



**Regional Integrated Multi-Hazard Early Warning System
Program Unit/ Early Warning Facility**

2nd Fl. Outreach Bldg., Asian Institute of Technology Campus, P.O. Box 4 Klong Luang, Pathumthani 12120, Thailand
(t) +662 516 5900 to 01 (f) +662 516 5902 (e) rimes@rimes.int (w) <http://www.rimes.int>

TERMS OF REFERENCE

External Evaluation of the Project

Reducing Risks of Tsunami, Storm Surges, Large Waves and other Natural Hazards in Low Elevation Coastal Zones

Funded by the ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness (Ref. LOA No. 2011-0006)

1. PROJECT BACKGROUND

1.1 Context and Rationale

Eight of the top ten countries with largest population residing in low elevation coastal zones are in Asia. Most are with heavily populated delta regions, and are exposed to flood risks from rising tides, tropical storms, sea level rise, and combinations of high tides, large waves, storm surges, and/or high river flows. The poor and low-income groups are most vulnerable. Despite these risks, coastal settlements, in particular urban, continue to attract more people, and are growing more rapidly than inland, putting more people at risk to coastal hazards.

Reduction of risks to coastal hazards involves actions at local, national, and regional levels. Communities should have capacity to assess their risks and vulnerabilities, a periodically practiced emergency operations plan, infrastructure to receive and disseminate warnings, secure critical facilities, sustainable management of coastal and marine natural resources to prevent creation of new risks, diversified livelihoods to reduce dependence on coastal resources and enable them to bounce back more quickly from a disaster, and awareness of risks and risk reduction measures. National, sub-national, and local institutions provide an enabling environment for these to happen – regulations, policies, institutional and financial mechanisms that support risk reduction, and a robust early warning system that reaches communities at risk. Regional and global institutions assist in developing institutional capacities, and in bringing the best of science for local application to reduce risks.

The tsunami of 2004 provided impetus for development of tsunami warning systems. The WMO/ESCAP Panel on Tropical Cyclones, at its 33rd Session in Dhaka in February 2006, highlighted the need to link tsunami early warning system with existing tropical cyclone early warning system and storm surge forecasting to maximize benefits of these capabilities for saving lives and properties in coastal regions.

1.2 Goal and Objectives

The project aims to reduce risks to tsunami, storm surges, large waves, and other natural hazards in low elevation coastal zones in Bangladesh, India, Maldives, Myanmar, Sri Lanka, and Thailand by strengthening institutional systems for end-to-end warning, and building institutional capacities for application of warning information products in decision-making processes. Specific objectives are:

- a) Strengthened institutional systems for end-to-end warning;
- b) Pilot communities connected to national early warning system for 24/7 readiness;
- c) Capacity for application of warning information products built;
- d) Capacity for generation of location-specific warning information products built; and
- e) Project experiences, practices, lessons, and successes shared regionally.

Annex 1 provides the results framework of the project.

1.3 Countries and Beneficiaries

The project covers Bangladesh, India, Maldives, Myanmar, Sri Lanka, and Thailand. The table below lists the beneficiaries.

Objective	Target beneficiaries
1. Strengthened institutional systems for end-to-end warning	<ul style="list-style-type: none">○ National Meteorological and Hydrological Services (NMHSs)○ Sectoral user agencies○ Local institutions/ authorities○ NGOs○ Community representatives
2. Pilot communities connected to national early warning system for 24/7 readiness	<ul style="list-style-type: none">○ National Meteorological and Hydrological Services○ Disaster management agency in pilot sites
3. Capacity for application of warning information products built	<ul style="list-style-type: none">○ National sectoral user agencies○ Sub-national/ local sectoral user agencies○ Disaster management agency in pilot sites○ Local institutions/ authorities in pilot sites○ Households in pilot sites
4. Capacity for generation of location-specific warning information products built	<ul style="list-style-type: none">○ National Meteorological and Hydrological Services
5. Project experiences, practices, lessons, and successes shared regionally	<ul style="list-style-type: none">○ National Meteorological and Hydrological Services of non-project countries○ Sectoral user agencies of non-project countries

1.4 Implementation Arrangement

RIMES and the World Meteorological Organization (WMO) implemented the project jointly, in collaboration with National Meteorological and Hydrological Services/ National Tsunami Warning Centers (NTWCs) as national focal points for implementation, and National Disaster Management Organizations (NDMOs) as focal points for local level activities.

1.5 Implementation Period

Project implementation commenced on 28 April 2011, and is due for completion on 31 December 2015.

2. PROJECT EVALUATION

2.1 Evaluation Objectives

The objectives of the end-of-project evaluation are to:

- a) Provide an independent assessment of the relevance, efficiency, effectiveness, impact, and sustainability of the project
- b) Identify key lessons and propose recommendations for follow-up actions and for consideration in RIMES future program design, implementation, and management

2.2 Use of Findings

Findings of the evaluation shall be communicated to ESCAP, as part of RIMES accountability to the ESCAP Trust Fund for Tsunami, Disaster and Climate Preparedness in Indian Ocean and Southeast Asian Countries and its donors. Findings, particularly on the project's contributions to enhancing the country's tsunami warning system and areas that require follow-up actions, shall be communicated to national

partner agencies. Findings shall also be communicated to RIMES Member States and to development partners in general, to advocate for replication. RIMES shall use findings of the evaluation for enhancing its project design, planning, and implementation strategies, as well as for guiding replication.

2.3 Evaluation Criteria

The following evaluation criteria shall be used:

- a) **Relevance:** consistency of project outputs and results in comparison to what was expected from the project, as well as of project outcomes in relation to the beneficiaries' requirements, country needs, partners' policies, and the Trust Fund's strategic focus
- b) **Efficiency:** the proficiency and expediency by which project outputs and results were achieved in relation to inputs utilized, including measures taken to improve implementation and maximize impact with limited resources
- c) **Effectiveness:** extent to which the project's expected objectives/ outcomes have been achieved
- d) **Impact:** changes and effects (positive/ negative, planned/ unforeseen) that have resulted from the project with respect to the target groups and other affected stakeholders
- e) **Sustainability:** the degree to which the project's beneficial outcome will continue after completion of project activities

2.4 Methodology

The evaluation shall involve:

- a) Review of documents, including approved project document, project agreement, progress reports
- b) Interviews of project partners and direct beneficiaries
- c) Analysis of data collected
- d) Use of appropriate tools to inform evaluative judgments

2.5 Evaluator

RIMES shall engage an external Evaluator, with the following key tasks and qualifications:

2.5.1 Key Tasks

- a) Review project-related documents, including project agreement, progress reports, etc.
- b) Develop an analytical framework for the evaluation, including evaluation tools and work plan
- c) Finalize the analytical framework, including evaluation tools and work plan, integrating inputs from the Evaluation Management Team
- d) Undertake data collection and analysis. Ensure assessment is objective and balanced, affirmations are accurate and verifiable, and recommendations are realistic.
- e) Present preliminary findings to RIMES Evaluation Management Team, and receive feedback.
- f) Prepare draft final report. Acknowledge clearly where changes in the desired direction are already taking place.
- g) Prepare final report, integrating/ addressing comments from the evaluation quality assessment

2.5.2 Qualifications

- At least 10 years experience in working with development organizations and donors
- At least 5 years experience in project evaluation
- Familiarity with institutions and with early warning and disaster management systems in Bangladesh, India, Maldives, Myanmar, Sri Lanka, and Thailand
- Demonstrated experience in development of evaluation analytical framework and tools
- Strong analytical/ data analysis skills
- Demonstrated experience in research report writing and data presentation
- Excellent English communication skills

2.6 Management

The Evaluator shall report to an Evaluation Management Team, consisting of the RIMES Director, the project's technical lead, Climate Applications Scientist, and Chief of Program Management. The Evaluation Management Team shall:

- Review and comment on the analytical framework for the evaluation, including the evaluation questions, and work plan
- Provide guidance for the field visits
- Provide feedback on the initial findings
- Assess the quality of the evaluation (refer to Annex 2 for the quality assurance tool)
- Ensure independence of the evaluation process

RIMES Program Management Unit shall support the evaluation in organizing field visits, including availability of translators in the project countries, as may be needed.

2.7 Timeframe

The evaluation shall be conducted over 30 working days, commencing preferably on 7 December 2015. The tentative schedule is as follows:

- a) Document review: 1 day
- b) Development of evaluation analytical framework and tools: 1 day
- c) Consultation with Evaluation Management Team and finalization of evaluation analytical framework and tools: 0.5 day
- d) Field data collection: 20 days
- e) Presentation of preliminary findings, debriefing with Evaluation Management Team: 0.5 day
- f) Preparation of draft final report: 5 days
- g) Report finalization: 2 days

2.8 Expected Outputs

The following deliverables are expected:

- 1) Evaluation analytical framework and tools, finalized in consultation with the Evaluation Management Team
- 2) Preliminary findings and recommendations at a meeting with the Evaluation Management Team
- 3) Draft evaluation report that includes:
 - Executive Summary that includes key conclusions, good practices, lessons, and recommendations
 - Main text, to include:
 - Project context
 - Evaluation methodology
 - Overall project assessment
 - Analysis based on evaluation criteria
 - Key accomplishments
 - Lessons learnt/ opportunities for improvement
 - Recommendations
 - Good practices
 - Appendices, to include evaluation terms of reference, analytical framework, evaluation tool, list of persons/ organizations consulted, documentation consulted, other relevant technical annexes
- 4) Final evaluation report, integrating comments and addressing comments from the evaluation quality assessment

2.9 Dissemination of Report

The full evaluation report shall be submitted to ESCAP, the project donor. A special short summary of the evaluation, pointing out the most relevant conclusion, lessons, and recommendations shall be shared with partners and relevant stakeholders in the project countries, as well as with members of the RIMES Council and other development partners.

2.10 Terms and Conditions

- Consulting rate is negotiable, commensurate with qualifications
- Most economical direct route airfare from the Evaluator's base location to RIMES to the project countries and return
- Reimbursable local travel, visa and terminal fees, and communication costs
- Accommodation and per diem based on UNDP rates

3. EXPRESSIONS OF INTEREST

Applications are invited from suitably qualified consultants. Interested individuals shall submit: a) an application letter that elaborates the understanding of the assignment, approach to be used in the evaluation, and evaluation tools to be used, and stating the consultant's daily rate; and b) current CV.

Deadline for application: 30 November 2015. Only shortlisted candidates shall be contacted.

ANNEX 1 RESULTS FRAMEWORK

<p>Goal: Reduced risks to tsunami, storm surges, large waves, and other natural hazards in low elevation coastal zones in Bangladesh, India, Maldives, Myanmar, Sri Lanka, and Thailand by strengthening institutional systems for end-to-end warning, and building institutional capacities for application of warning information products in decision-making processes.</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> ○ Number of communities, local institutions and NGOs actively contributing towards an improved end-to-end early warning system for tsunamis, storm surges, large waves and other natural hazards ○ Number of communities that receive warnings 24/7 through effective communication pathways ○ Number of communities that use warning information products in decision-making to reduce risks ○ Number of NMHSs scientists with demonstrable ability to produce tailored location-specific disaster risk information ○ Number of country representatives in the Indian Ocean and Southeast Asia that are able to articulate good practice and lessons from the project 				
<p>Expected Outcome 1: Regular interactions of early warning institutions, disaster managers and communities through biannual multi-stakeholder forums, regular user dialogues, and early warning system checks at community level, and delivery, translation, communication and application of location-specific disaster risk information would keep community and stakeholder interests in tsunami warning and ensure that last mile communication systems are working.</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> ○ At least 15 technical institutions, sectoral agencies, sub-national and local institutions and authorities, NGO and pilot community representatives participating in each national multi-stakeholder forums ○ NMHS and national warning agency visit pilot communities twice a year for a user dialogue, warning system evaluation (with particular focus on last mile communication), and awareness raising ○ At least 8 sub-national working groups are able to translate location-specific disaster risk information from NMHS into impact outlook and response options, and communicate these to local working groups ○ At least 8 local working groups communicate location-specific disaster risk information, impact outlook and response options to more than 80% of households in the pilot community 		<p>Expected Outcome 2: Early warning stakeholder institutions use biannual multi-stakeholder forums to enhance inter-agency coordination, receive seasonal climate and hydrological outlooks for use in planning, provide feedback and identify actions to continuously improve tsunami, large waves, storm surges and other hazard warning</p> <p><i>Indicator:</i> At least 10 national forum meetings received reports on actions taken by stakeholder institutions vis-à-vis recommendations and plan of action from previous forum.</p>		<p>Expected Outcome 3: Population at-risk use location-specific disaster risk information in decision-making to reduce disaster risks</p> <p><i>Indicator:</i> At least 8 communities provide feedback on receipt of information, actions taken, and recommendations for improvement</p>
<p>1. Strengthened institutional systems for end-to-end warning</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> ○ A multi-stakeholder early warning national forum established in each target country ○ At least 6 multi-stakeholder national forums organized, with participation of and recommendations from local institutions and 	<p>2. Pilot communities connected to national early warning system for 24/7 readiness</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> ○ At least 12 warning points connected to the early warning system at sub-national and national levels ○ At least 100 EOC volunteers trained in emergency operations ○ At least 3 communication pathways for 	<p>3. Capacity for application of warning information products built</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> ○ At least 12 sub-national and local working groups established ○ At least 12 local working groups trained in impact, vulnerability, capacity and user need assessments ○ At least 12 demonstration locations with risk 	<p>4. Capacity for generation of location-specific warning information products built</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> ○ Most relevant NWP techniques and products identified and analyzed for further cascading forecasting process (at least from 3 global centers) ○ Data and products assessed (at least from 3 centers) as inputs for 	<p>5. Project experiences, practices, lessons, and successes shared regionally</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> ○ At least 5 new countries participate each year, and share which tool, method, practice, etc. may be replicated ○ 6 country reports shared with ICG/IOTWS ○ At least 10 institutions informed of project progress, experiences and

<p>authorities, NGOs and representatives from select at-risk communities</p> <ul style="list-style-type: none"> ○ At least twice a year visits made in each select community, and wider user feedback received 	<p>receiving and disseminating warnings established at each EOC, and tested</p>	<p>profiles prepared</p> <ul style="list-style-type: none"> ○ Thresholds for various hazard magnitudes and intensities in at least 12 sites identified ○ Warning information needs in at least 12 communities identified ○ At least 90 disaster managers trained in preparing impact outlooks and response options based on localized disaster risk information ○ At least 12 communities demonstrated improved response to warning/ disaster risk information issued by NMHSs ○ Warning system gaps identified in at least 12 locations 	<p>downscaling and documented</p> <ul style="list-style-type: none"> ○ Uncertainties in forecasting products (at least from 3 centers) evaluated and documented for local application ○ Downscaled high-resolution disaster risk information generated (at least from 3 centers) and used by disaster management institutions in assessing potential impacts and possible response options ○ At least 2 NMHS scientists from each target country demonstrate ability to produce tailored location-specific disaster risk information 	<p>lessons</p>
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Intended Results at Various Levels

Regional level	Tsunami, large waves, storm surges and other hazard risks in low elevation coastal zones reduced by strengthening institutional systems for end-to-end warning, and building institutional capacities for the application of warning information products in decision-making processes
	A system incorporating available global and regional guidance products to generate location-specific disaster risk information demonstrated and applied for the first time in the region
	A regional mechanism would be in place for continuous improvement of regional model performance and capacity building, for transferring those improvements to countries in the region
	Countries in the Indian Ocean and Southeast Asia, which are not targeted by the project, learn from project experience, lessons and successes
National level	Regular multi-stakeholder national forums, involving sectoral agencies, local institutions and authorities, and NGO and community representatives from select locations, that review warning system performance, receive user feedback, and identify problems and actions needed for an end-to-end, multi-hazard, people-centred warning system are established
	NMHSs are trained in the generation of user-focused, tailored, and location-specific disaster risk information
	Capacity developed in national government institutions and local disaster management organizations to apply location-specific warning information
	Disaster managers in vulnerable sectors (e.g., general public, agriculture, fisheries, water resource) are trained in the translation of disaster risk information into potential impacts for preparation of response options and communication to users
Sub-national level	Sub-national working groups created and are capacitated to translate location-specific warnings into impact outlooks and response options
Local level	Select at-risk communities are connected to the warning system, with institutional capacity to receive and disseminate warnings 24/7 through effective communication pathways
	Select at-risk communities use location-specific warning information products to respond appropriately

ANNEX 2
QUALITY ASSESSMENT OF EVALUATION REPORT

Criteria/ Rating					Score
Unacceptable (1)	Poor (2)	Good (3)	Very Good (4)	Excellent (5)	
1. Meets needs					
Too many questions on the TOR are not addressed at all	Some questions on the TOR are partially answered only	The demands in the TOR, including evaluation questions are answered adequately	The evaluation report includes a clear overview of how stated project objectives have been achieved, and has clarified the intervention logic. The report goes beyond the demands of the TOR and addresses other topics of interest.	The report meets and goes beyond the requirements of the TOR, as well as relates the evaluation to the bases of development, country policy, and regional cooperation.	
2. Relevant scope					
Several dimensions of the intervention and/ or several major effects are inadequately addressed	One or two dimensions of the intervention and/ or major effects are inadequately addressed	The report deals with the whole intervention in its temporal, geographic, and regulatory dimensions. The main intended and unintended effects are identified.	In addition to the points under “Good”, the evaluation referred to other donors’ interventions and project countries’ policies.	In addition to the remarks under “Very Good”, the report systematically examined the project’s unintended effects in detail.	
3. Defensible design					
The evaluation method/ methodological choices were not in line with the results being sought	Methodological choices were made without being explained, or defended	The evaluation methodology is clearly explained and actually applied throughout the evaluation process. The methodological choices were appropriate enough to meet the requirements of the TOR.	The limitations inherent in the evaluation method are clearly specified, and the methodological choices were discussed against other options.	In addition to the points under “Very Good”, a critique was made on the method and methodological choices. The report points out the risks that might have been incurred if other methodological options had been adopted.	
4. Reliable data collected and used					
Certain data are manifestly distorted/ biased/ useless. Data collection tools were not applied correctly.	Both quantitative and qualitative data provided are not very reliable regarding the evaluation question asked. Data collection tools are questionable (e.g. insufficient sample size)	Both quantitative and qualitative sources were identified. The Evaluator tested data reliability. Data collection tools were clearly explained and adjusted to the data sought after	Data was systematically cross-checked by relying on sources or data collection tools that are independent of one another. Limitations pertaining to data reliability or data collection tools are made explicit.	All biases in information provided were analyzed and rectified by means of recognized techniques.	
5. Sound analysis					
Two of the following elements are addressed inadequately: analysis approach, cause and effect	One of the three elements listed under “Unacceptable” is not well addressed	The quantitative and/or qualitative analysis is done rigorously, following the recognized and	The analysis approaches are explicit and their validity limitations are specified. Underlying cause	Every analysis bias (across 3 elements) are systematically reviewed and presented, including its consequence in	

Criteria/ Rating					Score
Unacceptable (1)	Poor (2)	Good (3)	Very Good (4)	Excellent (5)	
links between intervention and its consequences, and comparisons (e.g. before/ after, beneficiaries/ non-beneficiaries)		relevant steps depending on the type of analyzed data. Cause and effect links between the intervention and its consequences are explained. Comparisons are made explicit.	and effect assumptions are explained. Validity limitations of comparisons made are pointed out	terms of limiting the validity.	
6. Credible findings					
Credibility of analyses is poor. Some assertions in the text cannot be sustained. Extrapolations made or generalizations of analysis are not relevant.	Analysis results seem imbalanced. The context is not made explicit. Extrapolations made or generalizations of analysis are not relevant.	Findings derived from the analysis seem both reliable and balanced, especially in view of the context in which the intervention is being assessed. Interpretations and extrapolations made are acceptable. The findings acceptably reflect the reality described by the data and evidence recorded on hand, and the reality of the intervention as perceived by the actors and the beneficiaries on the other hand.	Limitations applying to interpretations and extrapolations are explained and discussed. The effects of the intervention under evaluation are isolated from the external factors and contextual constraints. Both internal validity (absence of analysis bias) and external validity (generalizability of findings) are satisfactory.	Imbalances between the internal and external validity of findings are systematically analyzed, and the consequences this has on the evaluation is made explicit. Contextual factors were identified, and their influence was demonstrated. Biases involved with the choice of interpretative assumptions and in the extrapolations are analyzed, and their consequences are made explicit.	
7. Valid conclusions (<i>how conclusions are reached</i>)					
Conclusions are not backed by relevant and thorough analysis, and are based on unproven data. Conclusions are partial because they reflect the Evaluator's preconceived ideas, rather than the analysis of the facts.	Conclusions are made from hasty generalization of some of the analyses. The limitations to the conclusions' validity are not pointed out.	Conclusions are derived from analysis, and are grounded on both facts and analysis that are easily identifiable throughout the report. The limitations to the conclusions' validity are pointed out, as well as the context in which the analysis was done.	Conclusions are debated upon in connection with the context in which the analysis was done. The limitations to the conclusions' validity are made explicit and well grounded.	Conclusions are organized along hierarchical lines, and reached in relation with the global nature of the intervention under evaluation. They take into account the intervention's connection with the context in which it takes place, considering other programs or connected public policies in particular.	
8. Useful recommendations (<i>how recommendations are articulated and derived from conclusions</i>)					
Recommendations are disconnected from the conclusions. They are biased, and mostly reflect certain players' or beneficiaries' viewpoints of the Evaluator's preconceived ideas.	Recommendations are not very clear, or are mere evidence without any added value. Their operability is arguable. The connection with the conclusions is not clear.	The recommendations follow logically from the conclusions. They are impartial.	In addition to the points under "Good", the recommendations are prioritized and presented in the form of options for possible actions.	In addition to the points under "Very Good", the recommendations are tested and the validity of limitations are pointed out.	

Criteria/ Rating					Score
Unacceptable (1)	Poor (2)	Good (3)	Very Good (4)	Excellent (5)	
9. Clear report					
Absence of summary. Illegible report and/or disorganized structure. Lack of conclusion and recommendations chapter.	The report is hard to read and/or its structure is complex. Crossed references are hard to understand or make reading difficult. The summary is too long, or does not reflect the body of the report.	The report is easy to read and its structure is logical. The summary is brief and reflects the report. Specific concepts and technical explanations are presented in an annex, with clear references throughout the body of the text.	The body of the report is short, concise, and easy to read. Its structure is easy to memorize. The summary is clear and presents the main conclusions and recommendations in a balanced and unbiased manner.	The report can be read like a “novel”, and its structure has an unquestionable logic. The summary is operational in itself.	
Overall assessment					
<i>The report is considered unacceptable if there are over 4 unacceptable ratings.</i>					

Adopted from EuropeAid