

Adaptation & Resilience

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A. Background: Programme Direction

Programme Objective:

- Enhanced UNEP role in supporting countries and stakeholders in adaptation to climate change through more effective interactions between science, policy, finance, technology, and the economy.

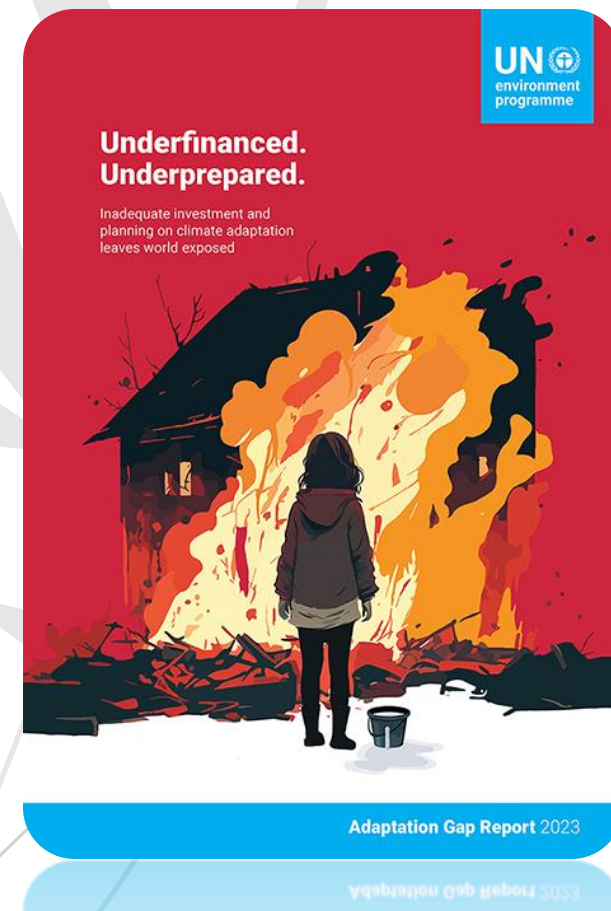
Programme Outcomes:

Decision makers at all levels adopt resilience pathways

Enhanced assistance to capacity building, technology, and finance in support of the Paris Agreement

Programme Outputs (key areas of work):

1. Adaptation strategies, policies and regulatory frameworks implemented across various sectors.
2. Direct country action on adaptation.
3. Enhancing country access to climate finance.
4. Communication and advocacy - Knowledge and science provided to orient policy improvement and decision-making nationally and internationally.



A. Background: Envisaged Impact and Strategic Coherence

Envisaged impact of programme:

- Resources mobilized for climate action.
- Adoption of adaptation policies, strategies and planning frameworks.
- Number of people benefitting from nature-based adaptation.
- Hectares of ecosystems restored for adaptation outcomes.
- Positive shifts in awareness, behaviour and practices.
- Decision makers at all levels adopt resilience pathways.

Synergies with other programmes within MTS:

- Nature action.
- Pollution action.
- Finance & economy transition.
- Science-policy.
- Environmental governance.
- Digital transformations.



A. Background: Contribution to MTS and PoW

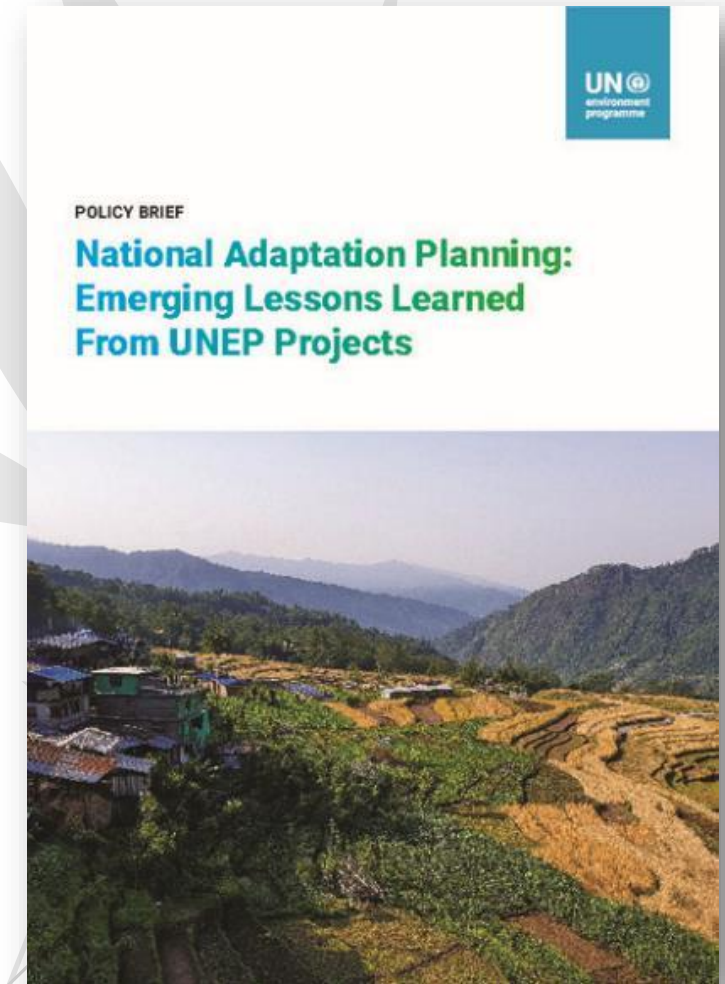
Contribution to MTS Outcomes (PoW 2025 Outcomes):

1A: Decision makers at all levels adopt decarbonization, dematerialization and resilience pathways.

1B. Enhanced assistance to capacity building, technology, and finance in support of the Paris Agreement.

Contribution to PoW Direct Outcomes:

- 1.1 Policy/decision-making for climate and environment action is informed by the latest science-based analysis and data generation.
- 1.2 Carbon neutrality and resilience are integrated into climate planning and policy and regulatory frameworks at all levels.
- 1.4 Sectoral partnerships and access to technologies for decarbonization, dematerialization and resilience are enhanced.
- 1.5 Private and public financial flows are aligned with the goals of the Paris Agreement.
- 1.7 Public support and political engagement for climate action are catalysed.



B. Project Portfolio: Overview

- 123 climate adaptation projects - nature-based solutions, National Adaptation Plans, early warning climate services, climate-resilient livelihood training.
- Two technical assistance programmes: Global EbA Fund and Climate Innovation Accelerator running since 2021.
- Support to governments and private sector on cutting-edge science-policy approaches and information management tools and training.
- Advocacy and communication services.
- Inform the global discourse on adaptation and loss and damage.



Synergies to achieve programme objectives :

SDG 2 food security and sustainable agriculture; **SDG 3**: Ensure healthy lives and promote wellbeing, **SDG 5**: Achieve gender equality, **SDG 6**: Ensure availability and sustainable management of water and sanitation for all, **SDG 9**: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; **SDG 11**: Make cities and human settlements inclusive, safe, resilient and sustainable; **SDG 14**: Conserve and sustainably use the oceans, seas and marine resources for sustainable development; **SDG 15**: Protect, restore and promote sustainable use of terrestrial ecosystems.

UNEP & Climate Adaptation

Blue – Ecosystem-based adaptation
Yellow – National Adaptation Planning
Red – Early Warning Systems
Green – NDC Action
Dark grey - Other



B. Project Portfolio: Illustrative Examples

Jordan launches US\$ 60 million initiative to adapt to climate change:

- Boosting water security and climate resilience for 750,000 people.
- Increasing country's annual water supply by around 9 million cubic meters.

Tanzanian communities find answers to deepening drought

- Planting more than 350,000 trees to restore forests and stabilize riverbanks.
- Rehabilitating 9,000 hectares of forest and rangelands.

Nepal, Zimbabwe and Costa Rica complete National Adaptation Plans

- Boosting food security in **Nepal**, mobilizing adaptation finance in **Zimbabwe**, and strengthening local-level adaptation in **Costa Rica**.

Rwanda builds climate resilience with reforestation and beekeeping

- Teaching communities climate-resilient livelihoods, such as beekeeping.
- Restoring 700 hectares of forests.



B. Climate Risk Assessments and adaptation: Ghana

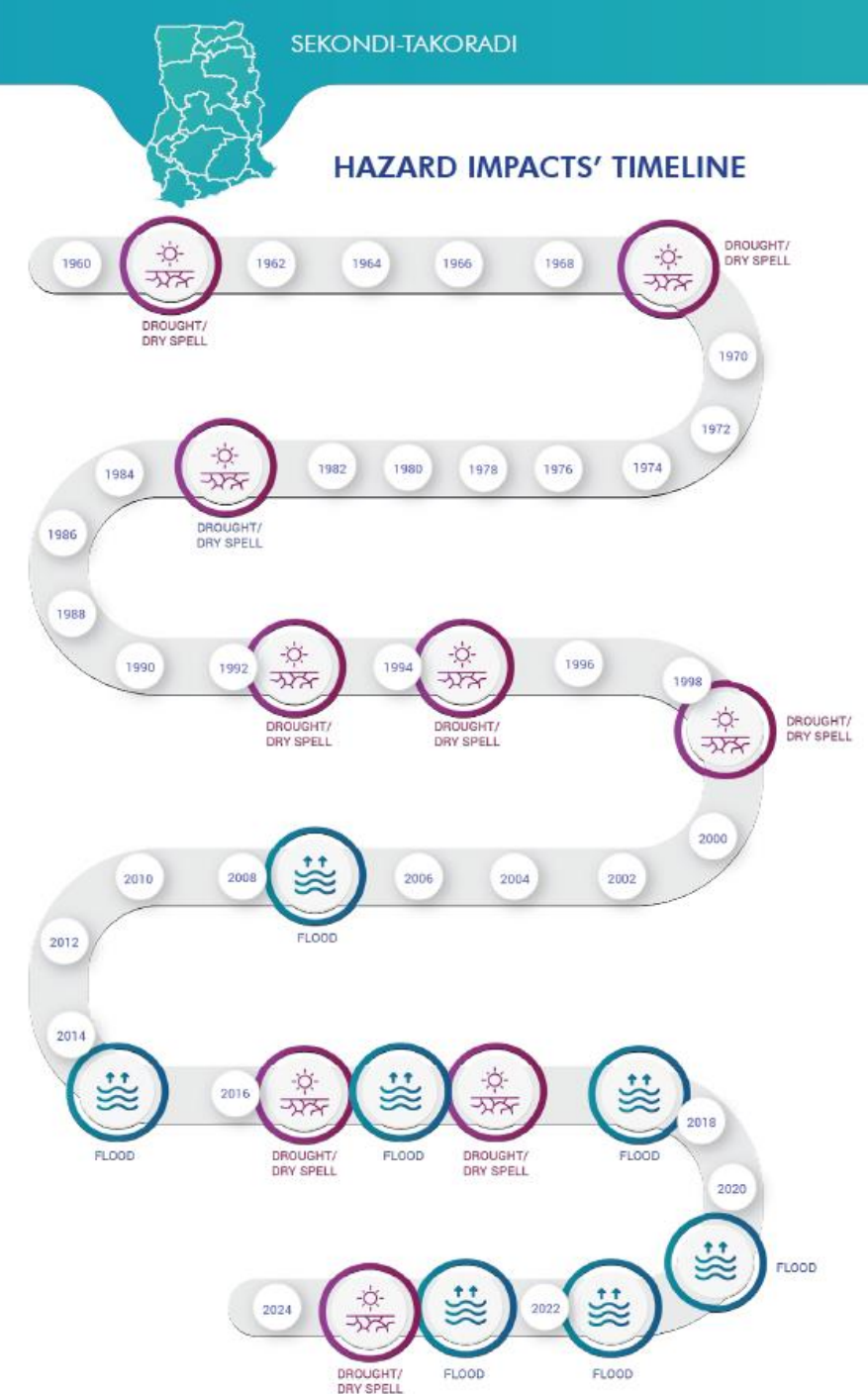
Making climate resilience a core component of a nation's long-term development vision

Developing innovative ways of communicating risk

- Climate risk narratives.
- **Vulnerability** and climate hazards.
- **Vulnerability map portal.**
- Training on climate risk assessment.

And using the science to engage in policy dialogues and development plans

- **Building codes.**
- **8 Districts level adaptation plans and sector adaptation plans.**
- Climate Risk Assessment “Summary for Policymakers” utilized in consultations with **parliamentarians** developing **climate change bill.**



B. Climate Risk Assessments and adaptation: Ghana

CLIMATE RISK NARRATIVE 2:
SEKONDI-TAKORADI METROPOLITAN ASSEMBLY 2053 - **HOTTER AND WETTER**

by 2053

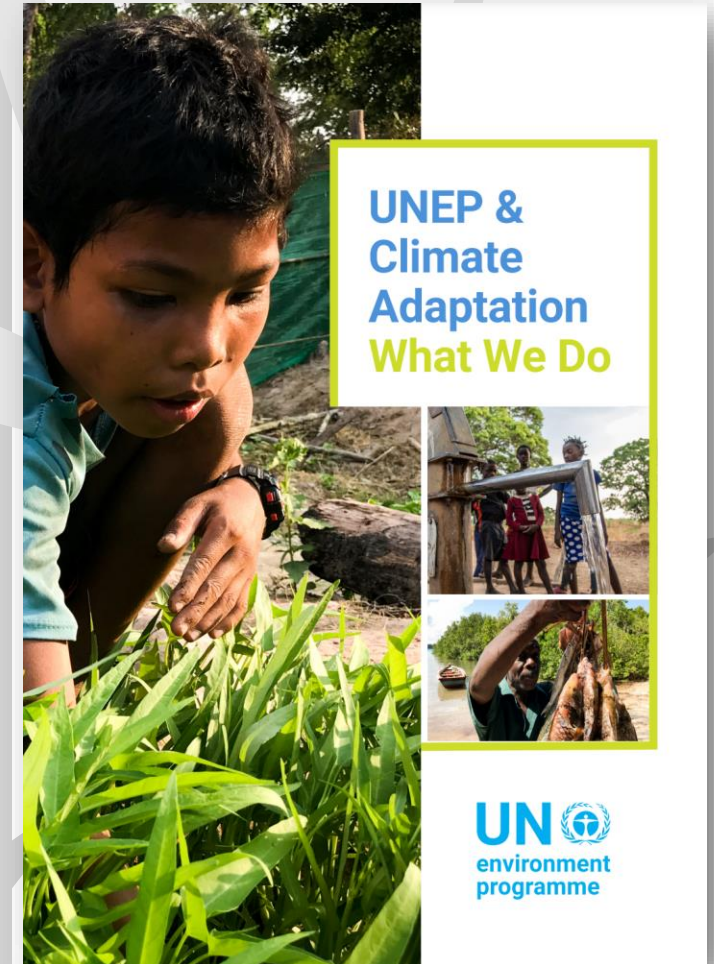


Climate Zone: Coastal

| CLIMATE SCENARIO | POTENTIAL IMPACTS | | NO- OR LOW-REGRET ADAPTATION |
|---|---|---|--|
| Average annual temperature will increase +6% (~1.65°C) | Infrastructure Economic and social disruptions due to critical infrastructural failure because of coastal erosion and flooding | Coastal ecosystems Loss of mangrove forests, wetlands, and coral reefs due to sea level rise coastal flooding and erosion, inundation of coastal ecosystems, increasing temperature and acidification | <p>Infrastructure Sector</p> <ol style="list-style-type: none"> 1) Adaptive management practices. 2) Implement nature-based solutions and green infrastructure as measures for protection of the infrastructure. 3) Increase resilience of infrastructure by elevating structures, strengthening foundations, and adding barriers to protect the infrastructure against sea level rise, storm surge, and floods. 4) Implement redundant or backup systems, such as power generators and alternative routes for transportation. 5) Develop and strengthen the early warning systems. <p>Water Sector</p> <ol style="list-style-type: none"> 1) Water supply resilience through investing in Nature-Based Solutions to reduce both increasing flood risk and water security. 2) Enhancing service delivery, focusing on human rights alongside the responsibilities and obligations. 3) Improved and more equitably Integrated Water Resources Management. 4) Climate adaptation alignment across water sector institutions and planning mechanisms to ensure integrated water resources and catchment management. 5) Proactive risk informed asset management of infrastructure. 6) Protection of water supply infrastructure from, flooding, sea level rise, and coastal erosion. <p>Fisheries Sector</p> <ol style="list-style-type: none"> 1) Build seawalls, breakwaters, and other physical structures can help protect fishery infrastructure from sea level rise, storm surges, and other extreme weather events. 2) Implement ecosystem based or nature-based solutions, such as mangrove restoration. 3) Develop and strengthen the early warning systems for coastal storms. <p>Health Sector</p> <ol style="list-style-type: none"> 1) Strengthen health infrastructure and emergency preparedness. 2) Develop and implement early warning systems for disease outbreaks. 3) Enhance community health and engagement. 4) Promote environmental health and sustainability. 5) Integrate climate change into health policies and programs. 6) Adopt nature-based solutions to help with 'cooling' of the city. |
| There is chance of increase in mean annual rainfall: +8% | Water security Failure to meet water demands for growing population, agriculture and other water intensive industries due to increasing variability in rainfall, damage to infrastructure, siltation and floods and failure of Integrated Water Resources Management | Livelihoods Loss of livelihoods leading to food insecurity and economic hardship for communities in Sekondi-Takoradi | |
| There is a chance for increase in number of hot days: +487% (~7 days) | Fisheries Decline in fish population due more frequent and severe flooding, causing damage to coastal infrastructure and coastal habitats and loss of the coastal ecosystems | Migration High rates of migration due to sea level rise coastal flooding and erosion and changes of livelihoods | |
| There is chance of increase in extreme rainfall events: +101% | Health Increase in heat stress and stroke related diseases, vector and water borne diseases, respiratory problems and psychological challenges due to the displacement of communities | Energy Security Damage to energy infrastructure that is in close proximity to the sea due to storm surges, extreme rainfall, flooding and coastal erosion, causing power outages and disruptions in the energy supply chain. | |
| Increase in sea level rise: +0.4m | | | |

C. Results Achieved & Targets

- 43 climate adaptation projects in over 27 countries, benefitting over 1.3 million people (Target: 54 projects in 35 countries benefitting over 3.8 million people).
- Total value of portfolio: US\$ 558 million.
- Developed 4 NAPs and supporting 26 countries to develop NAP projects (Target: 30 NAPs and 30 countries to develop NAP projects).
- Restoring over 94,000 hectares of land (Target: over 250,000 hectares).
- Building or repairing over 1,200 water harvesting structures (Target: 7,800 structures).
- Training over 110,000 people (Target: 336,000 people).



D. Lessons Learned

Ecosystem-based Adaptation in Cambodia

The lessons can be summarized as:

- **Community Ownership and Participation** - Preference for traditional seed varieties over climate-resilient options can create challenges in adopting new agricultural practices.
- **Tailoring Interventions to Local Needs** – Effective agricultural and livelihood training requires hands-on, practical approaches rather than conventional classroom techniques.
- **Reforestation and Ecosystem Management** – Focus should be on quality over quantity in forest restoration efforts.
- **Sustainability and Policy Integration** – Greater engagement with ministries and stakeholders is required for policy impact and knowledge dissemination.

LESSONS LEARNED

Building Climate Resilience in Community Protected Forests in Cambodia

UNEP Lessons in Climate Change Adaptation

| PROJECT NAME | LOCATION | IMPLEMENTING AGENCY | EXECUTING AGENCY |
|--|---|--------------------------|-----------------------------------|
| Enhancing Climate Change Resilience of Rural Communities Living in Protected Areas of Cambodia | | UN Environment Programme | Ministry of Environment, Cambodia |
| Project ID: KHM/ME/Food/2011/1 | <small>The project was carried out in 3 Community Protected Areas in Cambodia: Siem Reap, Pursat, and Kampong Speu Provinces.</small> | BUDGET | FUND |
| | | USD 4.57 million | Adaptation Fund |

| PROJECT PARTNERS | MAIN APPROACHES | SDGs |
|--|--|-----------|
| <ul style="list-style-type: none">Ministry of Agriculture, Forestry and FisheriesMinistry of Water Resources and MeteorologyMinistry of Land Management, Urban Planning and Construction | <ul style="list-style-type: none"> Building technical expertise and knowledge Agroecology adaptation interventions Capacity building, awareness raising and strategy | |
| | | TIMEFRAME |
| | | 2013-2021 |

Summary

In 2013, the Government of Cambodia, supported by funding from the Adaptation Fund, initiated a project to enhance the climate change resilience of vulnerable rural communities living in protected areas. Rural communities in Cambodia are facing increasingly severe climate impacts, including changes in rainfall patterns and rising temperatures, leading to crop failures and severe erosion on farmland.

The project focused on building climate resilience of vulnerable rural communities within Community Protected Areas (CPAs) and downstream communities. This was achieved through generating technical knowledge and applying it to demonstrate the effectiveness of Ecosystem-based Adaptation (EbA) strategies. These strategies aimed to enhance food production and livelihoods while maintaining biodiversity and ecosystem services. In addition, the project scaled up the EbA approach through capacity development, awareness raising and strategy development, including mainstreaming eco-agriculture in national climate change policies and planning.

The project's completion was delayed by the Covid-19 pandemic, with the project's Terminal Evaluation taking place 18 months after the project closure.

Throughout the project, key lessons were learned in areas such as community ownership, policy integration, tailoring interventions to the local context, and monitoring and evaluation.

@Ratha Soy/UNDP Cambodia

Changes Made:

- **Business skills training for community enterprises** (e.g., nurseries, ecotourism) was introduced to enhance sustainability.
- **Enhanced reforestation strategies** – A shift from large-scale community mobilization to a more strategic, resource-efficient approach in restoration efforts.
- **Gender** - Training sessions were structured to include childcare facilities, increasing women's participation.

E. Way Forward

A: Respond to member states requests in line with UNEP's mandate, capacity and added-value

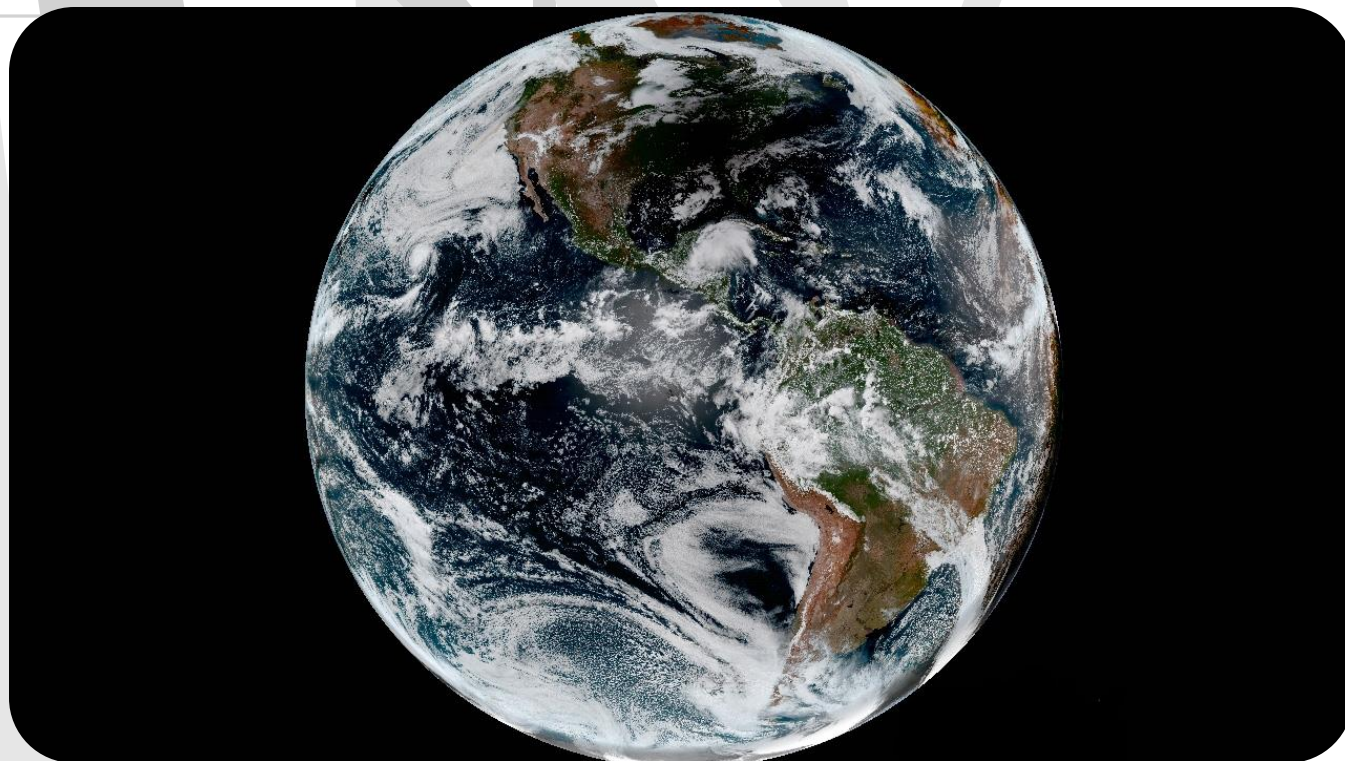
B: Emphasize locally-led adaptation approach to maximise benefits and contextualize adaptation response.

C: Strengthen science-policy linkages to adaptation planning based on systems understanding and environmental factors.

D: Contribute to the debate on climate-security, policy responses and emerging issues such as Loss & Damage.

E: Pool evaluation outcomes and recommendations to position and reshape UNEP's portfolio.

F: Derive lessons, good and bad practices to inform the next UNEP MTS and global processes.



Thank you!

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