

Annex 2 – Template for CREWS Action Final Report

1. Action Title	Tonga Mobile Applications Community MHEW and Response System	2. Action Reference	CREWS/ASW/03/Tonga Community MHEW and Response
3. Implementing Partner	WMO	4. Other Partners (i.e., Sub-contracted)	Tonga Meteorological Services (TMS) Secretariat of the Pacific Environment Programme (SPREP)
5. SC Approved Action Duration / End Date	26/09/2022	6. Actual Action Duration / End Date	31/01/2025
7. SC Approved Action Budget (in USD; incl. IP fees)	213,570	8. Actual Action Expenditure (in USD; incl. IP fees)	213,570
9. Reporting Focal	<i>Guilherme Varro, Tessa Tafua, Henry Taiki</i>		
10. Action Type	Analyses and Assessments		
11. Early Warning System Element(s) Supported	• Dissemination of timely and authoritative warnings • Preparedness and response plans triggered by warnings and weather and climate predictions • Disaster risk knowledge based on the systematic collection of data and disaster risk assessment		
12. SC Approved Action	The Tonga MACRES Action's objectives are: (1) To strengthen the capacity of the Tonga Meteorological Service (TMS) for disseminating hydro-meteorological and geological risk information and warnings to all users of mobile telephone (UoMT) (men, women, youth, children and people living with disability) in communities and villages and urban areas. (2) To strengthen the capacity of UoMT (men, women, youth, children and people with disability) in communities, villages, and urban areas: (a) To have access to, and receive hydro-meteorological and geological risk information and warnings; (b) To record and provide reports on potential and actual slow-onset and rapid developing hydro-meteorological hazardous events and related risks; and		

	(c) To record and provide reports on earthquakes for early tsunami alerts (crowdsourcing shake intensity) and other geohazard events like volcanic eruptions. (3) To strengthen the capacity of TMS and the National Emergency Management Office (NEMO) in partnership with other agencies for disseminating disaster management and reduction information including awareness material and evacuation procedures and locations to UoMT (men, women, youth, children and people with disability) in communities, villages and urban areas.
13. Summary of Actual Action	The early warning mobile application serves as a vital communication tool between TMS and the general Tongan public, ensuring that critical weather and hazard information reaches communities quickly and effectively while allowing people to report back with their own observations – a major feature of the developed application. It complements existing communication channels, such as social media and the TMS website, providing a comprehensive approach to emergency communications in Tonga.

14. Contributions to CREWS Programming Principles and Results Framework	<i>[Briefly explain the contributions to relevant CREWS programming principles and outputs and indicators, referring to those selected in the Action Presentation Note]</i> The Tonga MACRES Action has made direct contributions to the CREWS Results Framework, particularly under Outcomes 2 and 3, and Outputs 2.1–2.4 and 3.1, as outlined below: Outcome 2: Improved early warning service delivery and accessibility by national and regional institutions • Output 2.1 – Risk information and tools generated by countries ○ Developed a mobile application integrated with TMS systems to disseminate risk information, combining forecasts, hazard alerts, and traditional knowledge. ○ Enabled crowdsourced hazard reporting (e.g., earthquake intensity), enhancing local risk data collection. <i>Indicator: # of risk data tools developed or strengthened to generate early warning products and/or support impact-based warnings.</i> • Output 2.2 – Monitoring, analysis, and forecasting of hazards improved and sustained ○ Integrated the mobile application with TMS's existing weather forecasting and warning systems, improving dissemination capacity and forecast accessibility. <i>Indicator: # of hazards monitoring and forecasting processes improved.</i> • Output 2.3 – Warnings are communicated based on agreed SOPs ○ Disseminated warnings via multiple channels, including push notifications and integration with national alerting systems. ○ Mobile application has been deployed nationally, reaching users across all main island groups. <i>Indicator: # of communication channels through which warnings are disseminated.</i> • Output 2.4 – Warnings are received, understood, and acted upon ○ Conducted community training and awareness in Tongatapu, Vava'u, Ha'apai & 'Eua. 134 participants attended the community awareness workshop in which seven percent were female.
---	--

	○ Co-designed mobile application content (e.g., evacuation info, hazard guidance) with TMS and communities, ensuring cultural and linguistic relevance. <i>Indicator: # of preparedness and anticipatory action plans or SOPs linked to prediction and warning services.</i> ◆ Outcome 3: Early warning programmes are driven by people-centered and gender-responsive principles ● Output 3.1 – Co-produced information tailored to diverse user needs ○ Ensured the mobile application is accessible to men, women, youth, children, and people with disabilities. ○ Integrated multi-language support (English & Tongan) and traditional knowledge features. ○ Conducted gender-inclusive community training and stakeholder consultations across government and civil society. ○ The technical mobile training brings in technical officers from the Tonga Geological Services, Cyber Emergency Response Team, National Disaster Risk Management Office and the Tonga Meteorological Services to equip with the knowledge and skills to effectively utilize the mobile app. ○ A total 22 officers participated in the workshop, of which 9% were female. <i>Indicator: # of climate/weather information products co-designed for vulnerable groups; # of men/women trained through capacity-building programmes.</i> ● Cross-cutting CREWS Principles: ○ Sustainability: Open sourcing the mobile application and training national staff ensures long-term use and adaptability. ○ Regional cooperation: Lessons and code are sharable across the Pacific, creating replication opportunities. ○ Inclusivity: Mobile application content and training were designed to be accessible and relevant for all community members.
--	---

15. Contributions to Partner Country Plans and Commitments	The project is a pilot initiative and If results are positive, it has potential for replicability in other Pacific Island Countries and could therefore lead to new activities for future projects, including those funded by CREWS. It is also aligned with these: <i>(1) Tonga Strategic Development Framework 2015-2025. It sets</i>
16. Lessons Learned	One of the most significant lessons learned from this experience was the amount of time required to develop these applications. When adopting a participatory approach, the process can be considerably time-consuming. In future projects of this nature, a one-year timeline may not be sufficient. Instead, a more realistic timeframe would be 18 to 24 months to ensure thorough development and implementation and will also give staff the necessary time to manage competing priorities and fully engage in the work. Another key lesson emerged from the technical challenges of hosting and making the application publicly available. Registering the mobile application on the Apple App Store proved to be a major hurdle, as Tonga was not listed among the eligible countries. This led to a prolonged registration process, stretching over six months before a resolution was finally reached. These challenges highlighted the importance of anticipating potential technical and administrative barriers when launching applications on global platforms.
17. Visibility Products and Supporting Documents	<i>[Insert links to press releases, videos, or communication items and/or social media links, and list and attach to the report any documents providing details on action activities such as review reports, reports of training sessions, technical assessment reports, etc.]</i> • Tonga Mobile App link

ANNEX 1: Photos



2nd Technical training on the mobile application for stakeholders.



2nd Technical training on the mobile applicationfor stakeholders.



Tongatapu district & town officers Mobile Application training.



Vava'u district & town officers Mobile Application training.



Launching of the Tonga mobile weather Mobile Application during the Pacific Island Leaders Forum Meeting 2024.



Tonga mobile Mobile Application side event during the PMC-7, Vanuatu.