

iCARE Innovation Fund

Satellite and AI-Driven Climate Resilience Tool for Bhutan

Monthly Progress Report

Prepared by Geoneon

1. Project Information

Project Title:	Satellite and AI-Driven Climate Resilience Tool for Bhutan
Project Code:	WBCAR
Partner Organisation:	Department of Disaster Management
Reporting Period:	1 st of April 2024-30 April 2024
Date of Submission:	05/04/2024
Contact Name:	Roxane Bandini-Maeder
Contact Position:	CEO
Contact Email Address:	roxane@geoneon.com
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Status of project progress in this reporting period	<input type="checkbox"/> Significant delay <input type="checkbox"/> Delay <input checked="" type="checkbox"/> On Track
Report sign Off	<input checked="" type="checkbox"/> I have reviewed all the information provided for each section including number of beneficiaries. The information provided for each section of the report is complete. Name: Roxane Bandini-Maeder Designation: CEO

2. Key Achievements

1. Completion of Stakeholder Engagement

Geoneon completed the stakeholder engagement and analysis of findings. Two reports have been issued.

2. Progress in Tool Design

- Technical Meeting with Department of Forest and Park Services. The meeting led to discussion about technical implementation.
- Outcomes of discussions:
 - **Data Integration:** The Department of Forests and Park Services (DoFPS) will provide essential data, including land-use cover, DEM 10m, vegetation maps for ground truthing, and fire history locations.
 - **Web Map Interface:** We are committed to developing a user-friendly public web map interface to enhance accessibility for government personnel and community members.
 - **Model Integration and Other Infrastructure:** We discussed the initial integration of building footprints and the handling of sensitive data concerning ICT, power lines, and culturally significant buildings.
 - **Capacity Building:** Our commitment includes transferring the code to the Government of Bhutan and training local teams.
 - **Vegetation Mapping and Power Lines:** Addressing specific concerns about power lines, we have allocated resources for high-resolution satellite data to support a detailed case study.
 - It was conveyed by Sir Sonam Tobgay the need of this collaboration to elevate Bhutan's wildfire mitigation efforts by providing actionable tool that enhance decision-making capabilities. The training and technological empowerment will ensure sustainable benefits for the future.
- Reception of DoFPS Data (LiDAR, Landuse, Fire History)
- Start Source satellite Imageries

3. Implementation Progress

Activity Title	Last Month Progress	Current Month Progress	Activities, and Events, planned for the subsequent month
<p>Activity 1.1.1: Consultation between DLGDM and Geoneon to identify Key Stakeholders and engage with them via a letter of Engagement</p>	<p>Completed – 100%</p> <ul style="list-style-type: none"> • Identification of key stakeholders- Enlisted the Department of Forest and Park Services and DLGDM as the project's primary partners. Agencies and representative of each agency completed • Letter of Engagement- Confirmation by DLGDM. Letter of Engagement by email. 	<p>Activity Progress: 100% - Completed Non-Applicable - activity completed.</p>	<p>Non-Applicable - activity completed.</p>
<p>Activity 1.2.1: Development of consultation plan, feedback form, execution of beneficiaries consultation workshops and report outlining findings and data analysis of gender diversity attendance.</p>	<p>Activity Progress – 80% Task Completed:</p> <ul style="list-style-type: none"> • Delivery of Consultation Workshops • Report post-consultation • Consultation Plan for the project lifetime • Execution of stakeholder engagement planned. 	<p>Activity Progress: 100% - Completed Task Completed:</p> <ul style="list-style-type: none"> • Delivery of Consultation Workshops • Delivery of consultation through feedback/survey form • Report post-consultation • Consultation Plan • Feedback Form <p>Tasks in Progress</p> <ul style="list-style-type: none"> • Execution of Consultation Plan 	<p>On going of execution of Consultation Plan</p>
<p>Activity 2.1.1: Source existing data and analysis of data gaps and pipeline development.</p>	<p>Completed:</p> <ul style="list-style-type: none"> • Test of vegetation mapping (low, high) upscale form 30cm to 10m successfully completed. <p>In-progress</p> <ul style="list-style-type: none"> • Advance the design of the tool. • Finalise and dissemination of the brochure. 	<p>Activity Progress: 30% Tasks Completed</p> <ul style="list-style-type: none"> • Source DEM, land-use layer, fire history point from DoFPS • Continuous stakeholder engagement with primary stakeholders for co-design purposes through stakeholder engagement workshops. <p>Tasks in Progress:</p>	<ul style="list-style-type: none"> • Source required satellite imageries • Development on the vegetation model, targeted for completion end of May

		<ul style="list-style-type: none"> Source satellite imageries Run Vegetation Model 	
Activity 2.2.1 Material Creation and Design	Not started	<p>Activity Progress: 5%</p> <p>Tasks in Progress:</p> <ul style="list-style-type: none"> Early Content thinking 	Start drafting Material Creation and Design
Activity 4.1.1 Collecting feedback	Activity to Start July 2024 after completion of geospatial tool	Activity to Start July 2024 after completion of geospatial tool	Activity to Start July 2024 after completion of geospatial tool
Activity 4.2.2: Development of consultation plan, feedback form, interviews, teaching material, execution of capacity enhancement workshops and report outlining findings and data analysis of gender diversity attendance	Not started Activity to start December 2024 after completion of testing phase	Activity to start December 2024 after completion of testing phase	Activity to start December 2024 after completion of testing phase
Activity 4.3.1 Finalisation of tool	Not started Activity to start October 2024 after completion of testing phase	Activity to start October 2024 after completion of testing phase	Activity to start October 2024 after completion of testing phase
Activity 4.4.1 Recommendation report	Not started Activity to start October 2024	Activity to start October 2024	Activity to start October 2024

4. Results Framework Indicators Progress

PDO 1 Indicator Description: Government agencies and Citizens who have access to climate-resilient solutions tested or access to the results of the climate resilient solutions under the project (Number)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Government Agencies	0	N/A	0	5
Male citizen	0	N/A	0	1000
Female citizen	0	N/A	0	1000
Date		1 st of April	30 th of April	
Comments	This will be reflected at the end of project			
Number of people trained online prior testing test				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Participants	0	N/A	0	4
Male including in participants	0	N/A	0	2
Female including in participants	0	N/A	0	2
Date		1 st of April	30 th of April	
Comments	This will be reflected at beginning of phase 2			
Number of trained users, disaggregated by gender				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Participants	0	N/A	0	10
Female including in participants	0	N/A	0	>30%
Date		1 st of April	30 th of April	
Comments	This will be reflected at beginning of phase 3			
Number of knowledge products provided (by type of product, theme, country)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Products	0	N/A	0	5
Date		1 st of April	30 th of April	

Comments	5 which includes: open-source Geospatial Tool; Beneficiaries Engagement Workshops and Finding Reports; Training Material for the Open-Source Geospatial Tool; Capacity Enhancement workshop; and Recommendation Report.			
Number of people provided with knowledge products (by recipient category, type of knowledge product, country, theme)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Participants of beneficiaries engagement workshop	0	N/A		20
Number of user manual user	0	N/A		10
Number of recommendation report reader	0	N/A		10
Date		1 st of April	30 th of April	
Comments	This will be reflected during the capacity building phase during phase 3.			
Number of events supported (by type, year, theme, country)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Facebook and LinkedIn Posts	0	2	3	6
Press release	0	1	1	2
Stakeholder engagement workshop	0	0	2	2
Conferences	0	N/A	0	1
Date		1 st of April	30 th of April	
Comments	LinkedIn Post Press Release			
Number of people participating in supported events (by participant category, sex, year, theme, country)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Reactions of Facebook and LinkedIn Posts	0	52 reactions 5 comments 4 reposts	54 reactions 5 comments 4 reposts 5 reactions 1 repost 9 reactions 1 repost	20

			22 reactions 6 reposts 1 comments	
News agency of press release	0	N/A	0	1
Participants of stakeholder engagement workshop	0	N/A	9	10
Participants of conferences	0	N/A	N/A	20
Date		1 st of April	30 th of April	
Comments	We notice an increase of engagement of people in Bhutan on Social Media			
Outcome 1 Indicator Description: Enhanced stakeholder engagement and Needs Identification				
Number of stakeholders engaged	0	N/A	9	10
Hazards identification	0	N/A	1	3
Indicators identification	0	N/A	1	2
Critical infrastructure types identification	0	N/A	3	3
Date		1 st of April	30 th of April	
Comments	This will be better reflected at the end of phase 1. Please note that a request was made by stakeholder to focus on one hazard but country wide instead of multi hazard in one district. That aligns with the urgency of having a wildfire exposure index.			
Output 1.1 Indicator Description: Number and diversity of stakeholders engaged				
Number of government officials engaged	0	N/A	9	10
Female including in the government officials engaged	0	N/A	30%	>30%
Date		1 st of April	30 th of April	
Comments	Women in government agencies are less represented than man.			
Outcome 2 Indicator Description: Number of geospatial tool which is functional and ready to be tested				
Functional tools	0	N/A	0	1
Relevant hazards	0	N/A	1	3
Relevant infrastructures	0	N/A	3	3
Date		1 st of April	30 th of April	
Comments	This will be reflected at the end of phase 2.			
Output 2.1 Indicator Description: Number of people accessing the first open-source tool				

Number of people accessing	0	N/A	0	4
Date		1 st of April	30 th of April	
Comments	It will be reflected at the beginning of Phase 3.			
Output 2.2 Indicator Description: Number of people with training manual delivered				
Number of people delivered	0	N/A	0	4
Date		1 st of April	30 th of April	
Comments	It will be reflected at the end of Phase 2.			
Outcome 3 Indicator Description: Capacity Building and tool testing				
Number of government agencies	0	N/A	0	5
Government officials including in agencies	0	N/A	0	10
Female including in government officials	0	N/A	0	>30%
Number of male citizens accessing the results	0	N/A	0	1000
Number of female citizens accessing the results	0	N/A	0	1000
Date		1 st of April	30 th of April	
Comments	It will be reflected at the end of Phase 3.			
Output 3.1 Indicator Description: Number of people accessing the first open-source tool				
Number of people trained online prior testing test	0	N/A	0	4
Number of people testing the tool	0	N/A	0	4
Date		1 st of April	30 th of April	
Comments	It will be reflected at the beginning of Phase 3.			
Output 3.2 Indicator Description: A trained cohort of stakeholders capable of using and disseminating knowledge about the tool, promoting gender-balanced capacity building in the local context.				
Number of trained users, disaggregated by gender	0	N/A	0	10
Female including trained users	0	N/A	0	>30%
Number of people delivered with knowledge product	0	N/A	0	10
Female including in people delivered	0	N/A	0	>30%
Date		1 st of April	30 th of April	

Comments	It will be reflected at the end of Phase 3.			
Output 3.3 Indicator Description: Tool refinement based on feedback				
Address relevant feedback	0	N/A	0	>70%
Date		1 st of April	30 th of April	
Comments	It will be reflected at the end of Phase 3.			
Output 3.4 Indicator Description: Number of strategic recommendations made				
Strategic recommendations	0	N/A	0	5
Date		1 st of April	30 th of April	
Comments	It will be reflected at the end of Phase 3.			

5. Challenges, Lessons Learned and Way Forward

Challenges

Engaging with women representative in stakeholder engagement: we still anticipate that male will be the main representative in the stakeholder group. That is due to most of government officials are male and the nature of our project. As it is focus on geospatial technology there is a lack of women specialised in the area.

Miscommunication Regarding Expectations of Deliverables: There was a misunderstanding between ADPC and Geoneon regarding the deliverables for Milestone 2. Geoneon adhered to the Sub Grant Agreement which required the execution of the stakeholder engagement workshop. We interpreted this to mean the organisation and completion of the workshop itself, as explicitly stated. In contrast, ADPC expected a stakeholder engagement report, which was not specifically outline.

. Any confusion over additional deliverable expectations — specifically, the requirement for a stakeholder engagement report— was not anticipated. Upon understanding ADPC's expectations, Geoneon responded by preparing and submitting the additional report to fulfil ADPC's extended requirements.

Lessons Learned

This experience has provided valuable insights into our project management and planning processes. We have learned the importance of:

- Engage with more women as stakeholders in universities
- Clarification early of deliverables

Way Forward

Building on the insights gained, our strategy for the forthcoming period will focus on enhancing stakeholder engagement, communication, and project visibility through several key initiatives:

- Engaging with academia to increase of women in stakeholders.
- Continuing liaising with stakeholders for implementation of the tool
- Continuing on tool development

Annexures:

Link to deliverables: [Geoneon 2024 Shared iCARE Deliverables Milestone 2.zip](#)

Please note that the link is only a viewer access and only accessible for innovationgrants@adpc.net



Figure 1 : attendees at the workshop



Figure 2: attendees at the workshop and discussion



Figure 3: Group Photo

Glossary

Project Title	means	Exact and full name of the project as defined in the Sub Grant Agreement
Project Code	means	A five-digit code assigned by ADPC
Partner Organization	means	The lead agency(ies) responsible for the implementation of the project
Key Achievements	means	The actual outcome or impact of your work, such as reaching a PDO, or outcome or output defined in the final and agreed Results Framework.
Implementation Progress	means	Implementation progress means the steps or actions taken to achieve the PDO or outcomes or outputs. In this case it would be the list of activities defined in the final and approved work plan
Challenges	means	The most significant and persistent areas of risk that affect the project's ability to achieve its objectives. Challenges could be related to managing the Sub Grant, sustaining development gains, coordinating with stakeholders, and implementing core management functions. Please also discuss the solutions to mitigate these risks.
Lessons Learned	means	Lessons learned are contextual or operational information that may affect planning and future performance. They highlight the insights gained from the activity's implementation practices and progress, such as staff feedback, stakeholder interviews, data analysis, and success stories. They also include any changes required by or support requested from ADPC or partners.



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