Afghanistan Mine Action Standards - AMAS 05.02

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Mine ERW Survey

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Mine and ERW Survey

1. Introduction

As part of the land release process, mine and Explosive Remnants of War (ERW) survey plays key and critical role in proper identifying the type, nature and extent of the mine/ERW contaminated areas. Mine/ERW survey can ensure safe, efficient and effective use of demining assets for hazards removal or removal of suspicion from reported mine/ERW hazardous areas.

This is important to consider the nature of contaminated land, worksite condition, types and extent of anticipated hazards during the survey operations in order to select the most suitable approach for the land release process. The approach taken may be different for each worksite and shall be based upon those specific requirements determined during a comprehensive survey process. Therefore, a comprehensive plan should be made to conduct safe, effective and efficient mine/ERW survey operations.

2. Scope

This AMAS provides standard guidelines and requirements for execution of mine action Non Technical and Technical Survey operations in Afghanistan.

3. Terms and Definitions:

The terms and definitions are reflected in AMAS 05.01 for land release.

Non Technical Survey

1. General

Non-technical survey is a process of information gathering through which evidence based decisions are made about newly reported and also previously recorded hazardous areas.

Commonly, the original hazard data comes from broad nationwide surveys such as Landmine Impact Survey (LIS) and or Mine/ERW Impact Free Community Survey (MEIFCS) which are being conducted rapidly and as such, may not fully address the needs of site-specific operational planning for further technical or clearance operations. This is more likely that changes will occur in nationwide survey data as a result of peoples' intervention and also emerging of update and new information about the recorded SHAs or CHA.

Non technical survey is of prominent importance for collecting update information used for successful planning and implementation of demining operations. Survey provides information on possible boundaries of mine/ERW contaminated areas and will ensure that clearance resources are used efficiently, effectively and safely on priority tasks.

2. Responsibility and Obligations

DMAC is responsible for, and shall consider the followings:

a) Develop the standard related to non-technical survey.

b) Accredit demining organizations for capability to conduct non technical survey

c) Record and maintain documentation of non-technical survey.

d) Utilize the information collected through the non-technical survey process to understand better the nature, extent, priority and distribution of contamination.

e) Develop specific criteria for recording and cancellation of SHA/CHA.

f) Conduct Quality Assurance and monitoring of non technical survey operations to make sure that the quality requirements of non technical survey operations are met.

All involved mine action organizations working in Afghanistan are responsible for, and shall consider the followings:

a) Obtain accreditation to conduct non-technical survey;

b) Adhere to the national standards for non-technical survey;

c) Develop SOPs in light of AMAS describing how non technical survey operations should be carried out;

d) Develop non technical survey training package;

e) Describe all possible reasonable efforts associated with non technical survey in their SOPs, so field operators could use it during non technical survey operations;

f) Conduct survey and collect required information deploying capable and talented surveyors;

g) Provide reports and non technical survey related documentation as specified by DMAC;

h) Maintain good community liaison and consult closely with the affected communities involving them with regards to all decisions made as a result of non technical survey; and

i) Provide feedbacks related to comments received from DMAC in terms of quality, timeliness and content of the reports.

3. Purpose

The main purpose of non-technical survey is to collect and analyse data and information related to a reported or previously recorded hazardous areas resulting on removal of suspicion or recommendation on conducting subsequent technical survey and clearance operations.

Conduct of non-technical survey is normally without physical use of demining assets and without entering into the hazard areas; however, demining assets may be required to establish access lanes to areas that would otherwise be inaccessible; this will help to collect reliable data and evidence for factual decision making.

Non-technical survey may serve the following purposes:

a) Assess whether previously reported hazardous areas remain contaminated by mines/ERW.

b) Refine the original size or limits of a reported hazardous area.

c) Cancel reported hazardous areas that no longer pose a mines/ERW threat to a community.

d) Identify socio-economic and threat factors that may influence future priority setting.

e) Identify and report hazardous areas not recorded during previous surveys.

4. Sources of Information:

Demining organisations shall make sure that all relevant information sources are identified, interviews are conducted and all the obtained information is properly recorded.

Information gathering process shall be structured in such a way that the most reliable sources with specific knowledge about the area have been interviewed as part of the process. All possible efforts should be made by organization to convene separate meetings with different groups of communities such as male, female informants and children using appropriate and applicable approaches.

Common sources of information about mine and ERW contamination in Afghanistan should include, but not limited to, the following:

a) Military personnel;

b) Affected communities;

c) Shepherds;

d) Mine and ERW survivors/victims and or their relatives;

e) Minefield/battlefield maps if available; and

f) Community members who are known to have information about the background of mine/ERW contamination.

The sources of information shall be further detailed in relevant SOPs of demining organizations involved in non technical survey.

Although the use of land by the community can serve as one of the factors in confirmation of whether or not a SHA contains landmines or ERW, but nevertheless, the survey team shall not suffice to this. Instead, depending on the degree of land use by the local population, properly assess, evaluate and analyse the situation and make facts based decision to either release the land or recommend further demining operations.

5. Impact Survey Data:

Although the impact survey is a type of non technical survey and its data may provide useful indicators of where further investigation is required, but it does not make non-technical survey unnecessary. Therefore, Impact survey data shall not be used as definite information for technical survey and land release operations; rather appropriate and comprehensive refresh non technical survey should be conducted for collecting up to date information justifying appropriate decision making for subsequent operations.

6. SHA and CHA Criteria:

This is important to have specific criteria for recording the mine/ERW contaminated area either as SHA or CHA during non technical survey process.

The criteria should be clear, agreed and understood by all involved in order to:

a) Have clear understanding on differences between SHAs and CHAs;

b) Make justifiable decision and recommendation on application of land cancellation, reduction and clearance processes; and

c) Provide an auditable framework to assist with resolving questions relating to liability in case of mine/ERW incidents.

Considering the situation, terrain, climate and history of conflict; the following general criteria shall be used for recording the hazardous areas:

a) Evidence based information that mines/ERW were laid in the area;

b) Clear information indicating that fighting occurred in the area;

c) Previous records of hazardous areas survey and clearance;

d) Fear of community to use the land because of accidents to humans or animals;

e) Mine and ERW associated evidences indicating the presence of mines/ERW;

f) Information related to evidence of killed animal carcasses as a result of accidents to animals;

g) Information about mine/ERW accidents craters;

h) Written or verbal reports from local sources of accidents; and

i) Information about detonations during burning or other land use.

Above information can be classified based on their reliability to direct evidences and indirect evidences which will sever for decision making during non technical survey to record the hazard either as SHA or CHA.

6.1 Direct Evidences:

Direct evidences are reliable information which provides confidence on presence of mines/ERW and thus can be used for recording the area as CHA. Direct evidences include the followings:

a) Information gathered from the people and institutions with sound knowledge of when and where the mines were laid.

b) Information gathered from survival/s of mine/ERW accident/s or their relatives, showing the location of the accident.

c) Information from nomads and shepherd who have been witness of mine/ERW accidents.

d) Visible or known mine accident craters.

e) Known military positions.

f) Dead animal bones due to mine/ERW accidents.

g) Local mine/ERW marks.

6.2 Indirect Evidences

Indirect evidences will include the following to conclude recording the hazard as SHA:

a) Information gained from persons and institutions without being involved in mine contamination or did not observe the mine laying or accidents themselves, but has been told about the mine/ERW hazards.

b) Fear of people not using potentially productive land without proven evidences on presence of mine/ERW.

c) Vague information from former combatants showing huge areas but not sure about the exact location of the mine/ERW contamination.

d) Mine/ERW records, where the reliability of such records remains open to doubt.

e) Former combatant zones.

f) Evidence from previous surveys, not supported by direct evidence of the presence of contamination.

g) Mine/ERW accidents or incidents where the location of the event cannot be accurately determined.

Boundaries of SHA and CHA should be assessed as clearly and accurately as possible, based on the available evidence.

7. Non-Technical Survey Actions

Non-technical survey is being conducted continually in previously reported and recorded hazardous areas, areas that had been, somehow, identified as possibly containing mines/ERW or upon a new claim of presence of mine/ERW hazard. Upon completion of the non-technical survey it may result to cancellation of the reported area or recording it either as SHA or CHA.

Non-technical survey actions may include the following:

a) Identifying SHA or CHA.

b) Provide more likely estimations of hazard boundaries.

c) Clarification regarding hazard request and local perception of the hazard status of land, or parts of it.

d) Identification of areas where further investigation is required.

e) Providing information about type and nature of hazard.

f) Recommendations on use of the most suitable assets for subsequent technical survey and clearance operations.

g) Priority-setting of tasks that may require further mine action support.

h) Placement of marking to identify the requirement for mine/ERW including sub-munitions removal, or clearance.

i) Removal of suspicion associated with areas or parts of the areas, “cancellation”. See Annex A and B of this AMAS for cancellation criteria.

j) Adjusting the polygon of the previous SHA or CHA based on sufficient and justifiable evidences.

8. Evidence-Based Decision Making

Non-technical survey is mainly based on gathering and analysis of reliable evidences and information from different sources about mines/ERW hazards. Appropriate decision for land release through non technical survey can only be made if it is based on facts and information which come to exist as a result of proper assessment, evaluation and analysis. This information will help the team to decide whether to release the hazard area or to recommend subsequent technical survey and land release operations.

The use of all appropriate and reliable evidences in support of decision-making should be documented in order to establish and maintain confidence in non-technical survey and in the overall land release process. Such evidences should also be made available to support investigations into matters relating to liability.

9. All Reasonable Effort

The term “all reasonable effort” is used in International Mine Action Standards (IMAS) and refers to the level of efforts required to be expended to achieve a desired level of confidence in the output of non-technical survey, technical survey and clearance operations.

The requirement for having this term in mine/ERW survey AMAS is to demonstrate that all possible and required efforts shall be made for better identification of the nature and extend of hazard and proposing of suitable courses of action for removal of all presence and suspicion of mines/ERW in from the area.

The demining organizations should apply “all reasonable effort” in relation to all activities associated with conduct of non technical survey in their SOPs.

Examples of required and possible efforts expected in relation to proper conduct of non technical survey as part of land release process include, but are not limited to:

a) Establishment and maintaining good community liaison.

b) Deployment of qualified staff for conduct of non-technical survey.

c) Undertaking efforts to understand the nature and characteristics of contamination within the area.

d) Proper identification and development of suitable mechanism of access to all relevant sources of information, including available historical records, former combatants, affected populations and field locations.

e) Making sure that the information collection process in the field was planned and executed by competent and accredited survey teams, with the capability to reach all different groups of community, informants.

f) Proper and evidence based analysis of previous and newly collected data to conclude proper and practical decision-making.

g) Undertaking appropriate quality assurance efforts covering surveyors, equipment, procedures and information associated with the non-technical survey process.

The application of “all reasonable effort” relies upon an integrated system which addresses all aspects of the planning, operational, review and decision making stages.

All mine action organizations involved in non technical survey are responsible to describe all possible reasonable efforts associated with non technical survey in their SOPs, so the field operators could use them during conduct of non technical survey operations.

10. Methodology of Non-technical survey

Non-technical survey shall be carried out based on a proper plan and focus on understanding the type, nature, extent and characteristics of contamination within the hazard area.

Mine action organizations conducting non technical survey operations, shall describe non technical survey methodology and procedures in their relevant SOPs and make sure that their survey teams are collecting update and reliable information and evidences, which will be used during subsequent land release operations.

Identifying, accessing and making use of such information constitutes part of the application of “all reasonable effort”.

Mine action organizations should develop survey procedures in such a way to eliminate collecting and reporting vague and subjective information by survey teams, and instead encourage evidence based and reliable information gathering.

As part of land release process, there should be frequent reviews of information in light of what is discovered, or when significant additional information becomes available from other sources.

Below points are important for conduct of a successful non technical survey operation:

a) Review of concepts, criteria, standards and procedures relevant to non-technical survey;

b) Review of all available information relating to the area, including the results of desk assessments of previous data;

c) Confirmation of information collection requirements, as well as any additional requirements specific to the site or circumstances;

d) Consideration of the requirements of survey and needs for specific resources, skills and/or capabilities, including the ability to access all relevant sources of information covering men, women, boys and girls; and

e) Identification of any aspects of the survey requiring additional safety measures.

11. Sub-Division of Hazardous Areas during Non Technical Survey

If required and situation allows, the hazardous areas should be subdivided in order to identify, describe and more clearly reflect the presence of different hazard types or combinations of hazard types and different confidence levels associated with sources of evidences and information, and the analysis of the evidences and information.

This subdivision of hazard areas will ensure practical and suitable recommendations for the use of different and most suitable assets and/or methodologies.

Mine action organizations conducting non technical survey, should subdivide hazardous areas in such a way to properly define and describe the area with enough details. This will assist in effective and efficient deployment of resources to conduct technical survey and clearance resulting with confidence, to reduction, verification and or subsequent clearance and release of the land from mine/ERW hazards.

12. Non Technical Survey Documentation

The demining organization shall make sure that all the data, evidence and information collected and by non-technical survey teams are properly recorded, documented and reported to DMAC. Record and documentation of the results and outputs of non technical survey operations is crucial in decision making during the land release process.

Mine action organizations shall make sure that the quality of data and information reflected in documentation is high, mistakes and errors are prevented prior to processing such information in database.

The information recorded and reported during and at the result of non-technical survey, should form part of documentation required to be handed over to organizations conducting further land release operations on related hazards.

Names, age, gender, appointments and signatures of key informants should be recorded in non technical survey reports.

13. Community Liaison

Community involvement is of high importance in successful conduct of non technical survey operations. Therefore, all mine action organizations conducting non technical survey operations, shall make sure that the communities are fully involved in all stages of the process, including information collection and release stages as a result of non technical survey.

Community involvement should include men, women and children living or working in or near the suspected area and where appropriate, owners of the lands.

A process to monitor land following its cancellation as a result of non technical survey should be established. Monitoring should be properly planned and agreed between the different parties to help measure the impact of cancelled land on local life and to clarify issues related to liability and land status in case of any subsequent mine/ERW accidents.

14. Non-Technical Survey Team Requirements

When non-technical survey is undertaken, the following points shall be followed by demining organizations involved:

a) Safety: Non-technical survey teams should not take unnecessary risks by walking or driving on land/roads where there is risk of mines/ERW. Credible local advice should be sought prior to walking or driving on land, paths or roads. Non-technical survey teams should not enter the suspected area.

b) Equipment: Non-technical survey teams should be equipped with all the required equipment including but not limited to compass, measuring tap, camera, range finder, mobile phone, stationary and vehicle for transportation.

c) Training: Non-technical survey should only be undertaken by accredited mine action organizations having suitably trained and experienced personnel. Comprehensive training has a major impact on the accuracy of the result of non technical survey operation.

d) Liaison: Non technical survey teams shall maintain proper liaison with the communities, local and governmental authorities and other stakeholders. This will ensure the safety of survey teams and will help in gathering high quality information.

e) Medical backup and evacuation: The non-technical survey teams shall be equipped with a dedicated medic and a first aid medical kit; but if the situation does not allow the provision of a dedicated medic for the team, then at least one member of the team shall be trained in first aid. The team shall also gather information about the closest available medical facilities and prepare a medical evacuation plan (CASEVAC).

Technical Survey

1. General

Technical survey is detailed and topographical information gathering process in a SHA/CHA reported through non-technical survey. Technical survey can be conducted as standalone operations or may also be integrated with clearance operations.

Conducting technical survey as part of land release operations may require use of different assets, such as manual, MDD and or mechanical. Therefore, comprehensive plan should be made during technical survey operations to ensure safe, effective and efficient use of these assets.

Proper conduct of technical survey can lead to make recommendations on further conduct of clearance operations using the most suitable assets and alternatively; technical survey may add to the confidence that there are no hazards in some or all parts of the land and can be reduced, verified and released without being fully cleared.

Technical survey shall be conducted in such a way to objectively make a conclusion for releasing the land without need for clearance operations or properly identify actual hazard areas for full clearance within the polygon reported by non technical survey. This can be done only if proper and justifiable analysis of previous and new information revealed as a result of technical survey operations.

2. Responsibilities and Obligations

DMAC is responsible for, and shall consider the followings:

a) Develop standard related to technical survey.

b) Accredit capable demining organizations for conduct of technical survey.

c) Documentation for technical survey.

d) Utilize the information collected through the technical survey for planning clearance operations.

e) Develop liability issues relating to technical survey in accordance with national legislation.

f) Conduct QA and monitoring of technical survey operations.

All involved mine action organizations working in Afghanistan, are responsible for, and shall consider the followings:

a) Obtain accreditation to conduct technical survey.

b) Adhere to national standards for technical survey.

c) Develop SOPs in light of AMAS describing how the technical survey operation is being conducted.

d) Develop technical survey training package.

e) Conduct technical survey and collect necessary information using capable and talented surveyors.

f) Provide reports and make available technical survey related documentation as specified by DMAC.

g) Maintain good community liaison and consult closely with the affected communities involving them with regards to all decisions made as a result of the technical survey operations.

h) Provide feedbacks related to comments received from DMAC in terms of quality, timeliness and content of the technical survey reports.

3. Principles of Technical Survey

a) Technical survey shall be conducted in such a way to ensure safety requirement.

b) Technical survey should be a dynamic process of investigation and information gathering, therefore, any new information shall be considered in decision making for further intervention.

c) Technical survey typically complements non-technical survey; therefore, no technical survey should be conducted unless there is recommendation from non technical survey on further processing of a SHA or CHA.

d) To make sure effective and efficient technical survey operations, deployment of technical survey asset/s shall be decided based on proper assessment and analysis of each individual hazard area.

e) Technical survey result should justify the needs for subsequent clearance operations.

f) Technical survey operations may result on making evidence based decision to add more pieces of contaminated area adjacent to the SHA/CHA that had not been previously identified through non technical survey.

g) The result of technical survey should be recorded and reported for further analysis of type, nature and distribution of contamination within the surrounding environment.

4. Conduct of Technical Survey

This is important to conduct technical survey in a systematic manner and in light of non technical survey information.

The demining organizations conducting technical survey are required to develop practical plan for technical survey of each individual hazard area.

Prior to physical implementation of technical survey, the demining organization shall make sure to collect, review and analysis all available information related to each hazard areas. Review and analysis of information should include ground profile, vegetation, type of contamination and the mine/ERW density.

This will help to make decision on allocation of appropriate time and use of the most suitable asset for conduct of technical survey.

It is important that during conduct of technical survey; the demining organization should frequently review the new information discovered and in light of it, bring the required changes to the plan and methodology of technical survey.

5. Technical Survey Information and Output

All information gathered during technical survey shall be summarised in a technical survey report and then be used as technical specification for the planning and management of subsequent clearance operations or release of the land without need for clearance.

During a technical survey the following information shall be collected:

a) Definition of the type, condition and extent of hazard.

b) Assessment and confirmation of the ground in terms of the soil and metal contamination.

c) Confirmation and identifying the boundaries of actual mine/ERW hazard area/s for full clearance.

d) The suggested depth of clearance for actual hazard area which is subject to full clearance. This shall be clearly indicated in reports and maps.

e) The resources recommended for carrying out further clearance operations.

f) Reliable information which should be sufficient to determine and demonstrate providing confidence to the land users that the area is free of mines and ERW hazards.

g) Additional information for the establishment of priorities for future actions.

If the technical survey is conducted as standalone operations, then in addition to the information above, a detailed report and map shall also be prepared for entry into IMSMA.

The technical survey report and map should reflect the followings:

a) Control Markers including Turning Points and boundaries around the released land and their bearings and distances.

b) Location of visible mines/ERW and the pattern of mines (if known).

c) Locations(s) of any mine, ERW or other devices found/destroyed earlier, or during, the technical survey.

d) Boundaries of actual hazard area for subsequent clearance operations.

e) Recommendation of use of the most suitable asset for clearance operations.

f) Prominent natural features such as high ground, water courses, trees, etc.

g) Prominent man-made features within and around the hazard area.

6. Role of Technical Survey in Land Release

A robust technical survey process may in many cases provide the ability to reduce the original size of SHA/CHA. As such the operators shall be able to classify the area based on the presence or no evidence of mine/ERW hazards in the area. This can be achieved through gathering sufficient information using clearance and or verification assets such as manual, MDD and machinery.

If technical survey resulted in confirmation of no mine/ERW hazards in a part or complete CHA/SHA and the initial suspicion does not longer exist, then the land should be released and the methods used shall be recorded.

After assessment and analysis of previous and new information collected by technical survey, the team may reach to decision to recommend and identify one or more area within initial SHA/CHA to be released through full clearance.

Note: Normally, the technical survey team should reach to a decision to recommend a buffer of 5-10 meters around the boundaries of the actual areas recommended for full clearance, but the fade out distance should be site specific and dictated in light of the findings during clearance of area recommended for full clearance.

7. Targeted Investigation Approach

Targeted investigation using manual or intrusive machine is the suitable method of technical survey within a CHA, because CHA is reported by non-technical survey based on direct evidence on presence of hazard which includes reliable information and evidences about the location of mine belts, accident craters and other signs.

This can allow the team to direct their investigation (cross) lanes towards the direct evidences within the CHA. Through this approach the team will be able to deal with the direct evidences, collect more facts and evidences and reach to a decision to release some parts or the whole area without further clearance operations or identify one or more parts of the area for full clearance. In some occasions and based on evidences, the technical survey team may decide to add some portions of the land into polygon of CHA which had not been covered during non-technical survey.

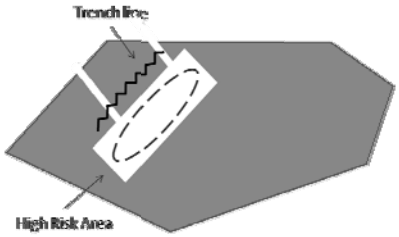
If low threat areas were identified by non technical survey, then the systematic investigation approach should be used in low threat areas; because there are no direct evidences to direct the target investigation toward them.

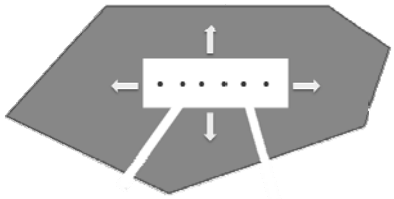
The technical survey team may use inside out approach which is a follow up of targeted investigation where the team will extend the clearance based on findings of targeted investigation to the surrounding of the targets identified in CHA.

8. Systematic Investigating Approach

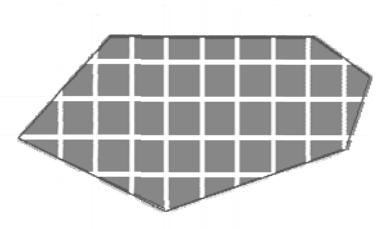
Since the SHA is recorded based on indirect evidences during non-technical survey operation and at that time it may not be possible to conclude which part or parts can possibly be of high threat and which parts low threat. Therefore, prior to start technical survey operations, the demining team should try to identify high and low threat areas through conducting a fresh non-technical survey. If it is again found impossible to divide the area to high and low threat, then the systematic approach of technical survey shall be conducted covering entire SHA. This will allow the team to find more reliable information through having access to different parts of the SHA and will also help the team to decide for clearance operation or cease the operation and release the land back to the community or land owner without need for full clearance.

In light of more evidences found as a result of systematic investigation, the team may reach to decision to change the systematic investigation to target investigation in some or whole parts of the hazard area.

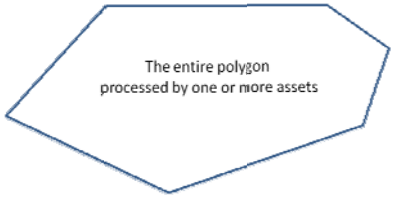




Targeted Investigation is preferred for areas with direct evidences (CHA)



Systematic Investigation is preferred for areas with Indirect evidences (SHA)



Full coverage for actual hazard areas following technical survey

9. Technical Survey Team Requirements

The following requirements shall be undertaken by organisations performing technical survey operations in the field:

a) Training: Mine action personnel involved in technical survey shall be suitably trained, experienced and qualified.

b) Equipment: Prior to deployment to the field, the organization shall make sure that the teams are properly equipped with appropriate demining tools and equipment, measuring equipments including but not limited to GPS, Camera, Compass, Measuring tape and complete drawing box. Technical survey teams may be part of a demining team which shall be equipped with transportation medical support as outline in AMAS 07.03.

c) Communication. The technical survey teams shall be equipped with suitable type of communications that allows them to maintain communications with their office.

d) Liaison: Technical survey teams shall maintain proper liaison with community, local authorities and other stakeholders and ensure that all are aware of current demining intervention.

e) Medical support and evacuation: The technical survey team shall be supported with a dedicated medic. The team shall also be aware of the closest available medical facilities and prepare a medical evacuation plan (CASEVAC) for each worksite.

f) Stationary: Technical survey teams shall be equipped with required stationary and standard IMSMA reporting formats.