

# **DFID MINE ACTION POLICY**

## **FOR THE TEST AND EVALUATION OF MINE ACTION**

### **EQUIPMENT**

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#### **BACKGROUND**

The current procedure for the evaluation and testing of equipment systems tends to be done on an ad hoc basis. With the recent introduction of the International Test and Evaluation Programme (ITEP) it is important that DFID co-ordinates with the international community to enhance mutual benefit in the sharing of test facilities and information.

The stated mission of ITEP is:

*To strengthen world wide demining efforts by providing the efficient generation, collection and distribution of objective, independent, scientifically based test and evaluation data and information on humanitarian demining equipment, systems and methods.*

#### **AIM**

The aim of this short paper is to suggest a policy to DFID for a cost effective testing regime which adds value to the equipment available for humanitarian mine action. Where possible or practicable, this will be done within the guiding principles of ITEP.

#### **POLICY**

##### **Introduction**

Enquiries related to technical issues on humanitarian demining (mine clearance) sent to DFID are passed to the Defence, Evaluation and Research Agency (DERA) and to the DFID EOD and Demining Advisor. Enquiries can range from an individual who has an innovative and novel approach to a mine action problem, to manufacturers who wish to market their equipment in the field of demining. Equipment can range from detection, neutralisation through to mechanical clearance devices.

## Concept/ Requirement

There is a requirement for equipment to be technically assessed, tested, evaluated and placed in the field as soon as possible. DFID policy should reflect this with a flexible and short response time to requests for T&E

DFID policy states that the equipment offered for trial should be at least at pre-production prototype stage. This is not a development process but a final independent test to demonstrate basic capability allowing manufacturers to make final adjustments prior to marketing. Other than in very exceptional circumstances, only one test will be funded by DFID. It is therefore in the interest of manufacturers to request a test only when the equipment is ready and properly prepared. The pre-trial assessment discussed later should be undertaken in order to determine whether or not a prototype is sufficiently developed for a full trial.

DFID wishes to undertake tests and evaluations within the context of ITEP.

## Criteria for Selection

The selection of an equipment for test and evaluation will be judged against the following criteria (using the weighting indicated below):

- **Capability Gaps** - does it add anything new? If it does not offer a new approach, will it provide better value than existing equipment? If neither, then is there any need for it?
- **Efficiency and safety** – are these sufficiently high? Efficiency is judged on how well it is likely to complete its primary task as a stand-alone equipment and how it would perform as part of any necessary system, both technically (i.e., its output), and in terms of time and cost. Safety for the operator and others near the equipment is a paramount consideration.
- **Standards** – does it meet UN standards (if not now, is it likely to before it goes into production)? In particular, will its output be of a sufficiently high quality, either as a stand-alone piece of equipment, or as part of any system into which – as a matter of design – it will be integrated?
- **Human Factors** – is it user friendly? It must be easy to use in a Developing World context by people with little, or no, formal education. Does it need more than one person to operate it? If yes, is this reasonable?
- **Environment** – is it environmentally friendly? There may have to be a trade-off between environmental damage and the need to remove mines/UXO but if this is so, is the trade-off acceptable? Will it create lasting damage? Has an environmental impact assessment been undertaken by the manufacturer?

- **Development Status** – has it reached pre-production prototype status? If not then the equipment should be rejected for testing at this stage<sup>1</sup>.
- **Local Manufacture and Repair** – is there any potential for it to be manufactured and/or repaired in developing countries? In some cases local manufacture may be inappropriate but it should, in all cases, be at least considered. It is highly desirable that repair of the equipment can take place in the country of use.
- **Intellectual Property Rights (IPR)** – is the manufacturer willing to waive his rights to IPR? Public money will be used to fund the test and it is important that a public benefit is seen to result. This is not a process designed to reduce a manufacturer's costs and directly improve his profit. At the very least, the manufacturer must agree to the full disclosure of the test results on the ITEP website. If necessary, the advice of the Engineering Department should be sought.

These criteria will be weighted to indicate their relative importance:

| Criteria                                 | Score <sup>2</sup> | Weighting | Weighted Score |
|--|--------------------|-----------|----------------|
| Capability Gaps                          |                    | 1.5       |                |
| Efficiency and safety                    |                    | 2         |                |
| Standards                                |                    | 1         |                |
| Human Factors                            |                    | 1.25      |                |
| Environment                              |                    | 1.25      |                |
| Development Status                       |                    | 1.5       |                |
| Local Manufacture and Repair             |                    | 0.75      |                |
| Intellectual Property Rights             |                    | 1.5       |                |
| <b>Total Weighted Score</b> <sup>3</sup> |                    |           |                |

### Criteria to be tested

During testing and evaluation, the following criteria are used:

- **Transportability** – How is the equipment going to be transported to and from site? Measurements need to be taken to establish weight, dimensions, ease of loading and unloading (approach angles to trailer ramps), access to roads, bridges, etc.
- **Mobility** – How mobility and how easy is it to handle equipment? Tests will need to consider the turning circle, field of operator vision, ease of operation, ability to deal with slopes and obstacles cross-country performance in different terrain and soil conditions.

<sup>1</sup> This requirement may have to be waived for proposals submitted under the DFID Mine Action Research (MAR) procedure.

<sup>2</sup> 1 = unacceptable; 2 = poor; 3 = fair; 4 = good; 5 = very good.

<sup>3</sup> A proposal with a Total Weighted Score of 32 or less will be discarded. Those above will be subject to review by DFID, the DFID EOD Advisor and DERA.

- **Logistics** – How does the manufacturer deal with logistics and support? There will be the need to assess the documentation relating to maintenance schedule, fuel consumption, reparability, safety features.
- **Countermine Capability** – How does the equipment address a simulation of an appropriate minefield scenario? The test should include inert UXO, generic shapes derived from the most common types of UXO, inert AP mines and AT mines and simulated instrumented. All to be laid to a set pattern and at various depths.
- **Survivability** – How will the equipment survive attack from AT mines, AP mines and UXO. Tests should be understood using live ordnance and/or the equivalent effect using explosives.

### **Selection and Implementation Procedure**

The following procedure is suggested. The participants at each stage are shown in the matrix below.

- **Initial Enquiry.** This could be received by DFID and/or its contracted consultants, but all need to be channelled through DFID for authorisation on to the next stage.
- **Desk top assessment.** This will be based on an analysis of the above Criteria for Selection using the weighted score matrix.
- **Pre trial assessments.** If the equipment satisfies the Criteria for Selection, then a pre-trial assessment should be undertaken prior to a decision being made on full trialing. This will be a desk-top study based on available information and may involve a visit to the manufacturer's site.
- **Full trial.** This will be based on robust scientific and engineering tests carried out at internationally recognised test facilities under ITEP procedures using the above Criteria to be tested. A trial plan and safety plan should be produced prior to commencing testing.
- **Operational trial.** When deployed to the field it is essential that further testing be conducted under internationally recognised testing standards and that there is a correlation between laboratory and field tests. This testing is most likely to be undertaken by the implementing partner wanting to use the equipment. However, there may be a case – subject to a clear justification (e.g., to ensure ITEP compatibility) – for some external monitoring of such trials.
- **Cross-agency Compatibility.** At all stages it is recommended that contact is maintained with ITEP and other appropriate agencies to check records of similar requests and to establish the most cost-effective means of trialing. This may involve testing at a non-DERA site.

- **Operational Deployment.** In all but exceptional circumstances, the full commercial deployment of a piece of equipment into the field will be a matter between the manufacturer and the end-user. In most cases it will be for the end-user to decide if he wishes to buy a piece of equipment. DFID is unlikely to interfere in this decision although its approval may be sought if DFID funding is involved. Under no circumstances will DFID act as a sales agent for a manufacturer.

| Procedure              | DFID | EOD Advisor | DERA | Manufacturer | Mine Action Organisation | ITEP |
|------------------------|------|-------------|------|--------------|--------------------------|------|
| Initial Enquiry        | √    | ?           | ?    |              |                          |      |
| Desktop Assessment     |      | √           | √    |              |                          |      |
| Pre-trial Assessment   |      | ?           | √    | √            |                          |      |
| Full Trial             | √    | √           | √    | √            |                          | √    |
| Operational Trial      | ?    | ?           | ?    | √            | √                        | √    |
| Operational Deployment |      |             |      | √            | √                        |      |

**Note:** √ indicates certain participation ; ? indicates possible participation.

### Activity Matrix

## ITEP

### Purpose

ITEP was established to provide a responsive and sustained network of test and evaluation capabilities for measuring performance and evaluating the effectiveness and suitability of all forms of equipment, systems and methods for use in humanitarian demining.

In pursuit of this objective ITEP will:

- Conduct T&E of existing equipment and systems under development and of promising technologies, processes and algorithms.
- Establish and employ standards, protocols and methodologies for co-operative T&E.
- Collect, generate, assess, evaluate and distribute robust, scientifically objective data and information on the performance and effectiveness of such equipment processes and methods, under a variety of environmental, physical, technical and operational conditions.

## **Benefits**

The Global benefits to humanitarian mine action will be:

- To provide a global independent assessment system by recognised centres of excellence.
- To provide universal availability of unbiased data for informed choice in equipment selection.
- To encourage research and development for practical solutions.
- To encourage a national commitment to improve quality and technical choice in providing assistance to implement the Ottawa Convention.
- To provide an opportunity for improved co-ordination between national, UN, commercial, NGO and other organisations.

## **Organisation**

The Executive Committee with the Secretariat providing technical and administrative support will manage ITEP.

A Board of Directors will oversee ITEP's undertakings, policies and new memberships and will assess the impact of ITEP on global needs.

To keep costs to the minimum it is expected that only one board meeting and two executive meetings will be held per year. An in Country Point of Contact, who will be available to conduct research and provide information to the Secretariat and members, will give technical support.

## **Conclusion**

With the current public awareness of the landmine issue approaches are often made to DFID presenting various solutions to the problem. It is therefore important that each approach is considered on its merit and appropriate action taken. As this is costly and time consuming, it is necessary to introduce a fair and systematic filtering procedure to deal with these enquires. The above policy and procedure is designed to achieve this objective.

Any policy needs to take into consideration the role of ITEP, which is very much in the early stages of development. DFID should offer leadership by formulating its own clear policy, which will assist ITEP to formulate its own policy and procedures.