Safeguards Culture: Analogies from Safety Culture and Security Culture

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Outline

1. Introduction;
2. Safety Culture;
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   Analogous to Safety Culture and Security Culture;
5. Concluding Remarks.
Introduction

✓ A quick Google search of the term “safeguards culture” results in some 6.8 million “hits” in the internet;

✓ A closer look at some “pertinent” ones reveals that the terminology of “safeguards culture” has been used loosely without any clear definitions by safeguards experts;
Scheinman @ “The International Forum on Nuclear Nonproliferation and Peaceful Use of Nuclear Energy in the Asia Region, Tokyo, Japan, June 24 – 25, 2008”

one of the goals of NGSI (Next Generation Safeguards Initiative) is to promote a “safeguards culture” through infrastructure development in newcomer States.

He uses the terminology without any definition.
Introduction

✓ Carlson @ The 51st Annual Meeting of the Institute for Nuclear Materials Management, Baltimore, Maryland, USA, 11-15 July 2010:

“building a safeguards culture” as one of the future activities of the APSN; “A strategic approach is needed – what is meant by a ‘safeguards culture’? What are the qualities to build and encourage? How to develop a safeguards culture, and how to promote it? These are not easy questions.”
Introduction

Carlson @ the closing plenary of 2010 Safeguards Symposium:

He noted that building support for the safeguards mission involved a variety of factors, including the promotion of a “safeguards culture” shared between the Agency and Member State;

He uses the terminology without defining it.
He also used that terminology to describe the cultural change indispensable for successful shift from the traditional rigid criteria-oriented safeguards to the more adoptive performance-oriented safeguards: “Today it is recognised that the greatest single safeguards challenge is the detection of undeclared nuclear materials and activities. ..... The development of new methods, approaches and technology – and a new safeguards culture – are needed to respond to this challenge”
“It is clear that “safeguards culture” needs to be addressed if the efficiency and effectiveness are to continue to be improved. This will require commitment and change at all levels, from States to facility operators. Cultural change has to come from good leadership, doing the right thing and “beliefs” are not sufficient – behavior is what counts…..”

The phrase of “safeguards culture” is also used here without proper definition.
Introduction

✓ The only exception: Frazier and Mladineo defines “SG Culture”

✓ They argue that “a clear definition of safeguards culture coupled with a definitive set of metrics can be used to evaluate and demonstrate a country’s nonproliferation posture”;

✓ They propose the following definition: “A shared belief among individuals, organizations, and institutions that strict attention to international safeguards requirements and affirmative cooperation with safeguards authorities will enhance their nonproliferation stature and benefit their missions.”
Introduction

✓ Thus, their definition is designed for assessing the major stakeholders of a State on their commitment to nonproliferation obligations and their active cooperation with safeguards authorities;

✓ On the other hand, the use of “SG culture” by Scheinman and Carlson indicates their notion of the term as an essential element for establishing an organizational environment of safeguards stakeholders for the effective and efficient implementation of international safeguards;
Introduction

✓ This is also true for Carlson’s remark in his address at the closing plenary of 2010 IAEA Safeguards;

✓ However, “SG culture” used in 2005 INMM/ESARDA Workshop implies the notion completely different from the above cases: the term “SG culture” is used in the context of the need for a drastic change of safeguards paradigm, namely shift from the traditional rigid criteria-oriented SG, based on primarily on nuclear material accountancy, to the more adoptive information driven SG, based on the analysis and evaluation of all information available to the IAEA.
Introduction

Now, let us explore the definition of “safeguards culture” along the line with the usage of the term by Scheinman and Carlson in their respective contexts of NGSI and APSN/2010 Safeguards Symposium!
Introduction

Now, let us explore the definition of “safeguards culture” along the line with the usage of the term by Scheinman and Carlson in their respective contexts of NGSI and APSN/2010 Safeguards Symposium, being analogous to safety culture and security culture with an effort to describe its essential elements!
The term “safety culture” stems from the Chernobyl Accident. In the closing plenary of the Post-Accident Review Meeting in August 1988, Its Chair, Dr. R. Rometsch, summarized that the root cause of the accident was the lack of “safety culture” among those involved in the design and the operation of the Soviet reactor.
The first use of “safety culture” in a literature appears in the first issue of INSAG reports, i.e. INSAG-1, “Summary Report on the Post-Accident Review Meeting on the Chernobyl Accident” with this definition: “That assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance.”
Safety Culture (INSAG)

✓ In INSAG-3, INSAG highlighted “safety culture” as one of the fundamental management principles, or “Basic Safety Principles for Nuclear Power Plants”;

✓ INSAG worked further on the concept of “safety culture” and published its report specifically on the subject, INSAG-4, “Safety Culture”;

✓ In INSAG-4, INSAG provides the same definition of “safety culture” as contained in INSAG-1, and...
Safety Culture (INSAG)

In INSAG-4, INSAG provides the same definition of “safety culture” as contained in INSAG-1, and reiterate the salient characters of safety culture stated in INSAG-3 as follows:

Safety Culture “refers to the personal dedication and accountability of all individuals engaged in any activity which has a bearing on the safety of nuclear power plants”;
Safety Culture (INSAG)

- It was further stated to include as a key element "an all pervading safety thinking", which allows "an inherently questioning attitude, the prevention of complacency, a commitment to excellence, and the fostering of both personal accountability and corporate self-regulation in safety matters";
Good practices in themselves, while an essential component of Safety Culture, are not sufficient if applied mechanically. There is a requirement to go beyond the strict implementation of good practices so that all duties important to safety are carried out correctly, with alertness, due thought and full knowledge, sound judgement and a proper sense of accountability.
Safety Culture (INSAG)

It also notes the following:

“Safety Culture has two general components. The first is the necessary framework within an organization and is the responsibility of the management hierarchy. The second is the attitude of staff at all levels in responding to and benefiting from the framework.”
Safety Culture (INSAG)

✓ Subsequently, INSAG deals with these components separately under the headings of Requirements at **Policy Level**, Requirements on **Managers**, and Response of **Individuals**;

✓ It presents a Figure illustrating the major components of “safety culture” and shows the desired responses at the organizational levels of **policy**, **management** and the **individual**;
Safety Culture (INSAG)

The **policy level** establishes the necessary framework for the organization and the following elements are listed as essential:

- Statement of Safety Policy;
- Management Structures;
- Resources;
- Self-regulation.
Safety Culture (INSAG)

Management shapes the working environment and fosters attitudes conducive to achieving good safety performance. The following elements are listed as indispensable:

- Definition of Responsibilities;
- Definition and Control of Safety Practices;
- Qualifications and Training;
- Rewards and Sanctions;
- Audit, Review and Comparison
Safety Culture (INSAG)

✓ At the **individual** level,

➢ a questioning attitude,

➢ a rigorous and prudent approach, and

➢ good communication are emphasized.

✓ The similar arguments can be made in the consideration of “safeguards culture”.
The importance of “security culture” is duly reflected in the “Physical Protection Objectives and Fundamental Principles” that were endorsed by the IAEA BOG and the GConference in September 2001:

(FUNDAMENTAL PRINCIPLE F: Security Culture)

“All organization 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.”
Security Culture (AdSec)

AdSec authorized to publish the specific report on “Nuclear Security Culture”: IAEA Nuclear Security Series No. 7; providing the following definition:

“The assembly of characteristics, attitudes and behavior of individuals, organizations and institutions which serves as a means to support and enhance nuclear security.”
The document fully recognizes the basic difference between nuclear safety and nuclear security:

“While both nuclear safety and nuclear security consider the risk of inadvertent human error, nuclear security places additional emphasis on 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.”
The document also emphasizes their similarities:

“In a similar manner, nuclear security culture refers to the personal dedication and accountability and understanding of all individuals engaged in .....the security of nuclear activities. This objective is largely based on common principles, e.g. a questioning attitude, rigorous and prudent approaches, and effective .....open, two way communication”.

Security Culture (AdSec)
Security Culture (AdSec)

✓ Then the document presents a diagram showing the main components of “security culture” corresponding to that for “safety culture”;

✓ In the case of “safety culture”, there are three tiers, i.e. Organizations (Policy Level), Managers and Individuals, while there are four tiers in the case of “security culture”, State being the additional top tier;
Security Culture (AdSec)

✓ Three to five essential roles are assigned to each of common three tiers, i.e. Organizations (Policy Level), Managers and Individuals;

✓ Though there are slight differences in exact wording, most of them are identical between “safety culture” and “security culture”.
# Security Culture (AdSec)

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<th>Ties</th>
<th>Safety Culture</th>
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<td>State</td>
<td>• Definition of Objectives</td>
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<td></td>
<td>• Distribution of Responsibilities</td>
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<td>Organizations</td>
<td>• Statement of Policy</td>
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<td>• Management Structures; Resources;</td>
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<td>• <strong>Self-regulation</strong></td>
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<td>• Management Structures; Resources;</td>
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<td></td>
<td>• <strong>Review and Improvement</strong></td>
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<td>Managers</td>
<td>• Definition of Responsibilities</td>
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<td>• <strong>Rewards and Sanctions</strong></td>
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<td>• Audit, Review and Comparison.</td>
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<td>• <strong>Motivations</strong></td>
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<td>• Audit and Review</td>
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<td>Individuals</td>
<td>• Questioning Attitude</td>
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<td>• <strong>Rigorous</strong> and Prudent Approach</td>
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<td>• <strong>Vigilance</strong> and Questioning Attitude</td>
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<td>• <strong>Strict</strong> and Prudent Approach</td>
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<td>• <strong>Speed of Reaction</strong></td>
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INSAG defines “safety culture” as follows:

“That assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance.”
Safeguards Culture

✅ AdSec endorses the following definition of “security culture”:

“The assembly of characteristics, attitudes and behavior of individuals, organizations and institutions which serves as a means to support and enhance nuclear security.”
Safeguards Culture

✓ The definition of safety culture implies that safety has an “overriding” priority over other factors such as efficiency;

✓ On the other hand, the definition of security culture does not speak about its relative relevance or relative priorities over other factors such as safety or safeguards.
Safeguards Culture

✓ However, one of the Fundamental Principles of Nuclear Security requires the following:

“All organization 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.”
While nuclear security should be given “due priority”, it is silent about the relative priorities among nuclear security, safeguards, public acceptance, transparency and other factors. However, unlike safety, it is hard to say that nuclear security should have “overriding priority”;

This may hold true for safeguards.
Safeguards Culture

✓ Thus, it seems more prudent to define safeguards culture after nuclear security culture:

“The assembly of characteristics, attitudes and behavior of individuals, organizations and institutions which serves as a means to support and enhance safeguards or to achieve effective and efficient safeguards.”
What then should be the stakeholders’ characteristics for safeguards culture? Analogous to security culture, the following points can be made:

Since the State’s commitment to nuclear nonproliferation through effective and efficient safeguards is of paramount importance, the State involvement is essential. Therefore, there should be four tiers: State, Organizations, Managers and Individuals.
Safeguards Culture

- At the State level, the following elements are essential:
  - State commitment to effective and efficient safeguards;
  - Establishment of SSAC with the necessary legal and regulatory framework/provisions, defining relevant responsibilities of each stakeholder;
Safeguards Culture

- Establishment of the legal and regulatory framework to foster an effective safeguards culture;
- Assumption of a leading role in coordination between State authorities, other organizations and the IAEA, with adequate mechanisms for the exchange of safeguards experiences and data in order to establish and share safeguards best practices.
At the Organizations level, the following elements are essential:

- Clear statement of safeguards policy, i.e. Organizations’ commitment to effective and efficient international safeguards;
Establishment of management structures, defining roles, responsibilities and accountability for each level of the organization, appointing an individual responsible for overseeing safeguards implementation who has sufficient authority, autonomy and resources;
Safeguards Culture

● Allocation of sufficient financial, technical and human resources to implement the assigned safeguards responsibilities;

● Regular review of organizations’ safeguards practices and systems for improvement as necessary.
Safeguards Culture

At the Managers level, the following elements are essential:

• Clear definition of the safeguards roles and responsibilities of each individual in the Organizations, including clarity concerning levels of authority and lines of communication;
Safeguards Culture

• Ensuring that all personnel must be made aware of and be committed to safeguards requirements and best practices;

• Ensuring that, at all levels of an organization, proper training is conducted to develop skills and provide tools to promote and implement safeguards culture;
Ensuring that staff members are appropriately motivated, and that their role in enhancing safeguards performance is recognized and valued within the organization, through rewards and recognition, both tangible and intangible, that can encourage vigilance, questioning attitudes and personal accountability;
Safeguards Culture

- Self-assessments and independent audits for continual improvement in safeguards culture in order to prevent complacency, making necessary arrangements to benefit from all sources of relevant experience, research, technical developments, operational data, and events of safeguards significance;
Safeguards Culture

- Clear definition of the safeguards roles and responsibilities of each individual in the Organizations, including clarity concerning levels of authority and lines of communication.
Safeguards Culture

At the Individuals level, the following elements are essential:

- Compliance with rules, regulations and procedures, and also constant vigilance and a proactive questioning attitude;
- Adopting a rigorous and prudent approach to their safeguards responsibilities;
Safeguards Culture

- Good communication for teamwork and cooperation among all personnel involved in safeguards activities.

- Safeguards culture should be fostered not only among those individuals who are directly involved in routine activities of safeguards implementation and nuclear material accountancy, but also those who are not directly involved in these activities.
The lack of safeguards awareness might result in their careless actions such as inadvertent cutting of IAEA seals or unintentionally switching off the light for IAEA surveillance cameras. All of these requires additional questions and clarifications by the IAEA and might result in additional follow-up verification activities that are extremely burdensome to the IAEA, the State and the operators.
Safeguards Culture

They should be made aware of the following points through appropriate activities for fostering safeguards culture among them:

- The objectives of international safeguards and the actual scheme of their implementation;
- The rules and procedures for effective and efficient safeguards implementation and the need for compliance with them;
- The need for constant vigilance and a proactive questioning attitude.
Concluding Remarks

✓ As has been shown, there is a need to have a formal definition of “safeguards culture”;

✓ A tentative definition is presented above together with the consideration of desired characteristics for each stakeholder of international safeguards, i.e. State, Organizations, Managers and Individuals;
Concluding Remarks

✓ INSAG and AdSec, both of which are an advisory body to the Director General of the IAEA, have actively involved in the definition of safety culture and security culture respectively, which resulted in a respective publication on the subject as a part of the IAEA safety series and nuclear security series;
Concluding Remarks

✓ It seems high time for SAGSI to formally define safeguards culture and publish it as a part of “International Nuclear Verification Series”;

✓ It is the sincere wish of the author that this paper would stimulate SAGSI’s future consideration of the subject.