

Lost in Translation: Addressing Semantic Challenges in Nuclear Security Discourse Across Languages

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1. Abstract

This work reviews common problems and related consequences in translation of the term “nuclear security” and select related terms. The authors offer recommendations on how to address these, both in the initial choice of words in English and in translation for multiple United Nations official languages (Russian, Spanish). It is our hope that this work can serve as a reference for drafters, translators and interpreters, and can help augment the IAEA ongoing efforts to build an authoritative nuclear security glossary to facilitate the articulation and adoption of international nuclear security best practices.

2. Background

At international events on nuclear security, proceedings often grind to a halt as participants struggle to grasp or articulate the concept of “nuclear security” itself. This should pose little surprise: many languages - including four of the six official languages of the United Nations - use the same word to denote both “safety” and “security.” After decades of IAEA efforts to promote nuclear safety and, more recently, to bring security to a level on par with safety, the risk of confusion in this area remains rife. Unfortunately, the consequences of such confusion for perception, policy, and practice can be quite real, and have likely confounded efforts to promote nuclear security since their inception.

3. Translation Concepts: Source, Target Languages; Centrality of Meaning

Translation involves the transposition of expressed meaning from one “source” language to another “target” language(s). Successful translation typically involves a robust reconstruction of the original intended meaning from the source language in the target language. The scope of meaning of terminology and grammar normally differ between languages, often considerably, hence there will typically not be a one-to-one correspondence of terminology, grammar, word order, or the number of words used to express a concept. Similarly, concise translated expressions are desirable where meaning is left intact, but where meaning or clarity is lost, a translation fails.

4. Common Challenges in Translation of “Safety” and “Security”

4.1 Deficiencies in Prior Translation Conventions

In English, the term nuclear “safety” typically denotes the protection of people from the harmful effects of radiation during normal handling and operations involving nuclear and radioactive material, whereas nuclear “security” relates to the protection of nuclear and radioactive materials and related facilities from deliberate, malicious acts. For languages that do not distinguish these concepts (i.e., that use the same word to denote both), there is considerable potential for confusion in translation of English sources that rely on this distinction about who or what is to be protected, and from whom or what.

For such languages, translators and the authors of international instruments have tried to employ one- or two-word terms as shorthand to try to distinguish these concepts, but these have suffered pronounced deficiencies. A common convention to distinguish safety and security in such languages is to attach the adjective “radiation” for safety and “physical” for security. Shortcomings of this approach include that it is not apparent on the faces of these terms that they relate either to accidents (for safety) or protection against deliberate, malicious acts (for security). These translations invite the inference that safety and radiation are somehow not physical, or that security is somehow unconcerned with radiation.

Even if interpreters and translators employ these conventions, the distinction remains unintelligible to uninitiated listeners or readers. Interpreters and translators unfamiliar with these conventions may resort to rendering both concepts with the same word. Making matters still worse, even subject matter experts often inadvertently use these terms interchangeably, imprecisely, or incorrectly in the source language, making logical translation still less probable.

4.2 Attendant Policy Problems

Reliance on the term “physical protection” as a conventional rendering for “security” may exacerbate certain problems, including:

- Over-emphasis on outsider-oriented use of physical security systems like “guards, gates, and guns;”
- Under-emphasis on administration, culture, insider threat, material control and accounting, continuous improvement, international dialogue, and mutual scrutiny; and
- Conflation and poor delineation of authority and responsibility (bodies historically responsible for safety have security added on as an afterthought, without being provided authority to involve or impose requirements on security stakeholders).

5. Opportunities for Improvement

5.1 Improvements in Source, Target Language Rendering

To improve translation overall, international nuclear security experts should work to develop a harmonized, concise, descriptive, and intelligible shorthand across languages. For English, this may mean eschewing use of the word “security” where possible in favour of terms more readily translatable into other languages and that are more specific. The existing Nuclear Security Series complements this approach through its more refined and specific guidance on

specific technical subject matter areas, however high-level IAEA documents frequently rely on use of “safety” and “security” shorthand terms, which even in official IAEA translations have been translated differently in different documents, again tending to confuse and frustrate users and linguists alike. Section 5.2 offers proposed improved translations for three terms across two target languages.

5.2 Proposed Improved Translations of Terms

Table 1. Past Translation Conventions and Proposed Alternatives:

Prior Source Term (English)	Target Language	Prior Target Term	Proposed Source Rendering (English)	Proposed Target Rendering
Security	Russian	физическая ядерная безопасность	protection against malicious acts	защитенность против несанкционированных действий
Sustainability	Russian	долгосрочное обеспечение работоспособности	-	долгосрочная устойчивость
Performance Testing	Russian	оценка функционирования	-	оценка достижимости (или достижения) цели
Security	Spanish	protección física	protection against malicious acts	defensa contra actos dolosos

5.3 Opportunities for Application

- Guidance documents are regularly updated and revised, meaning that word selection and translation conventions can also be updated;
- Various IAEA guidance documents have yet to be officially translated, thus future translations may adopt improved translation conventions;
- The IAEA is still compiling its Nuclear Security Glossary, which presently exists in draft form only in English - the Glossary could be expanded to all official UN languages, and could describe preferred terminology in explicit contrast to certain past terms and formulations;
- Problems related to describing security are not unique to nuclear and radioactive materials - guidance frameworks for chemical security and biosecurity are less mature, and there will likely be opportunity to apply lessons and avoid pitfalls in these other areas.

Table 2. Opportunities for Improvement: Official Translations of Nuclear Security Documents into Non-English Target Languages

Document	Language				
	A	C	F	R	S
General International and IAEA Documents					
Convention on Physical Protection (PP) of Nuclear Material (NM) / Amendment	Y	Y	Y	Y	Y
IAEA Code of Conduct	Y	Y	Y	Y	Y
Nuclear Security (NS) Glossary	N	N	N	N	N
IAEA Nuclear Security Series (NSS) Documents					
20 – Fundamentals	Y	Y	Y	Y	Y
13 – Security of NM, Facilities	Y	Y	Y	Y	Y
14 – Security of Radiological Material, Facilities	Y	Y	Y	Y	Y
15 – Material Out of Regulatory Control (MORC)	Y	Y	Y	Y	Y
2-G – Forensics in Support of Investigations	N	N	N	N	N
7 – Nuclear Security Culture	Y	Y	Y	N	Y
8 – Preventive and Protective Measures against Insider Threats	N	Y	Y	Y	N
9 – Security in the Transport of Radioactive Material	N	Y	Y	N	Y
10 – Development, Use & Maintenance of Design Basis Threat	Y	Y	Y	N	N
11 – Security of Radioactive Sources	Y	Y	Y	N	N
18 – NS Systems & Measures for Major Public Events	Y	N	Y	Y	Y
19 – Establishment of NS Infrastructure for a Nuclear Power Programme	Y	N	Y	N	Y
21 – Systems & Measures for Detection of MORC	Y	N	N	N	N
22-G – Radiological Crime Scene Management	Y	N	N	N	Y
23-G – Security of Nuclear Information	Y	N	Y	N	Y
24-G – Risk-informed Approach for MORC	N	N	N	N	N
25-G – NM Accounting & Control for NS	Y	N	Y	N	N
26-G – Security of NM in Transport	Y	N	N	N	N
27-G – Physical Protection of NM & Facilities	Y	N	N	N	N
29-G – Developing Regulations & Associated Administrative Measures for NS	N	N	N	N	N
30-G – Sustaining a NS Regime	N	N	N	N	N
31-G – Building Capacity for NS	N	N	N	N	N

A - Arabic; C - Chinese; F - French; R - Russian; S - Spanish; Y – official translation published; N - untranslated

6. Conclusions

- Confusion and pitfalls can be avoided by more conscious, descriptive and uniform use of terms across languages, such as the proposed terminology in this paper.
- IAEA should focus special effort on building a robust nuclear security glossary across languages, which will greatly facilitate discourse, translation, and interpretation; the glossary can then serve as an authoritative basis to update conventions and translations.