



SAFETY SERVICES ORGANISATION



AMAT | GICHD

Session 7.8

Quality Management and Risk Management

**IATG Foundation Course:
Ammunition Policy and Regulations**



Lesson Objectives

At the end of this lesson you should be able to:

- List and define the components of risk management (RM)
- List and define the components of quality management (QM)
- State how QM aids RM
- Discuss the use of a Plan, Do, Check and Act (PDCA) cycle

Introduction

- **Define Risk Management**
- **List components of risk management**
 - Risk Assessment
 - Risk Analysis
 - Risk and ALARP evaluation
 - Hazard identification
 - Hazard Analysis
- Risk estimation
- Risk reduction
- Risk acceptance
- Risk communication

(Note to facilitator the word both risk and hazard is the same for each in Arabic)



Risk Management Culture

Risk management is more than just process:

- Reporting culture
- Just culture
- Flexible culture
- Learning culture
- Questioning culture
- Non adversarial culture
- Non blame worthy culture
- Problem solving culture
- Culture of teamwork
- A culture of positive outlook.



Quality Management (QM)

- **Managing quality is not a complex or technical challenge. Instead, it relies upon the repeated and consistent application of simple principles across an organisation's activities.**
- **Principles of QM**
 - **Safety focussed**
 - **Leadership** A Quality Management System (QMS) only succeeds if there is commitment from the highest levels of the organisation and at every subsequent level.
 - **Gender and Diversity** No QM programme can succeed unless it reflects the different circumstances, requirements and needs of different gender and diversity groups. Doing so is not an optional feature of a ammunition management QMS, and is fundamental to the concept and definition of quality.

Quality Management (QM)

- **Process Approach** The process approach is based on recognition that,
 - Is the process ‘fit for purpose’?
 - Confidence in the quality of a process stems from the confidence in the enabling of that process.
 - The original task assessment
 - The checks built into the task process (such as equipment checks prior to the start of an activity)
 - The ‘in-progress’ monitoring such as account cross checks (confirmation of nature and BKI)

Quality Management (QM)

- **Continual Improvement** is at the heart of any effective QMS. Improvement relates not just to identifying existing problems within a system, but also to identifying opportunities to make things better
- **Evidence-based decision-making.** is fundamental to QM. The concept of ‘all reasonable effort’ is one based upon the use of evidence to show that further action, for a given activity, is not reasonably (that is logically) justified

Quality Management (QM)

- **Rule-based working practices.** While education is key to the management of ammunition, it is vital; that the workforce has policy, guidelines and SOPs to work to. Objective evidence to demonstrate compliance with standards and SOPs, should decision-makers ever be called upon to justify their actions
- **Relationship management.** Quality is best managed when people and organisations communicate their expectations to, and understand the expectations of, others. Relationships need to be managed with all stakeholders, although the means of doing so varies significantly depending upon the roles and level of engagement of different stakeholders



PDCA (plan – do – check – act)

- **The driver behind continual improvement processes is the PDCA cycle:**
 - **Plan**
 - **Do**
 - **Check**
 - **Act**

PDCA

- **PDCA cycles occur at every level, and within every activity.**
 - For most people principles of continual improvement are instinctive.
 - Within organisations the improvement process should be managed in a structured way.
 - Importantly, managers do not seek to punish those who find areas that can be improved; rather they
 - Encourage,
 - Listen to
- **Recognise the professionalism of those with suggestions**



Risk management and quality

- Formal QM systems (such as ISO 9001) now make more explicit use of risk management approaches and terminology and expect organisations seeking certification to do so
- QM (like environmental and safety management) is a risk management process. It involves identifying aspects of an organisation's processes that could fail

Risk management and quality

- QM is used to develop procedures, checks and monitoring systems to reduce the chances of failure to a tolerable level. Risk and opportunity are closely associated
- Principles of continual improvement help organisations respond to opportunities to improve at every level

Risk management and quality

- Risk is defined as ‘the effect of uncertainty on objectives’ (ISO Guide 73:2009)
- Risk is typically expressed through reference to the ‘combination of the probability of occurrence of harm and the severity of that harm’ (ISO Guide 51:1999)

Risk management and quality

- The primary means of reducing uncertainty, in any situation or circumstance, is the systematic collection and analysis of sufficient, relevant information
- There is a need for an organisation to have and implement a quality management system (QMS) for ammunition management. It is primarily intended for the application of the national ammunition technical guidelines (NATGs)
- Note: In the absence of a NIATG, the IATG is to be used

QM

- **Quality management (QM) is Management with regard to quality**
 - QM can include establishing quality policies
 - quality objectives
 - processes
 - quality planning
 - quality assurance
 - quality control and
 - quality improvement
 - (ISO 9000:2015)

QM

- **QM consist of 2 parts:**
 - **Quality Assurance (QA)** is QA is a confidence-building process, based on evidence, that the quality requirements are going to be met. QA encompasses all proactive activity undertaken by an organization to increase confidence in the likelihood that requirements will be met
 - **Quality Control (QC)** addresses the question “did we get what we wanted?”



QM

- Competence is the “ability to apply knowledge and skills to achieve intended results” (ISO 9000:2015)
- Improvement is “activity to enhance performance”. (ISO 9000:2015)
- Conformity is “fulfilment of a requirement”, nonconformity is “non-fulfilment of a requirement”. (ISO 9000:2015)
- Leadership and commitment Successful development, adoption, implementation and continual improvement of a QMS is dependent upon leadership and continued commitment from the highest levels within the organisation/programme



An example of QM Actions

- Determine the competence requirements of job functions.
- Confirm the competence of workers on the basis of appropriate education, training and/or experience.
- Where necessary, take action to ensure the competence of workers through transfer or additional training.
- Monitor the effectiveness of training.
- Retain appropriate records of training and competence.
- Determine equipment requirements necessary to deliver safe, efficient and effective processes.

An example of QM Actions

- Specify requirements and communicate requirements.
- Ensure that equipment is checked on receipt to confirm that it satisfies requirements
- Establish maintenance schedules in accordance with manufacturer's recommendations and as required by prevailing circumstances and conditions
- Ensure that adequate training of equipment operators is carried out
- Ensure that equipment is tested before operational use
- Implement operational controls, checks and tests to confirm the continued suitability and functioning of equipment

An example of QM Actions

- Implement operational controls, checks and tests to confirm the continued suitability and functioning of equipment
- Ensure that non-conforming equipment is marked and/or segregated to avoid its inadvertent use
- Ensure that appropriate repair or disposal action is carried out on non-conforming equipment
- Maintain and retain equipment documentation appropriate to the type, value and significance of the equipment
- Identify and respond to continual improvement opportunities

Risk Management



- **Mitigating consequences**

- By gathering and studying all available data about the hazards, context and previous events, the range of possible risks that can be predicted is more likely to be complete
- Some hazards and consequent risks can be avoided and hazards that cannot be avoided can be prepared for, so reducing the severity of the consequences
- The risk may not be avoided but the consequences can be mitigated

Risk Management

- **Risk Management is not an exact science**
 - When all the possible outcomes of risk are known in advance (such as when rolling dice) mathematical predictions of probability are compelling, but in the real world the unexpected often occurs
 - Past outcomes can be used to help predict future risks, but, because all past experience is never available and because the present situation is always unique, confidence in the result will always be lower than with dice

Risk Management

- **Quantitative and Qualitative data**
 - When assessing data using a mathematical model, the result is quantifiable and whoever assesses the data will get the same answer
 - When using a method that relies on human judgement, that is a “qualitative” assessment and two people are unlikely to get the same answer
 - Using quantifiable data reduces the risk of qualitative error but when quantifiable data is derived from qualitative sources (such as written reports) it is actually qualitative data

Risk Management

- Qualitative - Descriptive
- Quantitative – measurable or calculable

Risk Management

- **Simple formula for risk assessment**
 - In all risk assessment formulae, the variables have to be given number values
 - At some level, defining how to give numbers to variables is always a qualitative process so although the result is a number, it is not truly quantitative
 - It is semi-quantitative and two organisations using the same formula will be unlikely to get the same results
 - **event Probability x event Consequences = Risk**

Risk Management

- If variables are assessed on a scale of 1-5 and an event is very unlikely to occur but would have severe consequences if it did, the equation would be: $1 \times 5 = 5$
- If an event could predictably occur and would have fairly severe consequences, the formula might be: $2 \times 4 = 8$
- So the risk in the second assessment is higher despite the potential consequences being less severe

Risk Management

- **Assessing tolerable risk**
 - Tolerable risk is what is acceptable to “current values” of society, so what is “tolerable” is not the same everywhere and can change over time
 - Public opinion is also relevant to what is “tolerable”, so the social context as well as the law must be taken into account when deciding what a “tolerable risk” actually is

Risk Management

- Risk treatment
- When a risk is intolerable, some kind of “risk treatment” is necessary.
- This is achieved by avoiding the hazards, reducing the likelihood of the risk event happening and/or reducing the severity of its consequences
- When you have done all that and the risk is still intolerable, whatever is being planned cannot be done
- Generally, something can be done to manage risk and make it “tolerable” but it may be expensive

Risk Management Terminology

- As apart of QM, RM has its own terminology: here are some International Standards Organisation (ISO) definitions:
- **RISK** is the effect of uncertainty on objectives (ISO Guide 73:2009 and ISO 31000) and its effect is a positive or negative deviation from what is wanted
- **HAZARD** (ISO Guide 51:1999(E)) is a potential source of harm
- **RISK ASSESSMENT** (According to ISO 31000) is the overall process of risk or hazard identification, risk analysis and risk evaluation

Risk Management Terminology

- **CONSEQUENCES** are the outcome of an event that affects the goals
- **RISK TREATMENT** is a process whereby risk is modified: in Operational Risk Management, the treatment is always “mitigation” - trying to reduce or avoid risk



Risk Management Terminology

- **TOLERABLE RISK** is a risk which is accepted in a given context based on current values of society.
 - Tolerable risk” is sometimes defined in terms of what is an *“intolerable risk”*
 - “All reasonable effort” must be made to achieve “tolerable risk”
 - What is “reasonable” and “tolerable” is not only an opinion: it can be defined in Courts of Law
 - “All reasonable effort” is not defined in the IATGs – it is the intention for it to be defined in National ATGs



Conclusion and Discussion

- *That risk management is not new and that it involves far more than simply reducing risks*
- *That the more information about the risks and the consequences there is, the more useful the management process will be*
- *That risk management is not an exact science, but it can help to achieve an organisation's goals*

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