

Terms of References

Provision of Assessment, Design and Deployment of an Integrated Flash Flood Monitoring and Early Warning System in Lao PDR

Background

Basic information about PIN

We are a non-governmental, non-profit organization founded on the ideals of humanism, freedom, equality and solidarity. We consider human dignity and freedom to be fundamental values. We believe that people anywhere in the world should have the right to make decisions about their lives and to share the rights expressed in the Universal Declaration of Human Rights.

People in Need (PIN) organization was established in 1992 by a group of Czech war correspondents who were no longer satisfied with merely relaying information about ongoing conflicts and began sending out aid. It gradually became established as a professional humanitarian organization striving to provide aid in troubled regions and support adherence to human rights around the world.

Throughout the 30 years of its existence, People in Need has become one of the biggest non-profit organizations in Central Europe. In addition to humanitarian aid and human rights, it now also targets education and helps people living in social exclusion.

We are part of Alliance2015, a strategic network of seven European non-governmental organizations engaged in humanitarian aid and development projects. This collaboration increases effectiveness, both in working in the target countries and in campaigns aimed at influencing the attitudes of politicians and the general public in Europe.

Basic information about PIN country programme

This assignment is part of the **PIN Early Warning System (EWS) Programme in Lao PDR**, which aims to strengthen disaster preparedness and resilience through improved monitoring, forecasting, and early warning of hydro-meteorological hazards, with particular focus on floods affecting vulnerable communities.

The programme supports national and sub-national authorities, including the **Department of Meteorology and Hydrology (DMH)** and other relevant government institutions responsible for disaster risk management, water resources, and climate adaptation. It seeks to enhance the timely detection of flood hazards, improve risk-informed decision-making,

and strengthen the dissemination of actionable warnings to at-risk populations.

The programme is implemented in disaster-prone provinces and focuses on expanding early warning infrastructure, strengthening hydrological and meteorological monitoring networks, improving data collection and transmission systems, and supporting effective last-mile warning dissemination. Particular attention is given to remote and mountainous areas where exposure to flash floods is high and technical challenges, such as limited connectivity, constrain effective monitoring and warning services.

The main beneficiaries are vulnerable communities exposed to flash-flood risks, as well as national, provincial, and district authorities responsible for disaster preparedness, emergency response, and climate resilience. The programme ultimately seeks to contribute to a scalable and sustainable national approach to flash flood early warning and risk reduction in Lao PDR.

Objective and Scope of the Technical Proposal

The objective of this assignment is to conduct a technical assessment, design a replicable pilot concept, and assemble and demonstrate a low-cost proof-of-concept flash flood monitoring prototype for selected catchments in Lao PDR (with potential regional learning in Cambodia). The assignment will establish a baseline of existing conditions, evaluate viable sensing and connectivity options, demonstrate prototype feasibility, and deliver a scale-up roadmap and donor investment package to support future early warning system investments. Particular emphasis is placed on low-cost, commercially available off-the-shelf (COTS) components, modular design, and local maintainability suitable for remote and resource-constrained environments. The initiative will generate practical evidence on technical performance, operational requirements, costs, and scalability to guide future pilot implementation decisions.

Scope of Services

1. Technical Assessment and Baseline Analysis

- Assess current flood monitoring, warning generation, data management, and dissemination processes in target areas.
- Evaluate potential locations, existing hydro-met assets, site accessibility, security, and environmental conditions.
- Evaluate the availability and reliability of local power sources and telecommunications infrastructure.
- Pinpoint technical, operational, institutional, and maintenance constraints affecting system sustainability.
- Synthesize findings into a baseline report with prioritized recommendations for future implementation.

2. Technical Options Analysis

- Identify and assess suitable technologies for flash flood monitoring and early warning dissemination channels, ensuring compatibility with the existing PIN infrastructure, including the EWS dashboard.
- Compare alternative sensor, power supply, communication, and data transmission solutions.
- Evaluate the use of commercially available off-the-shelf (COTS) components and

locally available equipment where feasible.

- Assess communication solutions for monitoring and dissemination channels for:
 - Areas with reliable mobile coverage;
 - Areas with weak or intermittent mobile coverage (phone and internet services); and
 - Areas without mobile network coverage.
- Compare options based on cost, reliability, maintainability, interoperability, power requirements, local availability, and scalability.
- Recommend a preferred technical architecture for future pilot implementation.

3. Prototype Concept Development

- Develop a concept-level design for a flash flood monitoring and early warning prototype.
- Define system architecture, including sensing, communications, power supply, and data transmission components.
- Prepare indicative equipment specifications and bill of materials.
- Define site-selection criteria and implementation requirements.
- Develop implementation assumptions, technical constraints, and risk considerations.
- Provide indicative budget ranges and deployment scenarios.

4. Proof-of-Concept Prototype Development and Demonstration

- Configure and assemble a proof-of-concept prototype based on the preferred technical option selected by PIN.
- Demonstrate key system functions, including sensing, power supply, communications, and data transport.
- Test the prototype under representative operating conditions.
- Document technical performance, limitations, risks, and lessons learned.
- Prepare user documentation and replication guidance.
- Conduct a remote demonstration and handover session for PIN.

5. Scale-Up Planning and Replication Strategy

- Develop a phased roadmap for future pilot deployment and scale-up.
- Define key decision points, implementation phases, and resource requirements.
- Outline operation and maintenance considerations.
- Provide recommendations for capacity development and institutional ownership.
- Assess opportunities for integration with existing national and provincial early warning systems.
- Prepare planning-level cost estimates for future implementation and replication.

6. Final Reporting

- Prepare all reports, technical documentation, presentation materials, and supporting documentation required under the deliverables.
- Provide a final executive-level report summarizing assessment findings, prototype results, recommended solutions, implementation considerations, risks, and investment recommendations for future deployment.

Expected Deliverables

- **Technical Assessment and Baseline Report** – Assessment of target sites, existing systems, connectivity, power, operational constraints, and key risks, with recommendations for future implementation.
- **Technical Options Analysis and Pilot Concept Design** – Comparison of alternative

sensing, communications, power, and data-management solutions, resulting in a recommended pilot architecture, indicative budget, and implementation approach.

- **Pilot Flash Flood Prototype Deployment and Demonstration** – Supply, installation, configuration, testing, and demonstration of a pilot prototype in selected catchments.
- **Scale-Up Roadmap and Investment Package** – Development of a replication and scale-up strategy, including budget estimates, operational considerations, capacity-building needs, and recommendations for future expansion.

Supplier Profile Requirements

The bidder should demonstrate relevant qualifications and experience to successfully deliver the assignment. Requirements include:

- Proven experience in the design, deployment, and integration of hydrological, meteorological, flood monitoring, or Early Warning Systems (EWS).
- Demonstrated experience in the installation and operation of field monitoring equipment, including water-level sensors, rainfall gauges and remote monitoring infrastructure.
- Technical expertise in communications technologies suitable for remote environments.
- Experience in designing and implementing monitoring systems in geographically challenging or disaster-prone environments.
- Experience delivering similar projects for governments, public authorities, development agencies, or humanitarian organizations is an advantage.
- Availability of qualified technical and project management staff, including specialists in hydrology, telemetry and communications, ICT systems, GIS/data management, and field engineering.
- Demonstrated understanding of sustainability, scalability, and long-term operation of Early Warning Systems in resource-constrained environments.

QUALIFICATION AND EVALUATION CRITERIA

Criteria which bidders must meet in order to progress to the next round of evaluation. These criteria are scored as 'Pass' / 'Fail'.

Each bidder must meet and properly prove the following **qualification criteria** with relevant documentation:

- [Signed and stamped Eligibility sworn statement](#);
- [Business licence/registration](#);
- [Submission of technical proposal along with financial offer \(Quotation Form\)](#) (**Technical Proposal** outlining the proposed methodology, implementation approach, budget consisting of all costs estimation and indicative timeframe, in line with the requirements of this tender)
- [Past experiences](#) (supporting documentation demonstrating relevant past experience, such as contracts, purchase orders, invoices, completion certificates, or other evidence of successful delivery of similar works/services);

Evaluation criteria

The bidders who pass the qualification stage will be evaluated against these criteria. The selected supplier will be chosen on the basis of the following **evaluation criteria**:

A. Technical Evaluation (60%)

Criterion	Description	Weight
Understanding of Requirements	Demonstrated understanding of flash flood risks, monitoring requirements, operational context, and early warning needs in the region.	10%
Proposed Technical Solution	Appropriateness and completeness of the proposed prototype, including operation in low-connectivity environments.	20%
System Architecture & Scalability	Quality of system design, integration approach, scalability, reliability, and and potential for future expansion and replication.	10%
Relevant Organizational Experience & Qualification	Demonstrated experience and capability to deliver technical assistance and early warning hardware/software design in similar contexts	10%
Implementation Approach	Feasibility of work plan, timeline, coordination, and risk mitigation	5%
Training & Support	Approach to capacity building, knowledge transfer, operation and maintenance arrangements, and long-term sustainability of the solution.	5%
Total Technical Score		60%

A. Financial Evaluation (40%)

Price	Total cost of the proposal, including all implementation and travel costs	40%
Total Financial Score		40%

Contract and duration

The award and signing of the service contract is conditioned upon the receipt of the donor grant by the contracting authority.

Time frame for delivering all services is up to **12 months**.

Logistics

The evaluator/contractor will be responsible for organizing all logistics required to complete the assignment. This includes international and local travel to Lao PDR, accommodation, and local transport within project areas.

All related costs should be included in the financial proposal. PIN will provide support with coordination of meetings and access to key stakeholders where needed.

Application process

- Deadline for submission of application: **October, 23th, 2026, before 17:00, Lao Local time.**
- **Email should be addressed to:** secure.bid@peopleinneed.net
 - All attached documents should be clearly labelled so it is clear to understand what each file relates to. Emails should not exceed 15 MB – if the file sizes are large, please split the submission into two emails or more.
- Contents of application package:
 - Signed and stamped Eligibility sworn statement;
 - Business licence/registration;
 - Technical proposal along with financial offer**Technical Proposal** outlining the proposed methodology, implementation approach, budget consisting of all costs estimation and indicative timeframe, in line with the requirements of this tender;
- For questions, contact: Tomáš Ďuraňa, tomas.durana@peopleinneed.net & pavina.savannaly@peopleinneed.net before October 16, 2026.

PIN reserves the right to proceed with contract award and sign the agreement with the successful supplier once the donor grant has been officially confirmed.

Payment modality

%	Milestones
60%	Following the signing of the Contract on Service Provision
40%	After all the remaining deliverables are approved by PIN
PIN reserves the right to deduct up to 0.5% of the total contract price for each day's delay in meeting the deliverables specified. This deduction shall be applied to the last payment of 50% of the contract price.	