Norwegian People's Aid

Terms of Reference: Partnership to Develop and Manufacture Non-Intrusive Explosive Detection Systems for Application in Land Release.

Reference Number: ITT30025010

1. Background

NPA seeks a Research and Development partner and manufacturer to develop Non-Intrusive Explosive Detection systems/solutions which can be applied in a Land Release (humanitarian mine action) context.

Norwegian People's Aid (NPA) is a politically independent membership-based organization working in Norway and in more than 30 countries around the world. Founded in 1939 as the Norwegian labour movement's humanitarian solidarity organization, NPA aims to improve people's living conditions and to create a democratic, just and safe society. NPA's international work covers two core areas: Mine Action and Disarmament and Development and Humanitarian Cooperation. NPA has a dedicated Department for Mine Action and Disarmament (DMAD) that works in six focus areas: Mine Action, Advocacy, Conflict Preparedness and Protection, Risk Education, Arms Management and Destruction, and Environment. NPA aims to reduce and prevent harm to civilians from the impacts of explosive weapons and ammunition. NPA covers the full life-cycle of weapons and ammunitions, with interventions to protect civilians before, during and after conflict.

NPA receives funding from Innovation Norway to explore the development of rapid soil investigation technologies to enhance its humanitarian activities through the safer and more efficient removal of explosive ordnance. The removal of landmines/EO is done through a process called land release. This is done in three stages, namely: non-technical survey (NTS); technical survey (TS) and clearance. NPA conducts NTS by collecting historical data on battles, geolocating evidence such as past accidents, interviewing community members and where possible interviewing former combatants. This is used to map landmine/EO contaminated areas, sometimes with the help of drones. Since this information is often incomplete, technical survey (TS) is done to more accurately map contamination through limited sampling of suspected hazardous areas with clearance assets. Once these areas are more accurately identified, NPA conducts full clearance to find and remove all threats in an area. Once the land is made safe, it is handed back over to local communities. However, the land release process is also time-consuming; as the vast majority of areas mapped by NTS do not actually contain threats. Having tools to identify evidence such as chemical traces of explosives found in hazardous areas (i.e. minefields and battle areas) can make NTS, TS and clearance more accurate, thereby making the overall land release process faster and more efficient.

2. Purpose of the partnership

2.1 Project Needs

The majority of NPA's work to protect civilians from explosive weapons is focused on the removal of landmines, cluster munitions, and other explosive ordnance (EO). This is achieved through the Land Release process comprising of three activities

1. Non-Technical Survey (NTS) - refers to the collection and analysis of data, without the use of technical interventions, about the presence, type, distribution and surrounding environment of EO contamination, in order to define better where EO contamination is present, and where it is not, and to support land release prioritisation and decision-making processes through the provision of evidence. Data collection can be done through collecting information from key informants as well as observing available evidence on the ground by satellite maps, Unmanned Aerial Vehicle (UAV) imagery, or visually from a safe distance outside the suspected hazardous area. NTS is normally conducted by a small team of two to three surveyors.
2. Technical Survey (TS) - refers to the collection and analysis of data, using appropriate technical interventions, about the presence, type, distribution and surrounding environment of EO contamination, in order to define better where EO contamination is present, and where it is not, and to support land release prioritisation and decision-making processes through the provision of evidence. TS is performed using manual deminers, mine detection dogs, machines, either bespoke demining machines or modified excavation and/or farming equipment.
3. Clearance- Normally conducted following NTS and TS, clearance in the context of mine action refers to tasks or actions to ensure the removal and/or the destruction of all Explosive Ordnance from a specified area to a specified depth. This is normally performed using manual deminers, mine detection dogs or a combination following the preparation of the area by machines.

Due to the time and resource-intensive nature of the Land Release process, NPA is constantly striving towards making its operations safer and more efficient. One of the most effective ways in which efficiency can be increased is by making the identification of hazardous areas as accurate as possible. Due to the nature of conflict (i.e. the fog of war), there is often unreported evidence which is consequently unable to be captured by NTS. Since the mapping of hazardous areas during NTS is done non-intrusively from a safe distance; this can result in suspected hazardous areas often being over-estimated during the mapping process due to the need for safety buffers. This results in a knock-on effect where significant resources will need to be allocated to conduct technical survey and clear areas that have no explosive ordnance contamination, thereby wasting time and resources which could otherwise be deployed more effectively.

With support from Innovation Norway, in March 2025, NPA along with FTU, Engineers Without Borders Norway and TEKNA hosted a Market Dialogue to explore explosive detection and soil sampling systems for potential use in either a Land Release context or in impact assessments and environmental remediation after clearance; with a particular focus on Ukraine as a case study.

In light of the feedback by Norwegian industry stakeholders during the market dialogue and subsequent Call for Expression in June 2025, NPA has identified the following needs:

- A focus on non-ground-intrusive detection of chemical residues and compounds typically found in military explosives (in solid form), up to 15cm in depth in soil and/or covered in light vegetation. It is therefore not a priority of this project to focus on detection of metal content

found in explosive ordnance. NPA is agnostic on the technologies through which this core need is achieved; and the solution can also include complementary sensors such as Ground Penetration Radar and hyperspectral imaging where appropriate.

- A partner organisation with R&D facilities and laboratories that can serve as a R&D and manufacturing partner. The prospective partner organisation should also have manufacturing capabilities to produce a limited production run of the solution.

2.2 Project goals

Therefore, the Primary Objectives of this project are:

1. **Development of non-intrusive explosive detection systems that can rapidly detect the most commonly found types of military explosives (i.e. RDX, TNT) and adaptation of this solution to a Land Release context (in NTS, TS or Clearance).** The applicant should also propose a solution that can meet the following additional sub-requirement:

    1.1 Ability to detect indications of explosive ordnance in soil up to 15cm in depth.

2. **Development of the aforementioned system into a ruggedized human-portable or handheld device.** The applicant should also propose a solution that can meet the following additional sub-requirements:

    2.1 The system/solution must have an independent, rechargeable power source with at least 1 hour of battery life or having the capability to rapidly swap batteries under austere field conditions without the use of any tools.

    2.2 Ability to indicate results to the user/operator in field conditions with minimal training.

In addition, the Secondary Objectives are:

3. Ability for the aforementioned system to be be mounted on small remotely operated vehicles, including Unmanned Aerial Systems (UAS) or Unmanned Ground Vehicles (UGV) – without interference to its primary functions.
4. Ability of the aforementioned system to detect Home Made Explosives (HME) including but not limited to Ammonium Nitrate and/or Urea Nitrate based explosives.

NPA (i.e. the client) and the partner organisation (vendor) will jointly develop a new generation of technologies or adapt the vendor's existing technologies for use in a land release context. The vendor will be fully responsible for the manufacture of the products developed under this project.
NPA will provide user requirements and will jointly conduct testing and trialling with the Vendor.

All intellectual property (IP) developed by the Vendor shall remain with the Vendor as a result of this project, and NPA will not impose limitations on the commercialization of the IP.

Once design, prototyping and testing are completed, a limited "production run" will be commissioned by NPA for the partner organisation/vendor to manufacture an agreed-upon quantity of the final product within the project timeframe. Depending on operational needs, additional batches may be ordered by NPA outside the scope of this project. Upon mutual agreement with NPA, the partner organisation may also further unilaterally market and sell to third party customers the products developed as a result of this project.

3. Implementation

3.1 Overview of Requirements

The successful applicant must demonstrate their ability to meet the Primary Objectives of the project (Outlined in Section 2.1) with additional preference given to applicants who can also demonstrate their ability to meet the project's Secondary Objectives. The successful applicant must demonstrate its capability to develop (or adapt from its existing product line) and manufacture the system/solution meeting the Primary Objectives. The applicant must clearly and concisely articulate the key technologies being proposed in order to meet the Primary Objectives and potentially other Secondary Objectives.

The overall value of the project is **4,000,000 Norwegian Krone (4 Million NOK)**. This is divided into 2 phases/tranches:

- **Phase 1 – Research and Development and Delivery of at Least One Prototype**: NPA will release to the successful applicant the first tranche of funding to conduct design, development, laboratory testing and the delivery of at least one final prototype. Informed by NPA's inputs on the product development throughout the project period, the applicant shall manufacture prototype(s) and perform laboratory testing as necessary. Thereafter, field test of prototype(s) will be conducted by NPA (at NPA's facilities in Bosnia and Herzegovina) with input from the successful applicant.
- **Phase 2 – Limited Production**: After successful design and testing of the prototype(s); the remaining funds will be dedicated towards a limited production run of the final products for use by NPA. The final quantities of the end products will be negotiated between NPA and the successful applicant upon the conclusion of Phase 1.

3.2. Key Capabilities

The successful applicant must demonstrate the following key capabilities:

1. Ability to build and/or adapt explosive ordnance or explosive chemical residue detection systems.
2. In-house manufacturing capabilities of explosive ordnance or explosive chemical residue detection systems.
3. Production capability to complete at least 3 units of ***the applicant's most relevant current existing product or solution on explosive detection*** within a 3-month timeframe, ***and an illustrative quotation of the cost per unit***. This will serve as the baseline for the production goal for new systems developed under this project.
4. International travel and logistics capability. The applicant must demonstrate the availability and ability of its key personnel to travel to Bosnia and Herzegovina to conduct field testing at NPA's

facilities. The applicant must also demonstrate their ability to handle their own freight and customs clearance of prototypes to Bosnia and Herzegovina.

5. Environmentally sustainable manufacturing practices and corporate/organisational practices and policies. This may be inclusive of, but not limited to, the reduction of carbon footprint, waste reduction, use of renewable energy sources and the environmentally-safe disposal of manufacturing waste and by-products.

3.3 Key Outputs and Timeframe

The project is expected to jointly produce the following key outputs within specified timeframes:

1. Design and prototype production of the solution meeting the Primary Objectives (entailed in Section 2.1) and optionally also the Secondary Objectives.
2. Successful laboratory and field testing of prototype
3. Limited production run of solution, the quantities of which will depend on Phase 2 budget availability.

The expected timeframe of the entire project is 12 months, extendable by an additional 3 months upon mutual agreement of NPA and the donor Innovation Norway. It is estimated that Phase 1 of the project may approximately last 9 months, with the remaining period committed to Phase 2.

An *illustrative* workplan of Phase 1 shall be provided by the successful applicant as an annex. The final workplan will be mutually agreed upon with NPA with contract signing.

3.4 Team

The successful applicant must propose a project team comprised of a project manager, key personnel and the levels of effort for each of the key personnel. A short profile of each key personnel shall be provided.

3.5. Budget

The successful applicant's total budget shall not exceed 4 million Norwegian Krone (NOK).

A detailed illustrative budget shall be provided for Phase 1 only.

The amount remaining in surplus shall be committed towards Phase 2. No budgetary details need to be provided for Phase 2. Budgetary details of Phase 2 will be mutually decided with NPA during the course of the project.

Bids with a larger remaining "Phase 2" surplus (for a limited production run of the developed solution) will be viewed more favourably, assuming they have met all other requirements.

4. Proposal Requirements

4.1 Criteria for Selection

A successful applicant will demonstrate its ability to fulfil key deliverables within agreed timelines. NPA will score the bids with the following criteria (not listed in order of priority):

Criteria	Weight
1. Knowledge of project Requirements	30%
2. Responsiveness to Key Capabilities (outlined above in Section 3.1)	30%
3. Ability to deliver key outputs within project timeline	20%
4. Project Team	10%
5. Price	10%
6. Response to Expression of Interest*	Up to 5% (Additional bonus points)

NPA will select the applicant that overall presents the most relevant bid for NPA.

*Organisations that have responded to the Expression of Interest in June 2025 have been provided feedback on the number of "bonus points" to their application they will receive, should they decide to submit a full tender proposal.

4.2 Bidding Documentation

As a minimum, a bid needs to include the following.

Document Set 1. Proposal Narrative – Not exceeding 20 pages, excluding annexes.

1. Knowledge of the project requirements

- Demonstrate an understanding of the Project Needs (Section 2.1) and provide a description of the key technologies being proposed to meet the primary and secondary objectives (outlined in Section 2.2).
- Demonstrate experience and ability to develop and produce handheld and/or small vehicle mounted sensors, hardware or systems that can meet the core needs of the project (i.e. explosive detection). Applicants are encouraged to provide case studies that highlight past performance demonstrating this ability.
- Demonstrate experience with and knowledge of end users and stakeholders. Experience working with the mine action sector is an advantage.

2. Responsiveness to Key Capabilities

- The successful applicant must demonstrate, with narrative examples, ***all*** key capabilities outlined in Section 3.2.
- Applicants are encouraged to provide other documentation such as pictures and case studies to highlight its key capabilities.

- Priority is given to suppliers certified by an environmental management system, such as Eco-Lighthouse, ISO 14001 or EMAS (certificates should be attached as Annexes under this Document Set).

3. Ability to deliver key outputs within timeline

- Demonstrate the ability to design, produce a prototype and laboratory test the proposed solution within Phase 1 timelines.
- Demonstrate the ability to produce a limited production run of the proposed to NPA's specifications within the overall project timeline.
- Provide examples of previous tasks of high-quality products delivered within agreed timelines.
- Provide an illustrative workplan (included as an annex to this Document Set).

4. Project Team

- Key personnel assigned to the project, their roles within the project and short professional biographies. Weight will be given to project teams that demonstrate experience working with mine action stakeholders and ability to take client/user feedback.
- Key personnel CVs may be provided in an annex but is not a requirement.

Document Set 2. Budget Spreadsheet and Budget Narrative (Price)

- Applicants must provide:
    - Spreadsheet of the budget. This budget shall be submitted in Excel format
    - Accompanying budget notes, which shall be submitted in Word or PDF format.
- Budget and budget notes shall be split into 2 Phases (Phase 1 and Phase 2, provided on separate tabs in the spreadsheet and separate pages in the budget notes):
    - The budget for Phase 1 budget must provide a total amount, broken down by details pertaining to the levels of effort by applicant personnel, research and development costs, laboratory testing costs and anticipated prototype production costs. As field testing costs in Bosnia and Herzegovina will be jointly conducted with NPA, the applicant should only provide their own travel and logistics costs (and not NPA's).
    - The amount remaining after Phase 1 shall be dedicated as a surplus "lump sum" towards Phase 2. It is not necessary for applicants to provide budgetary details for Phase 2, only the total figure.
- The overall budget shall not exceed 4 million NOK.
- Applicants should use their own budget templates. The information should be presented clearly and concisely.
- ***Applicants will be assessed based on the cost-competitiveness of its Phase 1 budget and the size of the surplus remaining for Phase 2***. The remaining surplus allocated for Phase 2 will be for the production run of the final products.
- Applicants may provide a budget in a currency other than NOK. If a budget is provided in a currency other than NOK, the applicant must clearly state the exchange rate used when the budget was developed, the date of the exchange rate and provide a citation/source of the rate used (e.g. xe.com or other sources).

Document Set 3. Compliance

The bid must also include the following mandatory documents, as annexes. Signed written acceptance of:

1. "NPA Ethical guidelines for procurement, marketing and investment" as per attachment.
2. "Code of Ethical conduct for NPA suppliers" as per attachment.

A copy of the each of the two aforementioned documents must be ***signed by an authorised representative*** of the applicant organisation. A date and signature (along with name and title of the signatory) should be inserted on the last page of each document.

4.3 Selection Process

The Deadline for applications by 6th October 2025, 17:00 Central European Time. The bid will be considered valid for 30 days. Bids will be opened only after the 6th October 2025. The bids will be confidential and NPA will keep all information from bidders confidential.

NPA retains the right to contact bidders first for follow-up and clarification after the bids have been opened. ***NPA retains the right to reject some, or all, of the bids received.***