



Partnership to Develop and Manufacture Improved Personal Protective Equipment (PPE) in Mine Action

Reference Number: ITT-DMAD-2301

1. Background

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 takes a proactive stance to innovation, and has developed tools, methods and equipment that have been adopted by the entire mine action sector. Examples include the use of mine detection dogs, drones, tablets, development of new personal protective equipment, use of solar power, and new methodologies like land release and conflict preparedness and protection safety education. Besides leading innovative initiatives in the sector, NPA promotes gender equality and the participation of women in mine action and disarmament activities. NPA is also a leading actor in the mine action sector on promoting and adopting more sustainable environmental practices, such as monitoring and reducing its carbon emissions, recycling of waste in its country programmes, and environmental remediation of explosives and other chemical waste.

NPA's work to protect civilians from explosive weapons is primarily focused on the removal of landmines, cluster munitions, and other explosive remnants of war. In order to do it with mitigated risk to its staff, NPA and other International Non-Governmental Organizations (INGOs) and commercial companies rely on different items of Personal Protective Equipment (PPE).

NPA receives funding from Innovation Norway to explore the development of "Next Generation Personal Protective Equipment" used in humanitarian mine action activities. Studies conducted by NPA identified that PPE currently used in the humanitarian sector was not gender inclusive towards women; providing less ergonomics and protection for female wearers. This was further compounded by the fact that PPE has limited service life, and there are currently no environmentally sustainable disposal methods of unserviceable PPE in many of the countries where NPA has operations. As organisations in the mine action sector deploy thousands of staff wearing PPE on a daily basis, NPA hopes to contribute to the overall reduction of the sector's environmental footprint caused by the use and eventual disposal of PPE.



2. Purpose of the partnership

2.1 Project Needs

The purpose of this partnership is to develop and produce the “next generation of mine action PPE” which is more ergonomic, more resistant to environmental degradation and potentially more protective compared to current standards as specified in International Mine Action Standards (IMAS) 10.30 (<https://www.mineactionstandards.org/fileadmin/MAS/documents/standards/IMAS-10-30-Ed2-Am4.pdf>). PPE in a humanitarian mine action context is comprised of:

- Blast resistant full-face visor typically made of at least 5mm of polycarbonate. Alternatively, other composite materials and designs may be used if it provides the same level of protection and coverage.
- Blast resistant aramid aprons that provide coverage for the full-frontal torso and groin. The aprons used in combination with visors must provide coverage for the neck.

Both the visor and apron must be able to resist the blast effects and secondary fragmentation (from rocks and other debris) produced by an explosion with the equivalent of 240 grams of TNT from a 60cm distance.

Through extensive research and operational experience, NPA has identified the following limitations with the existing generation of PPE.

- Polycarbonate visors have very limited operational lifespans. Rapid deterioration of polycarbonate visors due to sunlight compromises its protective capability. Within a mine action operational environment, polycarbonate significantly deteriorates in as little as 68 working days (i.e. 8 hours a day in the sun). IMAS Technical Note 10.10/02 recommends annual replacement of polycarbonate visors.
- Currently available composite visors have limited visibility and increased heat when compared to polycarbonate visors, although they may offer better protection and have longer operational lifespans.
- The weight of full-face polycarbonate visors also causes discomfort after prolonged use. NPA's internal studies of mine action operational staff showed that 48% of respondents experienced significant head and neck pain from wearing visors.
- Demining aprons of all existing models disproportionately cause chafing and increased discomfort to female wearers when compared to male wearers. PPE used in the humanitarian mine action. HMA sector is unisex and not optimized towards female wearers. This causes discomfort and potentially reduces the safety of the equipment and the wearer's operational efficiency. Although female-specific body armour is now commonly used in the law enforcement sector around the world, these developments have not yet been adopted within the mine action sector. Unisex aprons are typically designed according to the size, body shape, and/or proportions of men. According to NPA's internal study, 34% of respondents reported lower back pain, 25% experienced abdominal pain, 27% reported chest/breast pain and 26% experienced groin pain from wearing current generation PPE aprons.
- Moisture from sweat and humidity as well as friction from routine activities in an operational environment cause aramid aprons to deteriorate protective capacity over time.



- PPE protection levels used in mine action are not rated for high velocity primary fragmentation. It would be beneficial for mine action operations if PPE protection levels can be increased to better resist high velocity fragmentation without significantly increasing weight.
- Both polycarbonate/composite visors and aramid aprons are polymer materials derived from petrochemical feedstocks. The relatively short product lifespans also have an environmental impact from having to replace the equipment often and the amount of waste it creates. Plastic/microplastic pollution is of global concern, and has significant environmental impact.

2.2 Project goals

Therefore, the primary objectives of this project are:

1. **Development and production of blast resistant demining visors that have longer service life and are lighter weight when compared to existing polycarbonate full face visors. The newly developed visors should provide increased visibility and more comfort when compared to existing composite visors.**
2. **Development and production of modular demining aprons that are more ergonomic for women's bodies.**

In addition, the secondary objectives are:

3. Development and production of both visors and aprons with increased protection against high velocity primary fragmentation while minimising weight increase.
4. Development and production of demining aprons that are better protected from moisture and humidity without decreasing comfort.

NPA (i.e. the client) and the partner organisation (provider) will jointly develop a new generation of demining visors and aprons. Designs may be developed solely by NPA or jointly by NPA and the partner organisation. The partner organisation will be fully responsible for the manufacture of the products developed under this project.

Once design, prototyping and testing are completed, a limited "production run" will be commissioned by NPA for the partner organisation to manufacture 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

The successful applicant must demonstrate their ability to meet the primary objectives of the project 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, test and manufacture mine action PPE.



Note: The applicant should not submit any prospective designs in their response to this RFP. The final PPE designs will be developed and tested with NPA over the course of this project.

The overall value of the project is 1,800,000 Norwegian Krone (1.8 Million NOK). This is divided into 2 phases/tranches:

- Phase 1 – Design and Testing: NPA will release to the successful applicant the first tranche of funding to conduct design, development and laboratory testing. Through joint design and development, the applicant shall manufacture prototypes and perform laboratory testing as necessary. Thereafter, field test of prototypes will be conducted by NPA (at NPA's expense) with input from the successful applicant.
- Phase 2 – Production: After successful design and testing of the prototypes; the remaining funds will be dedicated towards a production run of the final products. 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 and tailor mine action PPE designs provided by NPA
2. In-house manufacturing capabilities of mine action PPE. This includes, but is not limited to:
 - a. Polycarbonate and plexiglass cutting and moulding capability and having an existing stable supply chain
 - b. Ballistic fibre (aramids, UHMWPE, etc) cutting and laminating facilities and having an existing supply chain
 - c. PPE garment production facilities (i.e. cutting and sewing of PPE covers/harnesses)
3. Production capability to complete at least 50 visors and 50 aprons of **the applicant's current generation product line of ballistic and explosive threat resistant PPE** within a 3-month timeframe, **and an illustrative quotation of the cost per unit and weight per unit**. This will serve as the baseline for the production goal of the next generation PPE developed under this project. NPA reserves the right to develop its own design for testing and production by the applicant. Unless otherwise mutually agreed, it is expected that unit cost of the new generation of mine action PPE jointly developed by NPA and the applicant will not exceed double (100%) of the unit cost of the applicant's existing product line of mine action PPE.
4. STANAG 2920 testing capability. This may be outsourced to a third party; in which case the applicant must clearly state if it is being done by a third party and describe the third party's capabilities.
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 Timeframe

The expected timeframe of the entire project is 9 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 take up to 6 months, with the remaining period committed to Phase 2.

An *illustrative* workplan of Phase 1 shall be provided by the successful applicant. 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 1.8 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.

3.6 Key Outputs

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

1. Designs and prototypes of next generation PPE products, comprised of:
 - a. Mine action PPE visor according to NPA's specifications meeting or exceeding IMAS 10.30 requirements.
 - b. Mine action PPE apron according to NPA's specifications meeting or exceeding IMAS 10.30 requirements.
2. Successful laboratory and field testing of prototype products
3. Limited production run of the final, next generation mine action PPE products.

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 mine action sector requirements for PPE	20%
2. Responsiveness to Key Capabilities (outlined above in Section 3.1)	40%
3. Ability to deliver key outputs within project timeline	20%
4. Project Team	10%
5. Price	10%

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

4.2 Bidding Documentation

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

Proposal Narrative – Not exceeding 20 pages, excluding annexes.

1. Knowledge of Mine Action sector and the project requirements

- Proven results from developing and ballistic and explosive threat resistant PPE.
- Experience with and knowledge of PPE end users and stakeholders. Experience working with the mine action sector is an advantage.
- Ability to meet project primary objectives outlined in Section 2.2. Applicants are encouraged to provide case studies that highlight past performance demonstrating this ability.

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.
- Priority is given to suppliers of packaged products that are members of Grønt Punkt (Green Dot) or equivalent.

3. Ability to deliver key outputs within timeline

- Ability to design and test PPE products within Phase 1 timelines.
- Ability to produce PPE products to NPA's specifications within the overall project timeline.
- Reference to/examples of previous tasks of high-quality products delivered within agreed timelines.
- Illustrative workplan (may be included in the narrative or in an annex).



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.

Budget and Budget Narrative (Price)

- Applicants must provide a spreadsheet budget and accompanying narrative budget notes.
- An illustrative budget for Phase 1 budget detailing the levels of effort by applicant personnel, research and development costs, laboratory testing costs and anticipated prototype production costs. Field testing costs should not be included, as they will be conducted by NPA.
- 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.
- The overall budget shall not exceed 1.8 million NOK.
- The budget shall be submitted in Excel format while the accompanying budget notes may be submitted in Word or PDF format.
- 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).

The bid must also include the following mandatory document, as annex:

- Written acceptance of “NPA Ethical guidelines for procurement, marketing and investment” as per attachment.

4.3 Selection Process

The Deadline for applications is 15th February 2023. The bid will be considered valid for 30 days. Bids will be opened only after the 15th February 2023. 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.***