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Information management in mine action

Director
United Nations Mine Action Service (UNMAS)
UNHQ DC-2, 14th Floor,
Two UN Plaza
New York,
USA

Telephone: +1 (212) 963 0691

Website: www.mineactionstandards.org

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UNHQ DC-2, 14th Floor,
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United States

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Foreword

International standards for humanitarian demining programmes were first proposed by working groups at an international technical conference in Denmark, in July 1996. Criteria were prescribed for all aspects of demining, standards were recommended and a new universal definition of "clearance" was agreed. In late 1996, the principles proposed in Denmark were developed by a UN-led working group and the International Standards for Humanitarian Mine Clearance Operations were developed. A first edition was issued by the UN Mine Action Service (UNMAS) in March 1997.

The scope of these original standards has since been expanded to include the other components of mine action and to reflect changes to operational procedures, practices and norms. The standards were re-developed and renamed as International Mine Action Standards (IMAS) with the first edition produced in October 2001.

The United Nations has a general responsibility for enabling and encouraging the effective management of mine action programmes, including the development and maintenance of standards. UNMAS, therefore, is the office within the United Nations responsible for the development and maintenance of IMAS. IMAS are produced with the assistance of the Geneva International Centre for Humanitarian Demining.

The work of preparing, reviewing and revising IMAS is conducted by technical committees, with the support of international, governmental and non-governmental organizations. The latest version of each standard, together with information on the work of the technical committees, can be found at www.mineactionstandards.org. Individual IMAS are reviewed at least every three years to reflect developing mine action norms and practices and to incorporate changes to international regulations and requirements.

Introduction

Information management is vital for the effective management of a mine action programmes. Comprehensive and accurate information leads to more effective and efficient operations, as their planning and implementation are based on facts. Having a comprehensive record of what has been done, where and how it has been monitored, leads to greater confidence in the quality of the products of mine action activities. To ensure that information is managed effectively and efficiently in the programme, it is vital that well-defined and continually improved processes are followed.

Information management (IM) in mine action refers to the process of defining and continually improving information requirements from all relevant stakeholders and to the subsequent collection, validation, storage, analysis and dissemination of timely, accurate and easy-to-access information that meets these requirements. The ultimate goal of IM is to deliver information products to stakeholders. To be effective, IM therefore depends on the close collaboration and involvement of all stakeholders, both internal and external, with an interest in the mine action programme.

Clause 5 describes the roles and responsibilities of the various functional components of mine action organizations, how these organizations should work with their partners and stakeholders, and the policies that should be complied with and documented. It includes recommendations that ensure the involvement of the whole organization in the management of information, and not just IM personnel.

Clause 6 describes how access to adequate human and technical resources should be ensured. It also describes how staff should be given the opportunity to develop their skills through training.

Clause 7 describes how the information management unit should ensure that the processes for the management of information are well-defined, adhered to and continually improved. IM processes ensure that information management activities in the programme are performed in a consistent manner with the goal of meeting the requirements of stakeholders.

Clause 8 describes how the IM unit should verify that information quality requirements are met. Quality requirements apply to data collected during activities, data in the information management system and information products delivered to stakeholders.

This IMAS is complemented by an annex outlining minimum data requirements for mine action programmes. The minimum data requirements define the minimum data necessary for mine action programs to collect in order to fulfil its obligations resulting from relevant standards and conventions.

Information management in mine action

1   Scope

This standard establishes general principles and guidelines that when followed ensure quality management of information in mine action programmes. This standard primarily applies to the management of operational data and information in a programme and less so to personnel or finance data.

This IMAS provides general guidelines for quality management of information in mine action programmes. These guidelines apply to all mine action organizations and are intended to assist in the development and implementation of IM policies, standards and standard operating procedures (SOPs).

2   Normative references

A list of normative references is given in Annex A. Normative references are important documents to which reference is made in this standard and which form part of the provisions of this standard.

3   Terms and definitions

A complete glossary of all the terms, definitions and abbreviations used in the International Mine Action Standards (IMAS) series is given in IMAS 04.10.

In the IMAS series, the words "shall", "should" and "may" are used to indicate the intended degree of compliance:

−   "shall" is used to indicate requirements, methods or specifications that are to be applied in order to conform to the standard;

−   "should" is used to indicate preferred requirements, methods or specifications; and

−   "may" is used to indicate a possible method or course of action.

3.1
national mine action authority
NMAA
government entity, often an inter-ministerial committee, in an EO-affected country charged with the responsibility for broad strategic, policy and regulatory decisions related to mine action.

Note: In the absence of an NMAA, it may be necessary and appropriate for the UN, or some other body, to assume some or all of the responsibilities of an NMAA.

3.2
data accuracy
degree to which a measured value conforms to true or accepted values

Note 1 to entry: Accuracy is a measure of correctness. It is distinguished from precision, which measures exactness.

3.3
data
information in raw or unorganized form

3.4
geographical information system
GIS
organized collection of computer hardware, software, geographic data and personnel designed to efficiently capture, store, update, manipulate, analyse and display all forms of geographically referenced information

3.5
information
data that has been processed, organized and presented in such a way that it can be used to gain knowledge

3.6
information management
IM
ongoing specification and evaluation of information requirements, the collection, validation storage and analysis of relevant data, followed by the dissemination of information products to stakeholders in a timely manner

3.7
information management system
IMS
persons, procedures, data, software or media that are used to carry out information management

3.8
knowledge
result of combining and storing of information, training and experience

3.9
precision
number of significant digits used to store numbers, particularly coordinate values

Note 1 to entry: Precision is important for accurate feature representation, analysis, and mapping.

3.10
quality
degree to which the inherent characteristics of an object fulfil requirements

3.11
relevance
measure of how closely the information provided matches the information requirement of its recipients

3.12
stakeholder
person, group, organization or governmental body that has a direct or indirect stake in a mine action programme

Note 1 to entry: A stakeholder can affect or be affected by mine action activities and policies.

3.13
usability
effectiveness, efficiency and satisfaction with which a user can use a product for its given purpose

3.14
timeliness
availability and accessibility to data sufficiently early to be of use in decision making

4   Quality management of information

The goal of information management (IM) is to supply stakeholders with timely, accurate and relevant information products that meet the agreed requirements.

Using a quality management (QM) approach to IM ensures the continuous ability to consistently fulfil this goal. QM principles guide the implementation of all elements of IM described in this standard: organization, resources, processes and products. There are many reasons why the principles of QM are well adapted to the context of IM in mine action, some of which are:

−   **Customer focus** – the goal of IM is to meet stakeholder requirements;

−   **Leadership and engagement of others** – IM requires the engagement of people from all levels of the organization to work together towards the same goal;

−   **Process approach** – well defined and documented IM processes leads to efficient use of resources and consistent results;

−   **Continual improvement** – opportunities to improve IM should always be exploited and implemented. This will lead to an increased capacity to meet stakeholder requirements and, ultimately, to a more effective and efficient mine action programme;

−   **Relationship management** – good IM relies on the continual involvement of its stakeholders; and

−   **Evidence-based decision making** – decisions made to improve IM processes and products should be based on evidence gained from the monitoring of performance indicators of processes and control of IM products against requirements.

This document describes how quality management principles should be applied to the management of information in mine action.

5   Organization

5.1   General

Information management (IM) is not an isolated function from the regular activities of a mine action programme. Information is created, analysed and used by all parts of those organizations involved in mine action operations and has a central role in all of any organization's processes. The responsibility for good IM can therefore not lie solely with an organization's IM unit but is the responsibility of the whole organization. This clause starts by describing specific responsibilities for national entities and other stakeholders in a mine action programme. It continues to include general guidelines for how any organization in a mine action programme can create good information management through the engagement and understanding of all its members.

5.2   Macrostructure of a mine action programme: organizational responsibilities and ownership of information

5.2.1   National mine action authority (or organization working on its behalf)

The national mine action authority (NMAA) is the government entity which holds final ownership of any data or information collected during mine action operations. The NMAA approves national standards on information management and is responsible for ensuring that information related to mine action programmes is managed according to national and international requirements. An NMAA may incorporate or appoint a national mine action centre (MAC) that is responsible for the day-to-day coordination and implementation of mine action activities in a programme. In such cases, this national body would generally be responsible for housing and administering the national information management system, developing and implementing national information management standards, and the utilization of information products in the coordination and management of mine action activities. The NMAA and/or national coordination body is responsible for ensuring that data collected and reported during mine action activities is sufficient for the planning, implementation and quality management of mine action activities and products, as well as national and international reporting obligations.

5.2.2   Operating organizations

Organizations that conduct mine action activities feed the data they collect from the field into the national information management system. In many cases, they are the main source of data stored by the MAC. Operating organizations are obliged to follow the national standards for information management, and the national requirements for reporting. In addition, they often have their own stakeholders with information requirements to whom they need to report.

5.3   Roles and responsibilities in information management within an organization

The overarching responsibilities for different mine action entities drive the way in which each entity is structured to collect, store and analyse data and information. That said, there are generic requirements that apply to any mine action organization.

In order for the IM component of an organization to be able to fulfil its responsibilities, everyone in a mine action organization should understand their own role in the information management process, and contribute by playing their part. The different positions in an organization all have responsibilities in relation to IM. For the purpose of this document, the functions within a mine action organization have been separated into:

−   programme management unit (for example, Directorate and Strategic Management sections) as per the generic MAC structure outlined in IMAS 02.10;

−   operations management unit(s) (for example, Operations, QA/QC sections) as per the generic MAC structure outlined in IMAS 02.10; and

−   information management unit.

The definition of the information management unit as a separate entity has been made in an effort to separate those responsibilities that require more specific information management expertise. In practice, the information management unit may be integrated into the operational unit(s) of an organization.

5.3.1   Programme management unit

The programme management is responsible for ensuring that everyone understands the importance of IM and that the roles and responsibilities regarding IM are clearly defined and understood. As an end user of information products, it also plays a part in defining information requirements. It shall:

−   ensure that an IM unit is established and has access to adequate resources and training;

−   ensure the development and implementation of policies, standards and regulations for the management of information. These standards and regulations shall be consistent with this IMAS, and other relevant national standards;

−   clearly define the role of the IM unit in the organization and ensure that other units understand how it relates to their own areas of responsibility;

−   communicate the benefits of IM to all stakeholders;

−   ensure a close collaboration between the IM unit and other units, and that the IM unit is included in discussions or meetings on topics requiring information management support or input;

−   ensure that the IM unit has the authority to access relevant information and stakeholders;

−   ensure that internal and external stakeholders, including the management unit itself, are consulted on a regular basis to update and refine information requirements; and

−   continually provide input on quality requirements for information products.

5.3.2   Operations management unit

The different operations management units in the organization shall understand the information needs of their areas of responsibility. They shall understand the reason for which data is being collected and what it will be used for. They shall:

– actively and continually contribute to defining information requirements and frequency of reporting for mine action activities and products within their areas of responsibility;

– ensure that information is reported in a timely manner by entities operating in their areas of responsibility;

– ensure that information reported by entities in their areas of responsibility is validated in a timely manner, and that appropriate actions are taken where it is not complete, correct or accurate;

– ensure that IM tools are designed to accurately collect operations data in a manner that can be easily integrated into the existing IM system for further analysis and distribution;

– include representatives from the IM unit in meetings and discussions, either internally or with external organizations where relevant;

– request and make use of information products for decision making and provide input for improvements where necessary;

– ensure that existing IM capacity within the mine action programme is used to the maximum extent possible, assist planning, implementation and follow up of operational activities; and

– ensure that information products are distributed to and used by entities operating in their area(s) of responsibility.

5.3.3   Information management unit

The IM unit is responsible for ensuring that the collection, storage, analysis and dissemination of information are carried out according to well-defined processes, and to create information products that meet stakeholder requirements in a timely, accurate and consistent manner. It should:

– develop and continually improve information requirements based on input from stakeholders;

– define and document the IM processes of the organization based on its operational processes, and ensure that they are understood by all;

– develop and implement appropriate IM standard operating procedures (SOPs) in accordance with defined processes and the national standards of the national mine action authority (NMAA);

– ensure that all data received is complete, correct and up to date, and that it is entered, stored and managed correctly according to SOPs and IM national mine action standards (NMAS);

– analyse data to create information products, and keep them up to date and fit for purpose according to stakeholder requirements;

– develop a working system to ensure synergy in data between other mine action stakeholders and the national databases.

– ensure that relevant mine action information is available to all stakeholders in a timely and easy-to-access manner;

– cooperate regularly with relevant external organizations on matters concerning IM;

– actively contribute to meetings and discussions concerning IM;

– provide guidance and assistance in matters of information management to stakeholders through training, workshops and/or responding to individual requests;

– consult with stakeholders regularly to evaluate and update quality requirements; and

− proactively identify and take advantage of opportunities for improvements through plan–do–check–act cycles.

5.4   Inter-agency cooperation

The stakeholders participating in the programme define the quality requirements that shall be met by the information products provided by the IM unit. Stakeholders can be both internal and external. They include the units within the NMAA, organizations involved in the mine action programme, as well as external stakeholders that have an interest in the programme. When identifying stakeholders, special consideration shall be given to include gender and diversity groups, which may otherwise be under-represented. Stakeholders of mine action information include but are not limited to:

− NMAA;

− government agencies;

− donors;

− UN;

− mine action operators;

− non-mine action NGO/INGO;

− the media;

− beneficiaries; and

− the broader public.

Good information management relies on expert knowledge within each sector to define what information they require from the information system to effectively and efficiently carry out their work. The IM unit relies on cooperation in order to be able to correctly define information requirements and produce information products that meet quality requirements. The IM unit should therefore be given regular access to meetings with internal and external stakeholders and should pro-actively organize such meetings as required.

Ensuring that information products are available and used by stakeholders is essential for the programme, as this leads to decisions based on accurate facts and more effective and efficient use of resources. Stakeholders will be motivated to actively contribute to the information management of the programme as the benefit of information becomes more evident.

In order to ensure cooperation with its stakeholders, a mine action organization should:

− identify and document internal and external stakeholders, their relationship to the mine action programme, their individual needs for information products, and the information they can provide;

− develop processes that ensure that information is shared regularly with defined stakeholders and according to their quality requirements;

− include stakeholders within the programme in activities that aim to improve existing processes; and

− establish or participate in forums where stakeholders are consulted on a regular basis on quality and information requirements.

5.5   Policies and standards

In order to ensure that the IM activities of the programme are performed legally and in line with international standards, a number of policies and standards shall be documented and understood by relevant staff. At a minimum, the following should be available for all actors in a mine action programme:

−   IM NMAS;

−   IM SOPs;

−   information storage and sharing policy; and

−   information security policy.

The information storage and sharing policy should document national rules and regulations on:

−   what information can be stored;

−   how information shall be stored and how it shall be protected;

−   what information can be shared;

−   who the information can be shared with;

−   the existing procedures for authorization to share information;

−   the format in which information can be shared; and

−   the ethical rules and considerations for data sharing.

The information security policy should document:

−   rules and conditions for the use of hardware and the information system to ensure safe and lawful behaviour;

−   rules for the protection of equipment from physical harm or loss, for example, theft, electrical failure, dust, fire, etc.;

−   rules for the protection of equipment from physical attacks, for example, compromised USB sticks, unauthorized access to the system, etc.; and

−   rules for the protection of equipment from web-based attacks, for example, hacking, virus, ransomware, etc.

The security policy shall be understood and signed by all users before they are allowed access to any IT component of the information management system.

6   Resources

6.1   General

To be able to carry out its function, it is essential that the IM unit has access to adequate resources. Resources include staff with sufficient training and experience to be able to effectively and efficiently carry out the information management processes. They also include hardware and software that meet the requirements for entry, transmission processing, storage and analysis of data, and for the dissemination of information products and services.

6.2   Human resources

The organization should ensure that there is adequate staff to appropriately fulfil the IM needs of the organization.

At a minimum there should be staff that can fulfil the following capacities:

−   data entry;

−   quality control;

−   management and improvement of IM processes and products;

−   data/GIS analysis; and

−   system administration.

Staff may fulfil more than one capacity. For each of the capacities, clear and comprehensive terms of reference should be defined, listing all the duties and responsibilities for the position.

6.3   Training, experience and qualifications

The organization should ensure that IM staff receives adequate training in their areas of responsibility. The organization should ensure that staff continuously has the opportunity to improve their skills through training and exchange of experience. Training is an opportunity to enhance the skills of staff and thereby give them the opportunity to contribute more to the operations of the unit.

To complement training and draw the maximum benefit from it, the organization should promote a culture in which knowledge sharing is an integral part of the day-to-day work of the unit. More experienced staff should be encouraged to train their co-workers on tasks they are not yet familiar with. This will help to ensure that the competence to perform certain tasks is not dependent on any single person, to increase the organization's resilience to staff turnover or budget variation.

To ensure that IM staff has a good understanding of operations, they should be allowed to participate in trainings for other operational staff when possible. This will allow them to better anticipate the needs of stakeholders and their requirements for information products delivered to them.

Operations and management staff should also be given the opportunity to be trained on certain aspects of IM, to be able to fulfil their part in the information management of the organization and gain more understanding of the IM processes in the programme.

To the extent possible, the organization should strive to make training available to stakeholders and partners in the programme. This will help improve the quality of information provided by stakeholders, as well as ensure that they have greater benefit and understanding of the products received. It will also help give stakeholders a greater sense of ownership and responsibility for the quality of the national database.

6.4   Technical equipment

The equipment used by the IM unit should be appropriate for its capacity and mandate. To be able to produce high-quality information products, it is essential that the unit has access to hardware capable of operating well under the comparatively high loads required for storing and analysing the data of the organization especially for geographic information systems (GIS) analysis. There should be access to adequate software to perform analysis and presentation tasks and hardware able to produce printouts and maps of a quality that meets requirements. The organization should ensure that:

−   computer systems used by staff meet at least the minimum specifications of the IM and GIS software used;

−   computer systems have sufficient storage capacity to store the organization's data;

−   operating systems are kept up to date;

−   software is licensed and there are appropriate peripheral systems such as printers and scanners;

−   the IM system used is a currently supported version;

−   staff has access to means of communication (for example, internet and e-mail); and

−   the work environment meets basic ergonomic principles.

6.5   Information management software

The organization shall establish and maintain a suite of software that can manage the tasks of the IM unit. The organization should define the scope and responsibilities of the IM system to achieve optimum operational efficiency. The IM software suite should at a minimum fulfil the following requirements:

−   digital structure – a uniform and standardized digital structure with relevant file-naming guidelines and metadata, capable of managing digital documents related to mine action activities (for example, records, photos and videos). The information contained in Annex B on minimum data requirements provides a description of a digital data structure for mine action data;

−   manage operational and secondary data;

−   manage geographic data;

−   capable of tracking who has edited what documents and which version is the most recent;

−   produce an overview of contamination, operational progress and resource allocation;

−   accessible for use by operational and management staff; and

−   adjustable to mine action programme needs and compatible with other relevant information systems.

6.6   Financial resources

To ensure the availability of human and technical resources, there should be sufficient financial resources allocated to the IM unit. To ensure the continuous IM capacity of the organization, current and future IM costs should be estimated and included in the organization's budget.

7   Quality assurance of information management processes

7.1   General

A fundamental basis for the quality management of information is a clear understanding of the processes that IM processes should support. A process is a number of linked activities and choices that lead to a delivered service or product (output). A process can have one or many inputs and shall have a single output.

7.2   The information management cycle

The information management cycle illustrated in Figure 1 includes the key processes that should be managed by the IM unit. The IM cycle ensures a proactive approach to IM activities by anticipating stakeholder requirements, and designing and continually improving processes to meet them. The IM cycle should be based on the following:

−   **inclusiveness** – successful implementation of the cycle depends on the active involvement of operations management, program management and other stakeholders;

−   **transformation** – continued transformation of data into quality information products;

- **efficiency** – the management of data and information is done with a proactive approach in which stakeholders are regularly consulted on quality requirements, and IM processes are designed to meet them in a timely manner;

- **data quality** – data is checked and verified for completeness, accuracy and timeliness, and organized for analysis;

- **data protection** – data is managed in a way that ensures it is protected from unauthorized access and shared only with authorized parties;

- **confidentiality** – personal information shall be managed to ensure that the privacy of beneficiaries and other stakeholders is kept, and consent to use this information is obtained;

- **consistency** – standard data structures, in combination with agreed definitions of key terms and measurements; and

- **availability** – the availability of the data and information products is ensured.

- **sharing** – information is disseminated to all stakeholders, within and outside the mine action programme.
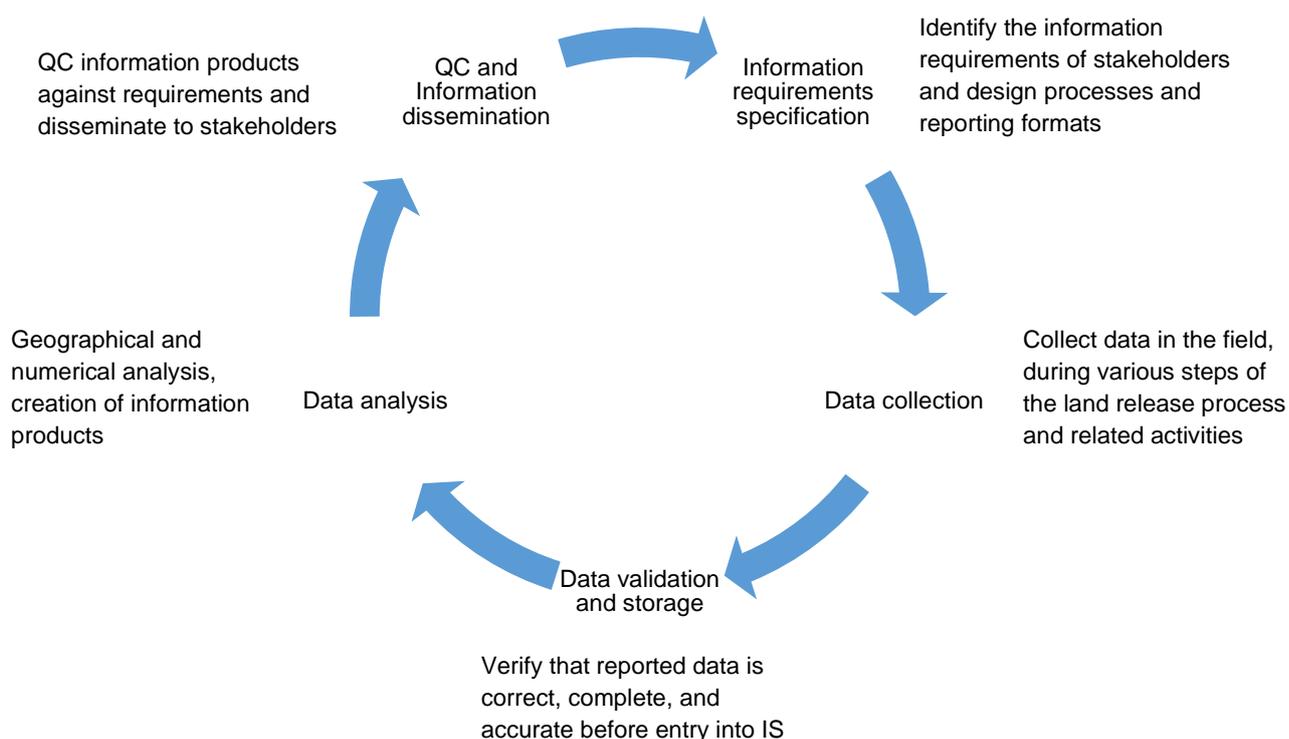
Figure 1 – Information management cycle

7.3 Information requirements specification

The information requirements specification forms the basis for how information management will be carried out in the programme. The information requirements specification defines the quality requirements of stakeholders on output from the IM unit. Based on the quality requirements, the IM unit can define the processes and data input necessary to produce output that fulfils those requirements.

Quality is the degree to which a product or service meets the expectations of stakeholders. Quality requirements are subjective and have to be defined and agreed on between stakeholders (internal and external) and the organizations IM unit.

An information requirements specification should be defined before information management begins in a programme and should then be reviewed and improved through continual consultation with stakeholders and the monitoring and evaluation of processes and products.

To identify requirements, all stakeholders with an interest in the programme should be consulted and agree. Consideration should not only be given to current requirements for information but also to foreseeable future needs. The information requirements specification should define:

– the identity of stakeholders who require information products and who provide data input to the IM processes;

– an agreement with stakeholders on current and future requirements for information products;

– documented business processes including input and output;

– quality requirements on data input and information products of IM processes; and

– an agreement on standard definitions of key terms and measurements to ensure consistent and accurate data input.

7.4   Data collection

Data collection is usually carried out by operators who are performing activities for the mine action programme. Regular cooperation between organizations who are providers of data is essential to ensure that data is recorded consistently and accurately and reported in a timely manner. The organization should ensure that:

– processes for data collection are defined and documented according to the principles for documenting processes described in 7.3;

– all relevant sources of data are identified and documented, including what data operators should provide and how often;

– standard forms are developed and contain all the data input identified as necessary during the information requirements specification;

– data collected is disaggregated by age, gender and other relevant diversity dimensions;

– consistent data is gathered by ensuring that defined standards for key terms and measurements are followed;

– data recording requirements, the type of data to be collected, its frequency, and the format and medium to provide it in, are specified; and

– quality control to ensure that data reported to the NMAA is in accordance with quality requirements.

A number of data collection requirements are specified in the IMAS series. See IMAS 07.11 for land release, IMAS 08.10 for non-technical surveys, IMAS 08.20 for technical surveys, IMAS 09.10 for clearance requirements, IMAS 09.11 for battle area clearance, IMAS 08.30 for post-clearance documentation, IMAS 07.40 on the monitoring of mine action organizations, IMAS 12.10 on mine and explosive remnants of war risk education, and IMAS 10.60 on reporting and investigation of demining incidents. The data collection requirements of the above-mentioned standards and those of relevant conventions to mine action have been summarized in Annex B.

7.5   Data validation and storage

Checking the data collected and reported is an important process that prevents incorrect or incomplete data from being entered into a database. Validation and control of data should be done on several levels in the programme. Checks should be done by carrying out the following.

− The organization recording the information should check for completeness and correctness before submitting records as reports.

− The relevant operational unit should check that data reported is consistent with existing information about the method, activity and area of operation.

− The operational unit responsible for the area of work from which it receives a record and the IM unit should check for errors, duplicate information, lack of information or incompleteness of information in records including verification of geographical information with the help of GIS.

In the case of deviation from agreed quality requirements, appropriate measures should be taken to ensure that any errors or omissions of information are corrected.

− The IM unit should be notified to avoid incorrect data enters the information management system.

− Relevant operational units should be notified so that they can inform the reporting entities and follow up on corrective measures taken.

The organization should ensure that processes for data validation are well defined and mapped to ensure validation is carried out consistently and reliably.

To ensure the secure storage of the data managed by the IM unit, a documented policy for backups and recovery of the information system should be implemented. The backup policy should define:

− how often backups should be made and at what time during the day;

− how backups should be named to ensure easy identification;

− how and where backups should be stored, and on what type of support to ensure that they are well protected from damage or loss; and

− how often backups should be tested to verify that they can be used in the case of an emergency.

The following are the principles that apply to backups and recovery.

− Backups should be scheduled to take place regularly, at a frequency appropriate to the amount of data that is entered over a certain period.

− Backups should be scheduled to take place outside of working hours when the information system is not in use, for example, overnight or at weekends.

− The backup process should include all data handled by the organization.

− Backups should be stored in a secure location, preferably in a different location from the original data but at least in a different room and on different hardware to avoid the loss of the original data and the backup at the same time.

7.6   Data processing

Data processing involves transforming data into useful information. There are a wide variety of techniques for data processing. The appropriate processing technique to use depends on the type of information product required. The organization should ensure that:

− processes are documented and designed to produce information products that meet quality requirements;

− standard queries and calculations are developed for recurring processing needs; and

− standard templates for information products are developed and continually improved.

7.7 Information dissemination

Information dissemination involves the timely distribution of information products to stakeholders. Information shared should be in agreed formats, according to quality requirements and within the limits of the security policy.

The processes for sharing information and the methods of communication should be defined, bearing in mind that the types of information and their dissemination formats and frequencies may differ from one stakeholder to another. At a minimum, the following should be taken into consideration when planning for information dissemination:

− to which stakeholders information shall be distributed;

− the information content each stakeholder should receive; and

− the frequency of sharing the information, that is, yearly, quarterly and/or monthly.

The dissemination of information products to stakeholders that meet quality requirements is the ultimate goal of information management.

7.8 Continual improvement

Continual improvement is the process of identifying and exploiting opportunities to improve processes and products. A tool used in quality management (QM) for continual improvement is the plan–do–check–act (PDCA) cycle. The PDCA cycle can be applied to various levels of an organization. The IM cycle described in this subclause is an example of a PDCA cycle where continual evaluation of indicators leads to improved information requirements and processes.

The definition and documentation of IM processes and their key performance indicators enable monitoring, evaluation and improvement of these processes. All IM processes should be documented including:

− the input and output for each process;

− the roles responsible for each activity; and

− links to other processes.

Processes may be documented as SOPs. Well documented SOPs ensure that key IM activities are carried out in a consistent and correct manner, independent of who is performing the actual work.

Each of the IM processes should include elements of continual improvement to ensure that opportunities for improvement are captured and exploited. Key elements to ensure continual improvement are:

− measurable performance indicators for all processes;

− quality requirements against which to check input and output; and

− defined actions to be taken to ensure opportunities for improvement are evaluated and implemented on existing processes and products.

8 Quality control

8.1 General

Quality control (QC) is the measuring of input and output of processes against the quality requirements agreed with stakeholders during the information requirements specification.

Each input (data submitted to the IM system) and output (information products derived from the IM system) shall be checked to ensure that it meets the quality requirements before being used as input for other processes or released for delivery to stakeholders.

−　　Data collected shall be checked to ensure completeness, correctness and consistency before being accepted and entered into the database.

−　　Information products shall be checked to ensure that they meet the quality requirements agreed with stakeholders.

8.2　Database

To ensure that data in the database is correct and complete, regular checks shall be performed by the IM unit. Regular checks should also be performed by representatives of relevant operational units who can better judge to which extent data and information is relevant and accurate. Regular data checks should be performed by:

−　　querying data in the database with the intention of identifying incomplete information;

−　　querying the data with the intention of identifying duplicate data;

−　　querying the data with the intention of identifying incorrect data;

−　　querying the data with the intention of identifying cases where data is not relevant and accurate; and

−　　displaying the data with the help of GIS to verify accuracy and correctness of geographic data;

Queries and checks should regularly be updated and applied to different data sets to avoid checking the same data repeatedly.

8.3　Geographic data

Mine action is inherently geographic. Mine action activities are usually associated to a geographic area undergoing a series of activities aiming at reducing the social, economic and environmental impact of explosive ordnance in affected areas. The affected areas undergo a series of activities aimed at removing the contamination from the land, releasing it to its rightful owners or providing assistance to the affected population. It is therefore essential that the geographical nature of the contamination and the impact it causes are recorded and analysed to enable the planning and implementation of an effective and efficient response. The organization should ensure that:

−　　base map layers for areas of operations of the mine action programme are available and kept up to date;

−　　relevant data for country administration and infrastructure are available and kept up to date;

−　　all geographic information kept in the IM system can be displayed in a GIS;

−　　the requirements for accuracy, detail and update of geospatial data are well defined and documented; and

−　　standard map templates are developed and continually improved for recurring requests.

8.4　Information products

Information products or output can be of a wide variety of types and use different analysis techniques. Some examples of information products that are usually required in mine action programs are:

−　　information for planning and prioritizing mine action activities, for example, affected areas and communities, accidents, impact assessments;

−　　performance metrics of processes; and

- statistics and maps of the progress of the mine action programme (for example, beneficiaries reached, area cancelled, reduced and cleared, items found, etc.).

Before being delivered to stakeholders, information products shall be checked against the quality requirements of their recipients. Elements of quality of information products include:

- usability;

- relevance;

- accuracy;

- precision; and

- timeliness.

If a product does not meet quality requirements, that is, if nonconformity occurs, it shall not be released to the intended stakeholder. Instead, the IM unit should make all efforts to:

- correct the nonconformity, if possible, so that the product can be released;

- investigate the cause of the nonconformity; and

- take action to ensure that the nonconformity does not happen again.

9   Responsibilities

9.1   National mine action authority (or an organization working on its behalf)

The NMAA should ensure:

a)   the development and availability of national standards and policies for information management and reporting;

b)   the availability of sufficient financial, human and technical resources for the management of the national mine action information;

c)   the availability of a central information management system(s) for the management and storage of all national mine action data;

d)   that future and post-mine action information requirements are taken into consideration when designing national standards and reporting requirements; and

e)   that information management processes and products are continually evaluated and improved.

f)   that all data and information collected and reported to it is managed according to this IMAS, NMAS and other national policies and standards;

g)   sufficient data for the monitoring, evaluation and continuous improvement of mine action processes is collected, reported and analysed in the programme;

h)   sufficient data to provide high confidence in mine action products is collected, reported and stored;

i)   sufficient data to fulfil national and international information requirements are being collected, analysed and disseminated to relevant stakeholders in a timely manner; and

j)   the availability of information authorized for sharing and dissemination of accurate information products that meet quality requirements to stakeholders.

9.2   Operating organizations

Operating organizations shall:

a)   collect accurate complete and correct data during their activities, and report to the NMAA or its representative according to national standards and requirements in a timely manner;

b)   ensure that sufficient financial, human and technical resources are available to fulfil their information management functions;

c)   manage data and information relating to the activities of the organization according to national and international standards and in accordance with national policies and legislation on the management of information;

d)   ensure that data collected according to national requirements during their activities is managed and stored in such a way that it can be provided to NMAA or other relevant stakeholders if required;

e)   ensure the collection and management of data and information that fulfil their own internal needs for monitoring, evaluation, planning and implementation; and

f)   ensure the collection and management of data and information that fulfil the requirements of their own stakeholders.

Annex A
(normative)

References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

[1]   IMAS 04.10, *Glossary of mine action terms, definitions and abbreviations*

[2]   IMAS 06.10, *Management of training*

[3]   IMAS 07.11, *Land release*

[4]   IMAS 07.12, *Quality management in mine action*

[5]   IMAS 07.40, *Monitoring of mine action organizations*

[6]   IMAS 08.10, *Non-technical survey*

[7]   IMAS 08.20, *Technical survey*

[8]   IMAS 09.10, *Clearance requirements*

[9]   IMAS 09.11, *Battle area clearance*

[10]   IMAS 09.13, *Building clearance*

[11]   IMAS 08.30, *Post-clearance documentation*

[12]   IMAS 10.60, *Investigation and reporting of accidents and incidents*

[13]   IMAS 12.10, *Explosive ordnance risk education*

[14]   IMAS 13.10, *Victim assistance*

[15]   IMAS 14.10, *Guide for the evaluation of mine action interventions*

The latest version/edition of these references should be used. The Geneva International Centre for Humanitarian Demining (GICHD) holds copies of all references used in this standard. A register of the latest version/edition of the IMAS standards, guides and references is maintained by the GICHD, and can be read on the IMAS website (http://www.mineactionstandards.org/).

National mine action authorities, employers and other interested bodies and organizations should obtain copies before commencing mine action programmes.

Annex B
(normative)

Minimum data requirements

B.1   General

This annex defines the minimum data requirements for mine action programmes, and aims primarily to provide technical guidance to information management professionals. It is formatted and structured so that it is most useful to those mine action professionals who are directly responsible for establishing and maintaining databases and datasets which store information related to mine action activities.

Defining and using best practices of data collection for mine action programmes enables greater consistency and standardization of data in mine action globally. It ensures that mine action programmes are able to fulfil the global level information requirements of their stakeholders.

This annex provides the following four main sections:

− information requirements that the collection and analysis of minimum data intend to fulfil;

− a specification of the data that needs to be collected about each type of mine action activity and its resulting products;

− definitions of key terms and measurements that should be used to record minimum mine action data; and

− a schema of a data structure adapted to the storage of minimum data for mine action.

The minimum data requirements are limited to the data that can only be gathered during the implementation of mine action activities. Data that may be collected and available from other sources is not included in this annex.

This annex is not intended to cover all the data requirements of mine action programmes. The minimum data requirements should be complemented with additional data to ensure each mine action programmes' national and operational information needs are fulfilled.

B.2   Information requirements

The minimum data requirements have been designed according to best practices in mine action data collection. They were developed by breaking down information requirements extracted from treaties, standards and global level stakeholder requirements into the subsets of data needed to meet them.

The information requirements that were used to design the minimum data requirements include the following.

Information breakdown	Source element	Contributing data fields	Information breakdown
Size and location of SHA and CHA	Location	Contaminated area	Geographic location benchmark
			Contaminated area status
			Intended land use
	Type and estimated quantity of explosive ordnance (EO)	Contaminated area/spot task	Type of contamination
			Quantity of EO
	Estimated or known date of contamination	Contaminated area/spot task	Suspected year of contamination
	Number of SHA and CHA	Contaminated area	Contamination ID
			Contaminated area status
			Type of contaminated area
	Size of SHA and CHA (m²)	Contaminated area	Area polygon
			Contaminated area status
			Type of contaminated area
	Number of open spot tasks	Spot task	Spot task ID
			Geographic location reference point
			Spot task status
	Direct and indirect evidence	Contaminated area	Category of evidence
			Location of evidence
	Survey method used to estimate suspected area	NTS/TS	NTS ID
			TS ID
	Markings	Contaminated area/location	Geographic location reference point
			Marked

Size and location of contaminated areas released, EO destroyed and beneficiaries thereof	Location	NTS/TS/clearance/spot task	Geographic location reference point
	Cancelled area (m²)	Land release product	Area polygon
			Type of land release
	Reduced area (m²)	Land release product	Area polygon
			Type of land release
	Cleared area (m²)	Land release product	Area polygon
			Type of land release
	Details of the type, location, depth and condition of any EO encountered and/or destroyed	Land release product/spot task	EO type
			EO category
			EO sub-category
			Geographic location
			Quantity
			Depth
			Condition
			Destruction/disposal method
	Area and depth of clearance	Land release product	Type of land release
			Area polygon
			Minimum clearance depth
	Assets used during clearance (manual, ADS, mechanical)	Land release product	Operational method
	Number of beneficiaries	Land release product	Direct female adult beneficiaries
			Direct male adult beneficiaries
			Direct female children beneficiaries
			Direct male children beneficiaries
			Indirect female adult beneficiaries

			Indirect male adult beneficiaries
			Indirect female children beneficiaries
			Indirect male children beneficiaries
	Number of areas released	Contaminated area	Contamination ID
			Contaminated area status
Number of interpersonal explosive ordnance risk education (EORE) sessions conducted and direct beneficiaries thereof	Location	EORE	Geographic location
	Number of interpersonal sessions	EORE	EORE ID
	Number of direct beneficiaries SADD	EORE	Direct female adult beneficiaries
			Direct male adult beneficiaries
			Direct female children beneficiaries
			Direct male children beneficiaries
	Location	EORE	Geographic location
Number of mass and digital media EORE activities conducted and known or estimated direct beneficiaries thereof	Number of mass and digital media EORE activities	EORE	EORE ID
	Known or estimated number of direct beneficiaries SADD	EORE	Direct female adult beneficiaries
			Direct male adult beneficiaries
			Direct female children beneficiaries
			Direct male children beneficiaries
	Location	EORE	Geographic location
Number of training of trainers in EORE delivery conducted and direct beneficiaries thereof	Number of training of trainers in EORE delivery activities	EORE	EORE ID
	Number of direct beneficiaries SADD	EORE	Direct female adult beneficiaries
			Direct male adult beneficiaries
			Direct female children beneficiaries
			Direct male children beneficiaries

Number of persons killed or injured by EO	Date and time of accident	Accident	Accident date and time
	Type of EO causing accident	Accident	Accident EO
	Location of accident	Accident	Geographic location
			Description of the location
	Direct victim's activity and causal factor at time of accident	Accident	Activity at time of accident
			Specific action causing the accident
	Direct victim's status	Direct victim	Killed or injured
			Physical injury mapping
			Injured person and survivor's needs
	Sex, age and pre-existing disability of direct victims	Direct victim	Sex
			Date of birth
			Pre-existing disability
Number of persons who have been referred to VA services	Type of service (emergency medical care, ongoing medical care, rehabilitation, psychological and psycho-social support, inclusive education, socio-economic insertion, multi-purpose in-kind assistance (including cash and voucher assistance), transportation)	Victim assistance	Direct female adult beneficiaries
			Direct male adult beneficiaries
			Direct female children beneficiaries
			Direct male children beneficiaries
			Indirect female adult beneficiaries
			Indirect male adult beneficiaries
			Indirect female children beneficiaries
			Indirect male children beneficiaries
Number of persons who have accessed VA services	Type of service (emergency medical care, ongoing medical care, rehabilitation, psychological and psycho-social support, inclusive education, socio-economic insertion, multi-purpose in-kind assistance (including cash and voucher assistance), transportation)	Victim assistance	Direct female adult beneficiaries
			Direct male adult beneficiaries
			Direct female children beneficiaries
			Direct male children beneficiaries

			Indirect female adult beneficiaries
			Indirect male adult beneficiaries
			Indirect female children beneficiaries
			Indirect male children beneficiaries
Number of persons injured, survivors and other persons in need of services, met in the course of EORE and land release interventions, on whom information about their needs has been shared with organizations/authorities providing services in the sector VA is part of	Type of service (emergency medical care, ongoing medical care, rehabilitation, psychological and psycho-social support, inclusive education, socio-economic insertion, multi-purpose in-kind assistance (including cash and voucher assistance), transportation)	Victim assistance	Indirect female adult beneficiaries
			Indirect male adult beneficiaries
			Indirect female children beneficiaries
			Indirect male children beneficiaries

B.3   Minimum data requirements

This clause defines minimum data requirements for each record of mine action activities, products, accidents and victims. Clause B.4 presents the definitions of the data that should be recorded in each data field and of the key terms, measurements and domains that should be used.

The data fields included in this definition are the ones that contain data gathered using data collection formats during operations. System data fields and foreign keys for each record have been excluded.

The data types listed in this annex include:

−   UID: a unique identifying code or number;

−   Date: date;

−   Datetime: date and time;

−   Date (Year): year;

−   Number; any number;

−   Text: any text;

−   Domain: a group of valid values for a particular field. The standard values for each domain are listed in B.4;

−   Point: a geometric element defined by a pair of x, y coordinates; and

−   Polygon: a closed shape defined by a connected sequence of x, y coordinate pairs, where the first and last coordinate pairs are the same and all other pairs are unique.

Mine action records have been divided into ten elements where the first eight contain data about a specific mine action activity or product and the last two about accidents and victims.

The elements in this minimum data specification contain no data that connects them to a national gazetteer or administrative structure. Elements can be connected to an administrative structure either by connecting them using data fields to reference a gazetteer, or automatically through geographic analysis of coordinates in cases where GIS layers of sufficient quality are available.

B.3.1   Non-technical survey

The element Non-Technical Survey is used to record data about the activity itself. Any data related to identified contamination or cancelled land is recorded through the elements for contaminated area, spot task or land release product.

Information	Data field	Field name	Data type
Report info	NTS ID	nts_id	UID
	NTS report date	report_dt	Date
Location	Geographic location reference point	ref_point	Point
Organization /department/entity	Organization	org	UID
Progress	Operational start date	start_dt	Date
	Operational end date	end_dt	Date
	Activity status	status	Domain

Contamination found	Non-technical survey result	nts_result	Domain
Resurvey	Resurvey contamination ID	resurv_id	UID

B.3.2   Technical survey

The element Technical Survey is used to record data about the activity itself. Any information related to resulting confirmed hazardous areas, contaminated locations or reduced land is recorded through the elements for contaminated area, spot task or land release product.

Information	Data field	Field name	Data type
Report info	TS ID	ts_id	UID
	TS report date	report_dt	Date
Location	Geographic location reference point	ref_point	Point
Organization /department/entity	Organization	org	Organization ID
Progress	Operational start date	start_dt	Date
	Operational end date	end_dt	Date
	Activity status	status	Domain

B.3.3   Clearance

The element Clearance is used to record data about the activity itself. Any information related to remaining contaminated area or cleared land is recorded through the elements for contaminated area or land release product.

Information	Data field	Field name	Data type
Report info	Clearance ID	cl_id	UID
	Clearance report date	repot_dt	Date
Location	Geographic location reference point	ref_point	Point
Organization /department/entity	Organization	org	UID
Progress	Operational start date	start_dt	Date
	Operational end date	end_dt	Date
	Activity status	status	Domain

B.3.4   Spot task

The element Spot Task is used to record data about locations that are contaminated by EO and the activity to remove or destroy that EO. No area should be recorded for spot tasks.

Information	Data field	Field name	Data type
Report info	Spot task ID	spot_id	UID
	Spot task report date	report_dt	Date
Location	Geographic location reference point	ref_point	Point
Organization /department/entity	Organization	org	UID

Type	Type of task	task_type	Domain
Progress	Activity status	status	Domain
	Operational start date	start_dt	Date
	Operational end date	end_dt	Date
EO	Type	eo_type	Domain
	Category	eo_cat	Domain
	Sub-category	eo_sub	Domain
	Fuze or switch (only IED)	eo_switch	Domain
	Model	eo_model	Text
	Geographic location	location	Point
	Quantity	quantity	Number
	Depth	depth	Number
	Condition	condition	Domain
	Destruction/disposal method	destr	Domain
Beneficiaries	Direct female adult beneficiaries	direct_fem_adult	Number
	Direct male adult beneficiaries	direct_male_adult	Number
	Direct female children beneficiaries	direct_fem_child	Number
	Direct male children beneficiaries	direct_male_child	Number
	Indirect female adult beneficiaries	indirect_fem_adult	Number
	Indirect male adult beneficiaries	indirect_male_adult	Number
	Indirect female children beneficiaries	indirect_fem_child	Number
	Indirect male children beneficiaries	indirect_male_child	Number

B.3.5 Explosive ordnance risk education

The element Explosive Ordnance Risk Education is used to record data about the activity itself and educated men, women, boys and girls resulting from the activity.

Information	Data field	Field name	Data type
Report info	EORE ID	eore_id	UID
	EORE report date	report_dt	Date
Location	Geographic location reference point	ref_point	Point
Organization/department/entity	Organization	org	UID
Progress	Operational start date	start_dt	Date
	Operational end date	end_dt	Date
Type of EORE	Type of EORE	type_EORE	Domain
Beneficiaries	Direct female adult beneficiaries	fem_adult	Number
	Direct male adult beneficiaries	male_adult	Number

	Direct female children beneficiaries	fem_child	Number
	Direct male children beneficiaries	male_child	Number

B.3.6   Contaminated area

The element Contaminated Area is used to record data about areas where contamination is suspected or confirmed to be present. Contaminated area should be linked to the activity that led to it being recorded.

Information	Data field	Field name	Data type
Report info	Contamination ID	cont_id	UID
	Contamination report date	report_dt	Date
Location	Geographic location benchmark	benchmark	Point
Contaminated area	Type of contaminated area	area_type	Domain
	Marked	marked	Domain
	Type of contamination	cont_type	Domain
	Suspected quantity of EO	eo_qty	Number
	Suspected year of contamination	time_cont	Date (Year)
	Area polygon	polygon	Polygon
Progress	Contaminated area status	status	Domain
	Date of release	release_dt	Date
Evidence	Category of evidence	evidc_cat	Domain
	Location of evidence	evidc_loc	Point

B.3.7   Land release product

The element Land Release product is used to record data about cancelled, reduced or cleared land. The land release product should be linked to the activity that produced it.

Information	Data field	Field name	Data type
Report info	Land release ID	lr_lid	UID
	Land release report date	report_dt	Date
Location	Geographic location benchmark	benchmark	Point
Progress	Operational start date	start_dt	Date
	Operational end date	end_dt	Date
Method	Operational method	method	Domain
Processed area	Area polygon	polygon	Polygon
	Minimum clearance depth	cl_depth	Number
	Type of land release	lr_type	Domain
EO	Type	eo_type	Domain
	Category	eo_cat	Domain
	Sub-category	eo_sub	Domain

	Fuze or switch (only IED)	eo_fuze	Domain
	Model	eo_model	Text
	Geographic location	location	Point
	Quantity	quantity	Number
	Depth	depth	Number
	Condition	condition	Domain
	Destruction/disposal method	destruction	Domain
Beneficiaries	Direct female adult beneficiaries	direct_fem_adult	Number
	Direct male adult beneficiaries	direct_male_adult	Number
	Direct female children beneficiaries	direct_fem_child	Number
	Direct male children beneficiaries	direct_male_child	Number
	Indirect female adult beneficiaries	indirect_fem_adult	Number
	Indirect male adult beneficiaries	indirect_male_adult	Number
	Indirect female children beneficiaries	indirect_fem_child	Number
	Indirect male children beneficiaries	indirect_male_child	Number

B.3.8   Accident and incident[1]

The element Accident and Incident is used to record data about accidents and incidents caused by EO.

Information	Data field	Field name	Data type
Report info	Accident/incident ID	acc_id	UID
	Accident/incident report date	report_dt	Date
	Organization	org	UID
Type of event	Demining accident/EO accident/Demining incident/EO incident	acc_inc	Domain
Location	Geographic location reference point	ref_point	Point
	Description of the location	location_desc	Text
Place	Type of place	place_type	Domain
Details	Date and time	acc_dt	Datetime
Cause	Action	action	String
Damage	Direct victims yes/no	acc_victim	Domain
	property	acc_property	Domain
	Animal	acc_animal	Domain
Accident EO	EO type	eo_type	Domain
	EO category	eo_cat	Domain

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[1] Accident, demining accident, incident, demining incident as defined in IMAS 04.10. IMAS 10.60 provides detailed information on data collection requirements, roles and responsibilities following a demining accident or incident.

B.3.9   Direct victim

The element Direct Victim is used to record data about direct victims of accidents caused by EO. The direct victim shall be linked to the record of the accident in which they were involved. Direct victims shall only be recorded for accidents involving EO and not for events that can be categorized as attacks. For reasons of privacy and due to the different legal environments of mine action programmes, this document does not include requirements to collect any personal data on direct victims.

It is recommended that programmes define and collect data that allow individual identification of victims where this is legally and ethically allowed.

Information	Data field	Field name	Data type
Report info	Direct victim ID	vic_id	UID
	Direct victim report date	report_dt	Date
Victim status	Sex	sex	Domain
	Date of birth	dob	Date
	Resident in locality	home_loc	Text
	Pre-existing disability	pre_status	Domain
	Direct victim's status	status	Domain
	Direct victim's physical injury mapping	injury_mapping	Domain
	Type of injury	injury	Domain
	Direct victim's needs	need	Domain
	Service already received	vas_type	Domain
Activity	Activity at time of accident	activity	Domain

B.3.10   Victim assistance service

The element Victim Assistance Service is used to record data about victim assistance services.

Information	Data field	Field name	Data type
Report info	VA service ID	vas_id	UID
Location	Geographic location benchmark	benchmark	Point
Victim assistance service	Victim assistance service	vas_type	Domain
	Contact	contact	Text
	Opening hours	open_hours	Text
Beneficiaries	Direct female adult beneficiaries	direct_fem_adult	Number
	Direct male adult beneficiaries	direct_male_adult	Number
	Direct female children beneficiaries	direct_fem_child	Number
	Direct male children beneficiaries	direct_male_child	Number
	Indirect female adult beneficiaries	indirect_fem_adult	Number
	Indirect male adult beneficiaries	indirect_male_adult	Number
	Indirect female children beneficiaries	indirect_fem_child	Number

	Indirect male children beneficiaries	indirect_male_child	Number

B.4   Standard data definitions

B.4.1   General

Definitions for each field of data and the terms and measurements that should be used to record data can be found below. Domain definitions include the minimum choices that should be available for a certain field.

B.4.2   General fields

This subclause describes fields that are a part of all or most types of records.

−   *Area polygon*. A closed shape defined by a connected sequence of x, y coordinate pairs, where the first and last coordinate pair are the same and all other pairs are unique describing the boundaries of a contaminated area or a land release product.

−   *Geographic location reference point*. The geographic x, y coordinates of a reference point for an activity, product or accident.

−   *Geographic location benchmark*. The geographic x, y coordinates of a fixed point of reference for a contaminated area or land release product. The benchmark should be located a short distance outside the area polygon.

    A geographic reference point should be taken as accurately and close to the location of an activity or product as possible. If an accurate position of the activity or product cannot be obtained, the location of the closest locality or administrative unit (expressed as geographic reference point with x,y coordinates) may be used.

−   *ID*. A unique identification code identifying each record of an activity, product, accident or victim.

−   *Organization*. The mine action organization responsible for implementing an activity or for recording an accident. The organization should be recorded using a unique name or identification code.

−   *Operational start date*. The date on which the implementation of an activity started.

−   *Operational end date.* The date on which the implementation of an activity was completed.

−   *Report date*. The date on which a report was completed.

B.4.3   Specific fields

This subclause describes data fields specific to a certain type of record in alphabetical order.

−   *Activity at time of accident*. The activity of a victim immediately before an accident, including. Activities include:

    −   civilian activity;

    −   demining;

    −   military/law enforcement;

    −   aid-work.

- *Accident date and time.* The time and date on which the reported accident happened.

- *Accident/incident.* Whether a recorded accident or incident is an EO accident or demining accident. Accident/incident includes:

  - EO accident (refers to an accident away from a demining workplace involving EO);

  - civilian accident during demining;

  - demining accident (refers to an accident at a demining workplace involving EO);

  - demining incident.

- *Action.* In relation to an accident, the specific action that directly caused the device to explode (for example, stepped on EO, tampering with EO).

- *Activity status.* The status of an activity. Activity statuses include:

  - planned – the activity is planned but implementation has not yet started;

  - in progress – the implementation of the activity has started and is ongoing;

  - suspended – implementation of the activity has started but is currently suspended;

  - completed – the implementation of the activity has been completed.

- *Category of evidence.* The category of evidence on which the creation of a SHA or CHA has been based. Evidence categories include:

  - direct;

  - indirect.

- *Contaminated area status.* The status of the reported hazardous area. Status of contaminated areas include:

  - open – the area has been recorded but no activities to reduce or clear it have commenced;

  - in progress – activities to reduce or clear the land are taking place;

  - suspended – activities to reduce or clear the land have commenced but have been suspended;

  - closed – activities to cancel, reduce or clear the area have been completed and all reasonable effort has been taken to ensure that the land is free of contamination;

  - released – it has been officially accepted by relevant stakeholders that:

    - in areas where no evidence was found, the efforts applied could reasonably have been expected to find evidence of contamination had it in fact been present; and/or

    - in areas where evidence of contamination was found, the efforts applied could reasonably have been expected to find and remove all such contamination (within specified limits).

- *Date of release.* The date on which a contaminated area was released.

- *Date of birth.* The date of birth of a recorded victim/survivor.

− *Direct victim's needs*. The needs of a victim include:

  − emergency medical care;

  − ongoing medical care;

  − rehabilitation, including prosthetics and orthotics;

  − psychological and psycho-social support;

  − socio-economic inclusion/inclusive education;

  − socio-economic inclusion/economic inclusion;

  − socio-economic inclusion/inclusive sports, leisure and cultural activities;

  − multi-purpose in-kind assistance (including cash and voucher assistance);

  − case management;

  − transportation;

  − protection, GBV protection, child protection, house land and property protection;

  − water, health and sanitation;

  − shelter;

  − legal support.

− *Direct victim's status*. Whether the direct victim was injured or killed as the result of an accident.

− *EOD spot task direct beneficiaries*. Persons reporting the EO and the members of their household, and those whose freedom of movement or normal activities were prevented by the presence of an EO and the threat that it posed, real or perceived.

− *EOD spot task indirect beneficiaries*. Household members of those spot task direct beneficiaries whose freedom of movement or normal activities were prevented by the presence of an EO, and any other persons evacuated to carry out the EOD task safely.

− *EORE direct beneficiaries*. Persons receiving EORE safety messages through interpersonal EORE, mass and digital media EORE or EORE training of trainers in EORE delivery.

− *EO type*. Whether EO is conventional or improvised. Both types of EO can be categorized using the same EO categories. Types of EO include:

  − conventionally manufactured;

  − improvised.

− *EO category*. The category of the EO. Categories include:

  − mine, booby trap or other device (as defined by CCW amended protocol II);

  − unexploded ordnance (UXO);

  − abandoned ordnance (AXO).

−   *EO condition*. Whether EO is found in a condition safe to move or not. EO condition include:

  −   safe to move;

  −   not safe to move.

−   *EO depth*. The depth in centimeters at which the top of the EO was found.

−   *EO destruction/disposal method*. The method used to destroy or dispose of the EO. EO destruction/disposal method include:

  −   destroyed in situ;

  −   destroyed in CDS;

  −   stored for destruction.

−   *EO fuze or switch(es)*. This domain is only relevant for improvised devices and which fall into the category of "mine, booby trap or other device" (CCW definition). EO fuze or switch(es) include:

  −   victim-operated;

  −   time;

  −   command.

−   *EO geographic location*. The geographic coordinates of the location in which the EO was found. The location of each EO found should be collected whenever practically possible. In cases where large amounts of EO are found in small areas, a programme may choose to permit reporting on multiple EO for each reference point.

−   *EO model*. The model name of the EO, if available.

−   *EO quantity*. The quantity of EO reported of the specified type and in the specified location.

−   *EO subcategory*. The subcategory of the EO. Subcategories are listed according to the category they belong to. Subcategories include:

  −   mine, booby trap, or other device:

    −   anti-personnel (AP) (data collection forms to include APMBC definition);

    −   anti-vehicle (AV);

    −   booby trap;

    −   other device (as defined by CCW amended protocol II), including IED;

  −   UXO:

    −   rocket;

    −   mortar;

    −   grenade;

    −   projectile;

- aircraft bomb;

- missile;

- cluster munition;

- component;

- small arms ammunition (SAA);

- other not listed above;

  - AXO:

    - rocket;

    - mortar;

    - grenade;

    - projectile;

    - aircraft bomb;

    - missile;

    - cluster munition;

  - component:

    - SAA;

    - other not listed above.

- *Female adult*. Female person at or above the age of 18.

- *Female child*. Female person below the age of 18.

- *Household*. A small group of persons who share the same living accommodation, who pool some or all of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. [SOURCE: System of National Accounts, United Nations Statistics Division.]

- *Intended land use*. Use of land following demining operations. Intended land use categories include:

  - residential – rehabilitation/building of housing and settlements including permanent housing, compounds, temporary shelters, makeshift shelters or temporary settlements. Beneficiaries are defined as the number of people who are living, will be living, are settled or will be settled in existing or new settlements, compounds, housing or shelters on the cleared or reduced land;

  - agricultural – cultivation, market gardens and intensively grazing animals (where relevant to the country). Beneficiaries are defined as the number of people in households, including labourers if relevant, who are using or will use the cleared or reduced land to cultivate crops, market gardens or to intensively graze animals;

  - community/public services – provision and use of public services, such as health facilities, playgrounds and play areas, shops and markets, community/administrative buildings, and cultural,

religious and recreational sites. Beneficiaries are defined as the number of people who use, will use, are working or will work in facilities on the cleared or reduced land;

– natural resources – hunting, foraging, collecting natural materials, using natural water sources (including domestic use such as cooking, bathing or watering animals, and fishing). Extensively grazing animals may fit in this category if most relevant to the country. Beneficiaries are defined as the number of people in households who frequently use or will use the cleared or reduced land to forage, fish, hunt, collect material, use natural water sources or extensively graze animals;

– infrastructure – land released for the safe use or building of small- and medium-scale infrastructure, such as irrigation systems, bore holes, wells, local power lines, etc. Beneficiaries are defined as the number of people in households who frequently use or will use small- or medium-scale infrastructure, bore holes, wells, local power lines or sources, telecoms infrastructure, etc., on the cleared or reduced land;

– access – land released for the safe use, construction or renovation of access routes, including pathways, roads and bridges. Beneficiaries are defined as the number of people in households who use or will use the pathways, roads or bridges as a primary access route, and/or the number of people who will transit through the released land to access another land one time or more per week.

– *Land release direct beneficiaries*. Persons whose lives and limbs are protected because they physically use/will use cleared and reduced land post-clearance for a productive and/or frequent and/or sustainable activity. It includes other members of the household.

– *Land release indirect beneficiaries*. Persons who are not using the cleared and reduced land but are members of the same community as the direct beneficiaries. Their benefits may be found in an overall improved economic situation in the community, reduced risk or improved general livelihood.

– *Location of evidence*. Geographic coordinates of the location in which evidence has been found, if available or safe to obtain.

– *Male adult*. Male persons at or above the age of 18.

– *Male child*. Male person below the age of 18.

– *Marked*. Specifies if a contaminated area or location has been marked according to IMAS requirements using official signs. Marked data should be answered with either:

– yes – the area or location have been marked according to standards; or

– no – the area or location have not been marked according to standards.

– *Minimum clearance depth*. The minimum depth to which an area has been cleared.

– *Non-technical survey result*. Whether any contamination has been identified and reported in the course of a non-technical survey. Non-technical survey results include:

– evidence of contamination found and reported; and

– no evidence of contamination found.

– *Operational method*. The method used to reduce or clear an area. Operational methods include:

– manual;

– animal detection systems;

- mechanical;

- BAC.

- *Persons with disabilities*. Includes persons with long-term physical, mental, intellectual or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others. [SOURCE: UN CRPD.]

- *Physical injury mapping*. Direct victim's body parts that have sustained injury (or injuries) as a result of an EO accident. Body parts include:

  - head;

  - eyes;

  - ears;

  - neck;

  - thorax;

  - abdomen, lower back, lumbar spine or pelvis;

  - shoulder or upper arm;

  - elbow or forearm;

  - wrist or hand;

  - hip, groin or thigh;

  - knee or lower leg;

  - ankle or foot;

  - multiple body regions;

  - unspecified part of trunk, limb or body region;

  - effects of foreign body entering through natural orifice;

  - other or unspecified.

- *Pre-existing disability*. Whether the direct victim was living with a disability prior to the accident.

- *Resident in locality*. The locality of which a survivor is a resident.

- *Resurvey contamination ID*. Specifies whether a non-technical survey is a resurvey of an existing hazard. If the NTS is a resurvey of an area the contaminated area ID should be recorded in this field.

- *Sex*. Whether a recorded victim/survivor is male or female.

- *Suspected quantity of EO*. The estimated number of EO a SHA or CHA contains.

- *Suspected year of contamination*. The year that the contamination of an area is suspected to have taken place.

−   *Type of contaminated area*. Whether a reported contaminated area is suspected or confirmed. Area types include:

  −   SHA – an area where there is reasonable suspicion of the presence of EO on the basis of indirect evidence;

  −   CHA – an area where the presence of EO has been confirmed on the basis of direct evidence.

−   *Type of contamination*. The main type of contamination a SHA or CHA is suspected or confirmed to mainly contain. Types of contamination include:

  −   AP mine (conventional or improvised);

  −   AV mine (conventional or improvised);

  −   cluster or dispenser;

  −   submunition;

  −   UXO;

  −   AXO;

  −   SAA;

  −   IED.

−   *Type of EORE*. The type of EORE delivery method. Types of EORE include:

  −   interpersonnel EORE;

  −   mass media (including mass digital) EORE;

  −   training of trainers.

−   *Type of injury*. The nature of injury the direct victim has suffered. Types of injury include:

  −   amputation;

  −   wounds;

  −   burns;

  −   blindness;

  −   deafness;

  −   paralysis;

  −   other.

−   *Type of land release*. The type of land release a land release product record refers to. Type of land release include:

  −   cancelled area (m^2) – a defined area concluded not to contain evidence of EO contamination following the non-technical survey of a SHA/CHA;

- reduced area (m²) – a defined area concluded not to contain evidence of EO contamination following the technical survey of a SHA/CHA;

- cleared area (m²) – a defined area cleared through the removal and/or destruction of all specified EO hazards to a specified depth.

- *Type of place*. A description of the type of place where an accident occurs.

- *Type of task*. The type of spot task reported. Types of spot clearance include:

  - EOD spot task;

  - bulk demolition;

  - stockpile destruction.

- *VA services*. <Mine action> services include:

  - emergency and continuing medical care;

  - rehabilitation;

  - psychological and psycho-social support;

  - socio-economic inclusion.

- *Victim*. Persons, either collectively or individually, who have experienced physical, emotional and/or psychological injury, economic loss. Or whose recognition, enjoyment or exercise of their human rights on an equal basis with others has been hindered. Or whose full and effective participation in society has been restricted by an accident with a confirmed or suspected presence of explosive ordnance. Victims include people killed, injured and/or impaired, their families, and communities affected by EO

- *Victim assistance direct beneficiaries.* Persons who are referred to, or receive, emergency and ongoing medical care; rehabilitation services, including prosthetics and orthotics; psychological and psycho-social support; and socio-economic inclusion, for example, inclusive education, self- or waged employment, as well as inclusive sports, leisure and cultural activities.

- *Victim assistance indirect beneficiaries.* Persons who live in the same household as a direct beneficiary of VA, and persons injured, survivors and other persons in need of services that are met in the course of EORE and land release interventions and on whom information on their needs has been shared with organizations/authorities providing services in the sector VA is part of.

B.5 Data structure

Figure B.1 shows a structure that organizations and programmes may use to store the minimum required data in a database.
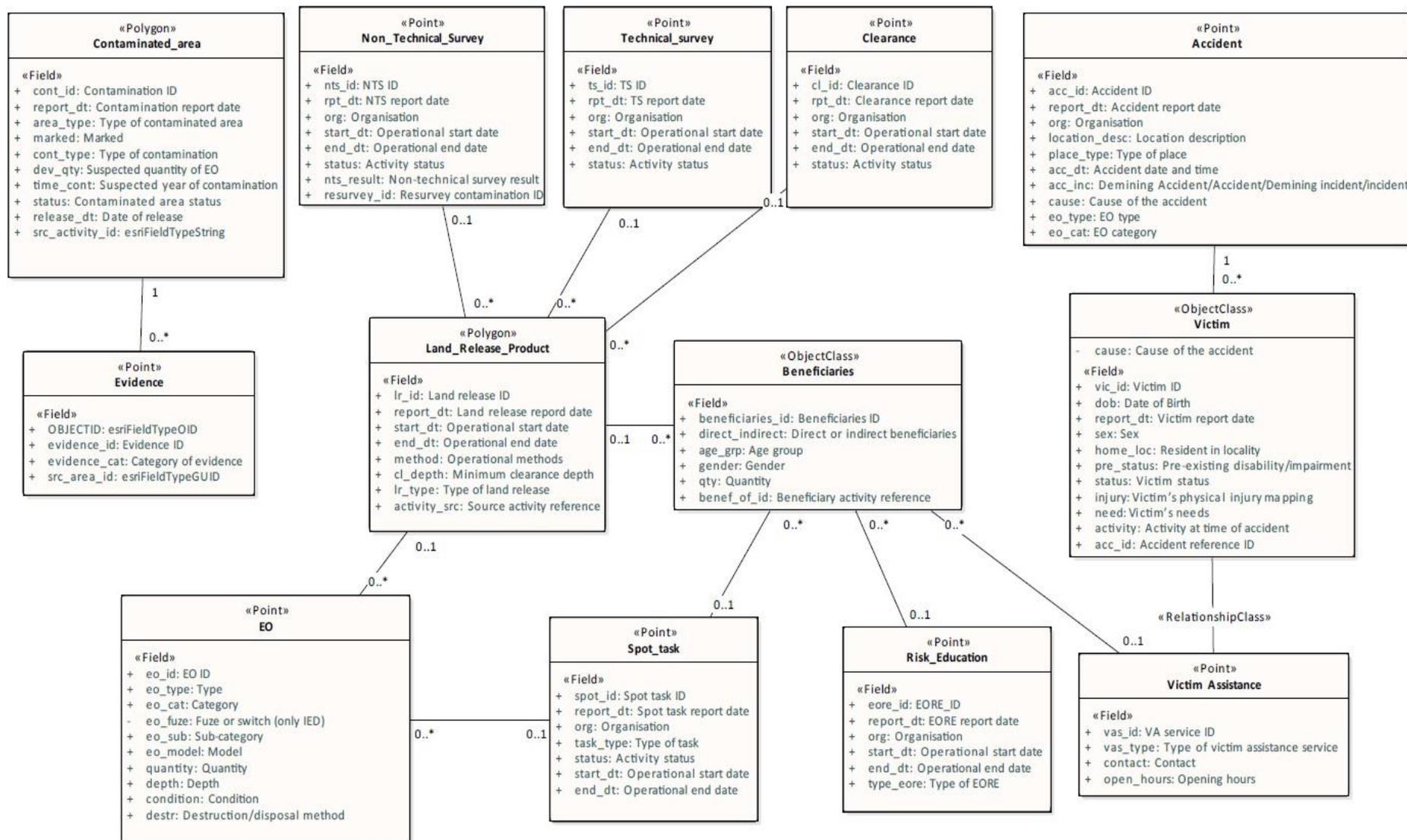
«Polygon»
Contaminated_area

«Field»
+ cont_id: Contamination ID
+ report_dt: Contamination report date
+ area_type: Type of contaminated area
+ marked: Marked
+ cont_type: Type of contamination
+ dev_qty: Suspected quantity of EO
+ time_cont: Suspected year of contamination
+ status: Contaminated area status
+ release_dt: Date of release
+ src_activity_id: esriFieldTypeString

«Point»
Non_Technical_Survey

«Field»
+ nts_id: NTS ID
+ rpt_dt: NTS report date
+ org: Organisation
+ start_dt: Operational start date
+ end_dt: Operational end date
+ status: Activity status
+ nts_result: Non-technical survey result
+ resurvey_id: Resurvey contamination ID

«Point»
Technical_survey

«Field»
+ ts_id: TS ID
+ rpt_dt: TS report date
+ org: Organisation
+ start_dt: Operational start date
+ end_dt: Operational end date
+ status: Activity status

«Point»
Clearance

«Field»
+ cl_id: Clearance ID
+ rpt_dt: Clearance report date
+ org: Organisation
+ start_dt: Operational start date
+ end_dt: Operational end date
+ status: Activity status

«Point»
Accident

«Field»
+ acc_id: Accident ID
+ report_dt: Accident report date
+ org: Organisation
+ location_desc: Location description
+ place_type: Type of place
+ acc_dt: Accident date and time
+ acc_inc: Demining Accident/Accident/Demining incident/incident
+ cause: Cause of the accident
+ eo_type: EO type
+ eo_cat: EO category

«Point»
Evidence

«Field»
+ OBJECTID: esriFieldTypeOID
+ evidence_id: Evidence ID
+ evidence_cat: Category of evidence
+ src_area_id: esriFieldTypeGUID

«Polygon»
Land_Release_Product

«Field»
+ lr_id: Land release ID
+ report_dt: Land release repord date
+ start_dt: Operational start date
+ end_dt: Operational end date
+ method: Operational methods
+ cl_depth: Minimum clearance depth
+ lr_type: Type of land release
+ activity_src: Source activity reference

«ObjectClass»
Beneficiaries

«Field»
+ beneficiaries_id: Beneficiaries ID
+ direct_indirect: Direct or indirect beneficiaries
+ age_grp: Age group
+ gender: Gender
+ qty: Quantity
+ benef_of_id: Beneficiary activity reference

«ObjectClass»
Victim

- cause: Cause of the accident

«Field»
+ vic_id: Victim ID
+ dob: Date of Birth
+ report_dt: Victim report date
+ sex: Sex
+ home_loc: Resident in locality
+ pre_status: Pre-existing disability/impairment
+ status: Victim status
+ injury: Victim's physical injury mapping
+ need: Victim's needs
+ activity: Activity at time of accident
+ acc_id: Accident reference ID

«Point»
EO

«Field»
+ eo_id: EO ID
+ eo_type: Type
+ eo_cat: Category
- eo_fuze: Fuze or switch (only IED)
+ eo_sub: Sub-category
+ eo_model: Model
+ quantity: Quantity
+ depth: Depth
+ condition: Condition
+ destr: Destruction/disposal method

«Point»
Spot_task

«Field»
+ spot_id: Spot task ID
+ report_dt: Spot task report date
+ org: Organisation
+ task_type: Type of task
+ status: Activity status
+ start_dt: Operational start date
+ end_dt: Operational end date

«Point»
Risk_Education

«Field»
+ eore_id: EORE_ID
+ report_dt: EORE report date
+ org: Organisation
+ start_dt: Operational start date
+ end_dt: Operational end date
+ type_eore: Type of EORE

«RelationshipClass»

«Point»
Victim Assistance

«Field»
+ vas_id: VA service ID
+ vas_type: Type of victim assistance service
+ contact: Contact
+ open_hours: Opening hours

Multiplicities: 1, 0..*, 0..1

Figure B.1 – Data structure

Amendment record

Management of IMAS amendments

The IMAS series of standards are subject to formal review on a three-yearly basis. However, this does not preclude amendments being made within these three-year periods for reasons of operational safety and efficiency or for editorial purposes.

As amendments are made to this IMAS they are given a number. The date and general details of the amendment shown in the table below. The amendment is also shown on the cover page of the IMAS by the inclusion under the edition date of the phrase "*incorporating amendment #.*"

As the formal reviews of each IMAS are completed, new editions may be issued. In this case, amendments up to the date of the new edition are incorporated into the new edition and the amendment record table cleared. Recording of amendments then starts again until a further review is carried out.

The most recently amended IMAS are posted on the IMAS website at www.mineactionstandards.org.

Number	Date	Amendment details
1	10 Feb 2020	[1] Inclusion of Annex B (Normative) Minimum Data Requirement
2	06 Mar 2023	[1] Addition of Minimum Data Requirements (Annex B) on beneficiaries and victim assistance