Mountain Province State Polytechnic College

Climate change

ACTION PLAN

Foreword

As President of Mountain Province State Polytechnic College (MPSPC), I am honored to present our Climate Change Action Plan (CCAP)—a reflection of our institution's commitment to sustainability, resilience, and leadership in the face of the escalating climate crisis. This document outlines our proactive approach to addressing climate change, not only as an environmental imperative but as an ethical responsibility toward our students, faculty, local communities, and future generations.

Our location in Mountain Province, a region uniquely vulnerable to the impacts of climate change, calls on us to lead with both vision and action. The effects of extreme weather, resource scarcity, and environmental degradation are already evident in our highland communities, threatening livelihoods, biodiversity, and cultural heritage. These realities demand urgent and coordinated responses that integrate sustainable practices, innovative solutions, and community partnerships.

This Climate Change Action Plan sets forth our roadmap to achieve these goals, centering on two essential pillars: mitigation, aimed at reducing our institution's carbon footprint, and adaptation, focused on enhancing resilience to climate impacts. Through targeted initiatives in renewable energy, energy efficiency, sustainable resource management, and community preparedness, we are committed to advancing the well-being of our students, faculty, and neighboring communities.

The establishment of the Climate Action and Sustainability Committee (CASC) will be instrumental in ensuring the effective implementation and monitoring of this plan. With the support of CASC and our dedicated Monitoring & Evaluation (M&E) Framework, we will uphold accountability, transparency, and continuous improvement, ensuring that our actions remain adaptive to evolving climate conditions and responsive to the needs of our communities.

As an institution of higher learning, MPSPC recognizes the importance of integrating climate action into our academic programs, research, and community engagement initiatives. By empowering our students, faculty, and staff with the knowledge and skills to address climate challenges, we are investing in a future that is resilient, sustainable, and just.

This Climate Change Action Plan is our pledge to contribute meaningfully to the global and national climate goals while responding to the specific needs of Mountain Province. I extend my gratitude to all those who contributed to this plan and invite all members of our community to join us on this essential journey toward sustainability and resilience.

Together, let us take action for a sustainable future.

Dr. Edgar G. Cue
President
Mountain Province State Polytechnic College

ACRONYMS AND ABBREVIATIONS

CASC	Climate Action and Sustainability Committee
CCAP	Climate Change Action Plan
CCET	Climate Change Expenditures Tagging
CHED	Commission on Higher Education
DENR	Department of Environment and Natural Resources
DOST	Department of Science and Technology
GHG	Greenhouse Gas
LGU	Local Government Unit
MP LCCAP	Mountain Province Local Climate Change Action Plan
M&E	Monitoring and Evaluation
MPSPC	Mountain Province State Polytechnic College
NCCAP	National Climate Change Action Plan
NGO	Non-Governmental Organization
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PDRRMO	Provincial Disaster Risk Reduction and Management Office
PSF	People's Survival Fund
RDE	Research, Development, and Extension
SDG	Sustainable Development Goals

GLOSSARY OF TERMS

Adaptation	The process of adjusting to actual or expected climate impacts to reduce harm or exploit beneficial opportunities, especially by enhancing resilience in communities, ecosystems, and infrastructure.
Baseline Assessment	An initial measurement or survey conducted to establish reference points for monitoring and evaluating progress, typically related to emissions, resource usage, or environmental conditions.
Biodiversity	The variety of plant and animal life in a particular habitat or ecosystem. Biodiversity conservation is essential for maintaining ecological balance and resilience.
Carbon Footprint	The total amount of greenhouse gases (GHG) emitted directly or indirectly by an organization, individual, or product, typically measured in carbon dioxide equivalents (CO_2e).
Carbon Neutrality	Achieving a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks, such as through the use of renewable energy or carbon offsetting initiatives.
Carbon Offsetting	The practice of compensating for one's carbon emissions by supporting projects or activities that remove or reduce an equivalent amount of carbon dioxide from the atmosphere.
Carbon Sequestration	The process of capturing and storing atmospheric carbon dioxide (CO_2) to reduce the amount of CO_2 in the atmosphere. This can be achieved naturally through forests, soils, and oceans, or artificially through technologies. Carbon sequestration is an important strategy in mitigating climate change by offsetting emissions and enhancing carbon sinks.
Climate Change	Long-term changes in temperature, precipitation, and other atmospheric conditions on Earth, primarily due to human activities, such as burning fossil fuels and deforestation.
Climate Resilience	The ability of communities, systems, or organizations to anticipate, prepare for, respond to, and recover from climate-related impacts.

Disaster Preparedness The set of actions taken to plan and prepare for natural hazards, such as typhoons and floods, to minimize the risks to lives, property, and the environment.

Emission Scopes (Scope 1, 2, and 3)

Scope 1 Direct emissions from sources owned or controlled by MPSPC (e.g., campus vehicles, on-site fuel combustion).

Scope 2 Indirect emissions from purchased electricity, heating, and cooling consumed by the organization.

Scope 3 Indirect emissions from sources not owned or controlled by the organization, such as commuting, waste disposal, and supply chain activities.

Greenhouse Gas (GHG) Gases in the atmosphere, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), that trap heat and contribute to global warming.

Mitigation Actions and strategies taken to reduce or prevent the emission of greenhouse gases, aiming to limit the extent of future climate change.

Monitoring & Evaluation (M&E) Framework A structured process for tracking, assessing, and reporting progress and impact on specific goals, such as emissions reduction and climate adaptation.

Renewable Energy Energy generated from natural sources that are continuously replenished, such as solar, wind, and hydroelectric power, which reduce dependence on fossil fuels and help lower emissions.

Resilience The capacity of an individual, community, or system to withstand, adapt to, and recover from adverse conditions or disruptions, such as those caused by climate impacts.

Sustainable Development Goals (SDGs) A set of 17 global goals established by the United Nations in 2015 to address global challenges, including poverty, inequality, climate change, and environmental degradation, to achieve a more sustainable future.

Vulnerability Assessment A process to identify the extent to which communities, infrastructure, or natural resources are susceptible to harm from climate change, based on exposure, sensitivity, and adaptive capacity.

Waste Management	The collection, transportation, processing, and disposal of waste materials to minimize their environmental impact and promote recycling and sustainable use of resources.
Water Conservation	The careful management and sustainable use of water resources to prevent depletion and ensure availability for future generations, often including measures to reduce water consumption and protect water quality.

EXECUTIVE SUMMARY

Mountain Province State Polytechnic College (MPSPC) is committed to confronting the urgent challenges posed by climate change, particularly those affecting the local communities, ecosystems, and industries in Mountain Province. The Climate Change Action Plan (CCAP) is MPSPC's strategic framework for reducing greenhouse gas emissions, building climate resilience, and fostering a culture of sustainability and climate awareness across its campuses and communities.

Recognizing the unique vulnerabilities of Mountain Province to climate impacts such as extreme weather, resource scarcity, and ecosystem degradation, MPSPC aims to align its climate initiatives with provincial and national climate priorities. The CCAP outlines two core pillars of climate action: mitigation—focused on reducing the institution's carbon footprint—and adaptation—centered on enhancing resilience to climate risks.

In pursuit of carbon neutrality by 2039, MPSPC will implement targeted mitigation strategies across Scope 1, 2, and 3 emissions. This includes transitioning to renewable energy, enhancing energy efficiency, minimizing waste, and promoting sustainable transportation. These initiatives are part of a phased, data-driven approach that emphasizes measurable impact and ongoing improvement.

The adaptation component of the CCAP prioritizes climate resilience through sustainable agricultural practices, water resource management, resilient infrastructure, and community preparedness. In partnership with local communities, indigenous leaders, and government agencies, MPSPC will integrate traditional knowledge and local insights to ensure that adaptation measures are effective and culturally respectful.

To support these initiatives, MPSPC will establish a Climate Action and Sustainability Committee (CASC) to oversee the CCAP's implementation and monitor progress. The committee will play a vital role in policy development, stakeholder engagement, and data-driven adjustments to ensure the plan remains responsive to changing conditions.

An integral part of the CCAP is the Monitoring & Evaluation (M&E) Framework, which will track and assess the plan's progress and outcomes. Through regular reporting and stakeholder engagement, the M&E Framework provides transparency, accountability, and opportunities for continuous learning.

MPSPC's Way Forward is grounded in collaboration, aligning its climate goals with the broader resilience objectives of Mountain Province and the nation. By advancing climate-smart initiatives, MPSPC aims to not only meet its own sustainability goals but also inspire regional climate action and support the well-being of communities across Mountain Province.

This CCAP demonstrates MPSPC's commitment to a sustainable future through proactive climate leadership, institutional accountability, and a long-term vision for environmental stewardship and resilience.

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MPSPC Climate Change Action Plan

I. Background

The Philippines is among the most vulnerable nations to climate change, experiencing an increased frequency and severity of extreme weather events, including typhoons, floods, and droughts. Situated along the Pacific Ring of Fire and in the typhoon belt, the country faces compounded threats from rising sea levels and warming temperatures, which imperil coastlines, biodiversity, food security, and public health. According to the Global Climate Risk Index, the Philippines consistently ranks as one of the top countries at risk for climate-induced losses, with significant impacts on agriculture, infrastructure, livelihoods, and health.

In response, the Philippine government has committed to a strategic approach to climate action, emphasizing resilience-building and sustainable practices. National frameworks, such as the Philippine Development Plan and the National Climate Change Action Plan, prioritize safeguarding communities and critical sectors, improving disaster preparedness, and advancing climate-smart development.

Mountain Province, located in Northern Luzon, faces unique vulnerabilities due to its mountainous terrain, agricultural reliance, and rural communities. Erratic weather patterns, intensified rainfall, and seasonal droughts increasingly disrupt local farming systems and natural water sources, affecting agricultural productivity, community health, and water security. Additionally, landslides, soil erosion, and water shortages present immediate risks to the region's infrastructure and ecosystems, underscoring the need for tailored climate adaptation measures.

As the impacts of climate change intensify, institutions of higher education are called to lead by advocating for sustainability and environmental stewardship. Mountain Province State Polytechnic College (MPSPC), with its main campus in Bontoc and satellite campuses in Tadian, Baang, Bauko, and Paracelis, embraces this responsibility as a leader in climate action. Located in a region rich in natural resources yet increasingly susceptible to climate change effects, MPSPC recognizes that its role extends beyond delivering quality education. The college is committed to safeguarding the future of Mountain Province's natural and human resources through dedicated climate resilience initiatives.

This Climate Change Action Plan (CCAP) is MPSPC's comprehensive response to the environmental challenges facing Mountain Province and the Philippines. In light of climate risks such as typhoons, landslides, and droughts that impact agriculture, water resources, infrastructure, and local communities, this action plan is crafted to address both immediate and long-term climate resilience needs. MPSU's strategy focuses on reducing its carbon footprint, integrating sustainability education, engaging the community in climate solutions, and fostering resilience to climate-related hazards.

Guided by the belief that environmental change starts at the local level, MPSPC aims to be a model of sustainability for Mountain Province and beyond.

Section 1: Legal Mandates and Bases

The Climate Change Action Plan (CCAP) of MPSPC is grounded in both national and international legal frameworks and policies that prioritize climate action and sustainable development. These mandates serve as the guiding principles and legal foundation for MPSU's efforts to address climate change and build resilience within its communities.

1.1 The Philippine Climate Change Act of 2009 (Republic Act No. 9729)

The Philippine Climate Change Act of 2009 established a comprehensive national framework for climate change management. This legislation mandates the development of local and institutional climate change action plans aimed at reducing vulnerability and increasing the adaptive capacity of communities to climate-related risks. It also created the Climate Change Commission, responsible for coordinating, monitoring, and evaluating the programs and actions aligned with the country's climate change strategy.

MPSPC's CCAP aligns with RA 9729's directive to create local action plans and establish climate-resilient communities, integrating this mandate into its institutional policies, programs, and outreach efforts.

1.2 The Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act No. 10121)

RA 10121 institutionalizes disaster risk reduction and management across all government levels, mandating preparedness, response, and resilience in both urban and rural areas. MPSPC's Climate Change Action Plan incorporates disaster risk reduction measures, ensuring that university facilities and communities are equipped to respond to climate-related hazards such as typhoons, landslides, and flooding. This approach strengthens MPSPC's capacity to safeguard its students, staff, and surrounding communities from the growing impacts of extreme weather events.

1.3 The Clean Air Act of 1999 (RA 8749)

The Clean Air Act mandates the reduction of air pollution and the promotion of clean air through sustainable practices and pollution control measures. MPSPC's CCAP integrates RA 8749 by incorporating policies aimed at reducing carbon emissions, improving air quality on campus, and promoting sustainable transportation. By addressing air quality, MPSPC aims to protect the health of the campus community and contribute to the national goal of cleaner, healthier air.

1.4 The Ecological Solid Waste Management Act of 2000 (RA 9003)

Republic Act No. 9003 establishes the need for an ecological approach to solid waste management, promoting waste reduction, recycling, and responsible disposal. MPSPC's CCAP aligns with RA 9003 by implementing campus-wide waste management programs that encourage waste segregation, recycling, and responsible disposal practices. These measures aim to minimize MPSPC's environmental footprint and serve as a model of ecological responsibility for the local community.

1.6 The Clean Water Act of 2004 (RA 9275)

The Clean Water Act focuses on protecting and managing water resources, recognizing the critical importance of clean water for public health and environmental sustainability. MPSPC's CCAP reflects RA 9275 through initiatives that promote water conservation, prevent pollution, and maintain clean water sources for agricultural and domestic use. By addressing water management, MPSPC contributes to regional water security and the sustainable use of vital water resources in the Mountain Province.

1.7 The Environmental Awareness and Education Act of 2008 (RA 9512)

Republic Act No. 9512 mandates the integration of environmental education across all levels of schooling, from primary to tertiary education, to foster a culture of environmental stewardship. MPSPC's CCAP builds on this mandate by embedding climate literacy and sustainable practices into its curriculum and campus activities. This focus on environmental education empowers students and faculty with the knowledge to address environmental challenges and advocate for sustainable practices within the university and the larger community.

1.8 The National Building Code (Presidential Decree 1096)

PD 1096 establishes minimum standards for building design, construction, and occupancy to ensure safety and environmental responsibility. Given the Mountain Province's susceptibility to climate-related risks, MPSPC's CCAP emphasizes sustainable infrastructure practices that adhere to these standards. This includes incorporating climate-resilient building designs and energy-efficient facilities to protect both human lives and the environment.

1.9 Joint Memorandum Circular 2015-01: Climate Change Expenditure Tagging

Joint Memorandum Circular 2015-01, also known as Climate Change Expenditure Tagging (CCET), requires government entities to tag climate-related expenditures in their budgets. This directive enhances transparency and ensures that funds are directed toward climate adaptation and mitigation. MPSPC's CCAP adopts this framework to allocate resources effectively, ensuring that climate initiatives are prioritized in institutional planning and spending.

1.10 The Local Government Code (RA 7160)

The Local Government Code provides local governments and institutions like MPSU with the authority to implement environmental and climate initiatives within their jurisdiction. In alignment with RA 7160, MPSPC collaborates with local government units (LGUs) in Mountain Province to create community-centered climate programs, such as sustainable agriculture initiatives, water resource management, and disaster preparedness. This collaboration reinforces MPSPC's role as a vital contributor to regional climate resilience and sustainable development.

Section 2. The Framework

The following frameworks provide both the vision and the structured approaches necessary for MPSPC's CCAP to effectively contribute to local and global climate resilience. The international frameworks provide the global context for climate action, establishing principles that guide local adaptation and mitigation efforts while the national frameworks translate international commitments into actionable policies relevant to the Philippines' unique climate challenges.

1. National Framework Strategy on Climate Change (NFSCC) 2010-2022**:** The NFSCC provides strategic directions for climate adaptation and risk reduction, prioritizing food security, water sufficiency, and environmental protection. This strategy aligns with MPSPC's objectives to enhance climate resilience across its campuses.
2. National Climate Change Action Plan (NCCAP) 2011-2028: The NCCAP outlines seven priority areas, including sustainable energy and ecological resilience. MPSPC's CCAP supports these priorities, integrating initiatives focused on sustainable energy use, infrastructure resilience, and community-based adaptation.
3. The Paris Agreement on Climate Change (2015)

   As a signatory to the Paris Agreement, the Philippines has committed to ambitious goals for mitigating climate change through the reduction of greenhouse gas emissions and enhancing adaptive capacities. The agreement emphasizes keeping global temperature rise below 2 degrees Celsius while striving for 1.5 degrees. MPSPC supports this global commitment through its institutional policies to reduce carbon emissions, conserve energy, and promote climate literacy among students and faculty.

4. The Sustainable Development Goals (SDGs) of the United Nations

   The United Nations' Sustainable Development Goals provide a universal framework for sustainable development across social, economic, and

environmental dimensions. MPSPC's Climate Change Action Plan addresses several of these goals, notably:

- SDG 13 (Climate Action): Through initiatives to improve climate resilience and integrate climate education.
- SDG 6 (Clean Water and Sanitation): By enhancing water resource management in response to regional water scarcity.
- SDG 4 (Quality Education): By embedding climate change awareness and sustainable practices in its curricula and community outreach programs.

5. United Nations Framework Convention on Climate Change (UNFCCC): The UNFCCC sets the foundation for global climate actions, emphasizing the need for nations and institutions to engage in climate adaptation, emissions reduction, and resilience-building efforts.

Section 3. Scope and Content

The Climate Change Action Plan (CCAP) of Mountain Province State Polytechnic College (MPSPC) is a comprehensive strategy that addresses climate resilience, environmental sustainability, and community engagement. Aligned with national and international climate frameworks, this plan is tailored to the unique environmental challenges and resources of the Mountain Province, aiming to reduce MPSPC's carbon footprint, promote sustainable practices, and foster resilience within the institution and surrounding communities.

3.1 Scope

The MPSPC CCAP applies to all MPSPC campuses, including the main campus in Bontoc and satellite campuses in Tadian, Baang, Bauko and Paracelis, and encompasses a broad range of climate-related areas within institutional, academic, operational, and community outreach activities. The scope of the CCAP extends to:

- **Institutional Facilities and Operations**: Implementing climate change-responsive practices in campus operations, including energy use, waste management, water conservation, and infrastructure resilience to ensure sustainable resource use and climate preparedness.
- **Curricular Integration and Climate Education**: Incorporating climate change and environmental stewardship into curricula to educate and empower students, faculty, and staff with knowledge and skills to act on climate change issues.
- **Research and Innovation**: Promoting research that advances climate change adaptation, mitigation, and resilience specific to the Mountain Province's context, including sustainable agriculture, biodiversity conservation, and water management.

- **Community Engagement and Partnerships**: Collaborating with local government units, indigenous communities, and stakeholders to create community-centered climate resilience programs that enhance local adaptation and disaster risk reduction efforts.
- **Policy Development and Advocacy**: Establishing institutional policies that promote climate change resilience, reduce greenhouse gas emissions, and advocate for sustainable practices across all municipalities of Mountain Province.

3.2 Content

The Climate Change Action Plan (CCAP) of Mountain Province State Polytechnic College (MPSPC) is organized into three main parts, each addressing critical aspects of climate change action. Within these parts, specific components target key areas to support MPSPC's commitment to sustainability and resilience in Mountain Province.

Part I: Background. This section provides a contextual foundation for the CCAP, highlighting current climate change challenges in the Philippines and Mountain Province. It presents relevant policies, legal mandates, brief profiles of Mountain Province and Mountain Province State Polytechnic College, and a summary of the unique vulnerabilities and climate risks faced by the province. The Background sets the stage for MPSPC's climate change action strategies by aligning them with national climate goals and local needs.

Part II: Climate Change Mitigation Approaches. This section outlines the strategies, objectives, and actions MPSPC will implement to reduce its greenhouse gas (GHG) emissions, focusing on the GHG Protocol's Scopes 1, 2, and 3. The Mitigation Approaches aim to enhance sustainability across the college's operations and foster climate resilience within its community. Key initiatives include promoting energy efficiency, transitioning to renewable energy, reducing waste, and fostering sustainable transportation practices. The implementation of these strategies will not only reduce MPSPC's carbon footprint but will also integrate climate-conscious practices into academic and community outreach efforts.

Part III: Climate Change Adaptation and Resilience Approaches. This section outlines the strategies and measures MPSPC will implement to enhance resilience to climate change impacts, focusing on safeguarding campus infrastructure, resources, and community well-being. Adaptation efforts prioritize proactive measures to prepare for and mitigate the adverse effects of climate change, including extreme weather events, resource scarcity, and shifts in environmental conditions. This section encompasses initiatives such as disaster preparedness and resilience building, climate-resilient infrastructure, sustainable agricultural and food security practices, water resource management and conservation, biodiversity conservation and ecosystem protection, and community engagement

and indigenous knowledge integration. Through these approaches, MPSPC aims to build capacity, promote sustainable practices, and strengthen resilience in alignment with the unique climate-related challenges of Mountain Province.

Part 1V. Monitoring & Evaluation (M&E) Framework. The Monitoring & Evaluation (M&E) Framework provides a structured approach to track, assess, and guide the implementation and impact of MPSPC's Climate Change Action Plan (CCAP). This framework ensures accountability, transparency, and continuous improvement across climate mitigation and adaptation initiatives. By establishing baseline data, defining performance indicators, and regularly engaging stakeholders, the M&E Framework supports data-driven decision-making and strategic adjustments. Key components of the framework include Policy Development and Governance, Research, Development and Extension (RDE), Knowledge Sharing and Capacity Building, Service Delivery, Adaptive Management, and Impact Assessment. Through this iterative process, MPSPC can evaluate progress toward climate resilience, adapt to evolving conditions, and strengthen alignment with provincial and national climate goals.

Part V. Way Forward. The Way Forward section of MPSPC's Climate Change Action Plan (CCAP) outlines a phased approach for implementing, advancing, and sustaining climate action initiatives over the coming years. This section presents a long-term vision that spans from establishing foundational climate policies and partnerships to achieving full carbon neutrality and resilience by 2039. Each phase includes clear priorities and targeted actions, such as policy development, resource allocation, emissions reduction, climate-resilient infrastructure, and community engagement. By structuring the journey into actionable steps, MPSPC will systematically build the capacity, infrastructure, and partnerships needed to integrate climate change mitigation and adaptation throughout institutional operations and the surrounding communities. This forward-looking approach emphasizes collaboration, strategic investment, and adaptive learning to ensure a sustainable and resilient future for MPSPC and the broader region.

3.3 Brief Profile of Mountain Province

Mountain Province, positioned within the Cordillera Administrative Region and central to the Cordillera mountain range, lies between 16.82 to 17.36 degrees north latitude and 120.73 to 121.57 degrees east longitude. The capital, Bontoc, is about 386 kilometers north of Manila.

Bordered by Kalinga and Abra to the north, Ifugao and Isabela to the east, Ifugao and Benguet to the south, and Ilocos Sur to the west, Mountain Province includes 10 municipalities and 144 barangays. These municipalities are organized into two districts: District 1, with Sadanga, Natonin, Paracelis, Barlig, and Bontoc, and District 2, with Besao, Sagada, Bauko, Tadian, and Sabangan. The province is also divided into three geographical sections: eastern (Barlig, Natonin, Paracelis), central (Bontoc, Sadanga), and western (Sabangan, Bauko, Tadian, Sagada, Besao).

Mountain Province's landscape is predominantly steep, with level to gently sloping areas mainly in Paracelis, where elevations range from 65 meters above sea level (masl) in Barangays Buringal and Anonat to 2,665 masl at the summit of Mt. Amuyao, located within Barlig. Slope variations across the province range from nearly level (0-3%) to very steep (40-60%), with flatter areas near rivers and settlements, particularly in Paracelis. Mountain Province has a total land area of 251,904.28 hectares (2,529.0428 km2). It is dubbed a "watershed cradle" as it is the headwater of six major rivers that flow to Kalinga, Abra, Ilocos Sur, and Isabela.

The Modified Corona Climate Classification (1951-2010) highlights Mountain Province's varied climate patterns, divided into two distinct zones. The western part falls under Type I climate, characterized by two pronounced seasons: a dry season from November to April and a wet season from May to October, with peak rainfall from June to September. In contrast, the eastern part experiences a Type III climate, with no sharply defined maximum rainfall period. This area typically has a brief dry season lasting one to three months, usually occurring between December to February or March to May. This climatic diversity affects agriculture, water resources, and local biodiversity, shaping the province's approach to sustainable development and resilience strategies.

As of the 2020 Census by the Philippine Statistics Authority, Mountain Province has a population of 158,200. Between 2015 and 2020, the annual population growth rate (APGR) was 0.49%, a notable increase from the 0.05% rate recorded from 2010 to 2015. Despite this growth, Mountain Province remains the second least populated in the Cordillera Administrative Region, contributing only 8.8% to the region's total and 0.15% nationally. Its APGR is the lowest in the region and significantly below the national rate, suggesting that if the growth rate remains constant, the population will take approximately 140 years to double.

These features highlight the province's vulnerability and adaptability challenges, essential considerations in developing MPSPC's Climate Change Action Plan.

3.4 Brief Profile of Mountain Province State Polytechnic College

The Mountain Province State Polytechnic College (MPSPC) is a Level III State University and College (SUC) established under Republic Act 7182, with a mandate to deliver higher education, research, extension, and production services across its main campus in Bontoc and satellite campuses in Tadian, Paracelis, and the CVSD Research Extension and Development Center in Baang, Bauko. Guided by its legislative charter, MPSPC provides specialized technical and professional instruction, promotes research and extension activities, and fosters leadership development within the context of agriculture, education, engineering, arts, and other relevant fields.

MPSPC offers undergraduate and graduate programs in diverse fields such as Agriculture, Forestry, Engineering, Business Administration, Information Technology, Nursing, and Teacher Education. Specialized vocational and technical courses are also available to meet national workforce needs. Through its academic programs, MPSPC aims to produce skilled professionals equipped to address regional and national challenges, including those posed by climate change.

The College's research and development focuses on collaboration with institutions such as DOST, CHED, DA-BAR, and other agencies to drive advancements in education, agriculture, indigenous knowledge, environmental science, and sustainable development. The CVSD Research Extension and Development Center hosts facilities like the Montañosa Coffee Center and the Highland Agricultural and Innovation Learning Center, which support MPSPC's research agenda and community engagement activities.

MPSPC also delivers extension services tailored to community needs, from financial literacy and digital skills training to sustainable tourism, peace advocacy, watershed management, and agroforestry initiatives. These efforts strengthen the College's role in regional resilience and environmental stewardship.

Aligned with its mission, MPSPC serves a wide array of stakeholders, including students, faculty, local communities, partner institutions, and government agencies. As part of its commitment to sustainable development, the College continuously enhances its operational capacities and academic programs to address climate-related issues. MPSPC's Climate Action Plan will further integrate its educational, research, and community engagement capacities to support climate mitigation and adaptation efforts in Mountain Province and the wider region.

3.4a. Employees

The employee population across the campuses and extension sites of Mountain Province State Polytechnic College (MPSPC) demonstrates a diverse and strategically distributed workforce aligned with the institution's operational and academic needs. As of 2023, MPSPC employs a total of 474 individuals across its campuses and extension sites.

The Bontoc Campus hosts the largest concentration of employees, with 343 staff and faculty members, followed by the Tadian Campus, which employs 106 individuals. The Paracelis Extension and CVSDRED Baang sites operate with smaller workforces, consisting of 9 and 16 employees, respectively.

A substantial portion of MPSPC's workforce comprises permanent faculty, highlighting the institution's commitment to providing stable and consistent educational staffing. Additionally, the Contract of Service (COS) staff and faculty across all locations offer flexibility in meeting changing enrollment and operational demands. Female employees slightly outnumber their male counterparts in most categories, indicating strong representation of women across diverse roles at MPSPC.

In summary, MPSPC's workforce distribution positions the Bontoc campus as the central employment hub, with Tadian, Paracelis Extension, and CVSDRED Baang functioning as smaller, specialized sites. This structure supports MPSPC's mission by allowing each campus and extension to maintain tailored staffing levels that align with their unique academic and operational requirements.

Table 1. Population of Employees at MPSPC-Bontoc Campus for CY 2023

Employment Status	Male	Female	**Total**
Permanent-Faculty	40	73	**113**
Permanent-Staff	26	45	**71**
COS-Faculty	14	47	**61**
COS-Staff	38	60	**98**
		TOTAL	**343**

Table 2. Population of Employees at MPSPC-Tadian Campus for CY 2023

Employment Status	Male	Female	**Total**
Permanent-Faculty	22	27	**49**
Permanent-Staff	10	6	**16**

COS-Faculty	5	17	**22**
COS-Staff	7	12	**19**
		TOTAL	**106**

Table 3. Population of Employees at MPSPC-Paracelis Extension for CY 2023

Employment Status	Male	Female	**Total**
Permanent-Faculty	1	1	**2**
Permanent-Staff	1	1	**2**
COS-Faculty	1	3	**4**
COS-Staff	1	0	**1**
		TOTAL	**9**

Table 4. Population of Employees at MPSPC-CVSDRED Baang for CY 2023

Employment Status	Male	Female	**Total**
Permanent-Faculty	1	0	**1**
Permanent-Staff	2	1	**3**
COS-Faculty	0	0	**0**
COS-Staff	5	7	**12**
		TOTAL	**16**

3.4b. Student Population

The academic population data for the Mountain Province State Polytechnic College (MPSPC) across its Bontoc and Tadian campuses for the academic year 2023-2024 shows a diverse student body enrolled in a variety of programs. As detailed in the data,

MPSPC supports both graduate and undergraduate programs with notable enrollment in fields like criminology, nursing, engineering, education, and forestry.

Bontoc Campus

The Bontoc Campus, with a total of 5,365 students enrolled in the first semester of 2023-2024, serves as the primary academic hub. The School of Advanced Education offers graduate programs, enrolling a smaller but diverse group of students in doctoral and master's programs focused on business, education, and public administration.

In contrast, the undergraduate programs have significantly larger enrollments, particularly in fields such as:

- Criminology, with nearly 2,000 students in the first semester, is the most popular program, reflecting a high demand for security and law enforcement training.
- Nursing and Information Technology also have substantial enrollments, with nursing reaching over 1,000 students, showing strong interest in health and tech professions.
- Education programs, including secondary, elementary, and early childhood education, are well-attended, indicating MPSPC's role in preparing future educators for the region.

The data indicates a relatively balanced male-to-female ratio across many programs, though fields such as nursing and education have a higher proportion of female students.

Tadian Campus

The Tadian Campus primarily offers programs in engineering, agriculture, and environmental sciences, with a total enrollment of 1,171 in the first semester. Key highlights include:

- Civil Engineering and Electrical Engineering, which attract a significant number of students, predominantly male, aligning with the technical focus of this campus.
- Forestry and Agricultural Technology also have notable enrollments, reflecting MPSPC's commitment to supporting sustainable agriculture and natural resource management in Mountain Province.

Across both campuses, MPSPC enrolls a total of 6,536 students in the first semester, with a slightly higher number of male students. This distribution highlights MPSPC's capacity to address educational needs in varied fields, from professional studies in business and administration to technical and vocational training in engineering and

agriculture. The population data underscores the institution's role in producing a skilled workforce for the province and beyond, tailored to the regional demands for professionals in health, education, law enforcement, and sustainable development.

Table 5. Enrolment Data per Program

First Semester AY 2023-2024

Academic Programs	First Semester, 2023-2024		
	Male	**Female**	**Total**
Bontoc Campus			
School of Advanced Education			
Doctor of Business Administration	0	1	1
Doctor of Education	2	5	7
Doctor of Philosophy in English Language Education	0	1	1
Master of Arts in Education	11	49	60
Master of Arts in Science Education	1	20	21
Master of Arts in Teaching English	4	12	16
Master in Business Administration	6	15	21
Master in Public Administration	7	33	40
Master of Science in Rural Development	0	3	3
Master of Science in criminal Justice with Specialization in Criminology	15	6	21
Sub-Total· SAE	***46***	***145***	***191***
Baccalaureate Programs			
Bachelor of Arts in Political Science	40	84	124
Bachelor of Science in Accountancy	26	137	163
Bachelor of Science in Business Administration	61	180	241
Bachelor of Science in Criminology	1405	560	1965
Bachelor of Secondary Education	173	422	595
Bachelor of Elementary Education	89	200	289
Bachelor of Early Childhood Education	1	21	22
Bachelor of Special Needs Education	10	37	47
Bachelor of Science in Hospitality Management	60	116	176
Bachelor of Science in Tourism Management	36	102	138

Bachelor of Science in Nursing	172	875	1047
Bachelor of Science in Office Administration	13	89	102
Bachelor of Science in Information Technology	148	117	265
Total - Baccalaureate Program - Bontoc	2234	2940	5174
Total - Bontoc Campus	2280	3085	**5365**
Tadian Campus			
Baccalaureate Programs			
Bachelor of Elementary Education	6	32	38
Bachelor of Secondary Education	42	97	139
Bachelor of Technical Vocational Teacher Education	98	40	138
Bachelor of Science in Civil Engineering	266	151	417
Bachelor of Science in Electrical Engineering	64	12	76
Bachelor of Science in Geodetic Engineering	18	18	36
Bachelor of Science in Agroforestry	17	13	30
Bachelor of Science in Forestry	53	31	84
Bachelor in Agricultural Technology	82	78	160
Bachelor of Science in Agribusiness	3	19	22
bachelor of Science in Environmental Sci<	6	16	22
Bachelor of Science in Entrepreneurship	4	5	9
***Total - Tadian* Campus**	*659*	*512*	***1171***
Grand Total	**2939**	**3597**	**6536**

3.5 Climate Change Projections in Mountain Province

The Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) conducted a climate change study in the Philippines to support adaptation and vulnerability assessments and to analyze potential future impacts using climate models. The report provides provincial-level climate change projections, covering the baseline period of 1971-2000 and anticipated changes for 2020 and 2050. It includes projected increases in seasonal temperatures, shifts in seasonal rainfall, days exceeding 35°C, dry days with less than 2.5mm of rainfall, and days with extreme rainfall over 150mm (Table 6).

Table 6. Climate change projections in Mountain Province. (Adapted from the Provincial Local Action Plan version 2023-2)

CLIMATE VARIABLES	OBSERVED BASELINE (1971-2000)				CHANGE IN 2020 (2006-2035)				CHANGE IN 2050 (2036-2065)			
SEASONS	DJ F	MA M	JJA	SON	DJ F	MA M	JJ A	SO N	DJ F	MA M	JJA	SO N
SEASONAL TEMPERATU RE INCREASE (⁰C)	27.5	31.5	30.7	29.2	28.4 0.9↑	32.6 1.1↑	31.5 0.8↑	30.2 1.0↑	29.4 1.9↑	33.6 2.1↑	32.6 1.9↑	31.1 1.9↑
SEASONAL RAINFALL CHANGE (%)	74.8	286.8	1,121.1	699.2	72.1 2.7↓	279.1 7.7↓	1,137.5 16.4↑	714.1 14.9↑	75.9 1.1↑	259.4 27.4↓	1,147.7 6.6↑	707.7 8.5↓

- Seasons: DJF - December, January and February; MAM- March, April, and May; JJA - June, July, and August; SON - September, October and November
- Source: DOST-PAGASA. Climate Change in the Philippines. 2011 (Under the UN-Philippine MDGIF Project in partnership with Adaptayo). Pages 61-63.

In Mountain Province, PAGASA's medium-range emission scenario projections indicate a summer temperature baseline values of *31.5°C*. The projected temperature increase for 2020 and 2025 is *1.1⁰C* and *2.1⁰C* respectively, thus, the projected temperature on 2020 is 32.6⁰C and on 2050, the projection is 33.6⁰C as given in Table 6.

Table 7. Seasonal temperature changes in Mountain Province.

CLIMATE VARIABLES	**OBSERVED BASELINE (1971-2000)**				**CHANGE IN 2020 (2006-2035)**				**CHANGE IN 2050 (2036-2065)**			
SEASONS	**DJF**	**MAM**	**JJA**	**SON**	**DJF**	**MAM**	**JJA**	**SON**	**DJF**	**MAM**	**JJA**	**SON**
SEASONAL TEMPERATU RE INCREASE (⁰C)	27.5	31.5	30.7	29.2	28.4 ↑	32.6 ↑	31.5 ↑	30.2 ↑	29.4 ↑	33.6 ↑	32.6 ↑	31.1 ↑

The rainfall baseline in the province is 1,121.1 mm during the rainy season or southwest monsoon season locally known as *habagat*. The projection shows a 16.4 mm increase by 2020 totalling to 1,137.5 mm rainfall and 1,147.7 mm by 2050 (Table 7). PAGASA's climate change study revealed that generally, there is a reduction in rainfall in most parts of the country during the summer (MAM) season. However, rainfall increase is likely during the southwest monsoon (JJA) season until the transition (SON) season in most areas of Luzon and Visayas, and also, during the northeast monsoon (DJF) season, particularly, in provinces/areas characterized as Type II climate in 2020 and 2050. Mountain Province however, has two types of climate – Type I and Type III (Figure 1).

Table 8. Seasonal rainfall changes in Mountain Province.

CLIMATE VARIABLES	**OBSERVED BASELINE (1971-2000)**				**CHANGE IN 2020 (2006-2035)**				**CHANGE IN 2050 (2036-2065)**			
SEASONS	**DJF**	**MAM**	**JJA**	**SON**	**DJF**	**MAM**	**JJA**	**SON**	**DJF**	**MAM**	**JJA**	**SON**
SEASONAL RAINFALL CHANGE (%)	74.8	286.8	1,121.1	699.2	72.1 ↓	279.1 ↓	1,137.5 ↑	714.1 ↑	75.9 ↑	259.4 ↓	1,147.7 ↑	707.7 ↓

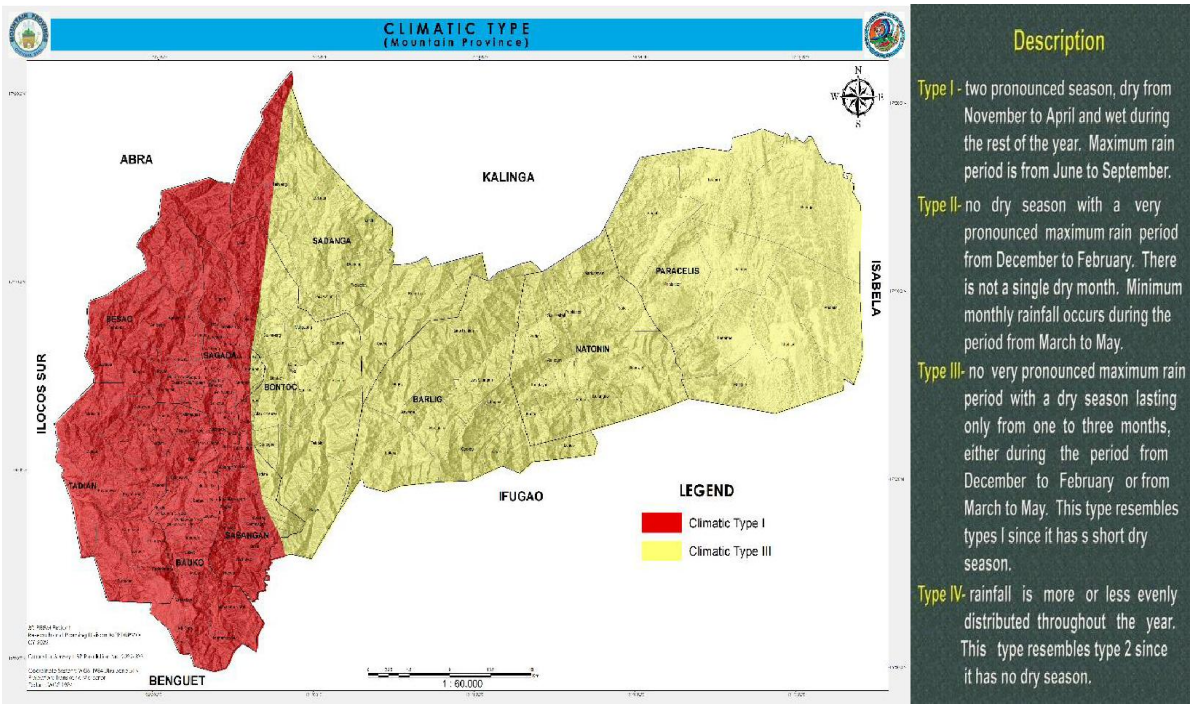

Figure 1. Climatic Type of Mountain Province

The climate projections presented here align with findings from the Mountain Province Local Climate Change Action Plan (MP CCAP) and reflect anticipated temperature and rainfall shifts specific to the region. These projections, developed by DOST-PAGASA, underscore the pressing need for climate resilience initiatives across the province and provide a foundation for MPSPC's adaptation strategies.

Section 3.6 Climate Vulnerability Assessment for Mountain Province

Mountain Province, with its distinctive topography and climate, faces a variety of climate-related risks that impact its natural and human systems. The Climate Vulnerability Assessment (CVA) for Mountain Province identifies these risks, assesses exposure and sensitivity to climate hazards, and evaluates the adaptive capacity of local communities and ecosystems. Key findings from the CVA highlight the province's susceptibility to climate-induced hazards, such as:

1. Tropical Cyclones: Historical data shows that Mountain Province has experienced numerous tropical cyclones, with severe impacts from events like Super Typhoon Yolanda. These storms bring strong winds, heavy rainfall, and landslides, posing significant threats to lives, infrastructure, and natural resources.
2. Rain-Induced Landslides and Flooding: Given its mountainous terrain, the province is highly vulnerable to rain-induced landslides and flooding, particularly during extreme weather events. These hazards threaten road

access, agricultural lands, and community safety, with landslide susceptibility ratings developed to prioritize areas for mitigation.

3. Temperature Extremes and Seasonal Shifts: Climate projections indicate rising temperatures and seasonal shifts that could stress ecosystems and water resources. Extreme heat, as well as cold conditions in higher altitudes, challenges the resilience of local agriculture, water supplies, and energy demands.
4. Agricultural and Water Resource Vulnerabilities: Dependency on agriculture and local water sources increases the sensitivity of Mountain Province to climate impacts. Agricultural productivity and water availability are threatened by both rising temperatures and irregular precipitation patterns, leading to potential impacts on food security and economic stability.
5. Climate Risk Vulnerability Index : Vulnerability index is derived by combining values of the climate risk assessment vulnerability potential impact and adaptive capacity. Vulnerability maps identify high-risk areas, guiding targeted adaptation strategies to enhance resilience.

Figures 2, 3, and 4 show the adaptive capacity, climate risk vulnerability potential impact and the vulnerability index of Mountain Province respectively.

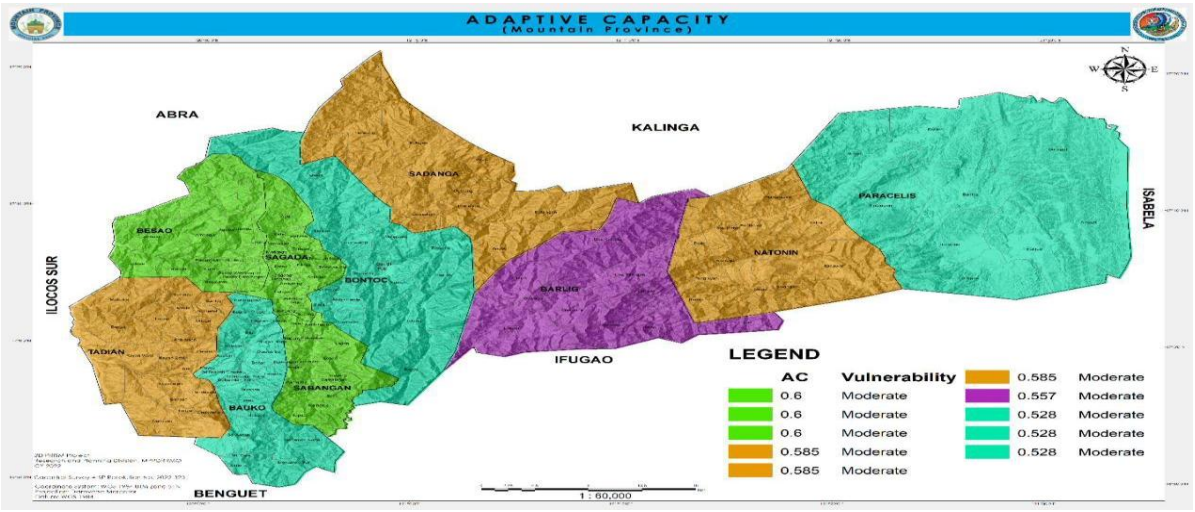

Figure 2 . Adaptive Capacity of Mountain Province

Source: Adapted from *Mountain Province Local Climate Change Action Plan 2023-2032, Version 2023-02*, Provincial Government of Mountain Province.

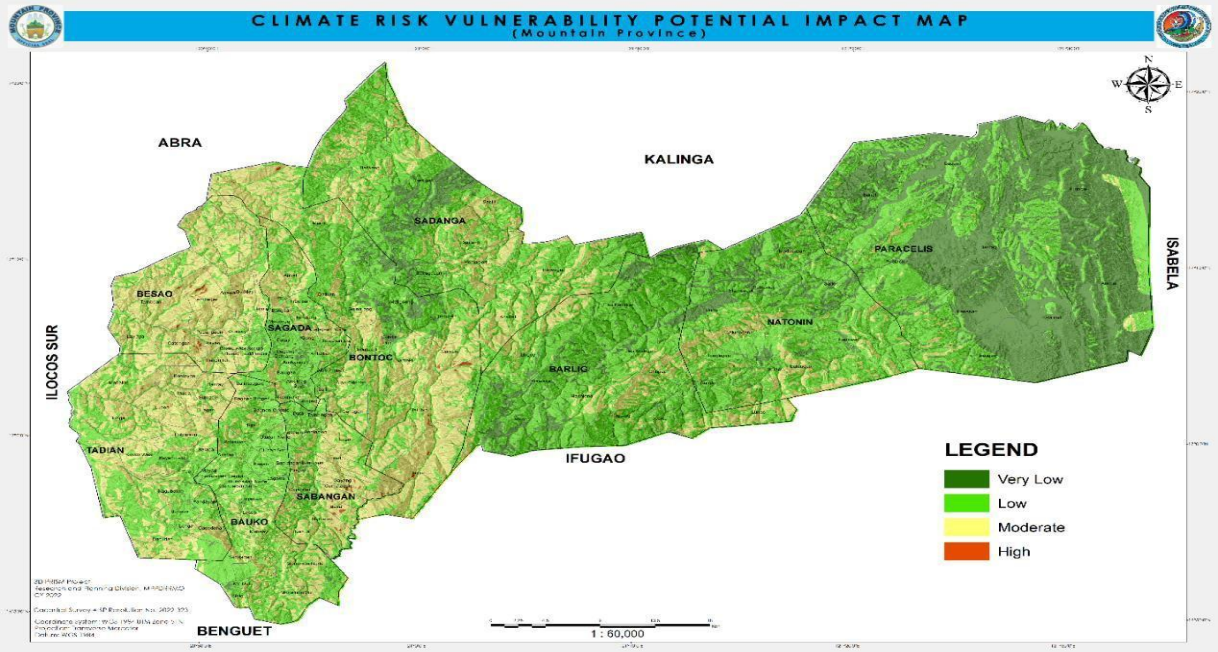

Figure 3. Climate Risk Vulnerability Potential Impact (Mountain Province)
Source: Adapted from *Mountain Province Local Climate Change Action Plan 2023-2032, Version 2023-02*, Provincial Government of Mountain Province.

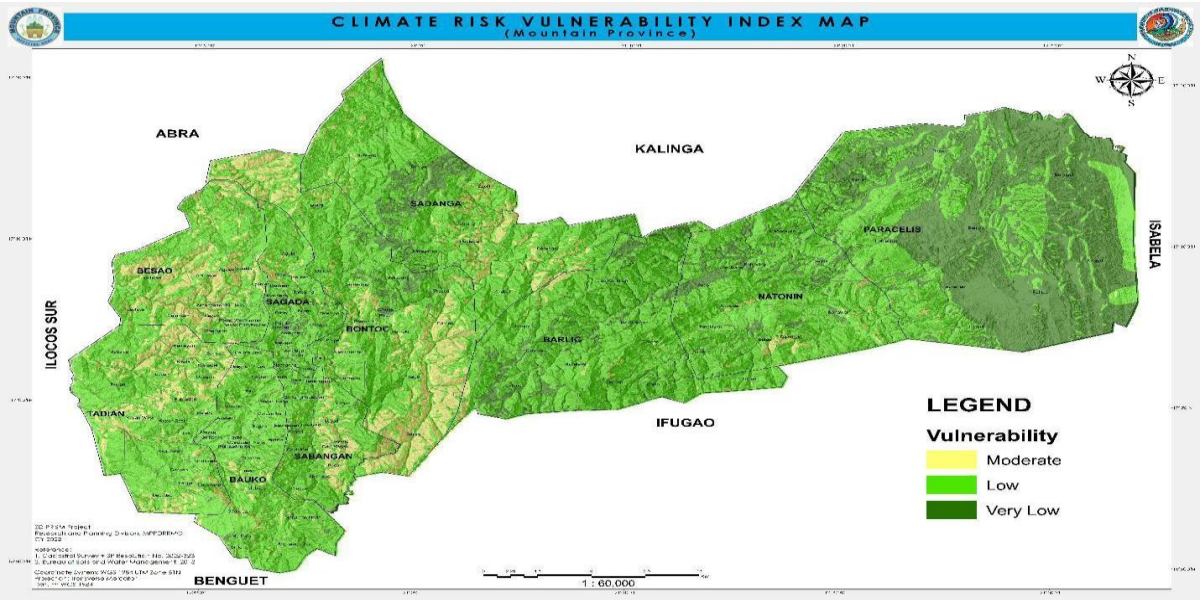

Figure 4 . Climate Risk Vulnerability Index Map for Mountain Province
Source: Adapted from *Mountain Province Local Climate Change Action Plan 2023-2032, Version 2023-02*, Provincial Government of Mountain Province.

Mountain Province's CVA provides a foundation for prioritizing climate adaptation actions, disaster preparedness, and resource allocation. By understanding the localized

impacts of climate change, MPSPC and its partners can tailor their strategies to protect vulnerable communities, infrastructure, and ecosystems from the adverse effects of climate variability and extreme events.

The Climate Vulnerability Assessment (CVA) presented here builds on the detailed findings of the Mountain Province Local Climate Change Action Plan (MP CCAP). The CVA highlights critical vulnerabilities identified by MP CCAP, including increased exposure to landslides, typhoons, temperature extremes, and the cascading impacts on agriculture and water resources. This data provides MPSPC with a targeted approach to prioritizing adaptation actions and strengthens alignment with provincial efforts to reduce climate risk across Mountain Province.

Section 3.7 Rationale for MPSPC's Commitment to Climate Action

Mountain Province State Polytechnic College (MPSPC) recognizes that the impacts of climate change are not only global but also profoundly local, affecting the ecological, social, and economic stability of the Mountain Province region. As an institution situated in an area vulnerable to the adverse effects of climate change—such as increased frequency of extreme weather events, disruptions to water resources, and risks to agricultural productivity—MPSPC is uniquely positioned to play a critical role in addressing climate challenges that directly affect its students, faculty, staff, and surrounding communities.

By prioritizing climate action, MPSPC aims to build resilience within the institution and contribute to the sustainability of the Mountain Province. The college's commitment extends beyond its own campuses to influence positive change in the broader community, which relies heavily on natural resources for livelihood and sustenance. MPSPC acknowledges that through proactive climate initiatives, it can support local efforts to adapt to climate risks, preserve biodiversity, and promote sustainable development.

As a higher education institution, MPSPC has a responsibility to educate and empower future generations to be climate-conscious leaders, equipped with the knowledge and skills necessary to navigate and mitigate climate risks. By embedding climate action into its operations, curriculum, research, and community engagement, MPSPC strengthens its role as a leader in regional sustainability and a model for other educational institutions.

The urgency of climate change demands a coordinated, multi-dimensional approach, aligning with MPSPC's mandate in research, instruction, extension, and policy development. Through its CCAP, MPSPC commits to a long-term climate strategy that addresses both mitigation and adaptation, ensuring that its efforts contribute to a resilient and sustainable future for the Mountain Province, and positioning the college as a key contributor to national and international climate action goals.

Section 3.8 Stakeholders and Partners

The successful implementation of MPSPC's Climate Change Action Plan requires collaboration with a broad range of stakeholders and partners who can contribute knowledge, resources, and support. These stakeholders include those directly impacted by climate change initiatives, those engaged in implementing the plan, and those who can provide valuable expertise, funding, or community support.

3.8.1 Internal Stakeholders

3.8.1.1 MPSPC Leadership and Administration: Responsible for policy-making, resource allocation, and overall guidance in line with institutional priorities.

3.8.1.2 Faculty and Researchers: Integral in driving research and teaching on climate resilience, adaptation, and mitigation. Faculty members can incorporate climate change into curriculum and research projects to enhance institutional capacity.

3.8.1.3 Students: As the next generation of leaders, students will be both beneficiaries and contributors to MPSPC's climate initiatives, participating in awareness programs, research, and campus sustainability efforts.

3.8.1.4 MPSPC Climate Change Committee and Task Forces: Established task forces within academic, administrative, and operational units will facilitate campus-wide coordination for implementing climate action measures.

3.8.2 Local and Regional Government Agencies

3.8.2.1 Provincial and Municipal Government of Mountain Province: Government agencies, such as the Provincial Disaster Risk Reduction and Management Office (PDRRMO), can offer climate vulnerability data, and technical support, and assist in aligning MPSPC's climate initiatives with regional climate adaptation goals.

3.8.2.2 Department of Environment and Natural Resources (DENR): Can provide guidance on environmental policies, land and water resource management, and collaboration in reforestation and conservation projects.

3.8.2.3 Department of Science and Technology (DOST): DOST can support technical innovations, technology transfer, and funding for climate adaptation and mitigation projects, including renewable energy and water management solutions.

3.8.3 Academic and Research Partners

3.8.3.1 Universities and Research Institutions: Collaborations with other Philippine universities and international institutions can enhance knowledge exchange, share research resources, and provide access to climate expertise. These partnerships may support MPSPC's studies on sustainable agriculture, renewable energy, and climate-resilient infrastructure.

3.8.3.2 CHED, DOST, DA and Climate-Focused Research Organizations: External agencies, like the Commission on Higher Education (CHED), DOST, Department of Agriculture (DA) and climate-focused research centers, can provide funding, training, and partnership opportunities to expand MPSPC's research capacity in climate resilience and sustainability.

3.8.4 Community Partners and Civil Society

3.8.4.1 Local Farmers and Indigenous Communities: Given their close relationship with natural resources, these communities are essential in both implementing and benefiting from MPSPC's climate action initiatives. Their insights into traditional practices and adaptation strategies are invaluable for sustainable and culturally sensitive climate solutions.

3.8.4.2 Non-Governmental Organizations (NGOs): NGOs focused on environmental conservation and sustainable development such as the Artisanal Gold Council can collaborate on community projects, advocacy, and environmental education programs, helping to increase the reach and impact of MPSPC's initiatives.

3.8.5 Private Sector Partners

3.8.5.1 Renewable Energy Providers: Partnerships with companies specializing in renewable energy (e.g., solar, micro-hydro) can support MPSPC's goal to transition to sustainable energy sources and achieve carbon neutrality.

3.8.5.2 Sustainable Product and Service Providers: Partnering with suppliers who prioritize sustainable practices in their production and supply chains will help MPSPC minimize Scope 3 emissions and promote a responsible procurement process.

Section 4. Creating a Climate Action and Sustainability Committee (CASC)

To ensure the successful implementation, monitoring, and continuous improvement of the Climate Change Action Plan (CCAP), MPSPC will establish a Climate Action and

Sustainability Committee (CASC). This committee will serve as the governing body responsible for guiding MPSPC's climate-related efforts, setting strategic priorities, and coordinating actions across the institution.

Section 4.1 Purpose and Objectives

The primary purpose of CASC is to provide leadership, oversight, and accountability for all climate action and sustainability initiatives within MPSPC. The committee will ensure that MPSPC's climate strategies align with provincial and national climate goals, address the specific needs of Mountain Province, and support resilience and sustainability across all levels of the institution. Key objectives include:

4.1.1 Overseeing the implementation of mitigation and adaptation strategies outlined in the CCAP.

4.1.2 Setting and updating climate policies, performance standards, and sustainability goals for MPSPC.

4.1.3 Facilitating cross-departmental collaboration and resource sharing to support climate action.

4.1.4 Engaging with stakeholders to align MPSPC's efforts with community needs and promote broad-based support for climate initiatives.

Section 4.2 Structure and Membership

The CASC will comprise a diverse group of representatives from various departments, and units as well as student and community representatives, ensuring that climate action is integrated throughout MPSPC's operations and academic programs. Suggested membership includes:

University President - Chairman

Vice President for Research Development and Extension - Vice Chairman

Vice President for Academic Affairs - Member

Vice President for Administration and Finance - Member

Vice President for Resource Generation - Member

Campus Executive Dean (Bontoc Campus) - Member

Campus Executive Director (Tadian Campus) - Member

Executive Assistant for the Office of the President

Director for Research and Development - Member

Director for Extension Services - Member

Director for NSTP - Member

Director for Health Services - Member

Director, SSDO - Member

Director, Procurement Services

Director, MIS

College Engineer

Chief Administrative Officer - Member

Budget Officer - Member

Head, General Services Office

President, Student Government Organization (Bontoc Campus)

President, Student Government Organization (Tadian Campus)

President, Student Government Organization (Paracelis Site)

School Deans

Representative, PDRRMO

Representative, Community Leaders

Representative, LGU

Section 4.3 Roles and Responsibilities

To fulfill its mandate, the CASC will have specific responsibilities, including:

4.3.1 Policy Development: Draft and recommend institutional policies on energy use, waste management, water conservation, and biodiversity protection.

4.3.2 Monitoring and Reporting: Establish performance indicators, track progress, and issue quarterly and annual reports to stakeholders.

4.3.3 Community Engagement: Conduct outreach activities, workshops, and capacity-building programs with local communities to support climate adaptation and resilience.

4.3.4 Adaptive Management: Review MPSPC's climate strategies every two years and recommend adjustments based on data, feedback, and evolving climate conditions.

Section 4.4 Meeting Frequency and Reporting

The CASC will meet quarterly to review progress, assess challenges, and make strategic adjustments as needed. An annual report will be issued to the MPSPC leadership and made available to stakeholders, summarizing progress toward CCAP goals and highlighting key achievements and areas for improvement.

Section 4.5 Alignment with Provincial and National Climate Goals

By establishing the CASC, MPSPC commits to a proactive and structured approach to climate action that is aligned with the strategic priorities outlined in the Mountain Province and National Climate Change Action Plans. This committee will ensure that MPSPC's CCAP is responsive to local climate risks, supports the resilience of Mountain Province, and contributes meaningfully to national climate resilience and sustainability goals.

II. CLIMATE CHANGE MITIGATION APPROACHES

Section 1. Introduction

Mountain Province, with its rich biodiversity, pristine landscapes, and vibrant indigenous heritage, remains a largely healthy environment, though some areas are beginning to experience the impacts of pollution. As urbanization and development slowly expand, the need for proactive climate action becomes crucial to preserve this natural wealth for future generations. Mountain Province State Polytechnic College (MPSPC) recognizes the responsibility to lead these efforts, ensuring that its growth aligns with the sustainability of its surrounding environment. In response to this, MPSPC has crafted a Climate Change Mitigation Plan as part of its Climate Change Action Plan (CCAP), aimed at reducing its carbon footprint and enhancing climate resilience within the institution and its surrounding communities..

MPSPC's Climate Change Mitigation Approaches align closely with the GHG Protocol's Scopes 1, 2, and 3, providing a systematic approach to achieving carbon neutrality. This structured framework, combined with national mandates such as Republic Act 9729, the Climate Change Act of 2009, guides MPSPC in reducing greenhouse gas emissions (GHG) across all facets of its operations. Adopting these protocols positions the college as a leader in institutional climate action within the Mountain Province and beyond.

Through targeted strategies in energy efficiency, renewable energy, waste reduction, and air quality preservation, MPSPC is not only decreasing its carbon footprint but is also fostering environmental awareness and responsibility across its campus and community. Below is a more detailed breakdown of how each scope is addressed and integrated into the institution's broader climate and sustainability goals:

<u>Scope 1: Direct Emissions from MPSPC-Owned or Controlled Sources</u>

Scope 1 focuses on direct emissions from sources that MPSPC controls, such as campus vehicles, on-site fuel combustion, and refrigerant leaks. To manage these emissions, MPSPC will implement a structured approach encompassing management systems, operational adjustments, and behavioral initiatives. A key component will be conducting regular energy audits, which will track fuel consumption, identify areas for efficiency improvements, and enable MPSPC to set benchmarks for emission reduction.

To reduce emissions from transportation, MPSPC intends to transition its vehicle fleet to low-emission options, a strategy that will not only cut fuel-related emissions but also exemplify the college's commitment to sustainable practices. For the existing fleet, routine maintenance will ensure that vehicles operate efficiently, reducing unnecessary emissions.

In addition, MPSPC will prioritize the acquisition of energy-efficient equipment across campus. All new devices will be selected based on high energy-efficiency ratings, such as Energy Star, to minimize electricity consumption and operational costs.

MPSPC's land management practices will further contribute to Scope 1 emission reduction. Reforestation initiatives and soil carbon sequestration techniques will actively absorb CO_2 from the atmosphere, supporting climate-conscious land stewardship. These practices not only reduce emissions but also offer research opportunities for students and faculty in environmental sciences.

On the educational front, MPSPC will integrate Scope 1 emissions reduction into its instructional and research programs. Courses and training modules will be developed to teach sustainable energy practices and low-emission technologies. Students will gain practical knowledge and hands-on experience in emission-reducing strategies, making them aware of how small, cumulative actions can lead to significant impacts. Researchers at MPSPC will further explore innovative technologies and methods for reducing direct emissions, including studies on alternative fuel sources and low-emission practices that could be adopted by other institutions.

Through this comprehensive approach—combining management systems, behavioral changes, and educational programs—MPSPC will not only reduce its direct emissions but also inspire a culture of environmental stewardship among students, faculty, and the wider community.

Scope 2: Indirect Emissions from Purchased Electricity

For Scope 2, which addresses emissions from purchased electricity, MPSPC plans to significantly reduce its reliance on grid-based energy through a combination of renewable energy projects, energy-efficient practices, and behavior change initiatives. The goal is to transition at least 25% of the college's energy use to renewable sources by 2030, primarily through solar power and micro-hydropower installations.

To support sustainable energy goals in Mountain Province, MPSPC will implement renewable energy sources on campus, including solar power and micro-hydro systems. These efforts will reduce Scope 2 emissions and set a model for clean energy adoption within the region. Initial efforts will focus on installing solar panels to power key buildings across campus, which will reduce overall electricity demand from the grid. Feasibility studies will assess the potential for scaling up these installations, with the possibility of introducing micro-hydropower systems if found viable. These renewable energy initiatives are intended not only to reduce emissions but also to support academic integration, allowing students to participate in renewable energy research and hands-on projects. This will enrich the curriculum and foster a culture of sustainability in MPSPC's academic community.

MPSPC will extend its renewable energy transition beyond campus by building partnerships with local communities and government agencies. For instance, solar workshops led by local government units will provide training on renewable energy installation and maintenance, empowering both the college and local residents to adopt sustainable practices. This approach will amplify the college's impact, helping the wider community transition to renewable energy sources.

In addition to renewable energy projects, MPSPC will implement a range of energy efficiency measures to reduce electricity consumption across campus. Energy-efficient appliances will be prioritized, with a particular focus on those that include standby power reduction features to minimize unnecessary energy use. The college will also introduce smart devices that automatically power down unused electronics, ensuring that energy consumption is optimized even when buildings are not in full use.

The success of these efforts will hinge on behavioral change, encouraging students, faculty, and staff to adopt energy-saving habits. MPSPC will foster energy mindfulness by promoting simple actions like turning off lights when leaving a room, unplugging devices when not in use, and adjusting thermostats to conserve energy. Through campus-wide campaigns and educational programs, MPSPC will instill a culture of energy awareness, emphasizing the importance of collective action in achieving emissions reduction goals.

By combining renewable energy installations, energy efficiency programs, and campus-wide behavioral changes, MPSPC aims to make substantial progress towards carbon neutrality under Scope 2. These initiatives will reduce greenhouse gas emissions, demonstrate MPSPC's commitment to sustainability, and inspire the entire college community to support its climate action goals.

Scope 3: Other Indirect Emissions Across MPSPC's Value Chain

Scope 3 encompasses other indirect emissions across the college's value chain, such as commuting, waste generation, and the procurement of goods and services. MPSPC plans to address Scope 3 emissions through comprehensive waste management programs, sustainable procurement policies, and community-focused initiatives. The college will establish recycling and composting programs, as well as promote reusable options (e.g., reusable bags, bottles, and containers) to reduce waste. MPSPC will also encourage sustainable practices in procurement by favoring suppliers with environmentally friendly products and services, thus lowering emissions associated with the supply chain.

In line with its mandate to engage the community, MPSPC will host educational campaigns and workshops to promote sustainable practices within and beyond the campus. Waste reduction programs will be integrated into the curriculum, allowing students to participate in zero-waste challenges and community clean-ups. Through

partnerships with local governments and organizations, MPSPC will work to extend these sustainable practices to the wider community, encouraging collective action toward climate resilience.

Additionally, MPSPC will address commuting emissions by promoting sustainable transport options. Carpooling, shuttle services, and bike-sharing programs will be encouraged to reduce emissions associated with student and staff commutes. Instructional content on sustainable transportation will be included in environmental courses, while research studies may examine the impacts of different commuting strategies on emission reductions in academic institutions. This holistic approach to Scope 3 emissions not only meets sustainability goals but also fosters community involvement and policy advocacy, aligning with MPSPC's broader mission.

Section 2. Mitigation Action Plan

2.1. Sustainable Energy Use and Efficiency

2.1.1. Objective: To reduce MPSPC's carbon footprint by increasing energy efficiency and transitioning to renewable energy sources.

2.1.2. Strategies:

2.1.2.1. Conduct an energy audit to identify areas of inefficiency.

2.1.2.2. Upgrade lighting systems (e.g., LED) and install energy-efficient equipment.

2.1.2.3. Invest in renewable energy sources such as solar panels for campus buildings.

2.1.2.3. Promote energy conservation behaviors among students and staff.

2.1.3. Plan of Action:

2.1.3.1.Assess current energy consumption across MPSPC facilities.

2.1.3.2. Implement energy-saving measures (e.g., retrofitting, improved insulation, and low-energy technologies).

2.1.3.3. Initiate the installation of solar panels in high-usage areas.

2.1.4. Expected Outcomes:

2.1.4.1. Reduced energy consumption per capita on campus.

2.1.4.2. A significant reduction in GHG emissions from energy use.

2.1.5. Key Performance Indicators (KPIs):

2.1.5.1. Percentage reduction in energy use per unit area.

2.1.5.2. Percentage of energy consumption from renewable sources.

2.1.5.3. Reduction in GHG emissions from energy use (measured annually).

2.1.6. Timeline:

2.1.6.1. Short-term (1–2 years): Complete energy audit, upgrade to LED lighting.

2.1.6.2. Medium-term (3–5 years): Implement energy-saving technologies and renewable energy systems.

2.2 Sustainable Transportation and Mobility

2.2.1. Objective: To minimize emissions from transportation within the campus and surrounding community.

2.2.2. Strategies:

2.2.2.1. Promote the use of electric vehicles (EVs) for university transport.

2.2.2.2. Encourage carpooling, cycling, and walking as alternatives to single-occupancy vehicle use.

2.2.2.3. Establish electric vehicle charging stations on campus.

2.2.3. Plan of Action:

2.2.3.1. Transition university-owned vehicles to electric or hybrid models.

2.2.3.2. Set up bike racks and pathways to encourage cycling.

2.2.3.3. Launch a campus-wide awareness campaign about sustainable mobility.

2.2.4. Expected Outcomes:

2.2.4.2. Reduced emissions from university transportation.

2.2.4.3. Increased use of alternative, low-carbon transportation options.

2.2.5 KPIs:

2.2.5.1. Number of electric vehicles in the university fleet.

2.2.5.2. Increase in the number of students and staff using alternative transport.

2.2.5.2. Reduction in transport-related GHG emissions.

2.2.6 Timeline:

2.2.6.1. Short-term (1–2 years): Set up infrastructure (bike racks, charging stations).

2.2.6.1. Medium-term (3–5 years): Gradual transition to EVs.

2.3. Sustainable Campus Waste Management

2.3.1. Objective: To reduce waste generation and promote recycling and composting within the campus.

2.3.2. Strategies:

2.3.2.1. Implement a comprehensive waste segregation system.

2.3.2.1. Set up composting facilities for organic waste.

2.3.2.1. Reduce the use of single-use plastics and promote reusable alternatives.

2.3.2.2. Partner with recycling organizations for waste collection.

2.3.3. Plan of Action:

2.3.3.1. Educate students and staff on waste management practices.

2.3.3.2. Install clearly labeled waste segregation bins across campus.

2.3.3.3. Set up composting stations and promote food waste reduction.

2.3.4. Expected Outcomes:

2.3.4.1. Increased recycling rates and waste diversion from landfills.

2.3.4.2. Reduced carbon emissions associated with waste disposal.

2.3.5. KPIs:

2.3.5.1. Percentage reduction in campus waste sent to landfills.

2.3.5.2. Rate of waste diverted to recycling or composting.

2.3.5.3. Reduction in GHG emissions from waste management.

2.3.6 Timeline:

2.3.6.1. Short-term (1–2 years): Implement waste segregation system.

2.3.6.2. Medium-term (3–5 years): Full-scale composting and recycling program.

2. 4. Green Building Design and Infrastructure

2.4.1. Objective: To enhance the sustainability of MPSPC's infrastructure through green building practices.

2.4.2. Strategies:

2.4.2.1. Apply sustainable design principles in the construction of new buildings.

2.4.2.2. Retrofit existing buildings to meet green building standards

2.4.2.3. Use sustainable materials and technologies in construction and renovation projects.

2.4.3. Plan of Action:

2.4.3.1. Review and incorporate green building standards into new campus projects.

2.4.3.2. Retrofit old campus buildings with energy-efficient systems.

2.4.4. Expected Outcomes:

2.4.4.1. Reduction in energy consumption and GHG emissions from campus buildings.

2.4.4.2. Improved indoor environmental quality for occupants.

2.4.5. KPIs:

2.4.5.1. Number of buildings meeting green certification standards.

2.4.5.2. Percentage reduction in energy use in retrofitted buildings.

2.4.5.2. GHG emissions reduction from campus infrastructure.

2.4.6. Timeline:

2.4.6.1. Short-term (1–2 years): Retrofit existing buildings.

2.4.6.2. Medium-term (3–5 years): New construction projects to follow green standards.

2. 5. Sustainable Agricultural Practices

2.5.1. Objective: To promote sustainable agriculture within the university's food systems and surrounding community.

2.5.2. Strategies:

2.5.2.1. Support organic farming and agroecological practices among farmers.

2.5.2.2. Implement campus gardens that use sustainable growing techniques (e.g., permaculture).

2.5.2.3. Partner with local farmers to support climate-resilient agricultural practices.

2.5.3. Plan of Action:

2.5.3.1. Promote organic farming workshops and training for farmers and students.

2.5.3.2. Develop a campus garden to grow food using sustainable methods.

2.5.4. Expected Outcomes:

2.5.4.1. Reduced emissions from agriculture through the adoption of sustainable practices.

2.5.4.2. Increased food security and resilience to climate impacts.

2.5.5. KPIs:

2.5.5.1. Number of farmers adopting sustainable practices.

2.5.5.2. Area of campus land dedicated to sustainable agriculture.

2.5.5.3. Reduction in emissions from agricultural practices on campus.

2.5.6. Timeline:

2.5.6.1. Short-term (1–2 years): Set up campus garden, start training workshops.

2.5.6.2. Medium-term (3–5 years): Expand sustainable agriculture initiatives and partnerships.

2. 6. Carbon Offsetting and Reforestation Initiatives

2.6.1. Objective: To offset MPSPC's carbon emissions through tree planting and reforestation programs.

2.6.2. Strategies:

2.6.2.1. Launch a university-wide tree planting and forest restoration initiative.

2.6.2.2. Collaborate with local stakeholders to establish a carbon offset program.

2.6.2.3. Promote the use of native species in reforestation efforts.

2.6.3. Plan of Action:

2.6.3.1. Organize annual tree planting events involving students and staff.

2.6.3.2. Monitor the growth and health of planted trees to ensure long-term carbon capture.

2.6.4. Expected Outcomes:

2.6.4.1. Carbon sequestration through reforestation.

2.6.4.2. Enhanced biodiversity and ecological restoration in the region.

2.6.5. KPIs:

2.6.5.1. Number of trees planted and their survival rate.

2.6.5.2. Amount of CO2 offset through reforestation.

2.6.6. Timeline:

2.6.6.1. Short-term (1–2 years): Start tree planting and reforestation initiatives.

2.6.6.2 Medium-term (3–5 years): Monitor growth and expand efforts.

2. 7. Education, Awareness, and Community Engagement

2.7.1.Objective: To increase awareness of climate change mitigation strategies within the MPSPC community and beyond.

2.7.2. Strategies:

2.7.2.1. Develop climate change education programs for students, faculty, and staff.

2.7.2.2. Engage local communities in climate action through outreach and collaboration.

2.7.3. Plan of Action:

2.7.3.1. Organize seminars, workshops, and events on climate change and sustainability.

2.7.3.2. Collaborate with local environmental groups and government agencies for joint initiatives.

2.7.4. Expected Outcomes:

2.7.4.1. Enhanced climate literacy across the MPSPC community.

2.7.4.2. Increased community involvement in local sustainability efforts.

2.7.5. KPIs:

2.7.5.1. Number of educational events held annually.

2.7.5.2. Percentage of students and staff engaged in climate action programs.

2.7.6. Timeline:

2.7.6.1. Short-term (1–2 years): Launch educational programs and workshops.

2.7.6.2. Medium-term (3–5 years): Expand outreach and community partnerships.

III. CLIMATE CHANGE ADAPTATION AND RESILIENCE APPROACHES

Section 1. Introduction

Climate change poses distinct challenges for mountainous places like Mountain Province, where communities are particularly vulnerable to temperature shifts, rainfall variability, and extreme weather events. Given the province's rich biodiversity, reliance on natural resources, and the unique cultural heritage of indigenous communities, adaptation efforts are not only about environmental protection but also about preserving livelihoods, traditions, and community well-being. As a leading educational institution in the province, MPSPC is committed to integrating adaptation strategies that enhance resilience in its operations, educational programs, and community engagement efforts.

The Climate Change Adaptation Approaches outlined in MPSPC's Climate Change Action Plan are crafted to address the unique vulnerabilities and strengths of the region's highland environment and communities. These components are designed to build resilience within MPSPC's campuses and to serve as a catalyst for climate action across Mountain Province. Recognizing the interconnectedness of environmental health, cultural heritage, and community well-being, MPSPC's adaptation strategy includes disaster preparedness, sustainable agriculture, water resource management, biodiversity conservation, and community engagement.MPSPC's commitment to food security aligns with provincial climate resilience goals by promoting sustainable and climate-smart agricultural practices. Initiatives include sustainable farming techniques, organic pest control, and crop diversification to strengthen local food systems and reduce vulnerability to climate impacts. In line with the provincial priority on water sufficiency, MPSPC will implement water conservation measures, such as rainwater harvesting systems. and watershed protection. These efforts will ensure reliable water sources for campus and community use, addressing both scarcity and quality issues due to climate variability.

Each component aligns with the province"s ecological context and follows principles of sustainability and cultural sensitivity. By fostering awareness, equipping students and staff with practical skills, and collaborating closely with local communities and indigenous leaders, MPSPC aims to implement a holistic approach to climate adaptation. This comprehensive plan will ensure that both the institution and the communities it serves are better prepared to adapt to climate impacts, while safeguarding the unique natural and cultural assets of Mountain Province.

Section 2. Adaptation Components

2.1. Disaster Preparedness and Resilience Building

2.1.1. Objectives:

2.1.1.1 To enhance MPSPC's capacity for early warning, emergency response, and disaster recovery.

2.1.1.2. To ensure that the local community is prepared for climate-related disasters, such as landslides, flash floods, and droughts, which are increasingly frequent in mountainous areas.

2.1.2. Strategies:

2.1.2.1. Develop and implement campus-wide disaster preparedness plans.

2.1.2.2. Conduct regular drills and simulations in collaboration with local government and emergency agencies.

2.1.2.3. Educate students, faculty, and staff on climate risks and adaptive practices.

2.1.3. Plans of Action:

2.1.3.1. Establish an early warning system (EWS) on campus, leveraging partnerships with local disaster risk reduction offices.

2.1.3.2. Implement climate and disaster risk assessments specific to MPSPC campuses, identifying vulnerabilities in buildings, pathways, and infrastructure.

2.1.3.3. Integrate disaster risk reduction modules into relevant courses and hold workshops to promote preparedness.

2.1.4. Expected Outcomes:

2.1.4.1. Improved disaster response capacity within MPSPC and the surrounding community.

2.1.4.2. Reduced impact of climate-related disasters on the college's operations and infrastructure.

2.1.5. KPIs and Timeline:

2.1.5.1. Year 1-2: Develop and test the EWS; conduct initial disaster risk assessment.

2.1.5.2. Ongoing: Annual drills, continuous education programs.

2.2. Climate-Resilient Infrastructure

2.2.1. Objectives:

2.2.1.1. To strengthen the resilience of MPSPC's infrastructure, ensuring buildings and facilities can withstand climate impacts, such as typhoons, landslides, heavy rainfall, and extreme temperatures.

2.2.1.2. To minimize operational disruptions and safeguard the well-being of students, faculty, and staff in the face of climate-related hazards.

2.2.2. Strategies:

2.2.2.1. Conduct climate vulnerability assessments for all MPSPC facilities to identify areas at risk of damage from extreme weather events.

2.2.2.2. Retrofit existing facilities with resilient materials and designs, enhancing structural stability against strong winds, floods, and landslides.

2.2.2.3. Incorporate climate-adaptive features into new construction projects, such as elevated foundations, climate-resistant roofing, and reinforced structural elements.

2.2.2.4. Improve drainage and water management systems to prevent flooding and waterlogging, especially in high-risk areas.

2.2.3. Plans of Action:

2.2.3.1. Vulnerability Assessment

2.2.3.1.1. Conduct a campus-wide climate vulnerability assessment, mapping areas prone to flooding, landslides, or extreme weather damage.

2.2.3.1.2. Establish priority zones for infrastructure upgrades based on vulnerability findings.

2.2.3.2. Retrofitting and Upgrades

2.2.3.2.1. Upgrade existing buildings by reinforcing structural components, adding storm shutters, and using water-resistant materials in flood-prone areas.

2.2.3.2.2. Implement climate-resilient drainage systems to redirect stormwater and prevent flooding on campus pathways and buildings.

2.2.3.2.3. Ensure electrical and plumbing systems are safeguarded against potential climate impacts.

2.2.3.3. Climate-Resilient New Construction

2.2.3.3.1. Design new buildings with elevated foundations, reinforced exteriors, and optimized roof slopes to reduce water accumulation and wind impact.

2.2.3.3.2. Utilize sustainable and locally sourced materials that are both resilient and low-maintenance.

2.2.3.4. Regular Inspections and Maintenance

2.2.3.4.1. Establish a maintenance schedule for inspecting infrastructure resilience, identifying early signs of damage, and addressing issues promptly.

2.2.3.4.2. Train facilities staff on best practices for climate-resilient infrastructure maintenance and response procedures.

2.2.4. Expected Outcomes:

2.2.4.1. Enhanced durability and climate resilience of MPSPC's infrastructure, minimizing repair costs and reducing climate-related risks to life and property.

2.2.4.2. Improved operational continuity and reduced infrastructure damage during extreme weather events.

2.2.4.3. Increased safety and security of campus environments for students, faculty, and staff.

2.2.5. KPIs and Timeline:

2.2.5.1. Year 1-2: Conduct vulnerability assessments and prioritize buildings for retrofitting.

2.2.5.2. Year 1-5: Retrofitting of existing facilities based on priority levels; initiate construction of new climate-resilient buildings.

2.2.5.3. Ongoing:

2.2.5.3.1. Number of buildings upgraded or retrofitted with climate-resilient features.

2.2.5.3.2. Frequency of infrastructure inspections and maintenance activities.

2.2.5.3.3. Percentage reduction in climate-related infrastructure damage and repair costs.

2.3. Sustainable Agriculture and Food Security

2.3.1 Objectives:

2.3.1.1 To promote climate-resilient agricultural practices that support local food security and sustainable livelihoods for farmers in Mountain Province.

2.3.3.2 To engage students and faculty in research and training programs on sustainable agriculture and indigenous practices.

2.3.2 Strategies:

2.3.2.1 Integrate climate-smart agriculture into MPSPC's research agenda, focusing on crops and techniques suitable for the highland ecosystem.

2.3.2.2 Promote indigenous agricultural practices, such as terracing, crop rotation, and organic pest control, which are aligned with local traditions.

2.3.3 Plans of Action:

2.3.3.1 Establish a demonstration farm to showcase climate-resilient agricultural practices, such as highland vegetable production, agroforestry, and organic farming.

2.3.3.2 Develop training programs for local farmers and students on sustainable techniques, highlighting water-efficient irrigation, pest-resistant crop varieties, and organic fertilizers.

2.3.4 Expected Outcomes:

2.3.4.1 Enhanced resilience of local agriculture to climate impacts, contributing to food security and sustainable livelihoods.

2.3.4.2 Increased awareness and adoption of sustainable agricultural practices in the local community.

2.3.5 KPIs and Timeline:

2.3.5.1 Year 1-3: Set up the demonstration farm and implement training programs.

2.3.5.2 Ongoing: Conduct research on sustainable crop varieties and watershed management and share findings with the community.

2.4. Water Resource Management and Conservation

2.4.1 Objectives:

2.4.1.1 To address water scarcity and ensure the sustainable use of water resources for MPSPC and surrounding communities.

2.4.1.2 To safeguard water sources, such as natural springs, which are critical for local agricultural and household use.

2.4.2 Strategies:

2.4.2.1 Promote water conservation practices on campus and among community members.

2.4.2.2 Collaborate with local agencies to monitor and protect water quality, particularly in agricultural areas prone to contamination.

2.4.2.3 Promote sustainable forestry practices demonstrating them in adopted watersheds, rivers and the like.

2.4.3 Plans of Action:

2.4.3.1 Install rainwater harvesting systems on MPSPC campuses to reduce dependency on freshwater sources and store water for dry months.

2.4.3.2 Implement community workshops focused on sustainable water use, watershed protection, and preventing pollution from agricultural runoff.

2.4.3.2 Showcase sustainable indigenous forestry practices and developed technologies in the adopted watersheds and rivers of MPSPC

2.4.4 Expected Outcomes:

2.4.4.1 Reduced water consumption on MPSPC campuses and sustainable management of local water resources.

2.4.4.2 Improved water security for both MPSPC and the surrounding communities.

2.4.4.3 Sustainable watershed management and enhanced riparian zones

2.4.5 KPIs and Timeline:

2.4.5.1 Year 1-2: Set up rainwater harvesting systems and initiate water conservation awareness programs.

2.4.5.2 Ongoing: Regular monitoring of water quality, particularly in high-use areas.

2.5. Biodiversity Conservation and Ecosystem Protection

2.5.1 Objectives:

2.5.1.1 To protect the biodiversity of Mountain Province, which is crucial for ecological stability and the cultural heritage of indigenous communities.

2.5.1.2 To integrate conservation education and practices within MPSPC's activities and community outreach.

2.5.2 Strategies:

2.5.2.1 Conduct biodiversity assessments on and around campus to understand local species and habitats.

2.5.2.2 Collaborate with local and national environmental agencies to protect high-biodiversity areas and combat illegal activities like poaching and logging.

2.5.3 Plans of Action:

2.5.3.1 Develop and promote a conservation curriculum that emphasizes the importance of biodiversity, particularly within highland ecosystems.

2.5.3.2 Establish "green zones" on campus to serve as biodiversity conservation areas, incorporating native plant species.

2.5.4 Expected Outcomes:

2.5.4.1 Increased awareness of biodiversity conservation among students, faculty, and the local community.

2.5.4.2 Enhanced protection of native flora and fauna in Mountain Province.

2.5.5 KPIs and Timeline:

2.5.5.1 Year 1-2: Conduct biodiversity assessments and develop conservation zones.

2.5.5.2 Ongoing: Promote conservation efforts through curriculum and community events.

2.6. Community Engagement and Indigenous Knowledge Integration

2.6.1 Objectives:

2.6.1.1 To empower local communities, including indigenous groups, to take an active role in climate adaptation efforts.

2.6.1.2 To preserve and integrate indigenous knowledge and practices into MPSPC's adaptation initiatives.

2.6.2 Strategies:

2.6.2.1 Facilitate knowledge-sharing sessions where elders and community leaders can share traditional adaptation methods.

2.6.2.2 Incorporate indigenous knowledge into MPSPC's climate adaptation programs, such as sustainable agriculture and natural resource management.

2.6.3 Plans of Action:

2.6.3.1 Organize workshops and field activities with community members to co-develop adaptation strategies that honor indigenous practices.

2.6.3.2 Develop partnerships with local governments and NGOs to support community-led climate resilience projects.

2.6.4 Expected Outcomes:

2.6.4.1 Stronger community participation in climate adaptation initiatives, fostering a sense of shared responsibility.

2.6.4.2 Preservation and recognition of indigenous knowledge within MPSPC's adaptation strategies.

2.6.5 KPIs and Timeline:

2.6.5.1 Ongoing: Regular community workshops, integration of indigenous practices in adaptation programs.

IV. MONITORING AND EVALUATION FRAMEWORK (M&E)

Section 1. Introduction

The Monitoring and Evaluation (M&E) Framework for MPSPC's Climate Change Action Plan (CCAP) ensures sustainable implementation of climate mitigation and adaptation strategies, aligned with provincial priorities. Through systematic data collection, analysis, and reporting, MPSPC will monitor progress, assess outcomes, and identify improvement opportunities. This iterative framework provides transparency, fosters stakeholder engagement, and supports data-driven adjustments to maintain the relevance and effectiveness of the CCAP.

The M&E Framework will guide specific performance indicators and enable the evaluation of long-term impacts, reporting findings to faculty, staff, students, and the community in quarterly and annual updates. This approach will support MPSPC's decision-making and reinforce alignment with Mountain Province's strategic climate priorities.

The framework will support decision-making and future planning by generating evidence of the CCAP's impact, highlighting areas for improvement, and enhancing engagement with stakeholders. This M&E Framework promotes transparency, accountability, and continuous learning, ensuring that MPSPC's climate initiatives are relevant, impactful, and aligned with the resilience needs of Mountain Province.

Section 2. Monitoring and Evaluation Component

The M&E Framework is structured around six components: Policy Development and Governance, Research, Development, and Extension (RDE), Knowledge Sharing and Capacity Building, Service Delivery, Adaptive Management, and Impact Assessment. Each component supports continuous tracking, evaluation, and improvement of MPSPC's climate action strategies.

The Policy Development and Governance component establishes baseline environmental data and sets institutional policies for GHG emissions reduction, resource use, and environmental conservation. Baseline assessments will create reference points for tracking future improvements, aligning with provincial goals for governance and accountability in climate action.

The Research, Development, and Extension (RDE) component focuses on evaluating the effectiveness of MPSPC's CCAP initiatives, particularly in emission reductions and sustainable practices. Through annual tracking of GHG emissions, biodiversity preservation, and energy use, RDE ensures that MPSPC's research efforts are data-driven and contribute to climate resilience.

The Knowledge Sharing and Capacity Building component engages stakeholders, including local communities and indigenous groups, to build capacity in climate adaptation and resilience. This component supports knowledge-sharing activities such as workshops, training, and feedback sessions, ensuring that MPSPC's climate initiatives are culturally relevant and responsive to community needs.

The Service Delivery component documents and reports incremental progress on MPSPC's climate initiatives, emphasizing transparency and accountability. This component includes quarterly and annual reports to stakeholders, which track milestones, identify emerging trends, and highlight areas for adjustment. Service delivery supports MPSPC's role in offering climate-related resources and guidance to the community.

The Adaptive Management component reviews and adjusts CCAP strategies every two years based on new data, stakeholder feedback, and evolving climate conditions. This component ensures that MPSPC's climate strategies remain relevant, effective, and responsive to local and regional climate changes.

The last component on impact assessment is conducted every five years, to evaluate the long-term effectiveness of the CCAP in improving environmental quality, enhancing resilience, and supporting community adaptation. The assessment includes feedback from the community to gauge satisfaction and engagement, providing insights that guide future actions.

This M&E Framework will position MPSPC to effectively track, evaluate, and adapt its climate change strategies, promoting resilience, accountability, and continuous improvement.

Component	**Objectives**	**Performance Indicators**	**Data Collection Method**	**Reporting Schedule**	**Stakeholder Engagement**	**Expected Outcomes**
1. Policy Development and Governance	Establish baseline data to inform policies for emissions reduction, resource	Completion of baseline data for carbon fotprint, energy, water,	Surveys, energy /water records, waste audits, biodiversity	One-time assessment, updated as needed	Faculty, staff, community representatives	Actionable policies on energy efficiency, waste management, water conservati

	use, and environmental conservation	and biodiversity	assessments			on, and biodiversity conservation based on baseline data.
2. Research Development and Extension (RDE)	Evaluate CCAP initiative,' effectiveness in reducing emissions and promoting sustainable practices.	Reduction in GHG emissions, sustainable practices, biodiversity preservation, engagement in climate research	Utility records, environmental audits, biodiversity monitoring, particpant feedback	Annual review	Research collaborators local community leaders	Research findings, community training programs, and applied RDE activities supporting low-emission and climate-resilient practices
3. **Knowledge Sharing and Capacity Building**	Build community and institutional capacity in climate resilience through training and	Number of engagement and training activities, participant feedback, knowledge improvement.	Attendance records, surveys, focus groups.	Annually	Indigenous leaders, community members, students, faculty, and staff.	Enhanced community adaptation skills and institutional climate resilience, with increased participati

	workshops.					on in local adaptation projects.
4. Service Delivery	Provide climate-related services, including disaster preparedness, watershed management, and sustainable resource practices.	Completion of service activities, community satisfaction and feedback.	Completion of service activities, community satisfaction and feedback.	Quarterly and Annually	Local government, indigenous communities, and NGOs	Disaster preparednes support, watershed protection, and sustainable resource use practices that strengthen community resilience.
5. Adaptive Management	Adjust CCAP strategies based on data analysis and stakeholder feedback to ensure ongoing relevance and	Documented strategy adjustments based on data and feedback.	Review sessions, expert consultations, data analysis.	every 2 years	climate experts, faculty and local stakeholders	Responsive CCAP strategies that adapt to new data and changing climate conditions.

	effectiveness.					
6. Impact Assessment	Evaluate long-term outcomes and effectiveness of CCAP in enhancing resilience and environmental quality	Changes in environmental quality, resilience indicators, community satisfaction.	Longitudinal surveys, environmental indicators, stakeholder interviews	Every 5 years	Community leaders, faculty, students, external partners.	Evidence-based insights into long-term climate adaptation effectiveness, supporting future planning and resilience-building.

PART V - WAY FORWARD

As MPSPC moves forward with climate action, each phase will contribute to the strategic priorities of Mountain Province and the nation. Through foundational initiatives in sustainable energy, food security, and water sufficiency, MPSPC will enhance resilience and climate-smart practices on campus and within the community. This approach ensures that MPSPC's climate initiatives support the province's long-term goals for ecological stability, human security, and sustainable economic development, positioning the institution as a regional leader in climate resilience.

Laying the Foundations:

Figure 5. Climate Change Action Plan

The first step in making Mountain Province State Polytechnic College a premier organization supporting Climate Mitigation and Adaptation Plans will be implementing the goals set forth in this Climate Action Plan as a college-wide priority. Over the next three years, establishing the policies and processes that will guide college-wide climate change mobilization should be a top focus. In this foundational phase, MPSPC will establish the critical policies, partnerships, and infrastructure necessary to make climate action a core institutional priority. Key actions will include:

- **Policy Development**: Implement climate policies that align with Scope 1 and Scope 2 reduction strategies, including guidelines for energy use, waste management, and emission reduction initiatives.
- **Climate Change Mobilization task Forces**: Create a network of Climate Change Mobilization Task Forces with members from the academic, operational, and administrative units from the different campuses. task forces will coordinate college-wide mitigation and adaptation actions, fostering a unified approach.
- **Resource Allocation**: Integrate climate considerations into the budgeting and strategic planning processes, ensuring that funding and resources are directed towards impactful climate action projects.
- **Community Engagement**: Strengthen partnerships with alumni, benefactors, and local communities to build support networks that contribute to both mitigation and adaptation goals. Efforts will include reforestation and conservation initiatives in partnership with local organizations.

- **Awareness Programs**: Embed climate resilience and sustainability into MPSPC's teaching, research, and community engagement activities, fostering a campus culture that values sustainable practices and builds climate resilience.

Scaling Up Climate Action (2023-2028)

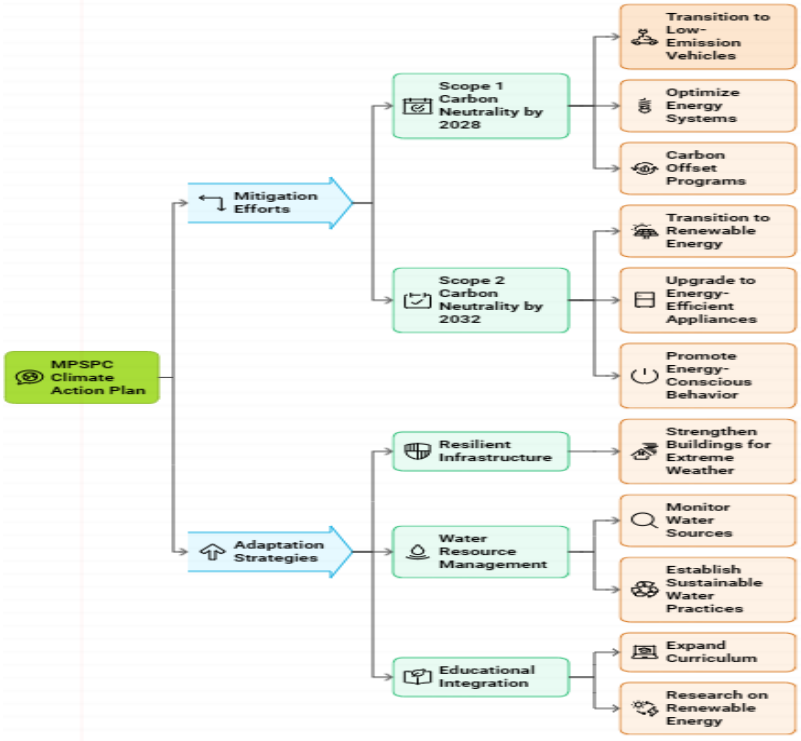

Figure 6. Scaling Up Climate Action

As MPSPC progresses, the focus will shift to implementing tangible, proactive strategies in both mitigation and adaptation. Recognizing the urgency of the climate change crisis, MPSPC is implementing solutions that reduce greenhouse gas emissions, strengthen resilience, and protect communities and ecosystems. From investing in sustainable technologies and regenerative practices to creating adaptable infrastructure, MPSPC is building a future that not only addresses the risks of climate change but also empowers our people and planet to thrive. MPSPC is turning commitment into action for a more sustainable, resilient world.

Mitigation Efforts (Emission Reduction Targets):

- **Scope 1 (Direct Emissions)**: Target carbon neutrality for Scope 1 by 2028, including transitioning campus vehicles to low-emission or electric models, optimizing energy systems, and initiating carbon offset programs like reforestation on college-owned lands.
- **Scope 2 (Purchased Electricity)**: Achieve carbon neutrality for Scope 2 by 2032, through a transition to renewable energy sources (solar systems),

upgrading to energy-efficient appliances, and promoting energy-conscious behavior across the campus.

Adaptation Strategies (Climate Resilience):

- **Resilient Infrastructure**: Strengthen campus buildings and facilities to withstand extreme weather events, such as typhoons and extreme temperatures. This includes structural improvements to address strong winds, heavy rains, and temperature extremes unique to specific campuses such as extreme heat in Paracelis Site and cold, windy conditions in Tadian Campus.
- **Water Resource Management**: Implement water management strategies to mitigate contamination risks from agricultural runoff. This includes monitoring water sources for pesticides and fertilizers and establishing sustainable water use practices on campus.

Educational Integration: Expand curriculum and research to include renewable energy, sustainable land management, and climate-resilient agriculture. These programs will equip students and faculty with the knowledge and skills needed to advance climate action.

Getting to Carbon Neutral (2029-2034)

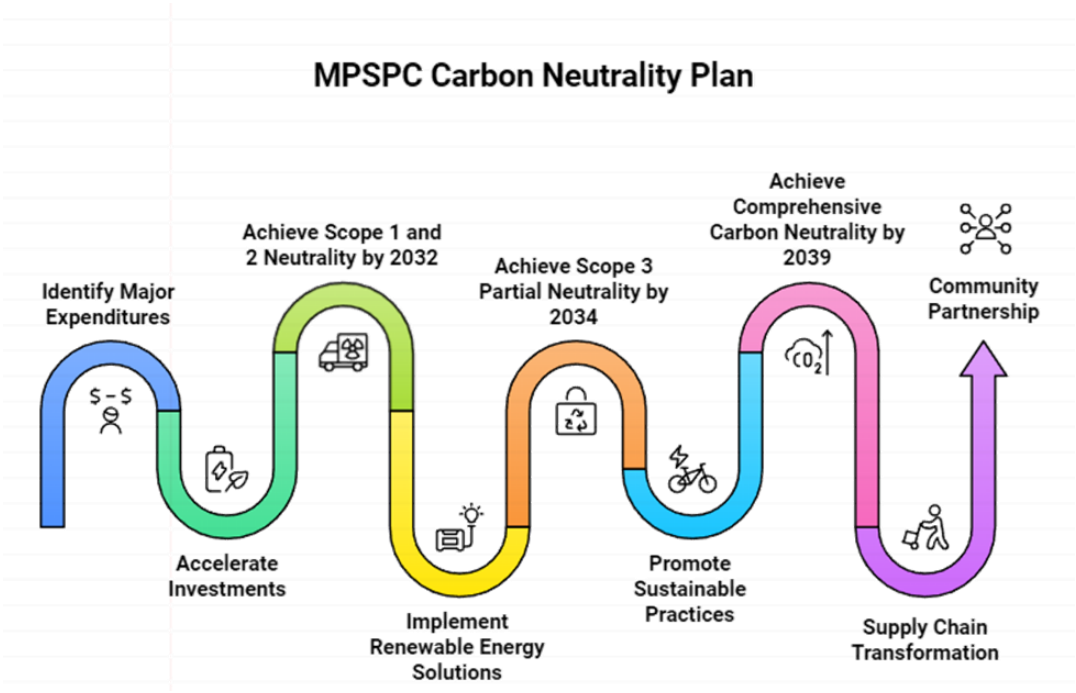

Figure 7. MPSPC Carbon Neutral Plan

This is a major part of the college's capital expenditures for which the financial benefits do not equal or outweigh the expenses, but we expect energy costs to drop significantly

over the next five years. In this phase, MPSPC will accelerate investments to eliminate fossil fuel dependence, reduce indirect emissions from the supply chain, and promote sustainable campus commuting and waste management:

- **Scope 1 and 2 Neutrality by 2032**: MPSPC aims to achieve carbon neutrality for Scopes 1 and 2 emissions by 2032. This will involve future investments in energy-efficient infrastructure, including the potential installation of renewable heating solutions such as electric heat pumps, alongside renewable energy sources like solar and micro-hydro power. Additionally, energy optimization across campus facilities and the implementation of low-emission technologies will contribute to reducing emissions by 80%, reinforcing the college's commitment to carbon neutrality for its direct and indirect emissions.
- **Scope 3 Partial Neutrality**: By 2034, MPSPC plans to achieve partial neutrality for Scope 3 emissions, focusing on reducing emissions from commuting, waste, and the broader supply chain. Initiatives will include promoting zero-waste practices on campus, reducing waste generation through recycling and composting, and offering sustainable commuting options such as carpooling, bike-sharing, and shuttle services. These efforts will help minimize the college's overall environmental impact and support the achievement of long-term carbon neutrality goals.

Achieving Comprehensive Carbon Neutrality (2035-2039)

MPSPC is dedicated to achieving comprehensive carbon neutrality across Scopes 1, 2, and 3 by 2039, marking its full commitment to climate action and resilience:

- **Scope 1, 2, and 3 Full Neutrality**: Sustain zero-emission infrastructure and maintain renewable energy systems while investing in carbon offset initiatives, such as reforestation projects and supporting community-led environmental efforts to address any remaining emissions.
- **Supply Chain Transformation**: Partner with sustainable suppliers to reduce emissions in procurement, aligning MPSPC's operations with responsible and climate-conscious sourcing practices.
- **Community Partnerships**: Deepen collaboration with local communities, agencies, and environmental organizations to promote region-wide sustainability. These partnerships will support resilience efforts across Mountain Province, extending the impact of MPSPC's carbon-neutral status and contributing to the area's overall climate adaptation capacity.

MPSPC UCCAP Development Task Force

Version 1 - 2023

Epiphania B. Magwilang

Wileen Chiara T. Lasangen

Luzlyn M. Agwilang

Saryan F. Chewiran

Judith Leigh Fanusan

Vincent T. Aluyen

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