Nuclear Security Culture

IAEA
International Atomic Energy Agency

NUCLEAR SECURITY CULTURE

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NUCLEAR SECURITY CULTURE

IMPLEMENTING GUIDE

INTERNATIONAL ATOMIC ENERGY AGENCY
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FOREWORD

In response to a resolution adopted by the IAEA General Conference in September 2002, the IAEA followed an integrated approach to protection against nuclear terrorism. This approach coordinates IAEA activities concerned with the physical protection of nuclear material and nuclear installations, nuclear material accountancy, detection of and response to trafficking in nuclear and other radioactive material, the security of radioactive sources, security in the transport of nuclear and other radioactive material, emergency response and emergency preparedness in Member States and at the IAEA, and promotion of adherence by States to relevant international instruments. The IAEA also helps to identify threats and vulnerabilities related to the security of nuclear and other radioactive material. However, it is the responsibility of States to provide for the physical protection of nuclear and other radioactive material and the associated facilities, to ensure the security of such material in transport, and to combat illicit trafficking and the inadvertent movement of radioactive material.

One of the goals of the IAEA nuclear security programme is to provide guidance and assistance to help Member States establish a strong nuclear security culture. This will facilitate and optimize human aspects in their national nuclear security programmes. An effective nuclear security culture can result in a significant increase in the effectiveness of the security of radioactive material and associated facilities and transport.

An enhanced nuclear security culture will provide greater assurance that the entire nuclear security system will accomplish its functions of preventing, detecting, delaying and responding to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving radioactive material and the associated facilities and transport.

Nuclear security culture is referenced and briefly described in a number of relevant legal instruments and documents. This guide explains the basic concepts and elements of nuclear security culture. It also provides recommendations that will assist States in planning and implementing a programme to improve nuclear security culture with special reference to enhancing this culture in organizations. Particular emphasis has been placed on such areas as regulation, government institutions and general public awareness. The IAEA will develop additional guidance based on the experience with the application of this guidance.

The preparation of this publication in the IAEA Nuclear Security Series has involved extensive consultations with Member States, including an open-ended technical meeting in Vienna in March 2006. The IAEA officers responsible for this publication were A.V. Barcena (deceased), B. Weiss and A. Stadalnikas of the Office of Nuclear Security, Department of Nuclear Safety and Security.

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1. INTRODUCTION

1.1. BACKGROUND

At the June 2000 meeting of the Working Group of the Informal Open-Ended Expert Meeting to Discuss Whether there is a Need to Revise the Convention on the Physical Protection of Nuclear Material (CPPNM), it was suggested that "an analysis of INFCIRC/225/Rev.4 (Corrected) could be performed in which the Physical Protection Fundamentals and Requirements embedded in its text could be extracted." The Physical Protection Objectives and Fundamental Principles, which this meeting subsequently endorsed, included 'Security Culture' (Fundamental Principle F) as follows:

"Security Culture: All organizations involved in implementing physical protection should give due priority to the security culture; to its development and maintenance necessary to ensure its effective implementation in the entire organization."

This was further endorsed by the IAEA Board of Governors [1] at its September 2001 meeting and welcomed by the General Conference, which in a resolution [2] stated that due priority should be given to security culture. These objectives and fundamental principles were subsequently incorporated into the Amendment to the CPPNM agreed by consensus by its States Parties in July 2005.

In March 2005, the IAEA international conference on Nuclear Security: Global Directions for the Future, held in London, recognized that the risk of successful malicious attacks remains high and stated:

"The fundamental principles of nuclear security include embedding a nuclear security culture throughout the organizations involved. By the coherent implementation of a nuclear security culture, staff remain vigilant of the need to maintain a high level of security."[3]

In addition, it should be noted that the IAEA Code of Conduct on the Safety and Security of Radioactive Sources [4] contains the following basic principle:

"Every State should, in order to protect individuals, society and the environment, take the appropriate measures to ensure … the promotion of safety culture and of security culture with respect to radioactive sources." [Basic Principle 7(b)]

These texts provide the basis for developing a clear concept of what nuclear security culture is and how it should be developed and maintained.

1.2. OBJECTIVE

This guide explains the basic concepts and elements of nuclear security culture and how they relate to arrangements and policies for other aspects of nuclear security. It provides an overview of the attributes of nuclear security culture, emphasizing that nuclear security is ultimately dependent on individuals: policy makers, regulators, managers, individual employees and — to a certain extent — members of the public. Furthermore, individuals in isolation influence nuclear security; the way they interact with one another, with management and with technical systems also has an influence.

The concept of a nuclear security culture — and its promotion and enhancement — is refined with a view to establishing international guidance and raising the level of awareness of all concerned, including the public and private sectors.

This publication is intended to serve as an introduction to the subject for the institutions concerned. The guidelines contained in it are intended for regulatory bodies and other organizations, institutions and individuals involved in activities utilizing nuclear or other radioactive material and who would be called upon to respond to an incident involving radioactive material or its associated facilities, including its transport.

1.3. SCOPE

The guidance in this publication covers the basic concepts and elements of nuclear security culture and their relation to policies and arrangements for other aspects of nuclear security.

1.4. STRUCTURE

Section 2 explains the concept of nuclear security culture, including the importance of the human factor, and the relationship between nuclear security culture and nuclear safety culture. Section 3 describes the roles and responsibilities of the various disciplines and organizations that must work together to develop an effective nuclear security culture, and provides guidance on the various aspects and characteristics of security culture. Section 4 describes the characteristics of nuclear security culture and provides guidance on ways of assessing the effectiveness of this culture in specific cases.

2. NUCLEAR SECURITY AND NUCLEAR SECURITY CULTURE

For the purposes of this report, **nuclear security culture** is defined as:

The assembly of characteristics, attitudes and behaviour of individuals, organizations and institutions which serves as a means to support and enhance nuclear security[1].

An appropriate nuclear security culture aims to ensure that the implementation of nuclear security measures receives the attention warranted by their significance.

2.1. POTENTIAL IMPACT OF NUCLEAR SECURITY INCIDENTS

Threats to nuclear security involve criminals or terrorists acquiring and using for malicious purposes: (a) nuclear weapons; (b) nuclear material to build

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[1] Nuclear security: The prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear or other radioactive substances or their associated facilities. It should be noted that 'nuclear security' includes 'physical protection', as that term can be understood from consideration of the Physical Protection Objectives and Fundamental Principles, the CPPNM and the Amendment to the CPPNM.

improvised nuclear explosive devices; and/or (c) radioactive material to cause harm to individuals or the environment, including the construction of radiological dispersal devices (RDDs) and radiological exposure devices (REDs). Such threats could also include: (d) the dispersal of radioactive material through the sabotage of facilities in which radioactive material can be found or of such material in transport. These could be outsider/insider threats. The political and economic consequences, and the impact upon human health and the environment, of the malicious use of radioactive material could be devastating, particularly in the case of a nuclear explosive device, and could be unpredictably disruptive in the case of malicious acts resulting in the dispersal of radioactive material. Nuclear security culture plays an important role in ensuring that individuals, organizations and institutions remain vigilant and that sustained measures are taken to prevent and combat the threat of sabotage or using radioactive material[2] for malicious acts.

2.2. NUCLEAR SECURITY REGIME

A nuclear security regime includes a range of elements and activities, including: legislation and regulation; intelligence gathering; assessment of the threat to radioactive material and associated locations and facilities; administrative systems; various technical hardware systems; response capabilities and mitigation activities. No single government or industry organization or subsection of such an organization can address these elements in isolation. An effective nuclear security culture is dependent on proper planning, training, awareness, operation and maintenance, as well as on people who plan, operate and maintain nuclear security systems. Even a well designed system can be degraded if the procedures necessary to operate and maintain it are poor, or if the operators fail to follow procedures. Ultimately, therefore, the entire nuclear security regime stands or falls because of the people involved and their leaders, and it is the human factor, including management leadership, that must be addressed in any effort to enhance the existing nuclear security culture.

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[2] For purposes of this report, 'radioactive material' means nuclear material, as defined in the CPPNM; radioactive sources, as defined in the Code of Conduct for the Safety and Security of Radioactive Sources and other radioactive substances containing nuclides which undergo spontaneous disintegration (a process accompanied by the emission of one or more types of ionizing radiation, such as alpha and beta particles, neutrons and gamma rays).

2.3. IMPORTANCE OF THE HUMAN FACTOR AND MANAGEMENT LEADERSHIP IN NUCLEAR SECURITY

A human factor is generally a contributor to all nuclear security related incidents as well as malfunctions related to activities involving radioactive material. In this regard, leadership and management can be vital components. They include deliberate malicious acts, unintentional personnel errors as well as ergonomic issues related to the design and layout of software and hardware, inadequate organizational procedures and processes and management failures. Individual understanding of and commitment to roles and responsibilities, commitment to continuous improvement, and management commitment are of great importance to nuclear security.

2.4. RELATIONSHIP BETWEEN SECURITY CULTURE AND SAFETY CULTURE

While both nuclear safety and nuclear security consider the risk of inadvertent human error, nuclear security places additional emphasis on deliberate acts that are intended to cause harm. Because security deals with deliberate acts, security culture requires different attitudes and behaviour, such as confidentiality of information and efforts to deter malicious acts, as compared with safety culture.

Safety culture is defined as

"that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, protection and safety issues receive the attention warranted by their significance" [5, 6].

In a similar manner, nuclear security culture refers to the personal dedication and accountability and understanding of all individuals engaged in any activity which has a bearing on the security of nuclear activities.

Therefore, the principal shared objective of security culture and safety culture is to limit the risk resulting from radioactive material and associated facilities. This objective is largely based on common principles, e.g. a questioning attitude, rigorous and prudent approaches, and effective communication and open, two way communication.

Many diverse organizations are concerned with nuclear security. These include, in particular, individuals, organizations and institutions engaged in protecting radioactive material and their associated locations, facilities and transport; some of these bodies may have little technical knowledge about

nuclear or other radioactive material. This lends greater weight to the need for effective structural, communication, information and exchange systems, and the integration of the functions of these diverse organizations into a unified nuclear security culture.

Competent authorities for safety and security may be located in the same, or different, organizations and may have different forms of supervisory or regulatory power. In each case, many individuals are part of both the security and safety cultures. For safety culture, all individuals are prevailed upon to share information openly because of this area's overriding concern for transparency and dialogue. In the same way, security culture requires that individuals respond immediately to confirmed or perceived threats and incidents, and restrict communication to authorized persons with a need to know.

Safety and security cultures coexist and need to reinforce each other because they share the common objective of limiting risk. There will be occasions where there are differences between safety and security requirements. Therefore, an organization in charge of nuclear matters has to foster an approach that integrates safety and security in a mutually supporting manner.

3. ROLES AND RESPONSIBILITIES OF INSTITUTIONS AND INDIVIDUALS

The development of a proper nuclear security culture involves individuals in a number of diverse disciplines and organizations who must work together in order to be effective. This section describes the roles, responsibilities, and guidance for implementing nuclear security culture characteristics: Fig. 1 presents an overview. It illustrates the main characteristics of security culture and which component group is primarily responsible for it. All the component groups listed below must, nevertheless, be considered as part of the whole in order to develop a security culture through coordination and dialogue:

— Role of the State (Section 3.1);
— Role of organizations (Section 3.2.);
— Role of managers in organizations (Section 3.3);
— Role of personnel (Section 3.4);
— Role of the public (Section 3.5);
— Role of the international community (Section 3.6).
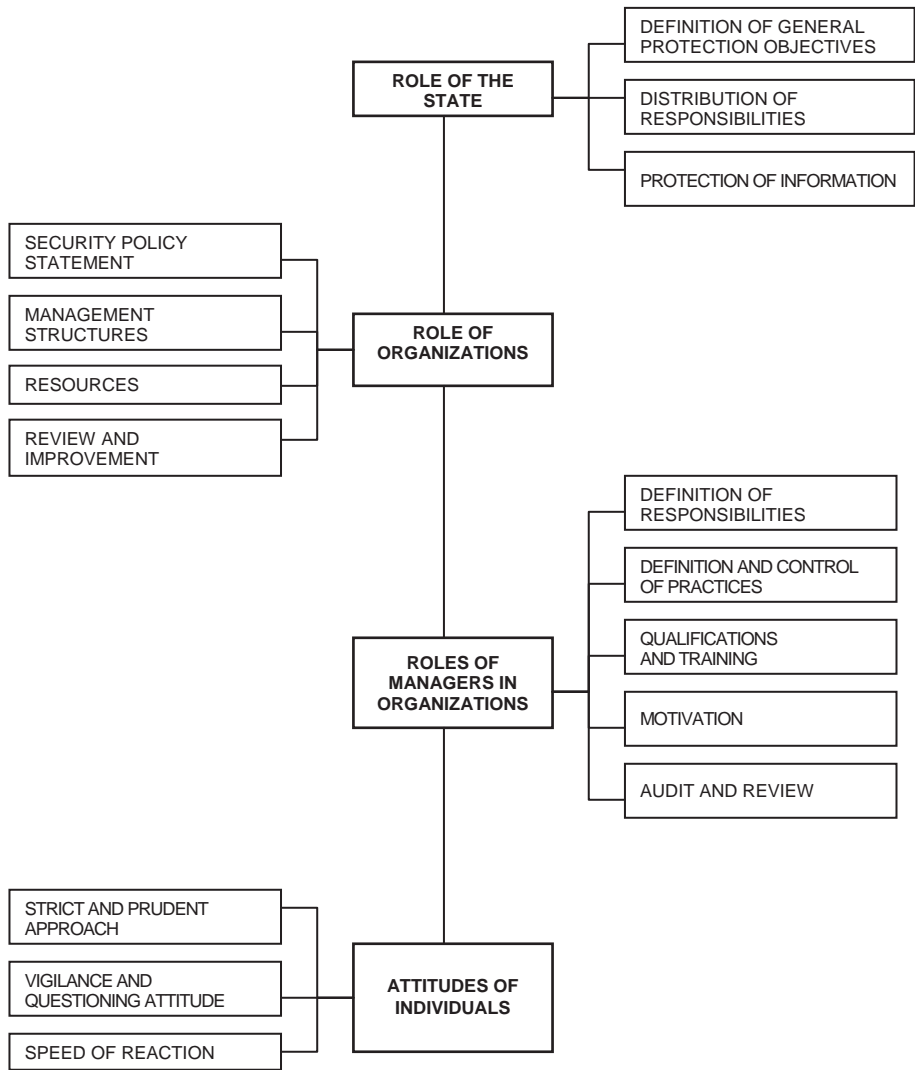
FIG. 1. Universal features of nuclear security culture.

3.1. ROLE OF THE STATE

Security culture has three major components. The first concerns the policy that the State wishes to put into practice, in particular given the national and international contexts. The second is the organization introduced within each body concerned, particularly to apply the policy fixed by the State. In this component, a distinction must be made between what comes under the

organization itself and what concerns its managers. The third component is the attitude adopted by the various individuals at all levels to implement this policy and to incorporate it into their work.

The responsibility for the establishment, implementation and maintenance of a nuclear security regime within a State rests entirely with that State. Hence, the State has the responsibility for establishing the legal and regulatory framework to foster an effective nuclear security culture. There may be several organizations within the State that have both responsibility for and interest in a nuclear security culture, e.g. the nuclear regulatory body, operating organizations of nuclear facilities, law enforcement authorities, the military, health ministries, intelligence organizations, emergency response authorities and public information officials.

A culture is hard to either impose or cultivate, but it can be fostered through role models, training, positive reinforcement and systematized processes. These elements should be considered as the State develops or modifies its regulatory and policy documents.

3.1.1. Security policy

The State needs to establish an overall security policy which is based on its current evaluation of the threat, including international aspects and the national regulatory framework. These include requirements/guidelines for:

— Identifying the security significance of individual systems;
— Specifying threat levels;
— Developing performance standards and periodic performance testing programmes;
— Reporting;
— Designing physical protection systems;
— Licensing of organizations for particular activities;
— Accounting and record keeping;
— Enforcement regarding non-compliance with regulations or failure of performance testing;
— Protection of sensitive information;
— Measures for the detection of, and response to, malicious acts involving radioactive material.

These requirements/guidelines form the foundation for the management systems associated with a nuclear security framework. Since such systems are an integral part of the culture of any organization, comprehensive regulation is inextricably linked with an effective nuclear security culture.

It is necessary for the State to establish general criteria for authorizing access to facilities and information, and ensure their application, with the goal of enabling the protection of radioactive material and associated locations, facilities and transport.

3.1.2. Protection of sensitive information and of facilities

Another action by the State is to establish requirements for the determination of personnel trustworthiness. The process of this determination can involve State agencies and also the operator's security department.

Nuclear security culture promotes awareness in all people of the sensitive nature of information in this area and the need to protect the confidentiality of that information. Such information should not circulate freely in the public domain since it could be used for malicious purposes.

The State must also establish criteria to determine sensitive information in the nuclear security field.

3.1.3. Establishing a legal framework

A key role of the State is to establish the legal framework, which is one factor in the development of an effective security culture. The State legal system must provide the following legislative and regulatory framework that supports the sensitive nature of nuclear security information:

— Licensing requirements;
— Authorization of access to facilities and other sensitive locations, including continual determinations of trustworthiness;
— Protection of radioactive material in use, storage and in transport;
— Protection of sensitive nuclear security information;
— Criminalization of acts that have malicious intent or consequences, e.g. those detailed in the CPPNM or the UN International Convention for the Suppression of Acts of Nuclear Terrorism;
— Response to the detection of radioactive material not under regulatory control.

3.1.4. Distribution and coordination of responsibilities

An effective security culture promotes coordination, cooperation and integration of functions among the various State level entities, as well as between the competent authorities and operating organizations. The State must clearly lay out its own responsibilities for nuclear security and the

responsibilities entrusted to other appropriate organizations. It is essential for this distribution of responsibilities to be clearly defined and well understood by all people within the relevant organizations.

The major responsibility for implementation and oversight typically falls on the nuclear regulatory authority within the State, but it may be the domain of another organization. There may be several organizations within the State with both a responsibility for and an interest in the nuclear security culture policy. Therefore, it is vital that all concerned organizations participate in the development of such a policy. This policy should include a programme of on-site evaluation of activities to enhance the effectiveness of the nuclear security culture and the appropriateness of information dissemination, with due regard for confidentiality.

3.1.5. Coordination mechanisms

Because of the need for coordination between State authorities and other organizations, the State should develop mechanisms for the exchange of knowledge and data, particularly among law enforcement, intelligence and response authorities. Of particular interest are those processes related to the State evaluation of threat and contingency planning. State authorities must also organize periodic exercises involving operating organizations and national authorities to evaluate and improve nuclear security.

Owing to the international nature and transboundary aspects of security, the State must coordinate with neighbouring States to establish an expeditious means to communicate security related information and maintain close cooperation for the exchange of intelligence knowledge and data that could impact the security of radioactive material or associated facilities, including transport.

3.2. ROLE OF ORGANIZATIONS

Within a State, various organizations — such as regulators, users of radioactive sources, operators of nuclear facilities, border and customs officers, and transporters of radioactive material — have responsibilities associated with the security of radioactive material.

A State's legal and regulatory framework establishes the basis for an organization's security policies, which determine the environment of the workplace and influence the behaviour of personnel. These policies have significant common characteristics, as described in Fig. 2 in Section 4, but may differ from organization to organization depending on the type of work. The

cumulative impact of policy, environment and behaviour determines the quality of the nuclear security culture.

3.2.1.   Nuclear security policy

Each organization needs to have a nuclear security policy which contains the aspects of a sound management system, as described in Section 4.3. This policy should declare a commitment to quality of performance in all nuclear security activities, making it clear that security has high priority, even overriding operational demands. If there is a conflict regarding the relative priorities of safety, security or operations, senior management must be authorized to resolve the conflict taking into account the overall impact of risk. This policy forms the foundation of the management systems that are an integral part of the security culture of the organization. It should be communicated to and understood by everyone affected. Nuclear security policy statements by different bodies vary in both form and content. An operating organization has full responsibility for nuclear security in all the activities under its jurisdiction. Its nuclear security policy statement should be clear and provided to all staff.

3.2.2.   Management structures

The management of all organizations must define roles, responsibilities and accountability for each level of the organization, including security and other interfaces. In addition, the management of relevant organizations must appoint an individual responsible for nuclear security who has sufficient authority, autonomy and resources to implement and oversee nuclear security activities. This individual is required to report to the top manager or to an appropriate senior manager of the organization with the responsibility defined and documented in sufficient detail to prevent ambiguity.

Where appropriate, the organization's management should establish procedures to facilitate rapid resolution of questions regarding the practical balance among nuclear and radiation safety, security and the various facility operations.

3.2.3.   Resources

The organization must allocate sufficient financial, technical and human resources to implement the assigned security responsibilities. It must ensure that all security personnel have the necessary qualifications, with these qualifications maintained by an appropriate training and development programme.

Personnel must also have the necessary equipment, adequate work areas, up to date information and other forms of support to carry out their security responsibilities.

3.2.4. Management systems

Management systems must be put in place for each security function to define expectations, implement and maintain processes, measure progress, assess compliance, improve performance on the basis of experience, and manage change. These management system elements are described in more detail in Section 4.3.

3.2.5. Review and improvement

All of the concerned organizations must make arrangements for the regular review of their nuclear security practices and systems. This regular review necessarily takes into account lessons learned from both internal and external reviews, and changes in the threat level. In particular, organizations should ensure that all discrepancies detected relating to nuclear security are comprehensively analysed and expeditiously corrected.

Owing to the international nature and transboundary aspect of security, the organization should coordinate with similar organizations, both within the nuclear and radioactive material arena and in other high risk areas, to establish expeditious means to communicate security related information and maintain close cooperation for the exchange of intelligence knowledge and data that could impact the security of these materials and facilities, including transport and border operations.

3.3. ROLE OF MANAGERS IN ORGANIZATIONS

Managers influence culture throughout their organization through their leadership and management practices. With sustained effort, and by employing the incentives and disincentives at their disposal, they must establish patterns of behaviour and even alter the physical environment. Senior managers are responsible for defining and revising policies and protection objectives; operational managers are in charge of initiating practices that comply with these objectives. Through their behaviour, managers demonstrate their commitment to nuclear security and, in so doing, play an important role in promoting nuclear security culture within the organization.

Managers should foster an effective nuclear security culture by ensuring that people understand that:

— A credible threat exists;
— Nuclear security is important.

3.3.1. Responsibilities of managers

Managers are responsible for ensuring that appropriate standards of behaviour and performance associated with security are set and that expectations as to the application of these standards are well understood. They must also ensure that there is a clear understanding within the organization of the security roles and responsibilities of each individual, including clarity concerning levels of authority and lines of communication.

Another task for managers is to establish a formal decision making mechanism that is well understood within the organization and involve their staff in decision making processes, where appropriate. The quality of a decision is improved when the individuals involved are able to contribute their insights and ideas.

All personnel must be made aware of and be committed to nuclear security requirements and best practices. Security technology must be appropriately used and maintained, and security regulations and procedures properly implemented. Managers must ensure that all skills and authorizations required to perform tasks relating to nuclear security are in place.

Managers must maintain effective communications within the organization and, as appropriate, with other organizations while considering requirements for the protection of sensitive security information.

Training and professional development are essential to the formulation of norms for expected cultural behaviour. At all levels of an organization, managers must ensure that training is conducted to develop skills and provide tools to promote and implement security culture. Managers should ensure that temporary and permanent staff and any externally or self-employed service providers are made aware of the importance of protecting radioactive material and associated facilities, including transport and sensitive information.

3.3.2. Motivation

Managers have a key role in ensuring that staff members are appropriately motivated, and that their role in enhancing nuclear security is recognized and valued within the organization. Rewards and recognition, both tangible

and intangible, can encourage vigilance, questioning attitudes and personal accountability.

Culture evolves slowly and resists change; therefore, maintaining and improving nuclear security culture requires persistent effort and frequent monitoring. Managers have a responsibility to ensure that appropriate behaviour is reinforced through constructive feedback. Managers should serve as positive role models through their attention and adherence to nuclear security practices.

Managers need to encourage personnel to report any event that could affect nuclear security. This entails encouraging personnel to provide the security staff with information that could affect security, rather than keeping the information to themselves.

Though security is a concern for everyone in a nuclear facility, the personnel specifically responsible (for example, protective forces and security guards) have to be well trained, rewarded and kept motivated. These individuals must be allowed career opportunities as well as redeployment possibilities in order to maintain the workforce and competence. This also applies to personnel in charge of detecting and responding to the possession or use of radioactive material not under regulatory control, such as at border and customs posts.

3.3.3. Improving performance

Managers must seek continual improvement in nuclear security culture and work to prevent complacency from compromising overall security objectives. They need to make arrangements to benefit from all sources of relevant experience, research, technical developments, operational data, and events of security significance, all of which are carefully evaluated to improve nuclear security culture. For example, they should:

— Ensure that experience and events that affect security, including those from other locations, are analysed and appropriate enhancements or corrective actions are implemented;
— Conduct self-assessments and arrange for independent audits of the management systems for which they are responsible in order to identify and correct weaknesses;
— Establish a programme of drills and exercises to test the performance of security systems as well as the human factor;
— Analyse patterns and trends arising from known deficiencies and implement corrections;

— Observe operational performance to confirm that expectations are being met;
— Periodically review training programmes, staff nomination and authorization procedures, working methods, the management system, and staff access to facilities, other sensitive locations and information;
— Benchmark performance to compare operations with national and international best practices;
— Maintain an awareness of the state of the art in security procedures, processes and equipment so that security personnel have appropriate tools with which to implement security cost effectively.

3.4. ROLE OF PERSONNEL

In an effective security culture, all personnel are accountable for their behaviour and are motivated to ensure nuclear security. They should be expected to conduct themselves in a manner that recognizes the circumstances and potential consequences of their behaviour. This requires adopting a rigorous and prudent approach to their security responsibilities, with continuous regard for the protection of radioactive material and their associated facilities, including other sensitive locations and transport. Effective nuclear security culture is characterized by compliance with rules, regulations and procedures, and also constant vigilance and a proactive questioning attitude on the part of personnel. Drills and exercises should be used to reinforce the understanding of response procedures, and any deficiencies should be identified and eliminated before an actual emergency occurs.

Personnel need to recognize the importance of information protection to effective nuclear security. They are also required to comply with facility procedures and avoid divulging any information that has the potential to undermine security. An effective nuclear security culture depends upon teamwork and cooperation among all personnel involved in security. Personnel must understand how their particular roles and interfaces contribute to maintaining security.

3.5. ROLE OF THE PUBLIC

Concern about nuclear security culture must be shared by everyone and not remain confined within the organizations concerned and their personnel. Every group or organization involved in nuclear security must keep in mind the

necessity to raise public and media awareness to security culture in the nuclear field.

The public should be aware that security is a key consideration for plant operation. Information about general security may be delivered, explained and divulged provided it does not jeopardize the protection of radioactive material, transports and facilities. It is clear that details relating to sensitive security arrangements cannot be divulged to the general public but the release of appropriate information can be helpful in acquiring public confidence and support for nuclear security. A public convinced of the need for nuclear security can have a positive impact on nuclear security culture through its attitudes or actions. The particular content and mode of disseminating this information will vary according to local and national circumstances and the particular public being addressed (for example, professional or non-governmental organizations and the general public).

The general public should view nuclear security culture as a sign of professionalism, skill and responsibility by all actors (organizations and individuals) involved in the protection of radioactive material and their associated facilities and transports. It must help strengthen the confidence of each one in security in the nuclear field.

3.6. ROLE OF THE INTERNATIONAL COMMUNITY

The role of the international community in nuclear security culture arises from the common interest of States in achieving the improved security of radioactive material worldwide and their associated facilities and transport. The international community provides guidance and support that can be used by States when developing their regulatory and institutional infrastructure, including national legislation and practices. Various international instruments underpin and emphasize this role. In addition to the CPPNM and the Code of Conduct mentioned in Section 1, there are other international instruments and documents that support the need for nuclear security and, therefore, for an effective nuclear security culture.
These include the:

— International Convention for the Suppression of Acts of Nuclear Terrorism, entered into force 7 July 2007 [7];
— UN Security Council resolution 1540, adopted 2004 [8];
— UN Security Council resolution 1373, adopted 2001 [9];

— United Nations Global Counter-Terrorism Strategy, adopted by the United Nations General Assembly in 2006, but not entered into force as of the time of publication of this report) [10];
— Guidance on the Import and Export of Radioactive Sources, endorsed by the IAEA General Conference in 2004 [11];
— Convention on Early Notification of a Nuclear Accident, entered into force 27 October 1986;
— Convention on Assistance in the Case of a Nuclear Accident or Radio-logical Emergency, entered into force 26 February 1987;
— Convention on Nuclear Safety, entered into force 24 October 1996;
— Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, entered into force 18 June 2001.

The international community has taken the initiative to assist States, as necessary, in meeting the obligations and commitments arising from these instruments. There are a number of ways in which this assistance can be provided or made available to States through bilateral, multilateral or international assistance programmes. For nuclear security culture, this includes implementation guidance, assessment methodologies, feedback and use of lessons learned and technical/personnel assistance. The IAEA, in particular, fosters nuclear security culture through its mechanisms for coordination, and by providing opportunities for development of human resources, publications, equipment, and advisory and expert services.

4. CHARACTERISTICS OF NUCLEAR SECURITY CULTURE

The characteristics of an effective nuclear security culture shown in Fig. 2 and described in this section are derived from a widely used model of organizational culture [12]. This three layer model is broadly applicable to nuclear facilities and organizations, including nuclear power plants, fuel cycle facilities, research reactors, nuclear material transport facilities, radioactive source users, other entities that handle/store radioactive material, and customs and border monitoring organizations. Each of these layers is described in the following sections.

GOAL: EFFECTIVE NUCLEAR SECURITY

Management systems are well developed and prioritize security

(a) Visible security policy;
(b) Clear roles and responsibilities;
(c) Performance measurement;
(d) Work environment;
(e) Training and qualification;
(f) Work management;
(g) Information security;
(h) Operation and maintenance;
(i) Continual determination of staff trustworthiness;
(j) Quality assurance;
(k) Change management;
(l) Feedback process;
(m) Contingency plans and drills;
(n) Self-assessment;
(o) Interface with the regulator;
(p) Coordination with off-site organizations;
(q) Record keeping.

Behaviour fosters more effective nuclear security

Leadership behaviour
(a) Expectations;
(b) Use of authority;
(c) Decision making;
(d) Management oversight;
(e) Involvement of staff;
(f) Effective communications;
(g) Improving performance;
(h) Motivation.

Personnel behaviour
(a) Professional conduct;
(b) Personal accountability;
(c) Adherence to procedures;
(d) Teamwork and cooperation;
(e) Vigilance.

PRINCIPLES FOR GUIDING DECISIONS AND BEHAVIOUR

(a) Motivation;
(b) Leadership;
(c) Commitment and responsibility;
(d) Professionalism and competence;
(e) Learning and improvement.

NUCLEAR SECURITY CULTURE

BELIEFS AND ATTITUDES

(a) Credible threat exists;
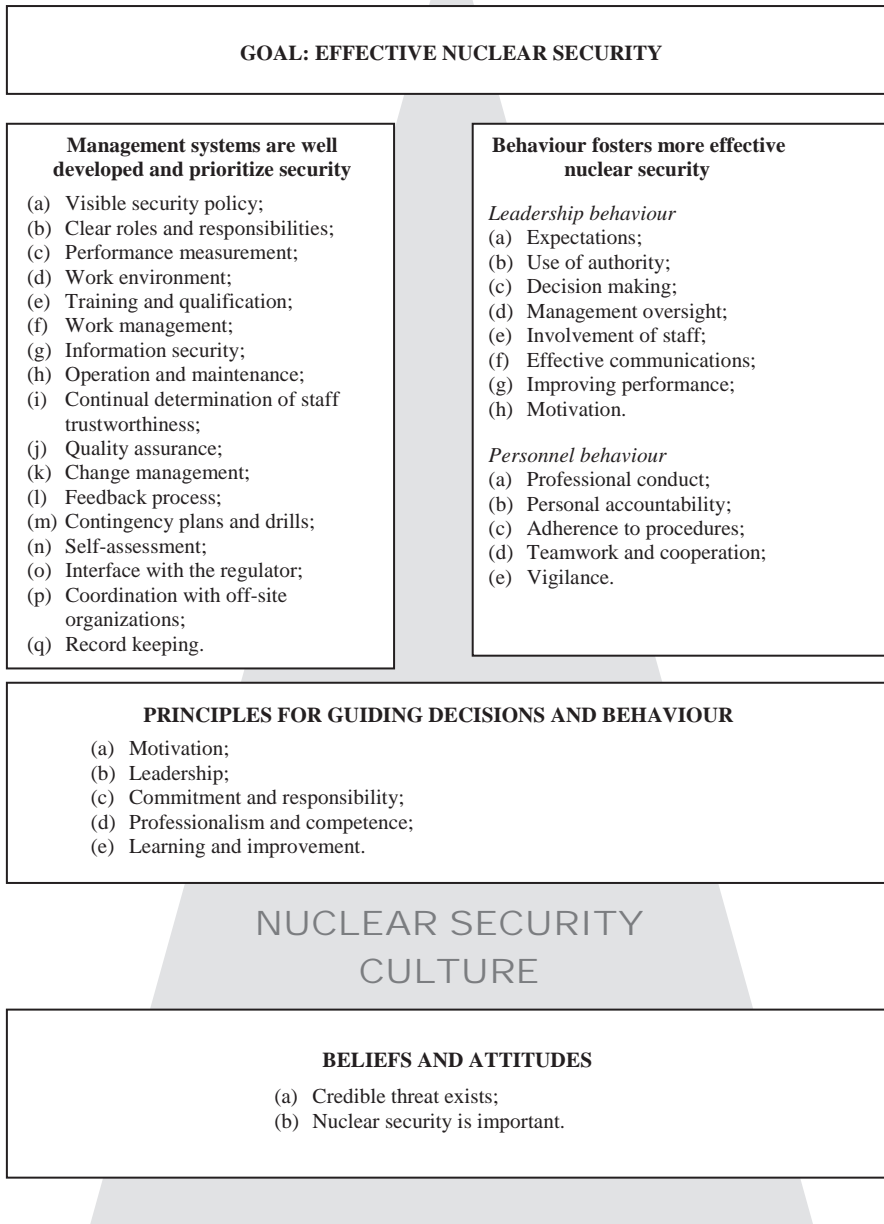(b) Nuclear security is important.

FIG. 2. Characteristics of nuclear security culture.

The characteristics of nuclear security culture are the beliefs, attitudes, behaviour and management systems, the proper assembly of which leads to more effective nuclear security. The foundation of nuclear security culture is a recognition — by those that have a role to play in regulating, managing or operating nuclear facilities or activities or even those that could be affected by these activities — that a credible threat exists and that nuclear security is important. Therefore, in Fig. 2, this foundation is represented as the basis for the model of an effective nuclear security culture.

Some of the layers are directly observable, and some are not, while others are deduced from observations. Consequently, for most of the characteristics, there are performance indicators which suggest a way of evaluating the characteristics described.

The first three sections of this publication describe the concepts of nuclear security culture, while the characteristics discussed in this section provide practical ways of improving or assessing the effectiveness of security culture in a particular case. It is recognized that even a structured series of characteristics cannot be comprehensive, nor can it be applicable to all circumstances. The objective in providing these characteristics is to encourage self-examination by organizations and individuals. The main intent is to stimulate further thought rather than to be prescriptive. Also, it is evident that history, traditions and established management practices often leave a distinct imprint on national security culture as it is observed in different regions and countries. With this understanding, these examples of the characteristics of security culture can be adapted for the specific situation.

4.1. BELIEFS AND ATTITUDES

Beliefs and attitudes that are formed in people's minds over time become causal factors in behaviour and affect how people respond to security issues and events. Some of these beliefs are initiated by leaders and are developed through experience. When shared and embraced within an organization, they become common to all personnel. The beliefs and attitudes held by individuals are influenced by the actions that others take or do not take and also by what others (particularly top managers) say or do not say. In this way, beliefs and attitudes spread and replicate themselves within organizations. For nuclear security, effectiveness depends upon the extent to which these beliefs and attitudes are commonly held and manifest themselves in appropriate behaviour and practices.

4.1.1. Characteristics of beliefs and attitudes

BELIEFS AND ATTITUDES

(a) Credible threat exists;
(b) Nuclear security is important.

Where an effective nuclear security culture exists, people who have responsibilities for the use, handling, safe-keeping or transport of radioactive material and related facilities or other locations hold a deep rooted belief that there is a credible insider and outsider threat, and that nuclear security is important

These beliefs form the foundation of nuclear security culture and are vitally important because they affect behaviour that ultimately influences the effectiveness of nuclear security to achieve objectives relating, for example, to nuclear non-proliferation and counter-terrorism. Without a strong basis of beliefs and attitudes, an effective nuclear security culture will not exist. Nuclear security should be a concern of everyone working in the facility, related locations or organization — including to a certain extent the members of the public — and not of the organization's security specialists alone.

4.2. PRINCIPLES

An effective nuclear security culture requires a set of principles that managers can instill in the organization to guide decisions and behaviour. The principles should be explained to staff. Individuals should be inculcated with these principles and should be shown evidence that they are being applied consistently across the organization. The main principles of nuclear security culture are shown in Fig. 2 and additional details are provided below.

PRINCIPLES FOR GUIDING DECISIONS AND BEHAVIOUR

(a) Motivation;
(b) Leadership;
(c) Commitment and responsibility;
(d) Professionalism and competence;
(e) Learning and improvement.

(a) Motivation

Motivation, the key determinant of behaviour, is entirely dependent upon the internalization of beliefs and values. The performance of individuals is, however, significantly influenced by the encouragement and reinforcement received from leaders, peers and subordinates.

(b) Leadership

The greatest influences on individual performance are the expectations of leaders. Nuclear security is most effective when managers and supervisors of the organization continually demonstrate their commitment to security through their words and actions.

(c) Commitment and responsibility

Nuclear security is most effective when everyone takes personal responsibility for system operation as well as for their actions in their job.

(d) Professionalism and competence

Nuclear security requires that personnel have the qualifications, skills and knowledge needed to perform all aspects of their jobs. Appropriately qualified and trained personnel should be able to respond effectively to all contingencies and emergencies.

(e) Learning and improvement

Nuclear security can be improved by continual self-assessment, understanding of the reasons why mistakes occur, and application of best practices and lessons learned.

4.3. MANAGEMENT SYSTEMS

Staff performance is influenced by the quality of management and the provision of expectations, requirements and standards for the conduct of work, training, documented procedures, information systems, etc. Therefore, a well developed management system is an essential feature of effective nuclear security. Examples of elements of management systems are shown in Fig. 2 and additional details are provided below.

> **MANAGEMENT SYSTEMS ARE WELL DEVELOPED AND PRIORITIZE SECURITY**
>
> (a) Visible security policy;
> (b) Clear roles and responsibilities;
> (c) Performance measurement;
> (d) Work environment;
> (e) Training and qualification;
> (f) Work management;
> (g) Information security;
> (h) Operations and maintenance;
> (i) Determination of staff trustworthiness;
> (j) Quality assurance;
> (k) Change management;
> (l) Feedback process;
> (m) Contingency plans and drills;
> (n) Self-assessment;
> (o) Interface with the regulator;
> (p) Coordination with off-site organizations.

(a) Visible security policy

A policy document is needed in an operator's organization which states the commitment of the organization to nuclear security. This document should establish the highest expectations for decision making and conduct, and should be supported by an atmosphere of professionalism in the security field.

For security, there is the particular need to ensure that staff members understand that adherence to the policy is expected of all personnel. These expectations include protecting information, being aware of potential security concerns and threats, and being vigilant in reporting security incidents. These general expectations can be established through a documented code of conduct.

Security culture indicators:

— A nuclear security policy is established for the organization, is posted in facilities and offices, and is familiar to staff;
— The security function has a respected status within the organization as a whole;
— A staff code of conduct exists, which covers the needs of nuclear security;

— Staff members are familiar with the code of conduct through ongoing training and awareness sessions.

(b)   Clear roles and responsibilities

A significant part of establishing an effective nuclear security management structure is the clear definition of roles and responsibilities. Members of all organizations need a clear understanding of 'who is responsible for what' in order to achieve the desired results. It is particularly important to review and update this responsibility system when organizational change is being planned and executed.
Security culture indicators:

— The organization has clearly defined and documented roles and responsibilities for all nuclear security positions;
— Staff members understand their roles and responsibilities for nuclear security and are encouraged to seek clarification when necessary;
— Roles and responsibilities are adequately explained to new personnel at initial briefings and/or training sessions.

(c)   Performance measurement

Quantified measures of nuclear security performance, with associated goals, are essential in establishing management expectations and in involving staff in achieving the desired results.
Security culture indicators:

— The organization uses benchmarks and targets in order to understand, achieve and improve performance at all levels;
— Performance results compared with the targets are regularly communicated to staff;
— Action is taken when nuclear security performance does not fully match the goals;
— Effective performance leading to better security is rewarded.

(d)   Work environment

The physical and psychological work environment has a large impact on how staff members perform their tasks and comply with nuclear security requirements. In some instances this has a direct impact while in others the impact is less direct.

Security culture indicators:

— The work environment is conducive to high standards of performance (e.g. standards of housekeeping, timely provision of equipment and tools);
— Staff are consulted about the ergonomics and effectiveness of their work environment;
— Texts of guides and procedures are user friendly and understandable to staff;
— Top managers periodically visit manned security posts. Special attention is paid to periods of reduced activity such as back shift and weekends.

(e) Training and qualification

An effective nuclear security culture depends upon staff having the necessary knowledge and skills to perform their functions to the desired standards. Consequently, a systematic approach to training and qualification is required for an effective nuclear security culture.

Security culture indicators:

— A comprehensive nuclear security training programme exists, with requirements and qualification standards established and documented, and communicated to personnel;
— Participation in training is given a high priority and is not disrupted by non-urgent activities;
— Periodic evaluations of training programmes are conducted and revisions incorporated, as necessary;
— Information about the status of staff qualifications is easily accessed by those who need to know;
— Staff members do not perform work for which they lack the required skills and knowledge;
— Appropriate, physical fitness criteria are established and monitored;
— Top managers periodically visit training sessions;
— Basic security awareness training instructs staff on proper workplace security as well as requirements for reporting security violations.

(f) Work management

All work must be suitably planned in order to ensure that nuclear security is not compromised.

Security culture indicators:

— Work is planned to ensure that the integrity of the nuclear security system is maintained effectively at all times;
— Contingency plans are established to address foreseeable events;
— Staff members follow the established plans or seek proper approval to deviate from planned duties and activities;
— Work is planned in sufficient detail to allow staff to work effectively and efficiently (e.g. resources are matched to demands, spare parts and tools are available when needed);
— The interfaces between work groups are considered and addressed during planning.

(g)   Information security

Controlling access to sensitive information is a vital part of the security function. Accordingly, the organization must implement classification and control measures for protecting sensitive information.

Security culture indicators:

— Classification and control requirements are clearly documented and well understood by staff;
— Clear and effective processes and protocols exist for classifying and handling information both inside and outside the organization;
— Classified information is securely segregated, stored and managed;
— Staff members are aware of and understand the importance of adhering to the controls on information;
— Cyber systems are maintained to ensure that they are secure, that they are accredited by an appropriate authority and are operated in accordance with procedures.

(h)   Operations and maintenance

A wide variety of security systems are used to achieve nuclear security objectives. These include, for example, accounting and control, physical protection and computer management systems. Nuclear security system equipment will require ongoing operation, periodic maintenance, and occasional modification and replacement. In all cases, it is necessary to ensure that the intended function of the system is not compromised or that, if systems must be removed from service, compensatory measures are in place.

Security culture indicators:

— Operation and maintenance are performed according to approved procedures and vendor schedules to ensure that design requirements are not compromised;
— Checklists/detailed procedures are used;
— Measures are taken as compensation when security equipment is taken out of service for maintenance or when breakdowns occur.

(i)   Determination of staff trustworthiness

Any security barrier or procedure can be defeated with insider cooperation. Therefore, effective processes for the determination of trustworthiness and for the mitigation of insider threats must be in place.
Security culture indicators:

— Documented staff screening processes are matched to the risks and threats associated with the specific employment roles and responsibilities. Screening must be conducted, when appropriate, on a regular basis.
— The process of determining trustworthiness is capable of identifying specific security risk factors, e.g. mental illness and drug/alcohol abuse.
— Screening processes are rigorously followed, are subject to oversight and auditing, and are required for and applied to all levels of the organization, including temporary staff, contractor personnel and visitors.
— Real or apparent failures of the screening processes are appropriately investigated and adjudicated.
— Staff members are aware of and understand the importance of trustworthiness determination.
— Training is provided to management and other appropriate staff to guide them in identifying apparent high risk behavioral symptoms, and in applying other similar observational and analytical skills.
— The screening process should address factors that might lead to degradation of trustworthiness such as substance abuse, workplace violence or criminal and aberrant behaviour.
— An effective insider threat mitigation programme, coordinated among all aspects of the security and operations organizations, is in place.

(j)   Quality assurance

The security function of an organization is important and requires the same degree of rigour, control and assessment as any other major programme

area. Therefore, standard quality management practices should be applied. Documented evidence of the benefits of quality management initiatives can convince security personnel that quality service helps gain trust and support for the organization and the people in it.

Security culture indicators:

— Assessment processes are in place for the security function;
— Staff throughout the organization understand that the management system is relevant to the security function and to sustaining the nuclear security system.

(k)   Change management

Many organizational problems and failures arise from the inadequate management of change. This is true of changes in equipment, procedures, organizational structures, and roles or personnel. Therefore, the organization should have effective processes in place to understand, plan, implement and reinforce change as it applies to the security function.

Security culture indicators:

— Change management processes are in place for changes that could affect the security function, whether directly or indirectly;
— Changes in such areas as operations, safety and security are coordinated with all potentially affected organizations;
— Assessments are made of changes to confirm that the desired outcomes have been obtained;
— Evaluations are conducted upon completion of the change process to determine if the change affected established security procedures.

(l)   Feedback process

An organization that can learn from its own and the experience of others will be able to continuously improve its nuclear security performance. In order to do this effectively, processes must exist for obtaining, reviewing and applying experience from internal and external sources.

Security culture indicators:

— Processes are in place to obtain, review and apply available national and international information that relates to the security function and the nuclear security system.

— Processes are in place to allow and encourage members of the public and all staff to report abnormal conditions, concerns, actual events or near-misses and, where appropriate, reward them.
— Reports are reviewed by management with actions taken to ensure that the organization learns from experience in order to improve its performance.

(m) Contingency plans and drills

The nuclear security system must be in a continuous state of readiness to handle security events at any time. An important element of the system is the set of contingency plans used to respond to attempted or successful malicious acts or to address a breach of protection. Appropriate and realistic drills and exercises must be conducted periodically.
Security culture indicators:

— Contingency plans are in place to address the defined threats and responses.
— The plans are tested periodically through drills and other means to ensure that they are effective and current, and that the individuals involved are familiar with the plans and their roles.
— All security systems are tested periodically to ensure that they are functional and available when needed. Special attention should be paid to systems that are not activated during normal operation.
— The human factor in security systems is evaluated periodically to ensure that personnel are alert and available when needed. Special attention should be paid to the human factor during periods of reduced activity such as back shift and weekends.

(n) Self-assessment

There must be a system of self-assessment that includes a wide range of assessment programmes, root cause analyses, performance indicators, lessons learned and corrective action tracking programmes that can be used for nuclear security.
Security culture indicators:

— A self-assessment programme is documented with a plan that defines self-assessment processes.
— Identified deficiencies are analysed to identify and correct emerging patterns and trends.

— Human factor methodologies are incorporated into problem analysis techniques.
— Performance is benchmarked to compare operations against national and international best practices.
— Operational performance is observed to confirm that expectations are being met.
— Corrective action plans are developed on the basis of self-assessment findings and implementation of these plans is tracked.

(o)   Interface with the regulator (and law enforcement bodies)

Effective nuclear security often involves several regulatory and law enforcement bodies. A constructive working relationship with each regulatory or law enforcement body is therefore important to ensure that information is exchanged regarding important nuclear security matters. This involves not only the relationship between the regulatory body and the regulated organization but also policy making and other bureaucratic considerations.
Security culture indicators:

— Information is freely and regularly exchanged between the regulatory body and the organization;
— Information regarding vulnerabilities and threats is mutually relayed in a timely manner;
— Regulatory interface roles are clearly defined and interagency processes are streamlined.

(p)   Coordination with off-site organizations

— Frequent staff and management level communication is accomplished with local and national organizations involved in nuclear security;
— Written agreements are in place with appropriate organizations to facilitate assistance, communication and timely response to incidents.

4.4. BEHAVIOUR

Behaviour is an observable action or statement. Individuals are inclined to learn and imitate prevailing patterns of behaviour existing in the group around them. Once established, these patterns can be difficult to alter.

The effectiveness of nuclear security depends on the behaviour of all personnel, including vigilance, questioning, executing work accurately and

adhering to high standards for individual and collective behaviour. A major part of the nuclear security culture of an organization is, therefore, visible in the behaviour patterns of its personnel. Examples are listed in Fig. 2 and additional details are provided below.

4.4.1. Characteristics of behaviour

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BEHAVIOUR FOSTERS BETTER COMPLIANCE WITH SECURITY REGULATIONS

Leadership behaviour

(a) Expectations;
(b) Use of authority;
(c) Decision making;
(d) Management oversight;
(e) Involvement of staff;
(f) Effective communications;
(g) Improving performance;
(h) Motivation.

Personnel behaviour

(a) Professional conduct;
(b) Personal accountability;
(c) Adherence to procedures;
(d) Teamwork and cooperation;
(e) Vigilance.

</div>

4.4.1.1. Leadership behaviour

(a) Expectations

Leaders must establish performance expectations for nuclear security to guide staff in carrying out their responsibilities.
Security culture indicators:

Leaders:

— Have and communicate to staff specific expectations for performance in areas that affect the nuclear security system;

— Ensure that resources are available to provide effective nuclear security;
— Lead by example and — as is expected from all staff — adhere to policies and procedures in their personal conduct;
— Personally inspect performance in the field by conducting walk-throughs, listening to staff and observing work being conducted, and then taking action to correct deficiencies;
— Demonstrate a sense of urgency to correct significant security weaknesses or vulnerabilities;
— Are able to recognize degraded nuclear security conditions and take corrective action.

(b)   Use of authority

Management establishes the responsibility and authority of each position within the nuclear security organization. Authority should be clear and documented.
Security culture indicators:

— Designated managers demonstrate good knowledge of what is expected of them, recognize and take charge of all adverse security situations or situations in which vulnerability is heightened, e.g. when the security system is degraded or when the threat level is increased.
— Managers make themselves approachable and allow effective two way communication, and encourage staff to report concerns or suspicions without fear of subsequently suffering disciplinary actions.
— Leaders do not abuse their authority to circumvent security.

(c)   Decision making

The process through which an organization makes decisions is an important part of the nuclear security culture. Adherence to formal and inclusive decision making processes demonstrates to staff the significance that management places on security decisions, and improves the quality of decisions.
Security culture indicators:

— Leaders make decisions when the situation warrants;
— Leaders explain their decisions when possible;
— Leaders solicit dissenting views and diverse perspectives, when appropriate, for the sake of strengthening the decision taken;

— Leaders do not shorten or bypass the decision making processes;
— Decisions are made by those qualified and authorized to do so.

(d)   Management oversight

An effective nuclear security culture depends upon the behaviour of individuals, and such behaviour — in turn — is very strongly influenced by good supervisory skills.
Security culture indicators:

— Managers spend time observing, correcting and reinforcing the performance of staff members at their work locations;
— Constructive feedback is used to reinforce behaviour expected from staff;
— Staff members are held accountable for adherence to established policies and procedures;
— Staff members are empowered to make technical decisions involving nuclear security matters.

(e)   Involvement of staff

Performance is improved when people are able to contribute their insights and ideas. Mechanisms should be in place to support this objective for nuclear security.
Security culture indicators:

— Leaders involve staff members in the risk assessment and decision making processes and other activities that affect them;
— Staff members are encouraged to make suggestions and are properly recognized for their contributions.

(f) Effective communications

An important part of an effective nuclear security culture is to encourage and maintain the flow of information throughout the organization.
Security culture indicators:

— Ensure that communication is valued and that potential blockages in communication are addressed;
— Explain the context for issues and decisions when possible;
— Visit staff members at their work locations and also conduct open forum meetings at which staff can ask questions;

— Welcome staff input and take action, or explain why no action was taken;
— Keep staff informed on high level policy and organizational changes.

(g)   Improving performance

In order to avoid complacency, an organization should strive to continuously improve nuclear security performance. Leaders should establish processes and show — by personal example and direction — that they expect workers to look for ways to learn and improve.
Security culture indicators:

— Staff members at all levels are encouraged to report problems and make suggestions for improving the performance of the nuclear security system;
— The causes of security events and adverse trends are identified and corrected;
— Analysis and follow-up of events or unusual occurrences consider not just the actual but also the potential consequences arising from each incident;
— When an error or event occurs, the question asked is 'What went wrong?', not 'Who was wrong?', with the focus on improvement, not blame;
— A process exists for all staff to raise nuclear security concerns directly with immediate supervisors, senior managers, and regulatory or other bodies.

(h)   Motivation

The satisfactory behaviour of individuals depends upon motivation and attitudes. Both personal and group motivational systems are important in improving the effectiveness of nuclear security.
Security culture indicators:

— Managers encourage, recognize and reward commendable attitudes and behaviour;
— Managers assist in implementing the insider mitigation programme by stressing the responsibility to watch for and report unusual occurrences;
— Reward systems recognize staff contributions towards maintaining nuclear security;
— Staff members are aware of the systems of rewards and sanctions relating to nuclear security;
— Annual performance appraisals include a section on performance and efforts vis-à-vis nuclear security;

— When applying disciplinary measures in the event of violations, the sanctions for self-reported violations are tempered to encourage the reporting of future infractions.

4.4.1.2. *Characteristics of personnel behaviour*

(a)   Professional conduct

All organizations involved with nuclear security need their personnel to adhere to high standards of professionalism.
Security culture indicators:

Staff members:

— Are familiar with the organization's professional code of conduct and adhere to it;
— Take professional pride in their work;
— Help each other and interact with professional courtesy and respect.

(b)   Personal accountability

Accountable behaviour means that all workers know their specific assigned tasks related to nuclear security (i.e. what they have to accomplish by when and what results should be achieved) and that they either execute these tasks as expected or report their inability to do so to their supervisor.
Security culture indicators:

— Staff members understand how their specific tasks support nuclear security;
— Commitments are achieved or prior notification of their non-attainment is given to management;
— Behaviour that enhances security culture is reinforced by peers;
— Staff members take responsibility to resolve issues.

(c)   Adherence to procedures

Procedures represent cumulative knowledge and experience. It is important that they are followed to avoid repeating errors that have already been identified and corrected. It is also important that procedures are clear, up to date, readily available, and user friendly so that personnel do not resort to departing from the approved methods.

Security culture indicators:

— Staff members adhere to procedures and other protocols, such as information controls;
— Visible sanctions are in place and applied to encourage personnel to follow procedures.

(d) Teamwork and cooperation

Teamwork is essential. An effective nuclear security culture can best be formed in an organization where there is extensive interpersonal interaction and where relationships are generally positive and professional.
Security culture indicators:

— Teams are recognized for their contribution to nuclear security;
— Staff members interact with openness and trust and routinely support each other;
— Problems are solved by multilevel and multidisciplinary teams;
— Teamwork and cooperation are encouraged at all levels and across organizational and bureaucratic boundaries.

(e) Vigilance

Security depends on the vigilance and observational skills of staff. Prompt identification of potential vulnerabilities permits proactive corrective action.
Security culture indicators:

— Staff members notice and question unusual indications and occurrences, and report them to management, as soon as possible, using the established processes;
— Staff members are attentive to detail;
— Staff members seek guidance when unsure of the security significance of unusual events, observations or occurrences.

An appropriate questioning attitude is encouraged throughout the organization.

4.5. RESULT

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GOAL: MORE EFFECTIVE NUCLEAR SECURITY

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The issues discussed above can establish an effective nuclear security culture. The goal is to provide greater assurance that the entire nuclear security programme will accomplish its functions of preventing, detecting, delaying and responding to theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving radioactive material in use, storage or transport.

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