. The SLSC will oversee the overall implementation of the SAPCC and its progress as per the plan. The State level steering committee is mandated to:

- *Provide guidance and enable financial approval of the climate actions in the State*
- *Guide to the state nodal agency and the implementing departments for the effective implementation of the climate actions*
- *Guidance on bridging the climate actions and policies with the SDGs and State development priorities*
- *Guidance on the monitoring of the implementation of the SAPCC*
- *Coordination with the national and international (multilateral/ bilateral) climate action entities and funding agencies*

The composition of the Committee is as follows:

Table 8.2: Composition of Meghalaya State Level Steering Committee for the Meghalaya Action Plan on Change

Sl. No.	Incumbent	Position
1.	Chief Secretary Meghalaya	Chairperson
2.	Principal Secretary Planning/Commissioner & Secretary, Planning	Member
3.	Principal Secretary/Commissioner Secretary Forests and Environment	Member
4.	Principal Secretary/Commissioner & Secretary Finance	Member
5.	Principal Secretary/Commissioner & Secretary Agriculture	Member
6.	Principal Secretary/Commissioner & Secretary Horticulture	Member
7.	Principal Secretary/Commissioner & Secretary, Water Resources	Member
8.	Principal Secretary/ Commissioner & Secretary, Soil & Water Conservation	Member
9.	Principal Secretary/Commissioner & Secretary C & R Development	Member
10.	Principal Secretary/Commissioner & Secretary Science & Technology	Member
11.	Principal Secretary/Commissioner & Secretary Power & Nonconventional Energy	Member
12.	Principal Chief Conservator of Forests (PCCF)	Member
13.	Directors of Agriculture/Horticulture/Soil & Water Conservation/Community & Rural Development	Member
14.	Chief Engineer Irrigation/Water Resources	Member
15.	Officers and or experts who may be co-opted from time to time by the Chairperson	Member

* The Chief of the State SDG Cell to be nominated as a member of the State Level Steering Committee

State nodal agency for climate change

Meghalaya Climate Change Centre headed by the State nodal officer for Climate Change will be the State Nodal Agency. The nodal agency will have the following responsibilities:

- *Knowledge Creation & Management: Generating, managing, and updating State-specific information on climate change for the state. Dissemination of such information to the various stakeholders including concerned departments, institutes, communities, etc.*
- *Awareness and Capacity building: It will be responsible for conducting awareness programs for the public and otherwise and also carrying out capacity-building activities for government departments and all concerned stakeholders including the legislators, policymakers, government officials, media, students & communities.*
- *Coordination in climate funding: Any project/ activity or intervention planned under SAPCC or proposed otherwise to be implemented partially or fully through climate finance options other than the state or department internal funds will be coordinated by the nodal agency.*
- *Monitoring of SAPCC: The line departments can consult the nodal agency on matters relating to the implementation of SAPCC. The nodal agency will also be partially responsible for coordinating the periodic monitoring of the implementation of SAPCC.*

Inter and intradepartmental cooperation are crucial for implementing the state action plan on climate change and achieving its goals effectively. The proposed mechanism will require sincere synchronized efforts along with systematic and sound coordination approach. With every proposed climate action, the implementing departments along with supporting departments have also been identified. However, depending on the nature and scale of the planned activities, a further alliance with other stake holding departments as well as agencies could be forged. The proposed institutional mechanism for implementation of SAPCC is designed as an inclusive, integrated, and coordinated convergence framework where the constituent agencies/ bodies will perform their roles in a synchronized manner with due commitment towards achieving the SAPCC goals effectively.

9. MONITORING AND EVALUATION

The SAPCC monitoring & evaluation framework (Figure 49) consists of a monitoring and reporting process between the implementing departments and executing entities which includes a state-level steering committee, state nodal agency, and State SDG Cell. Besides, a program-level Management Information System (MIS) will be developed to ensure that the information is routinely collected, analysed, and shared. Inputs and activity monitoring will be based on the information routinely gathered at different levels using the program MIS e.g., numbers and quantities of different activities and investments carried out and their costs. On an annual basis, the program review processes will involve a comparison of what was planned and what was achieved by adopting a proper evaluation framework. This will provide an annual assessment of the progress and will assist in the early identification of the implementation challenges which could be addressed timely.

Adding another layer for monitoring the SAPCC implementation and tracking the progress, an indicator-based evaluation mechanism will be developed and reviewed periodically. In the SAPCC 2.0, the report has already identified quantifiable indicators which will aid in the monitoring of the action plan. The Action Plan also has identified quantitative targets which have been set by the implementing departments. Both the Indicators and the Targets will be integrated into the MIS forming part of the monitoring & evaluation mechanism aiding the periodic review of the progress.

To strengthen the evaluation of the state climate budget, the Government of Meghalaya has consciously been proactive in mainstreaming climate actions as Climate Budget Tagging (CBT). A step forward in this direction is taken by assessing the state's climate-related expenditure. This involves the process of identifying, measuring, and monitoring the implemented/planned climate actions or developmental programs which contribute towards addressing climate concerns. This tool aims to gauge the climate relevance of each intervention individually. This mechanism would aid policymakers, government, and local bodies in gaining a better understanding about sectors that need more focus or in targeting programs and schemes that can be modified - in terms of a financial outlay or be better designed, to enhance climate benefits and protect the achieved developments in future from threats posed by climate change impacts.

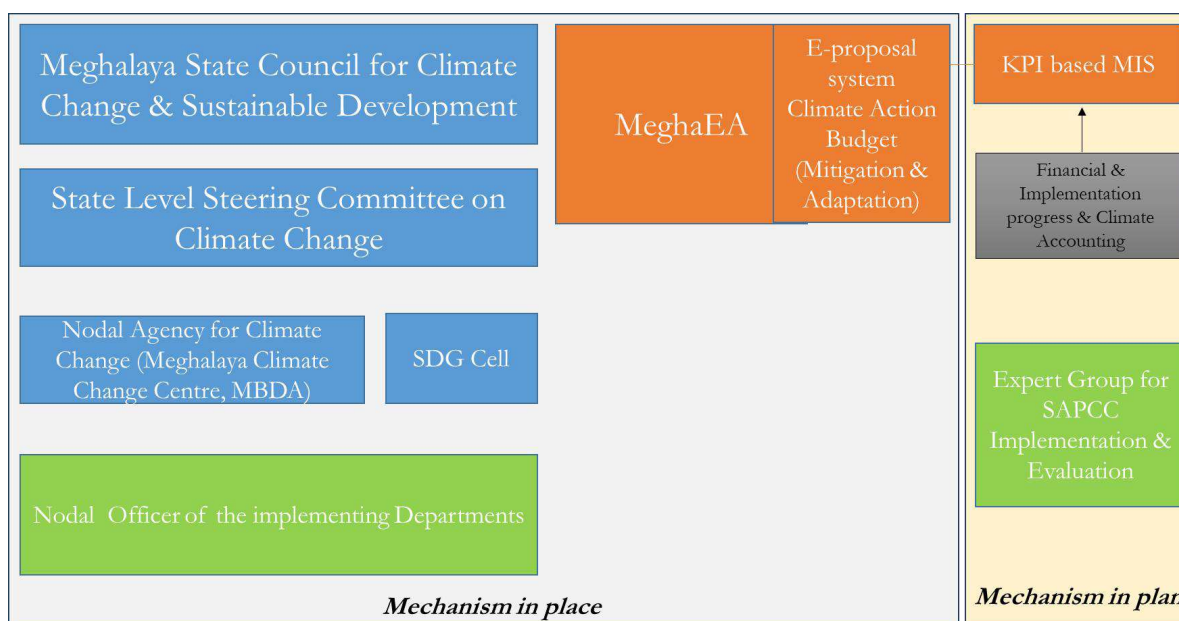


Figure 9.1: SAPCC Monitoring and Evaluation Mechanism

Monitoring & Evaluation Indicators

The monitoring and evaluation (M&E) mechanism for the implementation of the Meghalaya State action plan on climate change (SAPCC) adopts a pragmatic approach to determining States' overall progress in enhancing their climate resilience and for assessing the climate action plan's contribution toward achieving the country's NDCs and SDGs. Meghalaya Enterprises Architecture (MeghaEA) is a digital governance initiative. Built in the framework is the e-proposal system wherein each department's climate action (Mitigation and Adaptation) is integrated, and mapped. The integration of the KPI's identified in the State Action Plan on Climate Change 2.0 will form the robust M&E mechanism.

Monitoring and evaluation indicators play a critical role in tracking the effective implementation of the climate actions planned and are also important as a means to demonstrate effectiveness and accountability. The M&E indicators identified in the Meghalaya SAPCC are pragmatic and action-specific facilitating the monitoring process with tangible and quantifiable implementation outcomes. Below is the list of sector-specific action-wise monitoring & evaluation indicators for the mitigation and adaptation actions identified in the Meghalaya State action plan on climate change along with each climate action alignment to National and Global commitments and targets.

Monitoring, Evaluation & Aligning of International and National Framework/Commitments of Identified Mitigation Actions
Sector: Energy (Proposed Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Power Department		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30		Sub-activities	Indicators		Targets	Development Path (aligning to International & national framework/commitments)
Myntdu Leshka HEP St-II (210MW)		2212.02		1. Dam 2. Intake 3. HRT 4. Surge Shaft 5. HPT 6. Penstock 7. Power House 8. Switchyard	Annual energy generation in MU		603.72	NM-EEE
Ganol Stage-II SHP (14MW)				1. Weir; 2. Intake 3. Power Channel; 4. Forebay; 5. Desilting Chamber; 6. Penstock; 7. Power House 8. Switchyard			41.3	NM-EEE
Nan-Ramnian Umkhynri Stage-I SHP (3x3000 KW)							38.48	NM-EEE
Umrina Stage-I SHP (3x2000 KW)							26.94	NM-EEE

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Power Department		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30		Sub-activities	Indicators		Targets	Development Path (aligning to International & national framework/commitments)
Umkynrem Stage-I SHP (3x2000							18.68	NM-EEE
Amkshar Stage-I SHP (3x2250 KW)							22.9	NM-EEE
Umshampu SHP (2x2000 KW)							23.77	NM-EEE
Amkshar Stage-II SHP (21 MW)				i) Hydro-meteorological ii) Topographical survey iii) Sub-surface exploration iv) Buildings & accommodation v) Road & communication survey vi) Environment studies	Physical progress in %			NM-EEE
Umrina Stage-II SHP (15 MW)							100%	NM-EEE
Lower Rongdi SHP (15 MW)							100%	NM-EEE
Nan-Pamnian Umkhynri Stage-II SHP (15 MW)							100%	NM-EEE

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Power Department		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30		Sub-activities	Indicators		Targets	Development Path (aligning to International & national framework/commitments)
Riangdo Stage-II SHP (10 MW)				vii) DPR Preparation			100%	NM-EEE
Umsiang Stage-II SHP (10 MW)							100%	NM-EEE
Wahriat SHP (4.5 MW)							100%	NM-EEE
Rongdi SHP (4 MW)							100%	NM-EEE
Kynshi Stage-I SHP (4MW)							100%	NM-EEE

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
------------	----	-------	-------	--------	-------	------	--------	---------

Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Meghalaya New & Renewable Energy Development Agency (MNREDA)	Proposed Budget (₹ Crores) FY 2023- '24 to 2029-'30	Sub- activities	Indicators			Targets	Development Path (aligning to International & national framework/commitments)	
Solar Photo Voltaic	2	N/A	a) Detailed Project Proposal Report identifying details related to: i. Survey for site identification for setting up SPVs across the state ii. Site specific installation and solar power generation capacity iii. Identification of the beneficiaries (such as No. of HHs/ Commercial/office buildings/ schools; No. of farmer beneficiaries; No. of health care facilities supported; etc) iv. Total carbon emission that it would offset v. Identify technical knowledge gaps & areas to support & plan for training & skill development vi. Identify scope of engagement and deliverables of				NM-S NM-EEE SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Meghalaya New & Renewable Energy Development Agency (MNREDA)	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators			Targets	Development Path (aligning to International & national framework/commitments)	
			NGOs & other institutions for collaboration					
			b) Identified Site & beneficiaries					
			c) No. of SPVs installed and its energy generation capacity					
			d) No. of capacity building programmes conducted across the state					
			e) No. of department staff trained at block or district level (scale depending on sites identified)					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Meghalaya New & Renewable Energy Development Agency (MNREDA)	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators			Targets	Development Path (aligning to International & national framework/commitments)	
			f) Total Carbon emission it offsets (post implementation evaluation)					
State Rooftop Solar Harvesting program	800						NM-S NM-EEE SDG	

Sector: Forest and Biodiversity (Proposed Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
Protection of existing forests	445.54	Sponsoring the studies to predict and assess potential impacts of climate change on flora, fauna and forest ecosystem in Meghalaya		Assessment study to identify impacts of climate change on biodiversity and forest ecosystem in Meghalaya (Study base)			NM-GI KMGBF NBSAP SDG	
		Prevention, minimization and mitigation of forest fires		Reduce loss of annual forest cover due to forest fire			NM-GI KMGBF NBSAP SDG	
		Survey, boundary demarcation,		Forest fire prevention measures adopted (area			NM-GI	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		restocking and documentation of flora, fauna and traditional belief/knowledge associated with sacred groves		wise fire prevention, control and management measure adopted, responsible stakeholder identified, monitoring calendar and method)			KMGBF NBSAP SDG	
		Promoting scientific management of natural forests by preparation, periodic revision and implementation of working plans and working schemes		Report on documentation of flora, fauna and traditional belief/ knowledge associated with sacred groves (besides the 133 SGs already inventoried)			NM-GI KMGBF NBSAP SDG	
		Notification of sacred groves and other community owned natural forests as Community Reserve under Wild Life		Develop Revised Working plan & working scheme to incorporate scientific & best suitable management practices			NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		(Protection) Act, 1972 and survey, mapping, boundary demarcation and restocking of notified sacred groves						
		Obtaining commitment of respective owners for protection and improvement of natural forests; habitats of rare, endangered and threatened (RET) species of flora and fauna and areas falling within migratory corridors of wildlife on payment of eco-system services (PES)		Reduced human-wildlife conflict with better management of animal corridors			NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		Reducing the demand for timber and other forest produce by improving efficiency in use and life span of these products and developing and promoting non-forest-based alternatives		Improvement in forest cover, increase natural regeneration through reduced anthropogenic disturbance			NM-GI KMGBF NBSAP	
		Strengthening of machinery for protection of natural forests vulnerable to illegal felling, encroachment and illegal mining etc. by deployment of additional staff		Reduced demand for timber and other NTFPs			NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		Extraction/removal of invasive weeds from natural forests		No. and Frequency of growth of Invasive species			NM-GI KMGBF NBSAP	
		Promotion of ecologically prudent and environmentally sustainable livelihood practices including eco-tourism for forest dependent communities to reduce pressure on natural forests		Awareness and sensitisation programs conducted & no. of beneficiaries who attended these events & have been sensitized			NM-GI ML KMGBF NBSAP	
		Monitoring of species invasion and insect outbreak		Detailed Plan for identification of degraded open forests across Meghalaya, mapping and a detailed			NM-GI KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
				plan to afforest each site (Report based on ground survey and GIS)			NBSAP	
		Development of a strategy, action plan and institutional capabilities to deal with insect outbreak and invasion of exotic species in natural forests		Reduction in area under degraded open forest compared to baseline			NM-GI KMGBF NBSAP	
		Creation of awareness about the importance of the protection of natural forests to combat and mitigate impacts of climate change		Enhanced soil nutrient content (Survey-based)			NM-SA KMGBF NBSAP SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
Restocking of degraded open forests	224.57	Development of cost-effective scientific models for assured restocking of open degraded forests of different types located in different areas		Total no. of saplings and species used to restock degraded areas			NM-GI KMGBF NBSAP SDG	
		Establishment of a supply chain to ensure assured supply of seeds and other plant propagules of forestry species of superior genetic make up		Area brought under plantation, afforestation etc. in the slopes			NM-GI KMGBF NBSAP SDG	
		Strengthening and upgradation of planting stock production infrastructure		No. of communities, private forest owners, clans onboarded and sensitised for assisted natural			NM-GI KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
				regeneration			NBSAP SDG	
		Restocking of community and privately owned open degraded forests, especially those located in catchment areas of important rivers, streams, water supply schemes and hydro power projects; areas located in and around local heat islands, towns, cities, villages and other human settlements through natural regeneration and assisted natural regeneration of		No. of Training program and seeds distributed for conducting the afforestation/ reforestation programs in each site			NM-GI KMGBF NBSAP SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		native species with active participation of local communities						
		Anticipatory planting of species along the altitudinal and latitudinal gradient		Detailed Plan of afforestation, including site identification, mapping of the baseline forest or tree cover, water discharge, and site-specific conservation measures (Survey based- pre- and post-intervention)			NM-GI KMGBF NBSAP SDG	
Expansion of existing forests	139.4	Development of cost-effective scientific models for assured afforestation of wasteland and other blank areas located		Area under wasteland and other barren lands converted to plantation areas in each district			NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		in different parts of the State					SDG	
		Afforestation of community and privately owned wasteland and other blank non-forested areas, especially those located in catchment areas of important rivers, streams, water supply schemes and hydro power projects and areas located in and around local heat islands, cities, towns, villages and other human habitations by planting of native species with active participation of local		Increase in water discharge in water bodies having source of origin at the newly forested areas			NM-W KMGBF NBSAP SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		communities						
		Promotion of Agro-forestry by supply of seedling of superior genetic make up to farmers		% of area brought under agro-forestry			NM-GI KMGBF NBSAP SDG	
		Intensive plantation in land owned by government and other institutions such as schools, hospitals, cantonments, police and para-military establishments etc.		No. of farmers supported for taking up agro- forestry practices			NM-SA KMGBF NBSAP SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
Conservation and protection of Biodiversity	8.6	Survey and documentation of natural presence and distribution of Rare, Endangered, Threatened (RET) and other economically important species in the State		Variety and no. of seedling of superior genetic makeup being distributed, planted & their survival rate (based on survey)			NM-GI KMGBF NBSAP SDG	
		Establishment of Arboretums, Botanical Gardens, Herbal Gardens, Medicinal Plants Conservation Areas etc. in different parts of the State		Identify govt. owned lands to be targeted for plantation (district wise no. of schools, offices, residential, etc. targeted and the area available in each site)			NM-GI KMGBF NBSAP SDG	
		Establishment of Long-Term Ecological		No. of seedlings planted in govt. owned lands &			NM-GI	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		Monitoring Plot in each Agro Climatic Zones in the State		annual survival rate			KMGBF NBSAP SDG	
		Establishment of Forest Monitoring Plot in each Forest Type in the State		Report on floral and faunal biodiversity and assessing their economic significance (Study based on primary field survey)			NM-GI KMGBF NBSAP SDG	
Capacity Building and Awareness	1.27	Development and distribution of IEC materials on likely impacts of climate change on flora, fauna and forest		Detailed Proposal on the Number, geographical spread & justification for the need of Parks & Gardens proposed across the state			NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		ecosystem in Meghalaya and measures to be taken to prevent, minimize, mitigate and adapt with these impacts					SDG	
		Development of course content on possible impacts of climate change on flora, fauna and forest ecosystem and measures to be taken to prevent, minimize, mitigate and adapt with these impacts for incorporation in periodic training courses organised for officials dealing with conservation, protection		Increase in the No. of parks & gardens			NM-GI KMGBF NBSAP SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
		and management of flora, fauna and forest ecosystem						
				Detailed report on Ecological monitoring stations set up in each of the agro-climatic zones across the state			NM-GI KMGBF NBSAP SDG	
				Set up of Forest monitoring plot in each forest type			NM-GI KMGBF NBSAP SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
				Increase in species count or frequent spotting (Survey based to estimate pre- and post- intervention difference in species count)			NM-GI KMGBF NBSAP SDG	
				Generate Information and Knowledge materials specific to the region and in local languages for ease in understanding			NM-SHE KMGBF NBSAP SDG	
				No. of awareness and sensitisation programs conducted for the local communities in each block			NM-SHE ML	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
				across Meghalaya			KMGBF NBSAP SDG	
				Develop detailed training calendar including topics to cover, duration, course module, materials and booklets, and identify officials to be trained at block, district and HQ levels			NM-SHE KMGBF NBSAP SDG	
				No. of training sessions conducted & staffs trained per session (as per training calendar prepared)			NM-SHE KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators			Development Path (aligning to International & national framework/commitments)	
							SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
SRES		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)		
Plantation		4.8	Afforestation/ Plantation		920	EPMKN & NM-GI KMGBF NBSAP SDG		
Raising of Nursery		4.8	Nursery		138	NM-GI KMGBF NBSAP SDG		

**Monitoring, Evaluation & Aligning of International and National Framework/Commitments of Identified Adaptation Actions
Sector: Agriculture & Allied (Proposed Activities)**

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
Digital Agricultural Advisories for Farmers' Welfare			24.79	Development of Integrated Agricultural information Systems	-	LS	NM-SA KMGBF NBSAP	
Provision of subsidised road transport for enhancing market linkages for agricultural products				Implementation of Precision Agriculture Technologies				
				Creation of Digital Advisory				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				Services				
				Enhancement of Climate-Resilient Infrastructure				
				Promotion of Farmer Registries and Traceability Systems				
				Capacity Building and Training Programs				
				Facilitation of market Access				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				and Supply Chain Efficiency				
Enhancing water-use efficiency for agricultural yield increase			181.02	1.3- Office Expenses		L.S	NM-SA SDG KMGBF NBSAP	
Promotion of farm mechanization to enhance agricultural yield and efficiency				20- Other Administrative Expenses				
				28- Minor Works				
				2.8- Professional				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				services				
				50- Other Charges				
				52- Machineries and Equipment				
			316.22	Increase the area under micro- irrigation technologies to enhance water use efficiency in the country. Increase productivity of	2435- Other Agriculture Programmes (Centrally Sponsored Scheme)- 01 Marketing and Quality Control- 101- Marketing		NM-SA SDG KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				crops and income of farmers through precision water management. Make potential use of micro- irrigation system for promoting fertigation. Promote micro- irrigation technologies in water scarce, water stress and critical ground	Facilities (17) Pradhan Mantri Krishi Sanchayee Yojana (PMKSY), General Areas during 2021-22			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				water blocks/districts.				
Organic Manure as inputs for promotion of Organic Farming			10	Precision farming	Percentage of cultivated area under precision farming		NM-SA SDG KMGBF NBSAP	
Integrated Pest and Insect Management				Renewable energy mechanization	No. of farmers trained in precision farming			
				Conservation Tillage	No. of blocks with IT capacity for precision			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
					farming			
					Increase in farmer income due to productivity enhancements			
					Reduced purchase of chemical fertilizer			
					Percentage of cropped area under farm mechanization			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
Provision of Farm Composting Unit			30.43				NM-SA KMGBF NBSAP	
			1	Promote use of Bio-Pesticides/ Bio agents	Increased consumption of bio-pesticides and agents		NM-SA KMGBF NBSAP	
				Pheromone traps/ Light trap	Assess demand- supply of bio- pesticides/organic fertilizers			
				Machinery and equipment/	Enhanced soil nutrient content			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
Creation of small, private or community nursery for promotion of agricultural and horticultural crop varieties				Sprayers	(survey-based)			
					Area coverage/ no. of farmers who have adopted IPM practice			
					Identification and promotion of traditional knowledge and best practices			
			0.3	Production of Organic manure (Target: 120 nos.	Increase in production of organic manure		NM-SA KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				of Compost Units)				
				Framing of criteria for site identification – based on assessing region-wise need and viable market.	Increased soil fertility			
				Awareness programs at district level	Percentage sale of bio-manures in local markets			
					Production capacity vis-à-vis actual production			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
					of each unit			
Promotion of low-cost and energy-neutral cold storage					No. of mass awareness programs conducted at district level			
			1.8	Protect, conserve and encourage plantation of indigenous fruit species	Increased percentage of climate resilient variety of crops and plants in local nurseries		NM-SA SDG KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				Maintain germplasm of different local species of vegetables	Number of nurseries with regular supply in each district			
Establish Mushroom Production Unit for augmentation of farmers' income				Provide good quality planting materials	Increased enrolment of farmers in training and capacity building provided by nurseries			
				Enhance the income and livelihood of the	Enhanced cultivation of indigenous fruit			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
				farmers	varieties in each district			
					Number of germplasm centers with native and climate resilient species in each district			
			0.96		Monitor the scale and timely adoption of cold storage units/ No. of cold storage units set up in		LT-LEDS SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
					each district			
High density plantation of fruit plants					Reduction in energy consumption from cold storages			
					No. of people trained for maintenance and usage of such facilities			
			0.3		Increase in the number of		NM-SA SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
					entrepreneurs for procuring quality spawns		KMGBF NBSAP	
Creation of water storage units like ponds, dugout wells, etc.					Number of value- addition units set up by public- private- partnership per district			
					Increase in annual production of different types of mushroom per			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
					production unit			
					Number of farmers covered by training for mushroom cultivation, processing and packaging			
			0.6		Area coverage under different types of indigenous fruits using high density plantation		NM-SA KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
					technique			
					District wise number of farmers trained and who adopted this method of plantation			
Promotion of Natural farming					Community level members trained to be trainers in promotion of this model			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
			2.16		No. of water harvesting units created against target of 120 nos. of storage structures		ML NM-W SDG KMGBF NBSAP	
					Area brought under multiple cropping			
					Percentage increase in crop productivity due to better availability of			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
					water as compared to pre- intervention scenario			
					No. of new fish farms created/ Increase in fish production			
					Income changes from new livelihood options created			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Proposed Budget (₹ Crores) FY 2023-'24 to 2029- '30	Sub-activities	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
			25				NM-SA SDG KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SHE	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Animal Husbandry			Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Promotion of improved feed and manure management to reduce total Methane emission			14	Superior quality Feed and Fodder leads to better digestibility in Livestock thereby less Methane emission in the dung		LT-LEDS & SDG		
Livestock Genetic Improvement (Improvement of germplasm through planned breeding programme to reduce unproductive animals)			7	With superior germ plasm production will be enhance thereby reducing the population of unproductive animals contributing to less methane emission.		SDG		
Fodder Trees and perrenial grasses in barren land to prevent soil erosion and nitrogen in soil			4.2	To prevent soil erosion and fixation of nitrogen in soil and improved Fodder trees and Grasses production		SDG		
Distribution of minerals mixture, Mineral blocks			4.2	Improve Livestock health against disease		SDG		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SHE	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Animal Husbandry			Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Capacity building of farmers and exposure visits outside the State for impact assessment studies on climate change issues affecting Livestock health			7	Capacity building of Livestock farming and impact assessment studies on climate change issues affecting Livestock health and adopt the best practices.		KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Horticulture		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets		Development Path (aligning to International & national framework/commitments)	
Regional Centre for Training and Production of Mushrooms		36.93	(i) No. of beneficiaries trained. (ii) Spawn production (ii) No. of Oyster cubes produced		1) Mushroom Development Centre, Upper Shillong		NM-SA SDG KMGBF NBSAP	
					2) Dlstrlct Horticulture Office, West Jaintia Hills			
					3) District Horticulture Office, West Garo Hills			
Vegetable Development Scheme		1.51	No. of beneficiaries and area covered		6400 No. of beneficiaries		NM-SA SDG KMGBF NBSAP	
					54 units of polyhouse			
					30 units of UV flims/shade net			
					5000 no. of beneficiaries			
					103 no. of beneficiaries			
			No. of institutions covered		520 units			
No. of beneficiaries participated		600 no. of beneficiaries						
Development and Maintenance of Orchard Cum Horticulture		93.14	Production of planting materials		21 Nos of Government Farms		NM-SA & SDG	
Fruit Development		24.94	No of beneficiaries and area covered		(i) 170860 no. of beneficiaries		NM-SA & SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Horticulture		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets		Development Path (aligning to International & national framework/commitments)	
					(ii) 20 units			
Spices Development (Ginger/Turmeric/Large)		118.42	No of beneficiaries and area covered		(i) 720 MT of plant material (ii) 60 units		NM-SA & SDG	
Tuber Crops Development (Potato/Tapioca/ Colocasia)		29.29	No. of beneficiaries and area covered		513 MT of planting material		NM-SA & SDG	
Floriculture Development		636.63	No. of beneficiaries' area covered		469 no. of beneficiaries		NM-SA & SDG	
Maintenance of Horti Hubs		58.99	Production of different flowers		14 (fourteen) nos. of Hubs		NM-SA & SDG	
Integrated Development of Horticulture		1.4	i. No of seedlings planted ii. Area covered		10,000 Nos of seedlings		NM-SA & SDG	
			Area of crops covered		1397 Ha			
			Rejuvenated area		490 Ha			
			No of water sources		543 Nos.			
Apiculture Mission		8.38	(i) Increase in honey production. (ii) Awareness on scientific methods of bee keeping		4473 Bee keepers		NM-SA & SDG	
Tea Development Scheme		63.24	No of beneficiaries and area covered		112 no. of beneficiaries		NM-SA & SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Horticulture		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets		Development Path (aligning to International & national framework/commitments)	
Experimental Tea Plantation		473.88	No of beneficiaries and area covered		112 no. of beneficiaries		NM-SA & SDG	
Promoting Organic Manure		9.4	No of composting units and beneficiaries covered		146 Units of compost pits		NM-SA & SDG	
Plant Protection including Integrated Pest Management		6.27	No of beneficiaries covered		1193 number of beneficiaries of Plant Protection Equipment (Sprayers, etc.)		NM-SA & SDG	
State Mission Organic Value Chain Development		1705.55	No. of FPOs and No. of Farmers covered		16 FPOs under Phase-III And 11 under Phase-IV		NM-SA & SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NM-HH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Fisheries & SRES				Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
Promotion of ecologically healthy, economically viable, and socially inclusive development of the fisheries sector				860.7		92	KMGBF NBSAP	
Upliftment of the rural economy through fisheries						92		

Sector: Water Resources (Proposed Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
Development and expansion of the network of Early Warning Systems (EWS)		0.84	Identification of sites for setting up Automatic Weather Stations (AWS) across the state at the district/block level and setting up of AWS		a) District-wise number of AWS installed		NM-W	
					b) Basin-wise number of automatic water stations installed			
			Setting up of river health system monitoring system at basin level		c) Number of river health monitoring stations in the identified major rivers			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
			Site identification and setting up of automatic water stations in major rivers and streams		d) Frequency of data collection from the river health monitoring system			
			Develop hydrodynamic models for major rivers to improve EWS		e) Number of rivers and major streams with hydrodynamic models that are based on data from automatic water stations			
			Develop a plan for preventive and adaptive measures for hydrological hazards					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
			Adoption of preventive and adaptive measures at the village cluster level					
Improvement of the Flood Management System in rural areas		168	Construction of anti-erosion protection wall, gabion walls etc.		a) Number of villages and village clusters with a Flood Management Plan		NM-W	
			Preparation of Flood Management Plan at Village or village cluster level		b) No. of personnel trained within the community/ water user associations/ farmers associations/other relevant bodies at the local level for preparedness & disaster response			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
					actions.			
			Training of village community members and Village Resource Persons (VRP) in disaster preparedness and response		c) The number of lives lost and total economic damages from incidences of flood in a basin.			
					d) Reduction in the area of flood inundation from the last flood event			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
					e) The area protected from floods due to construction of structure for flood management			
Rejuvenation of springs and aquifers		120	Delineation of springs and spring sheds on digital GIS maps		a) Level of groundwater table in post-monsoon and pre-monsoon season		NM-W	
			Identification of recharge areas and site-specific issues		b) The average monthly discharge/ flow rate of selected springs was identified based on their salience in the health of the spring shed. (as an indicator of the rejuvenation of			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
					springs)			
			Develop plans for rejuvenation measures to be taken up for spring-sheds		c) Number of digital GIS maps of springs and spring sheds			
			Construction of staggered trenches and spring chamber		d) Number of spring shed rejuvenation plans			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
			Integration of springshed management strategies and practices with other MGNREGS works like afforestation					
Promote micro and small hydro-electric power (HEP) units and encourage the use of solar energy in areas of		12	Installation of micro and small HEP units as a pilot initiative at feasible sites that are identified based on a set of criteria		a) Total electricity generation from decentralized renewable energy sources		NM-W NM-S NM-EEE SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
groundwater-based irrigation systems			Promotion of solar water pumps among farmers through awareness programmes on incentives provided by the government		a) Number of operational micro and small HEP units			
					b) Number of solar water pumps sold annually			
Maintenance of water harvesting structures, and conservation of water		15	Maintenance and upgradation of water harvesting structures		a) Cultivated area brought under irrigation/ percent increase in irrigated area.		NM-W SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
resources.			Monitoring the Groundwater levels by installation of Piezometer		b) Number and capacity of water storage structures created.			
			Awareness programmes on the conservation of water resources		c) No. of farmers/ HHs who have benefitted such as increased livelihood/reduce shortage in water stress/ diversification of income/ improved women health, etc.			
					d) Level of water table in pre-monsoon and post-monsoon season			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities		Indicators		Development Path (aligning to International & national framework/commitments)	
Construction of dams for storage of water for irrigation and drinking water					Water capacity/ Command Area		NM-SA SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SHE	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
SRES	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30		Sub-activities		Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
Water conservation	5.32		Construction of Check Dam			322	NM-W ML KMGBF NBSAP	
			Roof Top Rain Water Harvesting Structure			92		
Watershed Management	11.76		Bund			322	NM-W ML KMGBF NBSAP	
Irrigation	11.2		Canal			184		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SHE	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
SRES	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30		Sub-activities		Indicators	Targets	Development Path (aligning to International & national framework/commitments)	
			Open Well			276		
River Rejuvenation	10.08		Di siltation, Recharge Pit			552	NM-W SDG ML KMGBF NBSAP	
Water Related Works	5.6		Water Harvesting Pond			368	NM-W ML KMGBF NBSAP	

Sector: Urban Habitat (Proposed Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs			Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
Acquisition of Landfill site at Shillong etc			104				NM-SH	
Solid Waste Management			104	Waste material collected for processing in each manufacturing unit			NM-SH & ML	
Development of Green space and parks			22.5	1. Mapping of the area identified to be developed as open spaces and parks in each urban centre of Meghalaya 2. No. of parks created and/ the percentage of open spaces developed in each urban centre 3. Percentage increase in area under urban green cover 4. Locality wise No. of saplings planted and survival rate over the years			NM-SH KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs			Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
				5. Increase in urban green cover (GIS based)				
Smart Cities Mission			1222				NM-SH CDRI	
Infrastructure Development for City Transport			75				NM-SH	
Individual household/ community/toilet/public toilet/Aspirational R toilets			71				NM-SH	
Used Water Management			240	1. Detailed Plan of water channels to be conserved, including identification, mapping of the water bodies, discharge, and site-specific conservation measures (Survey based) 2. Detailed Plan of water channels to be conserved,			NM-SH NM-W ML KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs			Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
				including identification, mapping of the water bodies, discharge, and site-specific conservation measures (Survey based) 3. Percentage reduction in the gap between water supply and demand in the downstream localities		NBSAP		
Strengthening natural ecosystem of Urban area through Urban planning			264	1. Detailed Plan for identification of targeted spring sheds in urban areas across Meghalaya, mapping its buffer zones and a detailed conservation and management plan for each of the spring shed (Report based on ground survey and GIS 2. Area afforested in the buffer zones of spring sheds falling in urban areas 3. Enhanced soil nutrient content (Survey-based)		NM-SH CDRI		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs			Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
Assistance to Municipal Boards for Shillong, Jowai, Tura, Williamnagar, Baghmara & Resubelpara for special purpose			274				NM-SH	
Assistance to Municipal Boards for Construction of Footpaths, Drains, Waste Management etc.			165				NM-SH	
Assistance to Municipal Boards under EIUS			15.5				NM-SH	
GIS based Master Plan			29				NM-SH	

Sector: Human Health (Proposed Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
Green Measures in Health care facilities		7.54	Energy Efficiency Upgrades Renewable Energy Integration Water Conservation Waste	Energy Audit Reports of Health care facilities		1. HWC-SC:469 2. State Dispensaries : 13 3. UPHCs: 19 4. HWC-PHCs: 116 5. CHCs: 30 6. District Hospitals:16		NPCCHH NM-S NM-EEE SDG
				No. of LEDs installed, and non-LEDs replaced at each facility				
				Reduced energy consumption attributed to usage of energy efficient medical equipment / or Percentage of Medical equipment and devices procured or used that are energy efficient				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				Percentage of new healthcare units setup following GREEN building Code				
				"Installed capacity of alternate renewable energy source at each health care unit / or Reduced energy demand or dependency on grid-based power supply (in kW)"				
				No. of water efficient fixtures installed				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				Capacity of installed RWH structures				
				Method and capacity of sewerage and effluent treatment plants setup				
				Capacity of established bio-medical waste treatment plants				
				Assessment to evaluate GHG emission mitigated in health sector at block / district level				
				No. of facilities enabled with functioning electronic				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				patient record system				
Information Education Communication (IEC) Content		1.16	Awareness Campaign Online Resources Community Engagement	No. of training programs organized to sensitize health officials and primary responders at block, district and state levels		PHCs: 116		NPCCHH
				No. of IEC materials developed in different regional languages and report on dissemination plan prepared				
				Real-time data on climate-sensitive				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				diseases				
				Workshops/ meetings organized for Community engagement				
				No. of VECs/ local bodies/ individuals who registered and trained to implement defined roles				
				Documentation on learnings from IEC content creation and dissemination (based on case study or				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health & Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				ground assessment)				
				Reduced incidences of climate-sensitive diseases which were earlier prevalent (based on survey, health reports and patient records)				
Training Programme		2.67	Staff Training Emergency Preparedness	Detailed Training plan- with identified stakeholder at various levels and based on expertise, topics or focus areas and objectives of the training, resource person to impart the training, timeline and		1. HWC-SC:469 2. State Dispensaries: 13 3. UPHCs: 19		NPCCHH

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				outcomes targeted		4. HWC-PHCs: 116 5. CHCs: 30 6. District Hospitals:16		
				Identify major emergency or disaster threats at district or block level (based on existing scientific studies, past incidences and projected assessments)				
				"Document the best practices and measures specific to a disaster or climate event."				
				"Establish or revive/ reform existing institutional linkages				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				of relevant stakeholders for different climate events"				
				Train and build infrastructure and services of health sector to deal with climate emergencies, disease outbreaks or pandemic situations (Assessment based evaluation and through monitoring)				
				Mock drills conducted for healthcare and primary respondents to efficiently manage emergency situations – at community, block,				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				district and state level				
Programme Management		2.67	Establishment of Green Teams Performance Tracking	Improved Data management system installed and operational		District Level: 11		NPCCHH
				Creation of Green team taskforce with defined roles				
				No. of sensitization workshops and meetings conducted to strategize feasible risk management measures				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				Develop and institutionalise M&E Framework				
				Workshops/ meeting/sensitization programs held for knowledge sharing and enable stakeholder collaboration				
General Awareness		0.58	Public Campaign Partnership	Develop materials and information modules covering health related topics that are of local significance (in all formats and regional languages)		Block Level		NPCCHH

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				Plan detailed schedule for Public Health Campaigns across all blocks and districts				
				No. of medical staff trained and sensitization to spread the awareness				
				No. of health camps, events and mass sensitization programs conducted at each block				
				MoU or other institutional arrangements delivered to specify and designate roles &				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				responsibilities of other line departments, such as Education department				
				Local leaders, champions, youth groups and influencers identified to spread awareness				
Capacity Building			Research & Innovation Skills Development	Identify areas of Research to prioritize (based on assessment of current scenario at local levels)		District Level: 11		NPCCHH
				Assess the gaps in knowledge, understanding, skills lacking in				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				medical staff, or other location specific concerns that restricts in providing a quality health service				
				Develop a detailed district level plan of action to mitigate the constraints and ensure efficient and productive medical service				
				Reduced vacancy of medical posts at all levels and across all blocks				
				Upscale or Expansion in specialized health care services – such as				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health &Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
				cardiology, oncology, gynaecology, psychiatry, etc."				
				Improved health indicators (e.g. – IMR, MMR, reduced malnutrition)				
				Improve facilities such as- • No. of trained nurses • Increased indoor capacity • Improved patient to bed ratio • Improved facilities of existing pathological labs or new ones created, etc.				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Health & Family Welfare		Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators		Targets		Development Path (aligning to International & national framework/commitments)
Others Including Operating Costs (OOC)			Financial Incentives Cost-Benefit Analysis Policy Support	Assessment Report to identify areas that are priorities in allocation of incentives and resources		District Level: 11		NPCCHH
				Report on Policy Gaps with measure to address them and develop a roadmap for implementation				

Sector: Tourism (Proposed Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Tourism	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators				Targets	Development Path (aligning to International & national framework/commitments)
Clean energy powered aerial mobility program at tourists and urban centres	3.19	Set up ropeway system Sewerage and Solid waste management to treat waste generated at the ropeway site Develop Green Belt around the terminal stations	Identify site, connectivity network, route, power requirement to run the unit, and daily passenger capacity that the station & Ropeway system would cater to					NM-SH CDRI SDG
			Station-wise daily average number of commuters					
			Surface traffic flow survey to assess the reduction in number of vehicles plying in peak hours, before & after operationalization of ropeway system as a mode for urban transport (Ground survey & report based)					
			Assessment to quantify reduction in carbon emission achieved					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Tourism	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators				Targets	Development Path (aligning to International & national framework/commitments)
			(study based)					
			Report on site specific Waste collection, disposal and treatment facilities required					
			Amount of waste generated and treated at the dedicated STP & ETP					
			Recycled products manufactured out of the waste (paper, plastic, biomass, etc.)					
			Area brought under Green Belt at each site					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Tourism	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators				Targets	Development Path (aligning to International & national framework/commitments)
			Percentage increase in urban green cover					
Preserve and protect vulnerable natural heritage sites like the Living Root bridges, through capacity building, training, funding.	1.5	Increase the growth & construction of Living Root Bridges by engaging with the community. i. Capacity building ii. Financial incentives	Detailed Project Report on identification of vulnerable Living Root Bridges across the state, site specific causes for vulnerability, measures to be adopted to help preserve the site, identify stakeholders to be engaged with, prioritize based on the level of vulnerability, which site to be addressed when, training calendar, etc.					CDRI SDG
			Site specific protection and preservation measures adopted (Report based to be evaluated against the DPR)					
			Site specific Training Modules and Knowledge materials created in regional language (based on the local scenario of the site, so that					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Tourism	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators				Targets	Development Path (aligning to International & national framework/commitments)
			communities relate to it and comprehend)					
			No. of Training & sensitization programmes conducted, and areas of discourse addressed in each site					
			Develop tourism plan for the site (outline specific areas of management, identify environmental protection measures to be followed, strict implementation mechanism of tourist behaviour in environment sensitive areas, etc.)					
			Local community members trained to maintain sustainability of the project					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Commerce & Industries	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators			Targets		Development Path (aligning to International & national framework/commitments)
Apiculture	18.45		Detailed Training calendar including number of target farmers, identify centres of training, duration, and season, engagement for institutional support, assess machineries or technology required					SDG
			Number of master trainers and instructors trained					
			CFCs supported for setting up of honey processing units					
			Inventory and procurement of tools and equipment and their maintenance					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Commerce & Industries	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators			Targets		Development Path (aligning to International & national framework/commitments)
			Increase in bee population / improved availability of queen bees					
			Increased production of Honey post intervention					
			Number of farmers with enhanced skill in apiculture					
Handicraft promotion	11.9		Detailed Training calendar including number of target farmers, identify the centres of training, duration, engagement for institutional support, assess machineries or technology required					SDG
			Number of master trainers trained					
			Inventory and procurement of tools / equipment and their					

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Commerce & Industries	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30	Sub-activities	Indicators			Targets		Development Path (aligning to International & national framework/commitments)
			maintenance					
			Assess the varied types of handicraft products introduced / improved quality of existing products based on market demands through skilling programmes					
			Number of individuals / local communities with enhanced skill in handicrafts at block level across Meghalaya					
			Increased production / availability of handicraft products in the market					

Sector: Disaster Management (Proposed Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
State Disaster Management Authority (SDMA)	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30		Sub-activities			Indicators	Targets (Physical)	Development Path (aligning to International & national framework/commitments)
Hazard Risk Mapping	11.14		Seismic micro-zonation study and vulnerability assessment of Shillong City			Number of Projects	3	CDRI SDG
Risk reduction through implementable planning and policy development	6.73		Preparation/updating of Plan at State Districts and all plans at all levels			Number of Plan prepared/Updated	1 (State) 12 (District) 55(Block) 6839(Villages)	CDRI SDG
Strengthening communication Networks and Disaster	33.64		Procurement of essential search, rescue, evacuation equipment including communication equipment for the state emergency operations centre (SEOC),			S&R equipment purchased and communication	1(State) 12(District)	CDRI SDG

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming-Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
State Disaster Management Authority (SDMA)	Proposed Budget (₹ Crores) FY 2023-'24 to 2029-'30		Sub-activities			Indicators	Targets (Physical)	Development Path (aligning to International & national framework/commitments)
Management Facility			District Emergency operations centres (DEOC)			equipment installed		
Capacity Building	35.8					Number of capacity Building Conducted	Indicators	CDRI SDG

Monitoring, Evaluation & Aligning of International and National Framework/Commitments of Identified Mitigation Actions
Sector: Agriculture & Allied (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)	
Organic Manures Fertilizers			4		% of Increase in production		NM-SA ML KMGBF NBSAP	
Production of Bio			10		% of Increase in production		NM-SA ML	
Organic Manure			18		% of Increase in production		NM-SA ML KMGBF NBSAP	

Sector: Forest & Biodiversity (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Establishment of Parks and Botanical Gardens				23	% of Increase in coverage		NM-GI KMGBF NBSAP	
Establishment of Wild Life Sanctuary				137	% of Increase in coverage		NM-GI KMGBF NBSAP	
Forest Nurseries				19	% of Increase in coverage		NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Garden Superintendent Park and his Establishment				11	Expenditure % ensuring low carbon footprint		NM-GI KMGBF NBSAP	
Parks Development				6	% of Increase in coverage		NM-GI KMGBF NBSAP	
Compensatory Afforestation				33	% of Increase in coverage		NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Lady Hydari Park Establishment				9	Expenditure % ensuring low carbon footprint		NM-GI KMGBF NBSAP	
Financial Assistance to Meghalaya State Pollution Control Board(MSPCB)				159	Expenditure % ensuring low carbon footprint		NM-GI KMGBF NBSAP	
Wards Lake Establishment * *				20	Expenditure % ensuring low carbon footprint		NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Payment for Compensation for Depradation by Wild Animals				2	% of Increase in coverage		NM-GI KMGBF NBSAP	
Pinewood Park and Other Garden				5	Expenditure % ensuring low carbon footprint		NM-GI KMGBF NBSAP	
Establishment of Park and Sanctuaries				68	% of Increase in coverage		NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Conservation of Natural Resources and Eco System				39	% of Increase in coverage		NM-GI KMGBF NBSAP	
Other Gardens and Parks under Khasi Hills Division				0	% of Increase in coverage		NM-GI KMGBF NBSAP	
Teak Wood Plantations				3	% of Increase in coverage		NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Plywood Plantations				10	% of Increase in coverage		NM-GI KMGBF NBSAP	
Salwood Plantations				9	% of Increase in coverage		NM-GI KMGBF NBSAP	
Plantation of Quick Growing Species				11	% of Increase in coverage		NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Plantation of Medicinal Plants				23	% of Increase in coverage		NM-GI KMGBF NBSAP	
Miscellaneous Afforestation Schemes.				10	% of Increase in coverage		NM-GI EPMKN KMGBF NBSAP	
Afforestation of Critical Catchment Areas.				7	% of Increase in coverage		NM-GI EPMKN KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Afforestation of Plan Catchment Area of Uiam Hydro Electric Project				12	% of Increase in coverage		NM-GI EPMKN KMGBF NBSAP	
Afforestation of Catchment Area of Kopili Hydro Electric Project.				27	% of Increase in coverage		NM-GI EPMKN KMGBF NBSAP	
Expenditure on Environmental Forestry and Vonomohotsava.				19	Expenditure % ensuring low carbon footprint		NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
Forestry Mission under the IBDP				7	% of Increase in coverage		NM-GI	
National Afforestation Programme				39	% of Increase in coverage		NM-GI EPMKN KMGBF NBSAP	
Green India Mission				39	% of Increase in coverage		NM-GI KMGBF NBSAP	
National Mission on Medicinal Plants				18	% of Increase in coverage		NM-GI KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national Frameworks/commitments)	
							NBSAP	

Sector: Urban Habitat (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national frameworks/ commitments)		
Acquisition of Landfill site at Shillong,etc.			93	% Progress of acquisition		NM-SH SDG		
Infrastructure Development for City Transport at Shillong.			71	Expenditure % ensuring low carbon footprint		NM-SH SDG		
Sewerage System & Treatment Plants			42	% area of coverage under sewerage system % of waste treated		NM-SH SDG		
Septage Management.			1	% of area managed		NM-SH SDG		
Development of Green Spaces and Parks.			1	% of area developed		NM-SH SDG		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national frameworks/ commitments)		
						KMGBF NBSAP		
Smart Cities Mission			1680	% of initiatives completed against number of initiatives approved		NM-SH CDRI SDG		
Individual House Holds/Community Toilet/Public Toilet/Aspirational Toilets			9	% of HouseHolds covered		NM-SH SDG		
Used Water Management (UWM)			236	% of area covered		NM-SH SDG		
Solid Waste Management (SWM)			99	% of solid waste managed		NM-SH ML		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national frameworks/ commitments)		
						SDG		

Sector: Disaster Management (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Revenue and Disaster Management Department		Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)		
Mitigation Projects Works		184		Number of projects initiated				

Sector: Energy (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Power Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Domestic Home Lighting System			44	% Household having domestic lighting systems			ML	
Modernisation, Renovation and Upgradation of Umiam Project			1331	Expenditure % made assuring low carbon footprint			CDRI	
Cooking and lighting purposes			13	% Household covered				
Dam Rehabilitation and Improvement Project (DRIP)			813	% families rehabilitated			CDRI	
Solar Thermal			18	% of energy contributed			ML/NM-S	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Power Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Urban Areas SPV Demonstration			4	Expenditure % made assuring low carbon footprint				
Biomass Gasification			18	% of energy contribution			ML	
Meghalaya Power Sector Improvement Project under Asian Development Bank (ADB) funding			2398	% of additional energy generated			CDRI	
Street Lighting System			17	% of area/villages covered				
SPV Power Plant			20	Expenditure % made assuring low carbon footprint			NM-S SDG	
State Energy Conservation			5	% of energy conserved			LT-LEDS ML	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Power Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
							SDG NM-EEE	
Solar Lantern			11	% of energy generated			ML SDG NM-S	
Promotion Of Tourism Through Energy Application			31	% of expenditure incurred for tourism promotion			LT-LEDS	
Central Home Heating System through Briquetting Technology and Solar Fan			6	Number of Homes covered under the technology			NM-S SDG	
Solar Water R.O Purification			4	Number of installed machines			NM-S	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Power Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
							SDG	
Preparation Of DPR			33	Number of DPR prepared			CDRI	
KUSUM Solar Water Pumping System			24	% of area covered under KUSUM			ML/NM-S SDG	
Preparation Of DPR			398	Number of DPR prepared			CDRI	
State Dam Safety Cell			1	Number of cells established			CDRI	
Construction of Riangdo SHP(3x1000) KW			149	% of additional energy generated			NM-EEE	

Sector: Cross-Sectoral (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Community and Rural Development Department		Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators	Targets	Development Path (aligning to International & national framework/commitments)		
Construction of Ropeways		2		% increase in transit		NM-SH		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Cr) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Sustainable Transport and Efficient Mobility Society			129	% of vehicles reduced			NM-SH	
Integrated Transport Development Programme			7169	% of vehicles reduced			NM-SH	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Tourism Department		Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)		
Shillong Peak Ropeway.		1	% increase/replaced in transits as appose to using ICE vehicles			NM-SH		

**Monitoring, Evaluation & Aligning of International and National Framework/Commitments of Identified Adaptation Actions
Sector: Agriculture & Allied Sector (Ongoing Activities)**

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Agricultural Marketing Organisation including subsidy.				82	% of Subsidy disbursed		NM-SA	
Agricultural Studies				4	Number of Reports		NM-SA	
Directorate of Agriculture.				82	% of Increase in area coverage under sustainable agriculture		NM-SA KMGBF NBSAP	
Directorate of Research, Training & Technology Induction (RTTI)				25	Number of Trainings		NM-SA	
Fruit Research Station				7	% of Increase in coverage		NM-SA	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Land Use Survey.				23	% of Increase in coverage		NM-SA	
Local Green Manure and Rural Composition				3	% of Increase in coverage		ML KMGBF NBSAP	
Plant Protection for Epidemic Control Measures including Sale of Pesticides etc.,at Subsidised Rates				55	% of Increase in coverage Subsidy percentage		ML KMGBF NBSAP	
Upper Shillong Farm				5	% of Increase in coverage		NM-SA	
Vegetable Development including Sale of Vegetable seed rates				90	% of Increase in production		NM-SA	
Agricultural Census				35	% of Increase in coverage		NM-SA	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Agricultural Engineering (Mechanical)				128	% of Increase in coverage		NM-SA	
Agriculture Information Units and e Governance (Agri)				15	% of Increase in coverage		NM-SA	
Development of Ginger and Turmeric including Sale of Plants at Subsidised Rates-				4	% of Increase in production		ML KMGBF NBSAP	
District Offices				302	% of Increase in coverage			
Fruit Processing Centre				41	% of Increase in production		NM-SA	
Research Project on Rice				23	% of Increase in coverage		NM-SA	
Seeds Farms.				49	% of Increase in production			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Shillong Fruit Garden				7	% of Increase in production			
Development in Horticulture including Sale of Fruit etc at Subsidised Rates				101	% of Increase in production		KMGBF NBSAP	
Directorate of Horticulture				41	% of Increase in production			
Farmers Training Centre				38	% of Trained farmers			
Potato Development including Sale of Seeds at Subsidised Rate				47	% of Increase in production		KMGBF NBSAP	
Scheme for Intensive Agriculture in Selected Areas				26	% of Increase in production			
Agricultural Research Stations and Laboratories				73	% of Increase in coverage			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Agricultural, Economics and Statistics.(Agri)				11	% of Increase in coverage			
Basic Agriculture Training Centre				48	% of Trained farmers			
Demonstration in Cultivators Field				14	% of Trained farmers			
District Offices (Horticulture)				133	% of Increase in coverage			
Land Reclamation Scheme (Including Subsidy on Hire				65	% of Increase in production			
Plant Protection including IPM (under Agriculture)				23	% of Increase in production		NM-SA	
State Share				45	% of Increase in production			
Central Share				300	% of Increase in production			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Agril. Economic and Statistics (Hort)				0	% of Increase in coverage			
Experimental Tea Plantation				44	% of Increase in production		NM-SA	
Plant Protection including IPM (under Horticulture)				5	% of Increase in production		NM-SA	
Agricultural Information Units (Hort)				0	% of Increase in coverage			
Establishment of Regional Progeny Orchard Cum Horticulture Nursery for SubTropical Fruits (Mynkre)				48	% of Increase in production		NM-SA KMGBF NBSAP	
Regional Centre for Training & Production of Mushrooms				26	% of Trained farmers			
Horticulture Mission for Strengthening Development Schemes				9	% of Increase in production		ML	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Integrated Technology Enabled Agri Management (ITEAM)				38	% of Increase in coverage			
National Food Security Mission (NFSM) (Jute, Oilseed))				77	% of Increase in production			
ACA under RKVY				5	% of Increase in coverage			
Rashtriya Krishi Vikas Yojana (RKVY)				226	% of Increase in coverage			
Soil Testing Lab				33	% of Increase in coverage		NM-SA	
State Soil Survey Organisation				42	% of Increase in coverage		NM-SA	
Seed Testing Lab				16				
Mission Organic Value Chain Development for North Eastern				21	% of Increase in coverage		ML/NM-SA	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDs	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDs) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Region								
Development and Maintenance of OrchardCumHorticulture Nurseries				67	% of Increase in production		KMGBF NBSAP	
Pradhan Mantri Krishi Yojana Krishi Sinchayee Yojana (PMKSY)				84	% of Increase in coverage		NM-SA	
Creation of Rural Market Hub.				29	% of Increase in coverage			
Fruits Development				39	% of Increase in production		NM-SA KMGBF NBSAP	
Spices Development (Ginger/Turmeric/Large Cardamon/ Black Pepper)				81	% of Increase in production		NM-SA KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
							NBSAP	
Tuber Crops Development (Potato/Tapioca/Colacacia)				22	% of Increase in production		NM-SA KMGBF NBSAP	
Floriculture Development				418	% of Increase in production		NM-SA KMGBF NBSAP	
Regional Centre for Training and Production of Mushroom				40	% of Trained farmers		NM-SA KMGBF NBSAP	
NABARD Loan for Development of Horticultural Crops				65	% of Increase in coverage		NM-SA	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
							KMGBF NBSAP	
Maintenance of HortiHubs				42	% of Increase in coverage		ML NM-SA KMGBF NBSAP	
Maize Development through Cluster Approach				8	% of Increase in production		NM-SA KMGBF NBSAP	
Special Central Assistance (Mission Organic)				307	% of Increase in production		NM-SA	
Integrated Agriculture Training Center				3	% of Increase in coverage		NM-SA	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
National Mission on Agri Extension and Training (NMAET)				4	% of Increase in coverage		NM-SA	
SubMission on Seed and Planting Materials (SMSP)				10	% of Increase in coverage		NM-SA	
Sub Mission on Agri Extension (SMAE)				149	% of Increase in coverage			
Sub Mission on Seed & Planting Materials (SMSP)				18	% of Increase in coverage			
Sub Mission on Agri Extension SMAE				23	% of Increase in coverage			
Project under Ministry of Tribal Affairs (MoTA)				61	% of Increase in coverage			
Apiculture Mission				10	% of Increase in coverage		NM-SA	
Tea Development Scheme				6	% of Increase in coverage			

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
State Rice Mission				44	% of Increase in coverage		NM-SA	
Sub Mission on Agro Forestry				19	% of Increase in coverage		NM-GI	
National Bamboo Mission.				4	% of Increase in coverage		NM-GI	
Rainfed Area Development				15	% of Increase in coverage		ML	
Soil Health Management				0	% of Increase in coverage		KMGBF NBSAP	
National Bamboo Mission				17	% of Increase in coverage		KMGBF NBSAP	
Soil Health Management				28	% of Increase in coverage		KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Agriculture Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
							NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Fisheries Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Construction of Departmental Fish farms				25	% of Increase in coverage		KMGBF NBSAP	
Fish Seed Production and Demonstration Centre.				2	% of Increase in seed production		KMGBF NBSAP	
Welfare of Fishermen				6	% of Increase in number in beneficiaries		KMGBF NBSAP	
Reclamation of Bheel Fisheries				0	% of Reclaimed area		KMGBF NBSAP	
Mini Mission II Critical Infrastructure Development				51	Expenditure % ensuring low carbon footprint		KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Fisheries Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
Mini Mission V Mass Media Campaign Documentation and Outreach				2	Number of Outreach programs Number of Reports		KMGBF NBSAP	
Mini Mission IV Capacity Building and HRD				2	% of Increase in coverage		KMGBF NBSAP	
Mini Mission III Establishing Sanctuaries Conserving I Indigenous and Endemic Species				2	% of Increase in coverage		KMGBF NBSAP	
Mini Mission I Area And Productivity Expansion				5	% of Increase in production		KMGBF NBSAP	
Mini Mission VI Emerging Opportunities in the Fisheries Sector				4	% of Increase in coverage		KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Fisheries Department				Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)	
							NBSAP	
Convergence of Aquaculture Mission with other Schemes, Agencies and Departments.				23	% of Increase in coverage		KMGBF NBSAP	
Pradhan Mantri Matsya Sampada Yojana				247	% of Increase in coverage		KMGBF NBSAP	
Special Central Assistance to Tribal Sub Schemes				42	% of Increase in coverage			

Sector: Forest & Biodiversity (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
Establishment of Forest Statistical Division			19	% of Increase in coverage			NM-GI KMGBF NBSAP	
Financial Assistance to Forest Development Corporation of Meghalaya			36	% of Increase in coverage			NM-GI KMGBF NBSAP	
Forest Resources Survey Division			23	% of Increase in coverage			NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Head Quarters Organisation			139	Expenditure % of low carbon footprint		NM-SHE KMGBF NBSAP		
Roads and Bridges			13	Expenditure % of low carbon footprint		NM-SHE		
Statistical , Planning and Evaluation Unit			11	Number of reports/abstracts		NM-SKCC		
Studies and Training in Forest Colleges			12	Number of Trained officials		NM-GI		
Meghalaya State Authority Net Present Value of Forest Land			184	% increase in value		NM-GI		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Construction and Maintenance of Departmental Buildings.			19	% use of green/energy saving materials		NM-SHE		
Demarcation and Consolidation (Excluding Extension) of Forest			32	% of Increase in coverage		NM-GI KMGBF NBSAP		
Ecology and Environment			2	% of Increase in coverage		NM-GI KMGBF NBSAP		
Establishment of Forest Research Division including Laboratory			41	% of Increase in research		NM-GI		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Financial Assistance to the Meghalaya State Medicinal Plants Board			8	% of Increase in coverage		NM-GI		
Forest Utilisation Office			13	% of Increase in coverage		NM-GI		
Other Wild Life Preservation Works			158	% of Increase in coverage		NM-GI		
Studies and Training in Forest School			23	Number of Trained officials		NM-GI KMGBF NBSAP		
Timber Treatment and Seasoning Plant			11	% of Increase in coverage		NM-GI		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
Divisional Forest Officer			60	% of Increase in coverage			NM-GI KMGBF NBSAP	
Ecology and Environment			62	% of Increase in coverage			NM-GI KMGBF NBSAP	
Financial Assistance to Meghalaya State BioDiversity Board			6	% of Increase in coverage			NM-GI KMGBF NBSAP	
Mass Education and Cultural Operation for			6	% of Increase in coverage			NM-GI KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Preservation of Forest						NBSAP		
Protection of Area with rare plant			0	% of Increase in coverage		NM-GI KMGBF NBSAP		
Recreation Forestry			21	% of Increase in coverage		NM-GI KMGBF NBSAP		
Regeneration of Plants in Garo Hills			0	% of Increase in coverage		NM-GI KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Regeneration of Plants in Jaintia Hills.			0	% of Increase in coverage		NM-GI KMGBF NBSAP		
Regeneration of Plants in Khasi Hills			0	% of Increase in coverage		NM-GI KMGBF NBSAP		
Expenditure on Account of District Councils Share in lieu of Royalties Collected from Minor Minerals.			524	% of Increase/decrease in expenses		NM-SHE		
Forest Ranges and Beat Offices			156	% of Increase in coverage		NM-GI KMGBF		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
						NBSAP		
Setting up of Corporation and Project Formulation Cell for Development of Forest			12	Number of projects developed		NM-GI KMGBF NBSAP		
Social Forestry			341	% of Increase in coverage		NM-GI KMGBF NBSAP		
Tree Improvement Development			6	% of Increase in coverage		NM-GI		
Financial Assistance to State Environment Impact			15	Number of projects assessed		NM-GI KMGBF		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Assessment Authority (SEIAA)						NBSAP		
Forest Protection Schemes and Works			251	Number of projects undertaken		NM-GI KMGBF NBSAP		
Project Elephant			78	% of Increase in coverage		NM-GI KMGBF NBSAP		
Contribution to Eco. Dev. Society			35	% of Increase in coverage		NM-GI KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
Integrated Forest Villages Development			0	% of Increase in coverage			NM-GI KMGBF NBSAP	
Financial Assistance to Meghalaya State Wetlands Authority			10	% of Increase in coverage			NM-GI KMGBF NBSAP	
Sports (All India Forest Sports Meet at Chennai)			3	Expenditure % ensuring low carbon footprint				
Umbrella Project/Ecological Sohra Restoration Project			17	% of progress			NM-GI KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
Conservation of Orchids and Multiplication Project			13	% of progress			NM-GI KMGBF NBSAP	
Financial Assistance to Meghalaya Zoo Project Implementation Society			60	% of progress			NM-GI KMGBF NBSAP	
Construction of Departmental Buildings			13	% use of green/energy saving materials			NM-GI KMGBF NBSAP	
Expenditure of Chariman/Dy. Chairman./Vice			14	Expenditure % ensuring low carbon footprint			NM-GI KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
Chairman (Meghalaya Forest Dev. Corp.)							NBSAP	
Provision for Deputed Forest Staff to District Councils and Meghalaya Forest Authority			3	Expenditure % ensuring low carbon footprint			NM-GI KMGBF NBSAP	
Intensification of Forest Management			46	% of Increase in coverage			NM-GI KMGBF NBSAP	
Operation Soil Watch.			33	% of Increase in coverage			NM-SA NM-GI KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT-LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Forest and Environment Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators			Development Path (aligning to International & national framework/commitments)	
							NBSAP	
Ecological Restoration of Cherrapunjee			9	% of Increase in coverage			NM-GI KMGBF NBSAP	
National Mission on Medicinal Plants			18	% of Increase in coverage			NM-GI KMGBF NBSAP	

Sector: Water Resources (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Flow Irrigation Works			34	% of area covered		ML NM-SA NM-W		
Investigation and Development of Ground Water Resources/Jal Kranti Abhiyan			0	Number of ground water resource		NM-W KMGBF NBSAP		
Purchase of Machinery and Equipments for Irrigation			0	Number of unit purchases		ML NM-SA NM-W		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
State Water Informatic Centre (SWIC)			1	Number of centres		NM-W		
Survey and Investigation			0	Number of survey conducted and investigation completed.		NM-W		
Water Resources Development Agency			29	Number of projects initiated and area covered under the project		NM-W		
Works			40	% of work completed		NM-W		
Establishment of Division and Sub Division(Minor I Works)			129	Number of Division established		NM-W		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Special Repairs			3	Total number of special repair projects initiated and completed.		NM-W		
Critical Flood Control and AntiErosion Schemes			41	Total area (in square kilometers or hectares) protected from floods and erosion.		NM-W KMGBF NBSAP		
Establishment of Irrigation Wing			269	Number of Division established		NM-W & ML		
Work Charge Establishment			42	Number of work charge employee		NM-W		
Micro Irrigation			22	% of area increased		NM-SA NM-W		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
						ML		
Strengthening of Surface Water Minor Irrigation or (Investigation Division)			233	Number of investigation conducted		NM-SA NM-W		
Census of Minor Irrigation Scheme			6	Number of Census completed		NM-SA NM-W		
Creation of Statistical Cell			0	Number of reports and data set compiled		NM-W		
Improvement Modernisation of existing Minor Irrigation Schemes			19	Number of Projects funded and area covered		NM-SA NM-W		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Improvement of Modernisation of Existing Irrigation			22	Number of scheme modernized and area covered		NM-SA NM-W		
Establishment Maintenance of existing Minor Irrigation Schemes			7	Number of scheme modernized and area covered		NM-SA NM-W		
Pradhan Mantri Krishi Sanchai Yojana (PMKSY)			1477	Number of scheme maintained		NM-SA		
National Bank for Agriculture and Rural Development (NABARD) Loan for construction and improvement of Minor Irrigation Schemes			85	% of area covered		NM-SA		
Flood Management and River Training Works			15	Number of Projects funded and area		NM-W		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
				covered		KMGBF NBSAP		
NABARD Loan for Construction of MIP			113	Total area (in square kilometers or hectares) protected from flooding.		NM-SA		
Flood Damage Restoration of Minor Irrigation Projects			18	Number of projects restored and total area (in acres/hectares) restored		NM-SA		
Monitoring and Evaluation of Minor Irrigation Schemes.			0	% of water use efficiency and area covered		NM-SA		
Repairs Renovation and Restoration of Water			17	Number of water bodies restored and		NM-SA		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Bodies Pradhan Mantri Krishi Sinchai Yojana				area covered				
Promotion of Water Efficiency			0	Amount of water used efficiency		NM-W		
Water Quality Management in Water Resources.			0	% of water quality standard		NM-W		
Flood Management and River Training Works			1	Total area (in square kilometers or hectares) protected from flooding.		NM-W		
Integrated Development of Water Resources (IWRM)			3	Total volume of water availability		NM-W		
Water Harvesting			26	Total volume of water collected and		ML		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)-8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Water Resources Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
				stored (measured in cubic meters or liters).		NM-W KMGBF NBSAP		
Climate change study and Adaptation for Water Resources Sector including infrastructure and procurement of equipment			6	Number of reports/assessments		NM-SHE NM-W		
Command Areas Development Activities			13	Total area (hectares or acres) developed		NM-SA KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Conservation Training Institute			26	Total number of trainees enrolled and completed		NM-W KMGBF NBSAP		
Directorate of Soil Conservation			61	Total area (hectares or acres) where soil conservation measures have been implemented.		NM-SA KMGBF NBSAP		
Soil Conservation Research Centre			9	Number of reports		NM-SA KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Soil Conservation Survey Schemes			17	Total area (hectares or acres) surveyed		NM-SA		
Works			68	% of work completed		NM-SA		
Divisional Soil Conservation Offices			259	Total area (hectares or acres) under soil conservation activities managed by the office.		NM-SA		
Natural Resources Improvement Intervention			0	Total area (hectares or acres) where natural resources have been restored or improved.		KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Soil Testing Works			1	Total number of soil samples collected for testing		NM-SA		
Training at Soil Conservation Centres			40	Total number of training program conducted and number of trainees		KMGBF NBSAP		
Ordinary Repairs			13	Total number of ordinary repair activities carried out				
Soil Conservation Range Offices			232	Total area (hectares or acres) under soil conservation activities managed by the Range Office		KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Erosion Control Works			10	Total area (hectares or acres) where erosion control measures have been implemented		KMGBF NBSAP		
Project Formulation Cell			36	Total number of projects developed and proposed				
Afforestation			192	Total area (hectares or acres) covered by new plantations and total number of trees planted		NM-G EPMKN KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Commercial Crops Development Board			10	Total area (hectares or acres) cultivated with commercial crops.				
Soil Conservation Engineering Division			18	Total area (hectares or acres) treated with engineering measures such as terracing, bunding, and check dams.		NM-SA		
Establishment of Evaluation Units			5	Total number of evaluation units set up				
Cash Crop Division			131	Total area (hectares or acres) cultivated with cash crops and total				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
				quantity of cash crop produced				
Water Conservation and Distribution Works			10	% of area covered		NM-W KMGBF NBSAP		
Cash Crop Development Works			56	% of area covered				
Watershed Management Division			76	% of area covered		NM-W		
Conservation Works* in Urban Area			8	Number of projects taken up		NM-SHE NM-W		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Soil Survey Division			29	Number of villages targetted		KMGBF NBSAP		
Water Harvesting Works/Farm,Ponds etc.,			11	Number of additional structures created		NM-SA NM-W KMGBF NBSAP		
Integrated Watershed Management Programme (IWMP)			183	Number of villages covered		NM-SA		
Cash Horticultural Crops Development Works			35	Number of villages covered		KMGBF		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
						NBSAP		
Cultivation/Intercultural Works			19	% of area covered		KMGBF NBSAP		
Soil and Water Conservation Schemes under NABARD			256	% of area covered		NM-SA KMGBF NBSAP		
Accelerated Irrigation Benefits Programme (AIBP)			40	% of area covered		NM-SA		
Maintenance of Roads to Works Areas			0	% of area covered				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
Meghalaya State Watershed & Wasteland Development Agency			857	% of area covered		KMGBF NBSAP		
Nursery			22	Number of additional nurseries created		KMGBF NBSAP		
Sloping Agriculture Land Technology (SALT)			86	% of area covered		NM-SA KMGBF NBSAP		
Springs Conservation and Rejuvenation Works			49	% of area covered		KMGBF NBSAP		

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Soil and Water Conservation Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Development Path (aligning to International & national framework/commitments)		
PMKSY WDC			285	% of area covered		NM-SA KMGBF NBSAP		

Sector: Urban Habitat (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)	
Assistance to Municipal Board for Shillong/Jowai/Tura etc. for Special Purposes.			316		Expenditure % ensuring low carbon footprint		NM-SH	
Capacity Building, Skill Development & Knowledge Management (General)			15		Number of Capacity building programs		NM-SH	
Shillong Municipal Board.			72		Expenditure % ensuring low carbon footprint		NM-SH	
Jowai Municipal Board.			22		Expenditure % ensuring low carbon footprint		NM-SH	
Tura Municipal Board.			44		Expenditure % ensuring low carbon footprint		NM-SH	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)	
Williamnagar Municipal Board.			15		Expenditure % ensuring low carbon footprint		NM-SH	
Baghamara Municipal Board.			10		Expenditure % ensuring low carbon footprint		NM-SH	
Resubelpara Municipal Board.			13		Expenditure % ensuring low carbon footprint		NM-SH	
Assistance to Meghalaya Urban Development Authority.			47		Expenditure % ensuring low carbon footprint		NM-SH	
Asistance to Town Committees etc. for Special Purposes.			3		Expenditure % ensuring low carbon footprint		NM-SH	
Preparation of Base Map and Master Plan for Shillong/ Jowai/Tura etc.			20		Report produced % of area planned		NM-SH	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Urban Affairs Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)	
EIUS at Jowai/ Khliehriat etc			6		% coverage of area		NM-SH	
EIUS at Tura/Williamnagar/Baghmara etc.			9		% coverage of area		NM-SH	
GIS Based Master Plan			22		Report produced % of area planned		NM-SH	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Transport Department		Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)		
Assistance to the Meghalaya Transport Corporation		209		Expenditure % made assuring low carbon footprint		NM-SH		

Sector: Disaster Management (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Home (Police) Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)	
Protection and Control (Fire Service Station)			848		Number of incidences prevented Number of Incidences controlled		CDRI	
Construction of Residential Buildings for Fire Emergency Services Accomodation/Facilities.			9		Expenditure % made assuring low carbon footprint		CDRI	
Training (Training of Fire service personnels within and outside the State).			0		Number of Trained personnel		CDRI	
Construction of Administrative Buildings for Fire and Emergency Services/Facilities.			8		Expenditure % made assuring low carbon footprint		CDRI	
Modernisation of Fire Service			13		% of upgradation		CDRI	
Procurement of fire fighting equipments			3		% of personnel equiped		CDRI	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Home (Police) Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)	
					accordingly			
Construction other than Buildings for Fire and Emergency Services.			11		Expenditure % made assuring low carbon footprint		CDRI	
Disaster Management			6		Number of disasters managed		CDRI	
Acquisition of Land for Fire and Emergency Services Facilities			20		% Progress of acquisition		CDRI	
National Emergency Response System (NERS)			44		% progress of integration		CDRI	
Computerisation of Fire Service Station (FSS)			0		% progress of integration		CDRI	
Security and Fire Services at Shillong Airport			36		% progress of installation		CDRI	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Home (Police) Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30		Indicators		Development Path (aligning to International & national framework/commitments)	
Requisition of Vehicle for National Emergency Response System (NERS)			0		Expenditure % made assuring low carbon footprint		CDRI	

Sector: Cross-Sectoral (Ongoing Activities)

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Community and Rural Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
The National Rural Employment Guarantee.			7942	% of coverage in HH/Villages			NM-SA NM-G	
National Rural Livelihood Mission			814	% of families with improved livelihood			NM-SA NM-G	
Agriculture (including Reclamation).			6	% of area covered			NM-SA	
Smart Villages Project			0	% of villages under the project			NM-SH	
Integrated Value Chain Development Project of Silk Cluster under Innovation Fund Component of National Rural Livelihood Mission			53	% of villages under the project			NM-SA	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Community and Rural Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Tribal Area Development Programme under Article 275 (1)			66	Number of villages benefitted			NM-SH	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Science and Technology Cell			0	Number of villages targetted under various projects			NM-EEE	
Meghalaya State Capability Enhancement Project			9	% of improvement from the current situation				
Eco Tourism Development for empowering rural youth and conserving natural resources in Sohra Cherrapunji Meghalaya			203	Number of youths enrolled in the program			KMGBF NBSAP	
Meghalaya Eco Tourism Infrastructure Development Project (MEIDP)			1576	% of area developed			KMGBF NBSAP	
Science and Technology and Environment Council			23	Number of villages targetted under			NM-EEE	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
				various projects				
Popularisation of Science and Technology			18	Number of villages/schools targetted under various projects			NM-EEE	
Scientific Research and Development of Appropriate Technologies			18	Number of reports developed Number of Technologies developed				
BioResouces Development.			32	Number of Projects developed			KMGBF NBSAP	
Remote Sensing			1	Number of GIS layers developed Frequency of updation				

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Community Forestry Project			2283	Number of communities enrolled			KMGBF NBSAP	
Science Centre			22	Number of Science centres established			NM-EEE	
Integrated Basin Development Project Cum Livelihood Programme			10	Number of villages targetted under various projects			KMGBF NBSAP	
Smart Village Project			49	Number of villages targetted			NM-SH	
Meghalaya State Promotion Board			99	Number of Projects developed			KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Promotion and Incubation Market Driven Enterprises (PRIME)			561	Number of enterprises supported			KMGBF NBSAP	
Mission under the Integrated basin & Livelihood Development Programme			11	Number of villages targetted under various projects			KMGBF NBSAP	
Aroma Mission.			6	Number of villages targetted			KMGBF NBSAP	
Institute of Natural Resources			63	Number of villages targetted under various projects			KMGBF NBSAP	
Promotion of BioTechnology			22	Number of villages benefitted			KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Meghalaya Livelihood To Market Projects(Megha Lamp)			4622	% of completion			KMGBF NBSAP	
Community Led EcoSystem Management Project			222	% of progress			KMGBF NBSAP	
Central Share For Eap			390	% of progress			KMGBF NBSAP	
Communitybased Forest Management and Livelihood Improvement with financial assistance from Japan International Cooperation Agency (JICA).			257	% of progress			KMGBF NBSAP	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
Promotion of Herbal, Aromatic & Medicinal Plants			13	Number of villages benefitted			ML KMGBF NBSAP	
Implementation of e Office in Meghalaya Secretariat			118	% of integration				
Experiential Eco Tourism Infrastructure Development for empowering rural youth and conserving natural resources and indigenous culture with financial assistance from New Development Bank (NDB)			35	% of progress			KMGBF NBSAP	
Meghalaya Farmers Mobilisation Project EAP			126	% of progress			NM-SA KMGBF	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Planning, Investment Promotion, and Sustainable Development Department			Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)	
							NBSAP	
Protection of Vulnerable Catchment Areas (Kfw) (EAP)			354	% of progress			KMGBF NBSAP	
Implementation of the scheme Meghalayan Age Limited			791	% of progress			NM-SH	
Farmers Collectivisation for upscaling of Production and Marketing Systems (FOCUS) Programme			1713	% of progress			KMGBF NBSAP	
Sustainable Development Goals			215	% of progress			SDG	

ML (NDC-1)	NM	NM-SA	NM-GI	NM-EEE	NM-SH	NM-W	NM-SHE	NM-SKCC
Mission LiFE 7 themes	National Missions under NAPCC	Sustainable Agriculture	Green India	Enhanced Energy Efficiency	Sustainable Habitat	Water	Sustaining the Himalayan Ecosystem	Strategic Knowledge for Climate Change
NM-S	NPCCHH	EPMKN	LT-LEDS	NDC	SDG	KMGBF	NBSAP	CDRI
Solar Mission	Human Health	Ek Ped Maa Ke Naam	Long-Term Low Emission Development Strategy (LT- LEDS) 7 Pillars	Nationally Determined Contributions (NDCs)- 8 Targets	Sustainable Development Goals (SDGs)	Kunming- Montreal Global Biodiversity Framework 4 goals & 23 targets by 2030.	National Biodiversity Strategies and Action Plans (NBSAPs)	Coalition for Disaster Resilient Infrastructure (CDRI)
Public Works Department		Ongoing Budget (₹ Crores) FY 2023-'24 to 2029-'30	Indicators		Targets	Development Path (aligning to International & national framework/commitments)		
Works		97	% of villages benefitted			NM-SH		

REFERENCES

- Affairs, M. o. (2021). *National Mission on Sustainable Habitat 2021-2022*. Government of India.
- Agriculture, D. o. (2019). *Horticulture crops*. Shillong: Government of Meghalaya.
- Authority, C. E. (2021). Ministry of Power, Govt. of India.
- Authority, M. B. (2014). *In conversation with people of Meghalaya, Water Mission, 5*. Shillong: MBDA, Shillong Meghalaya.
- Authority, S. D. (2016). *Meghalaya State Disaster Management Plan Volume 1*. Shillong: Government of Meghalaya.
- Bank, W. (2022). *Moving Towards Sustainability: The Livestock Sector and the World Bank*, <https://www.worldbank.org/en/topic/agriculture/brief/moving-towards-sustainability-the-livestock-sector-and-the-world-bank>. WB.
- Board, C. G. (2012). *Groundwater information Booklet, Meghalaya*. Ministry of Water Resources, Central Ground Water Board, Govt. of India.
- Board, M. B. (2017). *Meghalaya Biodiversity Strategy & Action Plan (MBSAP): 2017-2030*. Shillong: Wildlife Institute of India, Dehradun.
- C. Saha, T. C. (2021). Groundwater scenario of Meghalaya State: Prospective areas for Development. *Geological Society of India*, DOI: 10.17491/cgsi/2021/165843.
- Centre, C. G. (2017). *Carbon Footprint Study for the State of Meghalaya*. Shillong: Forests & Environment Department, Government of Meghalaya.
- CII-Sohrabji Godrej Green Business Centre, H. I. (2017). *Carbon Footprint Study Meghalaya State*. Government of Meghalaya.
- Commissioner, R. G. (2011). *Census of India*. Shillong: Ministry of Home Affairs, Government of India.
- Commissioner, R. G. (2011). *Primary Census Abstracts, Census of India*. Shillong: Ministry of Home Affairs, Government of India.
- CRISIL. (2015). *24x7 Power for all Meghalaya*. Government of Meghalaya.
- Department of Water Resources, G. o. (2019). *State Water Policy*. Shillong: Government of Meghalaya.
- Department, F. (2012). *Meghalaya State Aquaculture Mission*. Government of Meghalaya.
- Department, H. &. (2011). *National Health Mission*. Government of Meghalaya.
- Department, P. (2009). *Meghalaya State Development Report*. Shillong: Government of Meghalaya.
- Department, P. (2024). *Meghalaya Power Policy*. Shillong: Government of Meghalaya.

- Department, P. I. (2024). *Meghalaya Cheif Minister Dashboard*. Retrieved from https://meghalayacmdashboard.in/APP_Meghalaya/
- Department, T. (2023). *Meghalaya Tourism Policy*. Shillong: Government of Meghalaya.
- Department., A. H. (2019). *Meghalaya Livestock Census*. Government of Meghalaya.
- District-Level Climate Risk Assessment for India: Mapping Flood and Drought Risks Using IPCC Framework, prepared under the DST and SDC funded project Climate Change Risk Assessment and Mapping at State and District Level in India
- Fisheries, D. o. (2018-2023). *Meghalaya State Aquaculture Mission 2.0*. Shillong: Meghalaya State Aquaculture Mission 2.0.
- Forest Survey of India, D. (2019). *India State of Forests Report*. Government of India.
- Forest Survey of India, D. (2021). *India State of Forests Report*. Government of India.
- Funk, C., P, P., M, L., D, P., J, V., S, S., . . . J, a. M. (2015). The climate hazards infrared precipitation with stations- a new environmental record for monitoring extremes. *Scientific Data*, 2:150066, DOI: 10.1038/sdata.2015.66.
- GIS Lab, M. B. (2017). *Atlas for Natural Resource Management in Meghalaya*. Shillong: Meghalaya Basin Development Authority (MBDA).
- IIT Gandhinagar & IIM Gandhinagar, I. (2017). *Identification of climate vulnerability hot-spots in Meghalaya using high-resolution climate projections*. Government of Meghalaya.
- India, C. D. (2016). *Coal Statistics 2014-15*. Ministry of Coal, Coal Controller's Organization, Kolkata, Govt. of India.
- Jha, V. (2014). The coordination of climate finance in India. <https://cdn.odi.org/media/documents/9329.pdf>.
- Meghalaya Basin Development Authority, G. L. (2017). *Atlas for Natural Resource Management in Meghalaya*. Shillong: MBDA.
- Meghalaya Next Vision 2028. <https://www.goodreturns.in/news/meghalaya-budget-2024-25-mission-10-10-billion-economy-gen-1331921.html>.
- Meghalaya at a Glance (2022), Government of Meghalaya. des.megplanning.gov.in/megagriculture.gov.in
- Ministry of Environment, F. &. (2008). *National Action Plan on Climate Change*. Government of India.
- Ministry of Health & Family Welfare, *State Action Plan for Climate Change & Human Health, Meghalaya*. (2022-27). Government of Meghalaya.
- Planning, I. P. (2024). *Meghalaya Cheif Minister Dashboard*. Retrieved from https://meghalayacmdashboard.in/APP_Meghalaya/. Shillong: PIP&SD, Government of Meghalaya.

- R. Joshi, K. K. (2016). Policy Brief on Sustainability of Tourism in IHR under Climate Change: Analyses of Policy Options. *G B Pant Institute of Himalayan Environment and Development, Kosi-Katarmal, Almora, Uttarakhand*.
- Registrar General and Census Commissioner, I. (2011). *Ministry of Home Affairs, GoI*. Retrieved from Census India: <https://censusindia.gov.in/census.website/>
- Report, M. C. (2011). *Statistical Abstract Meghalaya 2011*. Directorate of Economics & Statistics, Planning Department, Govt. of Meghalaya.
- Risk Assessment under Current Climate for Adaptation Planning Prepared by IIT Mandi, IIT Guwahati, and CSTEP Bengaluru 2024
- Singh, D. (2017). Climate Finance Architecture in India. <https://www.cbgiaindia.org/wp-content/uploads/2017/12/Climate-Finance-Architecture-in-India-1.pdf>.
- Singh, O. P. (2019). *Mining affected areas and its impact on Livelihood. A technical report submitted to the Community Led Landscape Management Project*. Meghalaya Basin Management Agency.
- Statistical Abstract (2023). Department of Health & Family Welfare, Government of Meghalaya, <https://meghealth.gov.in/chc.html> * https://meghealth.gov.in/dhs_mi/ayush_centres.pdf **
- UNEP. (2022). *Climate Finance* <https://www.unep.org/explore-topics/climate-action/what-we-do/climate-finance>. UNEP.
- UNFCCC. (2022). *Introduction to Climate Finance*: <https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance>. UNFCCC.
- WHO. (2021). *Climate change and health*: <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>. WHO.
- Yatagai, A., Kamiguchi, K., Arakawa, O., & Hamada, a. A. (2012). APHRODITE: Constructing a Long-Term Daily Gridded Precipitation Dataset for Asia Based on a Dense Network of Rain Gauges.

ANNEXURE I

Stakeholders Consultations for the Revision of Meghalaya State Action Plan on Climate Change

Date: 07.04.2021

Venue: State Convention Centre, Shillong

No.	Name of the Attendees	Designation	Department / Organisation
1	Shri P Sampath Kumar, IAS	Principal Secretary Planning Department & Chief Executive Officer, MBDA	Govt. of Meghalaya
2	Shri Cyril D Diengdoh, IAS	Secretary, Govt of Meghalaya	Govt. of Meghalaya
3	Dr. Subhas Ashutosh, IFS	PCCF	Forest and Environment Department, Govt of Meghalaya
4	Shri Aiban Swer	Director	Meghalaya Basin Development Authority
5	Shri Lam Shabong	Director	Meghalaya Institute of Natural Resources,
6	Shri D. G Lyngdoh	Assistant Director	Directorate of Fisheries, Govt. of Meghalaya
7	Dr. H. P. Paul	Assistant Director	Directorate of Animal Husbandry and Veterinary, Govt. of Meghalaya
8	Shri L K Marak	Agriculture census officer	Directorate of Agriculture
9	Shri John E Rodborne	Project Officer, MNREDA	Meghalaya Non-Conventional and Rural Energy Development Agency
10	Shri B Shylla	Director	Directorate of Horticulture, Govt. of Meghalaya
11	Smt D Syiemlieh	Environment Engineer, MSPCB, Shillong	Meghalaya State Pollution Control Board, Govt. of Meghalaya
12	Shri J M Pohsngap, IFS	CF (CC, R&T)	Forest and Environment Department, Govt. of Meghalaya
13	Shri S Shullai	Senior Architect, Urban affairs dept	Directorate of Urban Affairs, Govt. of Meghalaya
14	Smt M S Sangma	Assistant Architect, Urban affairs dept	Directorate of Urban Affairs, Govt. of Meghalaya
15	Smt A D Blah	Addl Chief Engineer, WRD	Water Resource Department, Govt. of Meghalaya
16	Smt R Kharjana	Executive Engineer (WR)	Water Resource Department, Govt. of Meghalaya
17	Dr. Hosterson Kylla	A.H & Vety Officer	Directorate of Animal Husbandry and Veterinary, Govt. of Meghalaya

18	Shri S. Boddoloi	Senior Consultant, SDMA	State Disaster Management Authority, Govt. of Meghalaya
19	Shri B D Nengnong	Addl & C.E o/o the OE (Generation)	Meghalaya Energy Corporation Limited, Govt. of Meghalaya
20	Shri P Rapphap	-	Soil & Water Conservation Dept., Govt. of Meghalaya
21	Prof O P Singh	Professor	Department of Environmental Studies, NEHU
22	Prof H J Syiemlieh	Professor	Department of Geography, NEHU
24	Shri S Pyrtuh	Deputy CFO	Jaintia Hills Autonomous District Council, Govt. of Meghalaya
25	Miss Reramica Suchiang	Environmentalist	Jaintia Hills Autonomous District Council, Govt. of Meghalaya
26	Smt L Kharkrang	Director of Agriculture	Directorate of Agriculture, Govt. of Meghalaya
27	Smt B M Umlong	DDA (PP)	Directorate of Agriculture, Govt. of Meghalaya
28	Miss Rebecca Trupin	Consultant	State Capacity Building Project Planning Department, Meghalaya

ANNEXURE II

Stakeholders Consultations for the Revision of Meghalaya State Action Plan on Climate Change

Theme: Forest and Biodiversity

Date: 20.08.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Shri. S. Pyrtuh	Dy. CFO	Jaintia Hills Autonomous District Council (Forest)
2	Smt. Revamica Suchiang	Forest Staff	Jaintia Hills Autonomous District Council (Forest)
3	Shri. S. Nongshli	Ranger	Khasi Hills Autonomous District Council
4	Shri. B. Mawkhiew	Dy. Ranger	Khasi Hills Autonomous District Council

Theme: Agriculture/Fisheries

Date: 06.09.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Smt. T. Shylla	Dy. Director of Agriculture	Directorate of Agriculture
2	Shri. L. K. Marak	ACO	Directorate of Agriculture,
3	Shri. Pynskhemtriang Lamin	Fishery Officer	Directorate of Fisheries
4	Dr. Hosterson Kylla (PhD)	A H & Veterinary Officer (Disease Investigation)	Animal Husbandry & Veterinary
5	Dr. (Ms) A Chyne	Deputy Director	Animal Husbandry & Veterinary

Theme: Forest sector

Date: 08.09.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Shri. J. M. Pohsngap, IFS	CF (CC, R&T)	Forest & Environment Department
2	Shri. Philip F. Tariang	Asst Director	Tourism Department
3	Shri. Phira P. Lyngdoh	IPO (Information-cum Publicity Officer)	Tourism Department

Theme: Water Resource

Date: 22.09.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Shri. A. D. Blah	ACE	Water Resource Department, Govt. of Meghalaya

2	Shri. C. E. Wahlang	EE (HI)	Water Resource Department
3	Shri. F. Syiemiong	Sr ASWCO	Soil & Water Conservation Department
4	Shri. E. Kharkrang	Sr ASWCO	Soil & Water Conservation Department

Theme: Energy

Date: 24.09.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Shri. B.D. Nengnong	Addl. CE (Generation)	MePGCL

Theme: Sustainable Mining

Date: 27.09.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Shri. P. Ch. Marak	Mining Engineer	Dept. of Mining & Geology
2	Shri. W. Warshang	Dy Director (Tech)	Commerce and Industries Dept.

Theme: Disaster Management

Date: 30.09.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Dr. S. S. Nongbri	Jt. Director	Directorate of Health Services
2	Smt. Legia Lyngdoh	Consultant	SDMA

Theme: Sustainable Habitat/ Water Resource

Date: 04.10.2021

Sl. No.	Stakeholder Name	Designation	Department
1	Smt. B. M. Lyndem	Addl. Chief Engineer	Public Health Engineering
2	Shri. M. N. Warbah	Sr. Sc. Assistant	Meghalaya State Pollution Control Board
3	Shri. J. Kharshiing	Sr. Sc. Assistant	Meghalaya State Pollution Control Board
4	Shri. M. S. Tiewsoh	AEE	Meghalaya State Pollution Control Board
5	Shri. S. Syiem	Env. Engineer	Meghalaya State Pollution Control Board

PHOTOGRAPH I

Stakeholders Consultations for the Revision of Meghalaya State Action Plan on Climate Change,
State Convention Centre, Shillong 07th April 2021





PHOTOGRAPH II

Theme-wise Stakeholders Consultations for the Revision of Meghalaya State Action Plan on Climate Change, MBDA, Shillong



