



UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

National Adaptation Plan Roadmap for the United Arab Emirates

November 2023

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FOREWORD



Climate change stands as an undeniable, daily reality impacting lives worldwide. Recalling staggering highs of over 50 degrees Celsius in the UAE's scorching summers, akin to records shattered in several corners of the globe, starkly reveals the magnitude of this challenge. Our response, detailed in the National Adaptation Plan (NAP) Roadmap, charts an unprecedentedly comprehensive path forward in grappling with the evolving impacts of our changing climate.

The UAE is situated in a region that is highly vulnerable to the consequences of global warming. Changes in temperatures, humidity levels, seawater levels, and rainfall patterns, and extreme events, like cyclones, pose significant risks to the UAE's economic stability, communities' well-being, and infrastructure integrity. This Roadmap is the first step in the development of the UAE National Adaptation Plan, an ambitious and bold strategy to reduce our vulnerability and strengthen our national resilience in the face of a changing climate.

This Roadmap builds upon the groundwork laid post the inception of the National Climate Change Adaptation Program (NCCAP) in 2018, outlining a clear trajectory towards the development and implementation of a National Adaptation Plan.

As host of COP28, our commitment staunchly asserts that the green transformation leaves no one

behind—a principle enshrined within the fabric of the NAP Roadmap. Across its development we've actively aligned with COP28's mantra of "Unite, Act, Deliver" as the rallying cry for collective action and tangible result. In addition, we've actively woven in perspectives from diverse societal segments, including women, men, children, youth, people of determination, the elderly, migrant workers, indigenous communities, low-income groups and, of course, government, sub-nationals and private sector.

We know that we can only be successful if we work together – collective effort, irrespective of individual, business, or entity, is imperative for our nation's prosperity. I welcome embracing the NAP Roadmap's sector-specific approach that recognizes that we must all play our part and we acknowledge that while each entity must contribute, tailored solutions are pivotal to combatting climate change's multifaceted challenges.

I thank the Global Green Growth Institute (GGGI) for its collaboration in shaping this Roadmap—a testament to the UAE's unwavering commitment to a sustainable, resilient trajectory into the future. This Roadmap marks another crucial milestone on our nation's journey towards a future harmonized with sustainability and resilience.

HE Mariam bint Mohammed Saeed Hareb Almheiri

Minister
Ministry of Climate Change and Environment

FOREWORD



Given the mounting, visible and measurable impacts of climate change, the global community has turned its attention to climate action. And yet, despite lofty targets to allocate resources equally to climate mitigation and adaptation efforts, the latter continues to fall short. As such, I am encouraged by the decision of the UAE Ministry of Climate Change and Environment (MOCCA) to collaborate with the Global Green Growth Institute (GGGI) in the development of a National Adaptation Plan (NAP) in alignment with the UNFCCC's Technical Guidelines. This commitment to climate adaptation, in tandem with the UAE Net Zero 2050 strategic initiative, clearly demonstrates the UAE's climate leadership and ambitions.

The UAE NAP has been designed as an inclusive and participatory process which will convene voices from the public and private sectors, academia, civil society, and youth in the production of a national guiding document

for translating climate adaptation policy into action. As a critical step in the NAP development process, this Roadmap sets out key modalities for stakeholder engagement, as well as proposed institutional support mechanisms, which will serve as the backbone for operationalizing the NAP's target interventions for each of its key sectors. In acknowledgment of the UAE's governmental structure, the Roadmap also considers strategic alignment between activities spearheaded at the federal and emirate levels.

With the launch of this UAE NAP Roadmap, I take the opportunity to thank the government of the UAE for its continued commitment to climate action. I hope that the forthcoming National Adaptation Plan will build on the UAE's existing capacity for driving a sustainable and resilient future in response to a changing planet.

Dr. Frank Rijsberman

Director General
Global Green Growth Institute

ACKNOWLEDGMENTS

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Federal Government

Ministry of Economy
Ministry of Education
Ministry of Energy and Infrastructure
Ministry of Finance
Ministry of Health and Prevention
Ministry of Industry and Advanced Technology
National Centre for Meteorology
Office of the UAE Climate Change Special Envoy
Presidential Court
Prime Minister's Office
Central Bank of the UAE
Emirates Nuclear Energy Corporation
Federal Competitiveness and Statistics Centre

Local Government

Abu Dhabi Agriculture and Food Safety Authority
Abu Dhabi National Energy Co.-TAQA
Abu Dhabi Public Health Centre
Abu Dhabi Waste Management Company – Tadweer
Bee'ah Group (Sharjah Environmental Group)
Department of Economic Development - the Industrial Development Bureau (IDB) - Abu Dhabi
Department of Energy - Abu Dhabi
Department of Municipalities and Transport - Abu Dhabi
Dibba Municipality
Dubai Electricity and Water Authority
Dubai Municipality
Environment Agency Abu Dhabi
Environment and Protected Areas
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Naya Excellence Group
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International Centre for Agriculture Research in the Dry Areas
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Khalifa International Award for Date Palm and Agricultural Innovation
New York University Abu Dhabi
UAE Climate Change Research Network
UAE Research Program for Rain Enhancement Science
UAE Independent Climate Change Accelerators
UAE University
University of Sharjah
Zayed University

Communities (IGOs, NGOs, CBOs)

Arab Youth Council for Climate Change
Dubai Cares
Emirates Environmental Group
Emirates Foundation
Emirates Green Building Council
Emirates Nature WWF
Food and Agriculture Organization
International Union for Conservation of Nature
Regional Collaboration Centre for the Middle East -Dubai
UNICEF
Youth Climate Champion
Water Alliance Association
World Green Economy Organization

EXECUTIVE SUMMARY

The launch of the development process of a National Adaptation Plan (NAP) is the latest action demonstrating the UAE's unwavering commitment to reducing the country's vulnerabilities to climate change.

NAPs are the primary vehicle for implementing adaptation at the national level. To inform on the design and implementation of the UAE NAP, this Roadmap has been prepared as a guiding document, putting forward an implementation approach with modalities for inclusive stakeholder engagement and robust institutional support. The key actions, roles and responsibilities which have been proposed are in alignment with technical guidelines provided by the United Nations Framework Convention on Climate Change (UNFCCC) and are in consideration of national climate targets, as well as climate adaptation planning activities being undertaken at the subnational Emirate level.

The NAP Process will be comprised of three main phases—planning; implementation; and monitoring, evaluation, and learning (MEL)—with enabling factors, such as stakeholder engagement, capacity development and knowledge sharing embedded within each of these phases. Awareness raising and baseline stocktaking will serve as the first milestones, laying the foundation for the overall NAP Process. The undertaking of comprehensive climate risk and vulnerability assessments in target sectors will then follow, allowing for the identification and prioritization of adaptation options for which financing will be sought for implementation. As climate governance is at the heart of any successful NAP Process, the institutional mechanisms and legal mandating which will emerge will act as the cornerstones for operationalization.

Working groups will be formed to promote cross-societal collaboration throughout the NAP process, benefiting from the expert guidance of select lead and supporting institutions in the development and implementation of key elements. Lastly, a considered Monitoring & Evaluation Plan will facilitate the tracking of progress on the UAE's journey of fostering resilience and adaptive capacity.

As part of the participatory and inclusive approach being applied to the development of the UAE NAP, this Roadmap takes note of mechanisms which will ensure the incorporation of viewpoints from social groups across society, inclusive of women, men, children, youth, people of determination, elderly, migrant workers, indigenous communities, and low-income groups.

The proposed actions outlined in this Roadmap build on the efforts which have been made since the launch of the National Climate Change Adaptation Program (NCCAP) in 2018. Existing assessments of the country's health, energy, infrastructure, environment and insurance sectors will be enhanced and updated and be complemented by the addition of three sectors for further examination, reflecting the UAE's most current areas of focus when it comes to adaptation.

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ABBREVIATIONS & ACRONYMS

AGEDI	Abu Dhabi Global Environmental Data Initiative
CCRN	Climate Change Research Network
MENA	Middle East and North Africa
MOCCAEE	Ministry of Climate Change and Environment
NAP	National Adaptation Plan
NDC	Nationally Determined Contributions
UAE	United Arab Emirates
UNFCCC	United Nations Framework Convention on Climate Change

The UAE NAP Roadmap: An Overview

The National Adaptation Plan (NAP) Roadmap for the United Arab Emirates (UAE) aims to guide the development of the UAE NAP. It puts forward modalities for government and stakeholder engagement under the NAP process, and outlines an institutional support mechanism to enable the realization of NAP's objectives.

This Roadmap suggests an approach for implementing the NAP (primarily as a complex document development process but also addressing implementation and process related considerations). It addresses strong alignment between the NAP and emirate-level adaptation plans.

NAPs and the NAP Roadmap in the UAE Context

The United Nations Framework Convention on Climate Change (UNFCCC) established the NAP process. NAPs are the primary vehicle for implementing adaptation at the national level, aligning national policy, bringing in climate science, and developing key actions for government, society, and economy to take in the face of current and future climate impacts. NAP as a "plan" is a document that articulates the planning of adaptation initiatives by providing guidelines, whereas NAP as a "process" establishes practices for implementing, monitoring, mandating, reviewing, and evaluating adaptation actions based on the guidelines given in the NAP. Developing a "NAP Roadmap" is one of the key activities of the UAE NAP development process. It spells out the key steps, activities, roles and responsibilities, and resources for the NAP process.

The voluntary development of the UAE NAP Roadmap underscores the unwavering commitment of the UAE Government to the development of the NAP, and reaffirms its proactive approach to addressing the impacts of climate change while aligning with climate and development goals. The structure of NAP roadmaps do not follow a single one-size-fits-all approach, and the UAE has tailored the content of the UAE NAP Roadmap to the country's context. Given the country's federal structure, the UAE NAP Roadmap seeks to align federal- and emirate-level actions.

Developing an Adaptation Vision through Multi-Stakeholder Efforts

In the face of complex and long-term climate challenges, an adaptation plan needs a vision to guide overarching goals, align interests of diverse stakeholders, and inspire collective action. A vision is not just a statement of intent but a mobilizing force that catalyzes commitment, facilitates coordination,

and ensures that adaptation measures are proactive, holistic, and aligned with broader national strategic objectives. Early multi-stakeholder consultations and a UAE NAP Inception Workshop have generated a draft Adaptation Vision for consideration.

A Proposed Adaptation Vision

The UAE is a world leader in climate adaptation through a climate-resilient economy that embraces sustainable, low-carbon, and inclusive growth. This is enabled by science-driven innovations for nature-based, circular, and clean solutions that increase adaptive capacity and reduce vulnerability to a changing climate while fostering an empowered society in harmony with nature, identity, and culture for generations to come.

03. WHY DOES THE UAE NEED A NAP?

Climate Profile of the UAE

The UAE is a federation of seven emirates (Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al Quwain, Ras Al Khaimah, and Fujairah) covering over 83,600km² (Figure 1). The UAE has 1,318km of coastline that extends along the southeastern part of the Persian Gulf (also known as the Arabian Gulf), to the western shores of the Gulf of Oman. The UAE has an arid

climate with very dry, hot, and humid summers, and mild and cool with low humid winters. The majority of the rainfall occurs during the winter months. The climate is affected by the ocean due to its close proximity to the Arabian Gulf and the Gulf of Oman. The UAE is also prone to occasional violent dust storms, locally known as shamal winds¹.

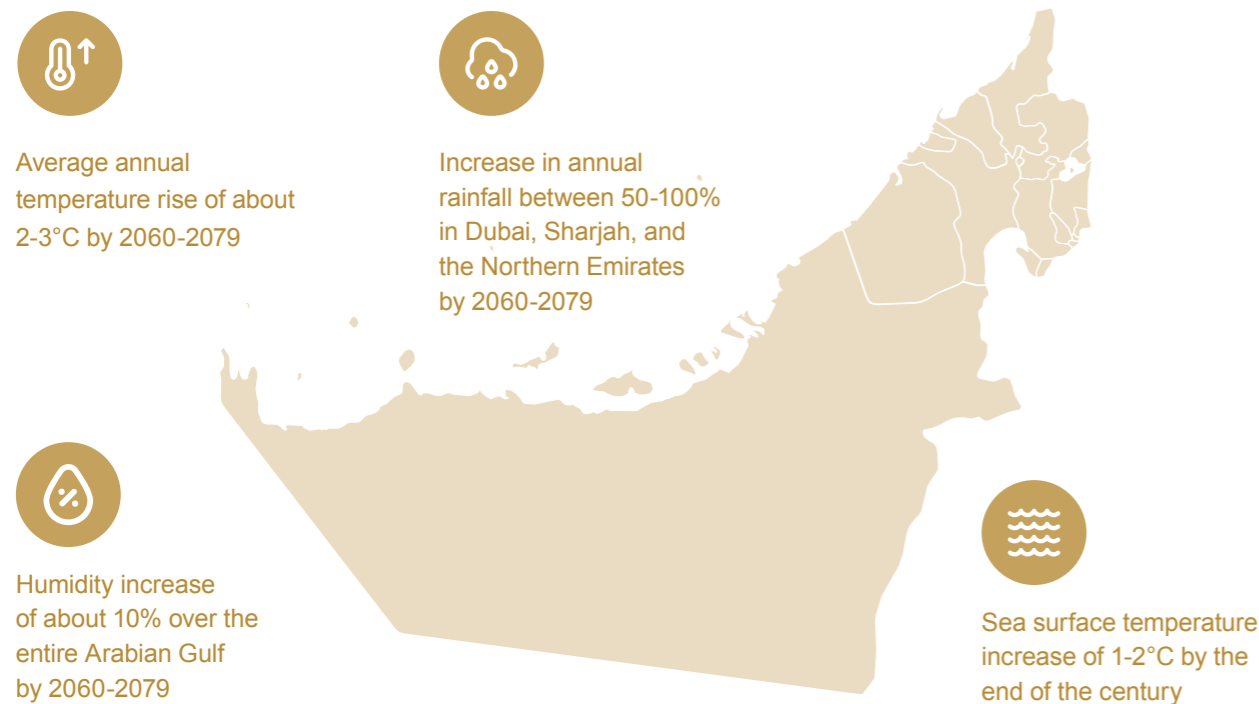


Figure 1: A preliminary understanding of the changes in the UAE's climate

Source: MOCCA, Government of the UAE. 2017. National Climate Change Plan of the United Arab Emirates 2017–2050. Dubai

Studies focused on the UAE and the Arabian Peninsula witnessed that average temperatures have risen and will continue to rise. The Abu Dhabi Global Environmental Data Initiative (AGEDI) estimates that by 2079, temperatures could increase a further 2–3°C in the Representative Concentration Pathway 8.5 scenario². In addition to temperature rise, seawater salinity is projected to increase with higher rates of evaporation and higher levels of carbon dioxide. The future projections of rainfall in the Representative

Concentration Pathway 8.5 scenario indicate an overall increase in the UAE. Similarly, the sea level in the Arabian Gulf is expected to rise due to deglaciation and thermal effects. Extreme weather events such as droughts, sandstorms, and cyclones are a source of concern due to their devastating impacts³. Figure 1 outlines the preliminary understanding of the changes in the UAE's climate, based on the AGEDI regional atmospheric and ocean climate modeling.

Climate Risks

The UAE is situated in a region that is highly vulnerable to the consequences of climate change⁴. Changes in temperatures, humidity levels, seawater levels, and rainfall patterns, and extreme events like cyclones will pose significant risks to the UAE's economy, environment, and society if left unchecked. Potential impacts of climate change on the UAE include extreme heat, storm surge, sea level rise, water stress, dust and sandstorms, and desertification⁵. These changes will lead to a range of impacts on critical sectors including energy, infrastructure, health, agriculture, and environment⁶. Figure 2 outlines the major climate risks of the UAE in four key sectors.

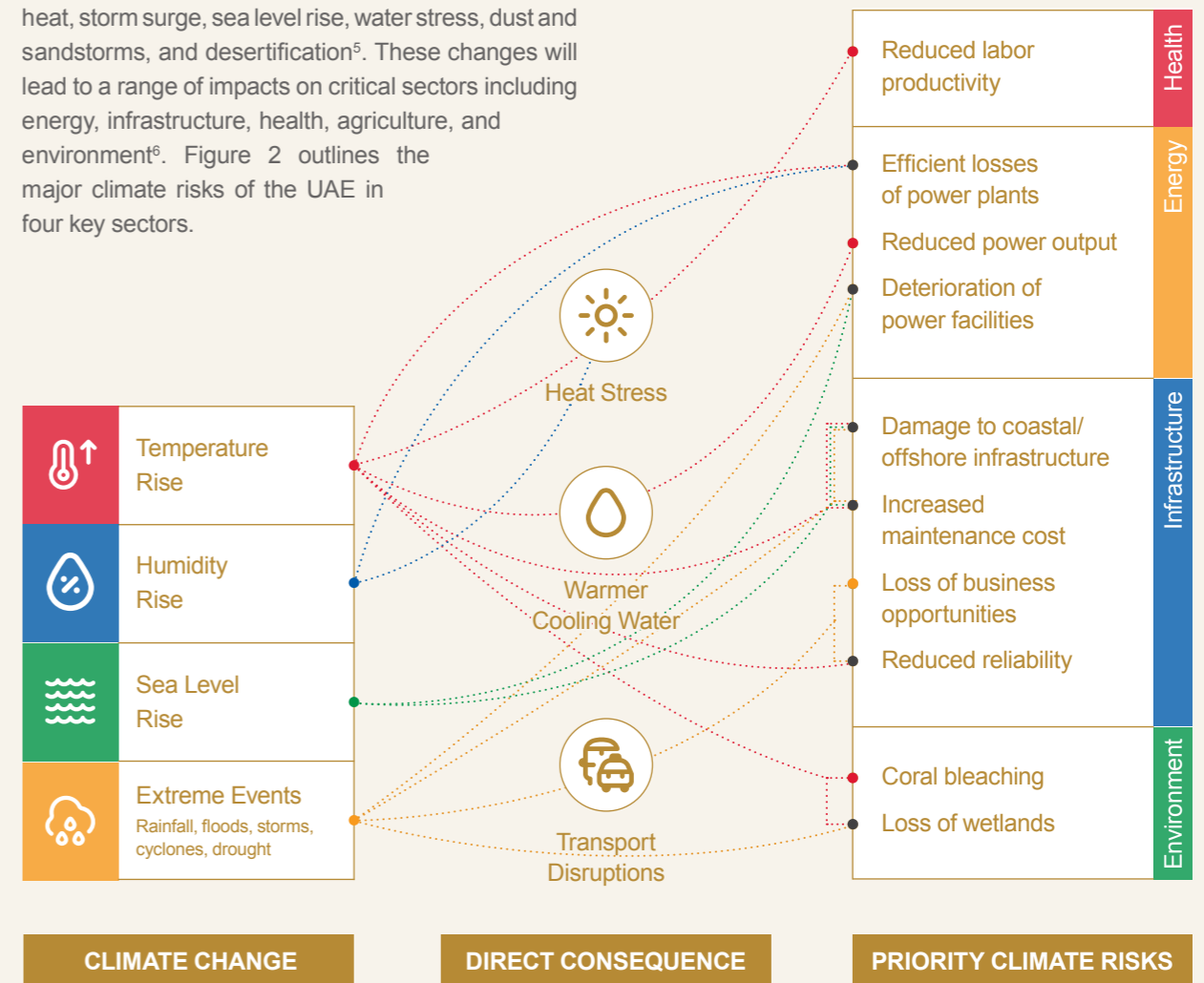


Figure 2: Priority climate risks for the UAE

Source: (1) MOCCA, Government of the UAE. 2023. Accelerating Action Towards a Green, Inclusive and Resilient Economy: Third Update of Second Nationally Determined Contribution for the UAE. Dubai; (2) MOCCA, Government of the UAE. 2019. UAE Climate Risk Assessment and Adaptation Measures in Key Sectors: Health, Energy, Infrastructure and Environment. Dubai



Figure 3: A chronological outline of the key climate change initiatives of the UAE Government.

Source: MOCCA, Government of the UAE. 2017. National Climate Change Plan of the United Arab Emirates 2017-2050 and other reports of the MOCCA.

Climate Governance and the Role of the NAP

Climate change adaptation governance is complex as it must build an understanding of climate risk and translate this understanding into concrete actions for enhancing resilience and building adaptive capacity. In the UAE, like elsewhere, the governance of climate adaptation – involving government, private sector, and civil society actors – presents a number of challenges and opportunities.

Climate impacts are felt across society and specific tools and institutions are tasked with the mainstreaming of climate action across government. The NAP's primary task is to enable MOCCA to operationalize and coordinate adaptation actions across institutions and society. Fortunately, the UAE can also leverage the UAE Council for Climate Change and Environment which has been in place since 2016 to coordinate environmental considerations across government and which represents the UAE in regional

and international negotiations related to the scope of work of the Ministry. This structure will be used to mainstream adaptation action across government through the NAP, while the NAP's Working Group structure will also report directly to it.

The Government of the UAE has already undertaken several initiatives to address the challenges of the environment and climate change (Figure 3). The journey began with forming the UAE Supreme Committee of Environment in 1975, and the UAE became an official party to the UNFCCC in 1995. In 2007, the UAE submitted its first national communication to the UNFCCC, and subsequently its second national communication in 2010; third national communication in 2012, and fourth national communication in 2018. Adaptation is explicitly addressed in all these communications. Building on national policies relevant to green growth and

sustainable development, particularly the UAE Green Agenda 2015–2030, the UAE published its National Climate Change Plan in 2017, and adaptation planning and management is identified as one of the key climate priorities of the country.

The Government of the UAE established the National Climate Change Adaptation Program in 2018, and published the Sectoral Climate Risk Assessments and options for adaptation actions in 2019 for priority sectors such as public health, energy, infrastructure, and environment. Insurance as a sector was newly added in 2021–2022 (unpublished) following the global best practice risk assessments. The Government of the UAE established in 2021 a Climate Change Research Network to foster climate change adaptation research in the country and region. Other initiatives and accelerators such as the Independent Climate Change Accelerators, Universities Climate

Network, Ministry of Industry and Advanced Technology's National Guide for Measurement of Research and Development Expenditures, Government Accelerators of the Prime Minister's Office, and Abu Dhabi Environmental Research Network address the challenges of climate change through research and development. The National Dialogue for Climate Ambition was launched in 2022 as a platform to define and raise sectoral climate ambition and advance all-inclusive participation in the UAE Net Zero by 2050 Strategic Initiative. In 2023, the UAE submitted its third update of the second Nationally Determined Contribution (NDC) with stronger emphasis on adaptation and development of the NAP. All these initiatives serve as fundamental building blocks to developing the NAP for the UAE.

Expected Outcomes for Developing the NAP

Building on these initiatives, the UAE NAP will identify, prioritize, mainstream, implement, and monitor adaptation strategies under various sectors and across all key actors from both government and non-government entities. Figure 4 summarizes the expected outcomes for developing the NAP.

NAP will...

Increase the adaptive capacity	Increase its adaptive capacity, by identifying short- and long-term priority adaptation options based on available data on current and future climate risks.	Serve as a guiding document	Act as a guiding document to strengthen the capacities and knowledge base and enhance the accessibility and exchange of climate information to formulate and implement adaptation strategies.
Facilitate mainstreaming of adaptation	Facilitate the mainstreaming of climate change adaptation and resilience in sectoral development strategies in the longterm and to identify specific projects and action plans for prioritized financing.	Set a benchmark in the MENA region	Set a benchmark in the MENA region by following international standard protocols and guide lines for the development of the NAP.
Act as an information hub for adaptation actions	Include information on the specific actions and the corresponding lead actors supporting actors, timeline, M&E metrics as well as the indicative costs and impacts.	Demonstrate the UAE's commitment to Paris Agreement	Demonstrate the UAE's commitment to the UNFCCC-Paris Agreement and the Sustainable Development Goals.

Figure 4: Expected outcomes for developing the NAP
Note: M&E = monitoring and evaluation.

The Co-Benefits of Climate Adaptation

Adaptation action is an opportunity to provide co-benefits for development and conservation, such as improved food security or ecosystem restoration. Climate adaptation measures can also provide economic and social benefits, such as increased resilience, job creation, and improved public health. Successful adaptation implementation in line with climate resilient development pathways depends on bottom-up participatory and inclusive processes that engage diverse stakeholders and protect

indigenous customary rights, empower women and young people, and give rights to migrants and climate refugees. The perspectives and inputs of vulnerable groups are viewed as key enablers for achieving the UAE's ambitious climate goals. This was echoed by consulted stakeholders during the UAE NAP Inception Workshop, and during consultations supporting development of the UAE NAP Roadmap, and will be further addressed during the UAE NAP development and implementation.

04. HOW WILL THE NAP BE DELIVERED?

Overview of the NAP Process

The NAP process is a significant way that countries can build their resilience to the impacts of climate change. The main objectives of the NAP process are to: (1) *reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience;* and (2) *facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and*

existing policies, programs, and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate. Thus, it enables countries to identify their medium- and long-term priorities for climate adaptation and mainstream climate change adaptation at all levels of planning⁷.

Phases and Enablers of the NAP Process

The NAP process is comprised of three broad phases: (1) *planning*, (2) *implementation*, and (3) *monitoring, evaluation, and learning*. These phases are supported by capacity development, financing, appropriate institutional arrangements, and information sharing among the different actors involved (Figure 5). During the planning phase, climate-related vulnerabilities and risks are assessed, options for managing these risks are identified and prioritized, and strategies for their implementation are developed. During the implementation phase, these strategies are fleshed out in greater detail, financing secured, and necessary technical and human resources procured and deployed. Progress, results, and lessons from implementing the strategies are tracked and reported as part of monitoring, evaluation, and learning⁸.

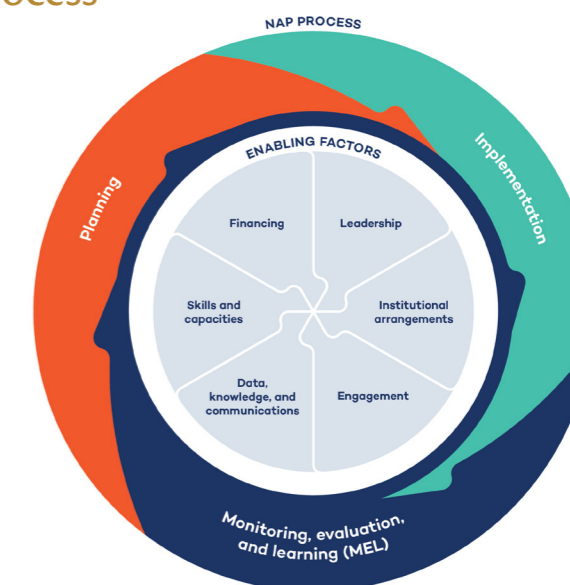


Figure 5: An overview of the NAP process
Source: NAP Global Network. 2019.
National Adaptation Plan (NAP) Process.

The NAP Structure



Figure 6: Elements of the NAP

To structure and prepare the NAP, the UNFCCC technical guidelines has recommended four elements: (1) *lay the groundwork and address gaps*, (2) *preparatory elements*, (3) *implementation strategies*, and (4) *reporting, monitoring, and review* (Figure 6). The technical guidelines assist countries in comprehensively addressing adaptation in a coherent

and strategic manner. They intend to facilitate country-owned, country-driven action that seeks to harness and build upon national-level capacity, with support from various partners, as appropriate. These guidelines will help countries monitor and review their adaptation actions on a regular basis and update their NAPs in an iterative manner⁹.

Development of the UAE NAP

The UAE NAP will be developed following the technical guidelines of the UNFCCC, broadly covering four major outcomes, namely: (1) adaptation planning governance and institutional coordination strengthened; (2) evidence basis produced to design adaptation solutions for maximum impact

together with private sector engagement catalyzed and adaptation finance increased; (3) government-wide capacity increased through new institutional frameworks and capacity; and (4) monitoring and reporting plan developed.

Milestones for the UAE NAP Development Process

The UAE NAP development process encompasses a holistic approach and exemplifies the UAE's proactive response to the complex challenges posed by a changing climate. Figure 7 presents six milestones that collectively reinforce the UAE's commitment to addressing climate change impacts and building resilience. Beginning with the creation of awareness and understanding about adaptation and the NAP process, the plan will progress to establishing a solid foundation by conducting a stocktaking of climate data and information, and a mapping of key stakeholders. The subsequent phases involve undertaking comprehensive climate risk and vulnerability assessments across sectors and

emirates, leading to the identification and prioritization of adaptation options. The plan is to further engage various stakeholder, including the private sector, and develop an adaptation finance strategy, ensuring financial resources for implementation. Additionally, an institutional mechanism and coordination plan will be designed to manage adaptation effectively, while efforts to support legal mandates will be undertaken. Finally, a monitoring and evaluation plan will be developed to track progress, fostering adaptability and accountability throughout the NAP's implementation. Awareness raising and capacity building will be undertaken throughout the NAP development process.

05. THE NAP'S APPROACH TO VULNERABLE GROUPS

The UAE places inclusivity and empowerment at the core of its climate agenda, and the country prioritizes protecting and enabling the most vulnerable groups of society. The principles of "leaving no one behind" and "doing no harm" are firmly embedded in the Paris Agreement and among the guiding principles in UAE's efforts to combat and adapt to climate change. The UAE is the only Gulf country that has adopted gender and inclusion priorities in their NDCs, and one of three in the Middle East and North Africa (MENA) region to do so.

An effective NAP process recognizes that gender intersects with other socio-economic factors to determine vulnerability of different groups to climate change, and their ability to adapt to its negative effects. It also ensures gender-equitable and inclusive participation in adaptation decision-making. This increases the likelihood that adaptation investments will yield equitable benefits for people of all genders and social groups, including those who are particularly vulnerable¹³. To this end, the UAE NAP Roadmap draws on guidelines developed by the UNFCCC and the NAP Global Network to ensure that gender and social inclusion are embedded in the development and implementation of the UAE NAP.

Climate change exacerbates existing inequalities already experienced by some communities including women, men, children, young people, indigenous people, people of determination, low-income groups, the elderly, and migrants. Such inequities could increase the risk to their fundamental human rights by disrupting livelihoods and food security, while leading to loss of social, economic, and cultural rights¹⁰. Extreme weather events also risk negative impacts on cultural heritage sites¹¹. However, inclusive adaptation measures incorporating indigenous knowledge can be key to building resilience for vulnerable populations¹².

The proposed steps and considerations for a gender-responsive and socially-inclusive UAE NAP are aligned with the UAE's NDC and Long-Term Strategies. These proposed steps and considerations also incorporate key takeaways from stakeholder consultations for the UAE NAP development process, including findings from the UAE NAP Inception Workshop.

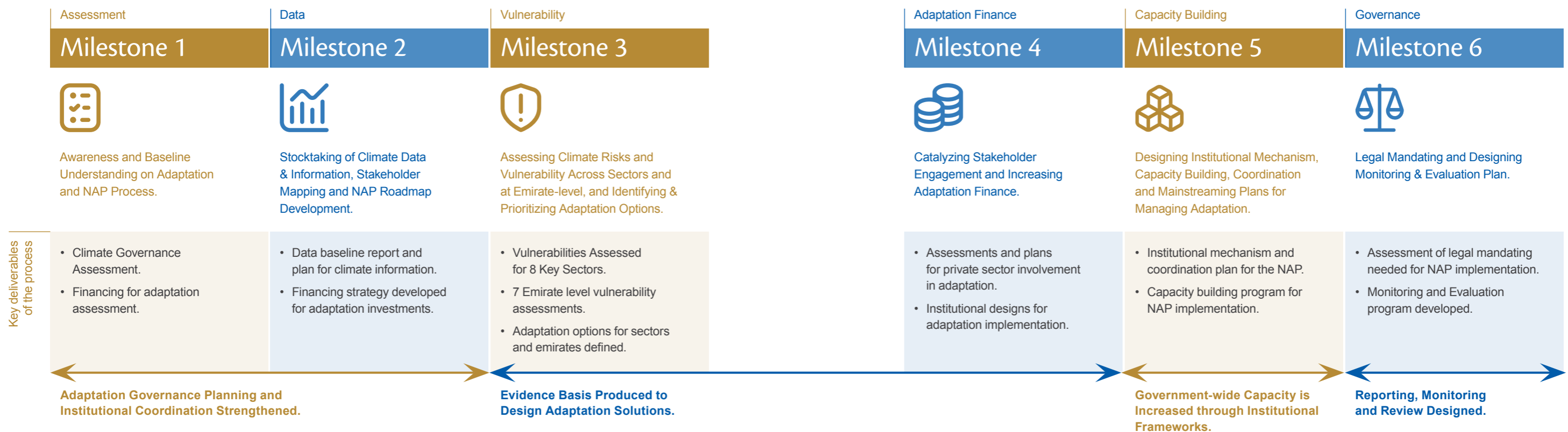





Figure 7: Milestones for the UAE NAP development process

Steps for a Gender-Responsive and Socially-Inclusive UAE NAP

The UAE NAP will not only integrate concrete actions across the NAP process, but also continue the country's ongoing efforts to create an enabling environment to ensure that no one is left behind. Different social groups will be included in the UAE NAP development process, including women, men, children, youth, people of determination, elderly, migrant workers, indigenous communities, and low-income groups. An enabling environment would include understanding gender and social differences in adaptation, needs, opportunities, and capacities; ensuring that the prioritization and allocation of

finances are gender-responsive and socially-inclusive; and setting up monitoring and evaluation systems that track progress on gender equality and social inclusion. Enabling factors include:

	Equitable representation of vulnerable groups.
	All actors' capacities to integrate gender and inclusion considerations.
	Equitable access to information.

Considerations for a Gender-Responsive and Socially-Inclusive UAE NAP

A thorough gender and social inclusion assessment will be conducted and action plan developed to identify the existing differences in adaptation needs and capacities of different vulnerable groups. As the moral compass of many communities, the crucial role of religious leaders and faith-based organizations will be considered. The gaps and opportunities highlighted

in the assessment will guide the gender and social inclusion action plan, with concrete actions identified to support and realize equitable participation and influence in the NAP decision-making process, as well as ensure equitable access to financial resources and other benefits resulting from investments in adaptation (Figure 8).



Figure 8: Key considerations for a gender-responsive and socially-inclusive UAE NAP
Source: Adapted from the NAP Gender Working Group Guidelines.

NAP Sector Selection

The NAP process involves assessing the specific risks and vulnerabilities in selected priority sectors, and then developing and implementing adaptation strategies and measures to address those risks. By focusing on specific sectors, the NAP allows for a more targeted and comprehensive approach to climate change adaptation, recognizing that different sectors may require unique solutions and strategies to address the challenges posed by climate change. The process recognizes the interdependency of sectors, and assesses how adaptation measures can carry impacts across various sectors, while also generating other climate mitigation, biodiversity, and socio-economic co-benefits.

Building on the UAE's National Climate Change Plan that was launched in 2017, the National Climate Change Adaptation Program in 2019 conducted a climate risk assessment for four key sectors: human, health, energy (electricity and heat), infrastructure, and the environment, which identified ten priority climate risks. Figure 9 is a snapshot of the climate risks and examples of key actions identified during the 2019 Climate Risk Assessment. The NAP will build on this progress.

	Priority Climate Risks	Proposed New Measures
Health	<ul style="list-style-type: none"> Reduced productivity of outdoor workers due to heat stress 	<ul style="list-style-type: none"> Advanced technologies to protect outdoor workers Surveillance on heat-related illnesses
Energy	<ul style="list-style-type: none"> Efficient losses of power plants Reduced power output due to warmer cooling water Deterioration of power facilities 	<ul style="list-style-type: none"> Climate-resilient design standard for power facilities Smart systems to control power load and demand
Infrastructure	<ul style="list-style-type: none"> Damage to coastal/offshore infrastructure Increased maintenance cost Loss of business opportunities due to transport disruptions Reduced reliability of transport infrastructure and buildings 	<ul style="list-style-type: none"> Integration of climate risks in insurance schemes Retrofitting of infrastructure to increase climate resilience
Environment	<ul style="list-style-type: none"> Coral bleaching Loss of wetlands 	<ul style="list-style-type: none"> Integrated management of marine resources Incorporation of climate resilience in coastal development

Figure 9: Ten priority climate risks for the UAE and examples of potential new measures for climate adaptation

Source: MOCCA. 2019. National Climate Change Adaptation Program: UAE Climate Risk Assessment & Adaptation Measures in Key Sectors – Health, Energy, Infrastructure & Environment. Dubai.

NAP Sector Enhancement and Prioritization

Building on this early work, the NAP process will further enhance and prioritize sectors making room for a total of eight sectors that have significant relevance to climate adaptation and resilience of the UAE economy and society. The NAP will further expand upon the four sectors included in the National Climate Change Adaptation Program, i.e., health, energy,

infrastructure, and environment. Additionally, the Insurance Authority (now under the authority of the Central Bank of the UAE) in 2020 requested to include the insurance sector. The below process highlights how umbrella sectors from 2019 Risk Assessments will be enhanced and new ones selected for the NAP process.

Step 1	Pre-selected Sectors for the NAP	Step 2	Additional sectors based on stakeholder consultations
2019 Process	<ul style="list-style-type: none"> Health Energy Infrastructure Environment Insurance 	Additional Stakeholder Input +	<ul style="list-style-type: none"> Education Tourism Transport Urban (built environment) Agriculture (fisheries & food security) Waste management Water (and sanitation) Labor
<p>Early stakeholder consultations have generated a list of sectors to consider for the NAP process, and additional sectors have been prioritized. To ensure that the sectors that are the most important for the UAE are established in the NAP, further sector prioritization will be completed at an early stage of the NAP process.</p>			

Step 3a Global Benchmarking of Sectors (1)

A global review of NAPs shows the following sectors commonly included, which can provide guidance to the prioritization of key sectors to include in the UAE NAP:

- | | | | |
|--|---|---|--|
| <ul style="list-style-type: none"> Agriculture (fisheries & food security) Banking, finance or insurance Built infrastructure (including buildings) | <ul style="list-style-type: none"> Coastal areas Ecosystems, biodiversity, or wildlife Education Energy Forestry | <ul style="list-style-type: none"> Health Human settlements Industry Ocean or marine Tourism | <ul style="list-style-type: none"> Transport Urban Waste management Water (and sanitation) |
|--|---|---|--|

Step 3b Global Benchmarking of Sectors (2)

The benchmarking highlights that sectors can be both high level, such as an “ecosystem”, or sub-sectoral, such as “forestry”. For further consideration, the sectoral exploration highlights how the UAE process that started in 2019 will be deepened through the NAP.

Environment	Infrastructure	
<p>During planned enhancement of this sector will likely touch on some or all of the below sectors, they will be prioritized in Step 4:</p>		
<ul style="list-style-type: none"> Ecosystems, biodiversity, wildlife Agriculture (fisheries & food security) Forestry Oceans & marine ecosystems Water 	<ul style="list-style-type: none"> Built infrastructure Buildings Urban & human settlements Waste management 	
Health	Energy	Insurance
<p>Already an established NAP sector – it will undergo further enhancement based on the NAP’s risk and vulnerability assessment process, and will also be aligned by a Health NAP (H-NAP) that is being developed by the Ministry of Health.</p>	<p>Already an established NAP sector – will undergo further enhancement based on the NAP’s risk and vulnerability assessment process. Given the strategic importance of the sector further provision for sectoral application may be explored.</p>	<p>Already an established NAP sector, potentially expanded as part a broader Banking/Finance sector assessment. It will undergo further enhancement based on the NAP’s risk and vulnerability assessment.</p>

Step 4 Proposed criteria for sector selection

Dimension	Proposed criteria
Political	<ul style="list-style-type: none"> Cited in National Policies NDC alignment
Economic	<ul style="list-style-type: none"> GDP share Size of labor Sector growth potential
Social	<ul style="list-style-type: none"> Potential for youth engagement Potential for achieving sector level gender balance in labor force
Technology	<ul style="list-style-type: none"> Technological potential
Legal	<ul style="list-style-type: none"> Regulatory, legal alignment
Environmental	<ul style="list-style-type: none"> Sector vulnerability Environmental risks and co-benefits

For the sectoral identification process a multi-criteria tool will provide a transparent means of finalizing the NAP’s final sector selection. The multi-criteria tool will be approved by the UAE NAP Working Group and its advisory committees, including how certain priority indicators will be weighted. The final selection of sectors from this process will then be submitted for approval by the Climate Change Council.

Table 1: Proposed criteria for sector selection

07. THE NAP'S SUB-NATIONAL APPROACH

As a federal nation with seven emirates, climate policies and plans such as the NAP are supported by whole-of-government approaches, which under the NAP will be supported by MOCCA and the Climate Change Council. Emirate-level institutions will take part in the development of the UAE NAP through representation in the UAE NAP Working Group and continued consultations with all levels of government. Due to variations in each of the administrative structures, it is suggested that during the implementation phase following the NAP document development, the NAP be localized through a process that is designed and tailored to each emirate. The federal-level NAP will provide

the basis for this process, establishing a national governance framework and a national science basis for NAP implementation. This will be generated by emirate-level vulnerability studies that will provide emirate-specific, downscaled data for each of the seven emirates. The vulnerability studies will inform the identification of tailored emirate-level actions, as well as national-level actions that are needed to support actions at the emirate level. Table 3 highlights the key enabling factors designed into the UAE NAP process that will guide federal- and emirate-level integration through three key phases of the NAP process – planning, implementation, and monitoring and evaluation.

3 KEY PHASES OF THE NAP PROCESS				
		Planning	Implementation	Monitoring & Evaluation
ENABLING FACTORS TO ENSURE VERTICAL INTEGRATION	Institutional Arrangements	The NAP of the UAE as it is designed will ensure that both national and sub-national planning are integrated.	The Climate Change Council, the NAP Roadmap and the NAP- Working Group contain both Federal and Emirate level stakeholders. The Working Group will ensure the operationalization and alignment of both national and federal priorities and time-frames.	Monitoring and Evaluation mechanisms developed under the NAP will establish links between National and Sub-National mechanisms.
	Information Sharing	The presence of agencies from Emirate and National level and the project management structure will enable information sharing.	UAE officials have committed to continuous measures for communication of climate related priorities across all levels of society. A Communication and Knowledge Sharing strategy will be developed as part of the first Outcome.	M&E mechanisms are designed during the NAP document phase with integrated sub-national mechanisms.
	Capacity Development	Capacity is assessed across key climate related agencies and actions are developed related to specific national and sub-national approaches.	Capacity building is undertaken across areas specified by the Emirates during the NAP planning process. An institution-focused assessment is included in the NAP document development, this will provide recommendations for the development and implementation of capacity building programs.	NDC MRV frameworks are currently integrated across all levels and the NAP will follow the same process and seek to leverage capacity complementarities.

Table 2: Enabling factors for vertical integration in the UAE

Source: Adapted from NAP Global Network, 2016. Vertical Integration in National Adaptation Plan (NAP) Processes: A Guidance Note for Linking National and Sub-National Adaptation. Winnipeg.



08. FROM PLAN TO PRACTICE: LEGAL MANDATING OF THE NAP

The UAE's process of NAP mainstreaming will start during the development of the NAP document, as government departments and stakeholders take on knowledge of climate adaptation and integrate their new understanding into their everyday policies, plans, and budgets. However, full legal mandating of the NAP will be needed to ensure the implementation of adaptation actions. MOCCA will be in charge of leading the legal mandating of the NAP, whereas sections or specifications for actions at the local level will be under the supervision of the emirate authorities.

The precedence created by the new Climate Law highlights that the legal responsibility for the implementation of the NAP will lie with MOCCA. This is then cascaded to the level of the Executive Council and the relevant local regulators. This process will be captured as part of the monitoring and evaluation system that is established as part of the NAP development. The monitoring of the NAP will be centralized under MOCCA, whereas the emirate-level regulator will take over for the monitoring of the implementation of its mandates. This is the case in almost all of the emirates apart from those that do not have local emirate-level environment or climate departments. In these emirates, MOCCA will be charged with ensuring that the national mandate is monitored and implemented.

09. INSTITUTIONAL ARRANGEMENTS TO OPERATIONALIZE THE DEVELOPMENT OF THE NAP

The UAE NAP development entails essential functions, steps, and activities crucial for addressing climate change impacts and enhancing national resilience. Based on UNFCCC recommendations, various lead and supporting institutions will collaborate closely with MOCCAIE to ensure the successful implementation of each element in the NAP process.

Formation of Working Groups

Working groups corresponding to specific tasks of lead and supporting institutions will be formed to enhance collaboration and engagement throughout the NAP development process. Each group, co-chaired by MOCCAIE and another lead institution, will promote collaborative governance. Outcome 1 activities include assessing relevant institutions' mandates, which will guide the selection of lead and

supporting institutions for specific NAP elements. Prior to working group formation, consultations will help to strategically align institutional roles with NAP development requirements. Institution selection will consider active participation, resource availability, and potential support for the NAP process.

Selection of Potential Institutions

The selection of lead and supporting institutions for NAP development will involve a consultative approach. Initial consultations with the research and academic network and non-governmental organizations yielded a comprehensive list of potential entities critical to the process. Government officials in subsequent consultations identified suitable institutions at federal and emirate levels. Their expertise formed a proposed

list for NAP support. Institutions' effectiveness will be measured by their achievement of the UAE NAP Roadmap goals, and will be regularly reviewed by MOCCAIE and the Stakeholder Advisory Committee. Adjustments to structure and methods will be made as needed for optimal alignment with NAP objectives.

Role of Working Groups

Working groups, comprising lead and supporting institutions, play a crucial role in the NAP development process, recognizing MOCCAIE's central mandate. Lead institutions will guide the process, providing proactive guidance and strategic input, conducting comprehensive reviews, and ensuring harmonization of NAP objectives. Supporting institutions, representing various sectors, will actively engage

with lead institutions to facilitate coordination, information exchange, and mutual support. Regular meetings, held at least monthly, will promote inclusive stakeholder dialogue, address conflicts, and jointly formulate action plans. MOCCAIE, in consultation with the Stakeholder Advisory Committee, will serve as a mediator, ensuring alignment of actions and goals across institutions.

Elements of the NAP Development	Expected Outcomes	Mandate of potential lead & support institutions
Element A Laying the groundwork and addressing the gap	Strengthen adaptation planning governance and institutional coordination	Institutions mandated with implementing climate adaptation policies and establishing coordination mechanisms to foster collaboration among government entities. For example, <i>the Ministry of Climate Change and Environment, Executive Council of each Emirates or the Emirates environmental authorities and agencies.</i>
	Prepare and produce evidence basis to design adaptation solutions for maximum impact	Institutions responsible for conducting climate research and data analysis, ensuring continuous monitoring and updating of evidence to shape adaptation strategies and policies. For example, <i>the Ministry of Climate Change and Environment, the Federal Competitiveness and Statistics Center or the sector specific Ministries.</i>
	Mainstream gender and social inclusion across the NAP process	Institutions in charge of integrating gender and social considerations into policies as well as designing and implementing inclusive climate adaptation measures. For example, <i>the Ministry of Culture and Youth or the Gender Balance Council.</i>
	Catalyze private sector engagement in climate adaptation	Institutions mandated with the role of fostering public-private partnerships, creating incentives, and promoting innovation and technology transfer for private sector engagement. For example, <i>the Ministry of Economy or the Ministry of Human Resources and Emiratization.</i>
Element B Preparatory elements	Mobilize adaptation finance	Institutions mandated with developing climate adaptation funding strategies and establishing financial mechanisms for climate action. For example, <i>the Ministry of Economy or the Ministry of Finance.</i>
	Increase government-wide capacity through enhanced institutional frameworks and capacity	Institutions mandated for integrating climate change and climate impacts into decision-making, designing and implementing training programs, and establishing clear roles within institutions. For example, <i>the Ministry of Climate Change and Environment.</i>
		Design and implement capacity building and mainstreaming plan based on assessed capacities for implementing adaptation measures
Element C Implementation Strategy	Design legal mandating of the NAP	Institutions mandated with enforce legislation for climate actions. For example, <i>the Ministry of Climate Change and Environment or the Executive Council of each Emirates.</i>
	Element D Reporting, Monitoring & Reviewing	Develop a Monitoring, Evaluation and Reporting plan for adaptation

Table 3: Some of the identified lead and supporting institutions for the development of the UAE NAP

10. The NAP Project Support Structure: The NAP Working Group and Advisory Committees

The development of the UAE NAP will be supported by a UAE NAP Working Group, and complemented by an advisory committee structure that will provide the primary governance instrument for the NAP document development. At the end of this period,

the NAP will transition to its implementation phase where other entities will be called upon to support the mainstreaming of adaptation action across ministries and the continued alignment with emirate-level activities.

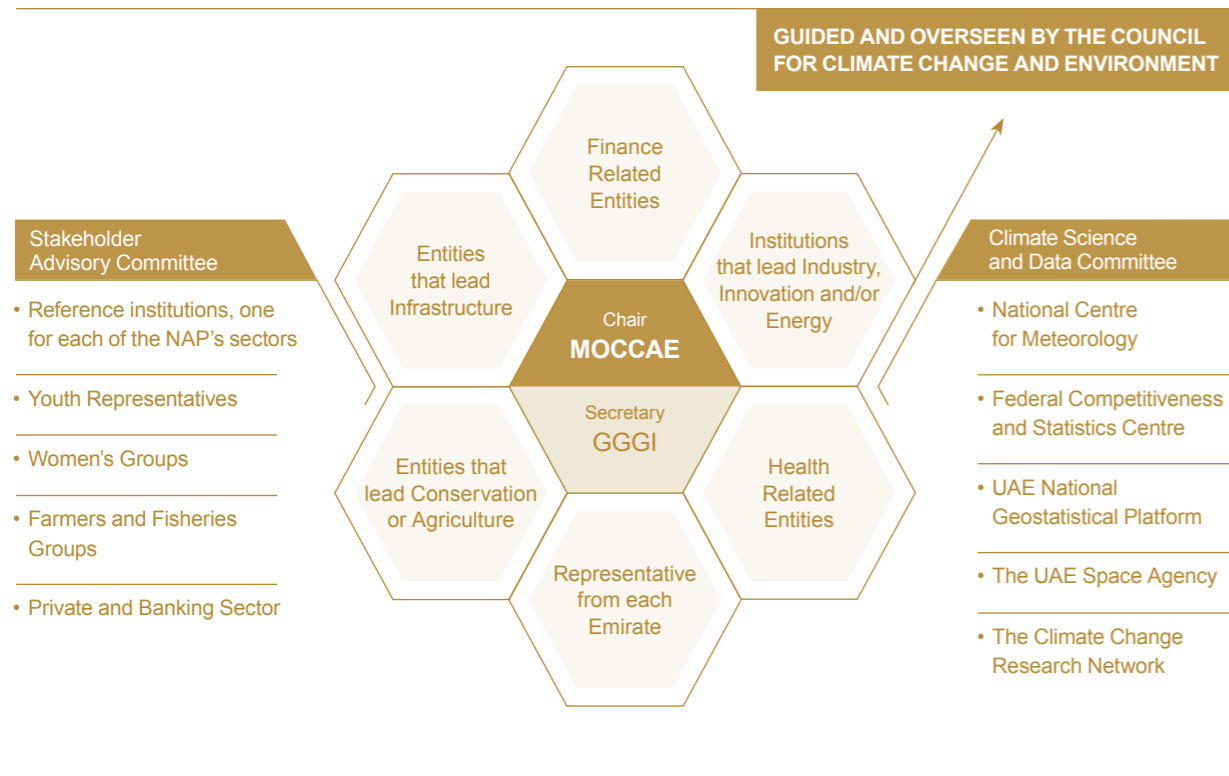


Figure 10: Proposed Structure of the UAE NAP Working Group

The NAP's governance structure will have one working group – the UAE NAP Working Group – and two advisory committees – the Stakeholder Advisory Committee and the Climate Science and Data Committee. Complementing the role of MOCCAIE, which has a clear mandate as the UAE's lead agency for climate change policy, the UAE NAP Working Group will provide guidance and internal validation of the outputs of the UAE NAP process. The UAE NAP Working Group will have both federal- and emirate-level representation. A terms

of reference for the working group will establish the modalities of the interactions with the Project Management Unit (led by MOCCAIE and supported by the Global Green Growth Institute). The terms of reference will also describe the means through which the working group receives and provides inputs, as well as supports review of the deliverables of the NAP. Other roles for the working group, such as the provision of ad hoc institutional support related to thematic components or sectoral processes of the NAP could be considered.

Stakeholder Advisory Committee & Climate Science and Data Management Committee

The Stakeholder Advisory Committee will be the main civil society advisory group to the NAP process, with representation from across the UAE society. This group will include youth, women, and other underrepresented and vulnerable groups. Like the UAE NAP Working Group, its terms of reference will establish modalities for operation, including ensuring the substantive contribution of each key stakeholder group to early drafts of the NAP deliverables before submission to the UAE NAP Working Group.

The Climate Science and Data Committee will provide a similar supporting role to the NAP process and operate under its own terms of reference, but will focus on ensuring the supply of quality data and climate information into the NAP process. The terms of reference will describe a process of data checks that the NAP team will engage in with the committee. The vulnerability assessments that are planned under the NAP development process will be the primary means of generating climate data for decision-making under the NAP.

Reporting and Advisory Structure and Oversight

MOCCAIE, through the Secretariat of the UAE NAP Working Group, will report the NAP development process to the Climate Change Council on a quarterly basis in written format, and on request, through presentations. Reports will be prepared by the Secretariat and will include the outcomes of the reviews undertaken by the UAE NAP Working

Group and/or the advisory committees. Reporting will be undertaken during dedicated NAP reporting sessions or meetings, which will provide feedback and guidance on the development of the NAP. The integration of the decisions from the Climate Change Council will be established in a terms of reference for this purpose.

ENDNOTES

- 1 Ministry of Energy, Government of the UAE. 2010. Second National Communications to the Conference of the Parties of UNFCCC. Abu Dhabi.
- 2 AGEDI. 2015. Regional Atmospheric Modeling for the Arabian Gulf Region – Future Scenarios and Capacity Building. LNRCCP. NCAR/CCRG.
- 3 MOCCA, Government of the UAE. 2021. The UAE State of Climate Report: A Review of the Arabian Gulf Region's Changing Climate and Its impacts. Dubai.
- 4 Burt, John A. 2023. A Natural History of the Emirates (eds). Springer.
- 5 MOCCA, Government of the UAE. 2017. National Climate Change Plan of the United Arab Emirates 2017–2050. Dubai.
- 6 MOCCA, Government of the UAE. 2021. The UAE State of Climate Report: A Review of the Arabian Gulf Region's Changing Climate and Its impacts. Dubai.
- 7 UNFCCC. 2012. The National Adaptation Plan Process: A Brief Overview. Bonn.
- 8 NAP Global Network. 2019. National Adaptation Plan (NAP) Process: What Does the NAP Process Actually Involve?
- 9 UNFCCC. 2012. National Adaptation Plans: Technical Guidelines for the National Adaptation Plan Process. Bonn.
- 10 Intergovernmental Panel on Climate Change. 2023. Sixth Assessment Report. <https://www.ipcc.ch/assessment-report/ar6/>.
- 11 Orr, Scott Allan, Jenny Richards, and Sandra Fatorić. 2021. "Climate Change and Cultural Heritage: A Systematic Literature Review (2016–2020)." *The Historic Environment: Policy & Practice* 12 (3–4): 434–477. .
- 12 United Nations Refugee Agency. 2020. Indigenous Peoples' Knowledge and Climate Adaptation. Fact Sheet. 9 August.
- 13 NAP Global Network and UNFCCC. 2019. Toolkit for a Gender-Responsive Process to Formulate and Implement National Adaptation Plans (NAPs). Winnipeg: International Institute for Sustainable Development.

PHOTO CREDIT AND DESCRIPTION

Cover Page

Photo Credit: Adobe Stock (File No. 259926783)

URL: <https://stock.adobe.com/images/ghaf-trees-and-pristine-red-sand-dunes-against-a-blue-sky-in-the-arabian-desert/259926783>

Relevance and Description: The Ghaf tree is the national tree of the UAE as it is a historic and cultural symbol of stability and peace in the UAE's desert environment¹. Moreover, it represents nature's adaptability and resilience in the country's changing climate.

Page 7 Photo (Desert)

Photo Credit: Noah Bikor on Unsplash

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Page 8 Photo (Skyline)

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Description: Dubai skyline across a green park

Page 11/12 Photo (Desert)

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Page 22 Photo (Green Island):

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URL: <https://stock.adobe.com/images/sharjah-aerial-panorama-above-al-noor-island-and-mosque-and-downtown-rising-above-khalid-lake/442102554>

Description: Sharjah aerial panorama above Al Noor Island and Mosque and Downtown rising above Khalid Lake.

¹ Environment Agency Abu Dhabi 2021.

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