Final Report of Survey Results

PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa

Workshop Session I
3 - 7 August 2015

Prepared by: African Centre for Science and International Security

Prepared for: The US Department of Energy (DOE)/National Nuclear Security Administration’s (NNSA) International Nuclear Safeguards Engagement Program (INSEP), the U.S. Department of State’s (DOS) Partnership for Nuclear Security (PNS), and CRDF Global.

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ABOUT THE CENTRE

The African Centre for Science and International Security (AFRICISIS) is the leading African-wide WMD nonproliferation nonprofit organization headquartered in Accra, Ghana for the advancement of relevant policy oriented-technical work that promotes development goals of governments in Sub-Saharan Africa. The Centre is led by a Board of Directors comprised of African and foreign experts, diplomats and policy leaders, which meets at least, once a year to, among other things, create and review a statement of mission and purpose that articulates the organization’s goals, means, and programs. The work of the Centre is carried out by a Director and staff organized into three departments: Administration, Research, and Policy & Programming. The work of the Centre is organized into four programs: Nuclear Security Program (NSP), Nuclear Nonproliferation and Arms Control Program (NACP), Space and Satellite Program (SSP), and Global Warming and Security (GWSP).

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The contents of this report reflect the views of the author who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of AFRICISIS and governmental agencies mentioned above.
EXECUTIVE SUMMARY

BACKGROUND

This report presents selected results from the first workshop session of the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa at the African Centre for Science and International Security. The workshop session was held on August 3-7, 2015 at Charleston Hotel Tesano, Accra, Ghana. The survey collected post-workshop views from the participants. The survey method was an online questionnaire to collect participants’ ratings and comments on four impact factors for all 33 presentations, table top exercises, and facilitated discussion. It was designed to assess the impact of duration, quality, relevance and learning of each presentation to the participants knowledge, skills and abilities to teach nuclear security or safeguards topics or to improve performance in their organizations. The results enable stakeholders to determine what the best practice is, to prioritize opportunities for improvement, to enhance impact about participant expectations, and to take action to improve a module lectures and content.

SURVEY OBJECTIVE

The PDC course survey objective was to collect measured data on participants’ views on the impact of the duration, quality, relevance and learning of each presentation at the workshop. To achieve the desired results, the PDC course survey had the following goals:

- Capture a large sample of relevant professionals and diverse nationals within the workshop participants.
- Collect participants’ ratings on four impact factors for all presentations.
- Collect extra comments for each impact factor.

PARTICIPANTS

The total number of participants who were sent the online questionnaire was 18. The participants included 9 Nigerians, 7 Ghanaians, 1 Kenyan and 1 Cameroonian. Among the participants were university lecturers, research scientists, intelligence officer, nuclear reactor technologists, and nuclear regulatory officers from universities, research laboratories, intelligence agency, research reactor facilities, nuclear regulatory authorities and atomic commissions.

- Of those, 14 completed and submitted the completed questionnaire.
- Of those, 4 did not submit any response.
- The following results cover the 14 participants who truly completed and submitted the questionnaire.
SURVEY METHODOLOGY

Data for this survey were gathered from 10 August to 21 September 2015 through the internet. The survey was conducted using a questionnaire from 10 August to 18 September 2015. The questionnaire was emailed to a total of 18 workshop participants to complete and submit online. Pre-survey e-mail notices, invitations with the survey site link (http://goo.gl/forms/z1CNuzaMu), and reminders about the survey were sent to the participants.

The email correspondences resulted in 14 responses for a 77.8% response rate. We expect that the functional response rate was likely 94.4% as three of the attendees were experts from universities and a regional organization (there was no way to know who completed the survey as data submitted was anonymous). In all, 14 submitted questionnaires were used in this report, as there were no significant missing responses, resulting in a valid response rate of 77.9%. This survey was developed as a benchmark step in ongoing capacity building workshops on nuclear security and safeguards for Sub-Saharan Africa.

Each presentation was assessed on four parameters. Each parameter had three response items for the participant to check one only. This means each presentation had 12 response items from which each participant checked four items only. So, a completed questionnaire had 132 checked response. Overall, all the completed 14 questionnaires had 1848 response items.

DATA COLLECTED

The facilitator collected two forms of data:

- Qualitative data - mainly comments of participants on each factor for all presentations.
- Quantitative data - mainly ratings of presentations on four factors.

Appendix A is a table that presents the scores of four impact factors for all 33 presentations at the workshop grouped into two modules, the nuclear security and the nuclear safeguards.

FINDINGS

RESULTS

The results are broken out according to modules and listed by a question. A graph illustrates the result of each impact factor followed by a factual summary of the graph.

Nuclear Security Module

**Question 1: What is your Rating of the Duration of each Presentation from the Nuclear Security Module?**

Figure 1 (on the next page) illustrates the scores of respondents for Duration of each Presentation from the nuclear security module. From the figure, the most significant items are as follows. For the response item Just Right Duration, the majority of those questioned judged the duration of each of the 23
presentations just right. For example, all 14 respondents considered the duration of *Human Reliability and Trust Worthiness Programs* presentation just right. More so, at least, five in every seven respondents reckoned the duration of each of the remaining 22 presentations just right. The following comments can be made about the remaining two response items; Too Long Duration and Too Short Duration. On average, one in two of those questioned considered the duration of each of four presentations - *Case Studies in Insider Threat, Nuclear Security Threat, Overview of INSEN, and Ghana’s Nuclear Energy Efforts* - too long. One in four respondents deemed the duration for each of 21 presentations too short. However, neither the duration of *Human Reliability and Trust Worthiness Programs* presentation nor the duration of *Ghana’s Nuclear Energy Efforts* discussion was regarded too short by a respondent.

![Figure 1: Responses to the Question, “What is your Rating for Duration of each Presentation from the nuclear security module?”](image)

**Figures and Diagrams:**

- **Figure 1:** Bar chart showing responses to the question, “What is your Rating for Duration of each Presentation from the nuclear security module?”

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**Presentations from Nuclear Security Module**

- Just Right Duration
- Too long Duration
- Too Short Duration
**Question 2:** What is your Rating of Quality of each Presentation from the Nuclear Security Module?

Figure 2 depicts the scores of respondents on the Quality of each Presentation from the nuclear security module. From the figure, the most significant items are as follows. There are only two response items here. For the response item, Excellent Quality, at least, five in fourteen respondents thought the quality of each presentation was excellent. Most importantly, eleven in fourteen participants believed the quality of each of three presentations - Insider Threat Preventative Measures, Behavioral Observations and Psychological Perspectives, and Ethical Behavior in the Workplace - was excellent. On the other hand, for the response item Good Quality, at least, one in five respondents agreed the quality of each of the 10 presentations was good. Positively, no one felt the quality of any presentation was poor.

![Figure 2: Responses to the Question, “What is your Rating for Quality of each Presentation from the Nuclear Security Module?”](image-url)
**Question 3:** What is your Rating of Relevance of each Presentation from the Nuclear Security Module?

Figure 3 shows the scores of respondents on the Relevance of each presentation from the nuclear security module. From the figure, the most significant items are as follows. There are only two response items here. For the response item Highly Relevant, at least, 11 in 14 respondents believed each of the 23 presentations was highly relevant. Importantly, 100% respondents maintained the *Nuclear Security Design* was highly relevant. For the response item Somewhat Relevant, one in fourteen judged one in fourteen considered each of the 22 presentations were somewhat relevant. In particular, no participant felt any of the presentations was not relevant.

![Figure 3: Responses to the Question, “What is your Rating of Relevance of each Presentation from the Nuclear Security Module?”](image)

**Question 4:** What is your Rating of Learning from each Presentation from the Nuclear Security Module?

Figure 4 (on the next page) represents the scores of respondents on Learning from each presentation from the nuclear security module. From the figure, the most significant items are as follows. There
are three response items here. For the response item I Learned Valuable Information, at least, 1 in 2 respondents judged he or she learned valuable new information from each presentation. In particular, 13 of 14 respondents agreed they learned valuable new information from the *Human Reliability and Insider Threat* presentation. The following comments can be made about the response items; I Learned New Information and I Did Not Learn New Information. About 1 in 3 considered he or she learned new information from all the presentations while 1 in 6 of those questioned claimed they did not learn new information from three of the presentations (*Nuclear Security Course Design at Texas A & M University, Nuclear Security Course Design at University of Tennessee, and Basics of Nuclear Energy and Technologies*).
Nuclear Safeguards Module

**Question 1:** What is your Rating of Duration of each Presentation from the Nuclear Safeguards Module?

Figure 5 portrays the scores of respondents for Duration of each Presentation from the nuclear safeguards module. From the figure, the most significant items are as follows. There are three response items here. For the response item Just Right Duration, 10 in 13 of those questioned considered the duration of each of the 10 presentations just right. In particular, 12 of the 14 respondents judged the duration of each of the following four presentations - *The Nonproliferation Regime & International Safeguards, Overview of Safeguards Approaches for Nuclear Power Plants, Building Partnerships between Universities and Laboratories, and Review of Publicly Available Safeguards Resources* - just right. The following comments can be made about the remaining two response item, Too Long Duration and Too Short Duration. One of the respondents regarded the duration of the presentation, *Human Capital Development for an SSAC*, too long and one in five reckoned the duration of each of the 10 presentations too short.

![Figure 5: Responses to the Question, “What is your Rating for Duration of each Presentation from the Nuclear Safeguards Module?”](image)

**Question 2:** What is your Rating of the Quality of each Presentation from the Nuclear Safeguards Module?

Figure 6 (on the next page) illustrates the scores of respondents on the Quality of each presentation from the nuclear safeguards module. From the figure, the most significant items are as follows. There are three response items here. For the response item, Excellent Quality, on average, one in every two
respondents judged the quality of each of the 10 presentations was excellent. Most importantly, ten in fourteen respondents believed the quality of Human Capital Development for an SSAC was excellent. The following comments can be made about the remaining two response item, Good Quality and Poor Quality. Similar to the response item Excellent Quality, one in two respondents deemed the quality of each presentation was good. Only one person felt the quality of Country Presentations: National Nuclear Education Opportunities presentation was poor.

**Question 3:** What is your Rating of Relevance of each Presentation from the nuclear safeguards module?

Figure 7 (on the next page) depicts the scores of respondents for Relevance of each presentation from the nuclear security module. From the figure, the most significant items are as follows. There are only two response items here. For the response item Highly Relevant, an average of 10 in every 12 respondents agreed all 10 presentations were highly relevant. Importantly, 13 of 14 respondents judged
the presentations *Integrating Safeguards Courses/Modules into a Nuclear Engineering Curriculum* was highly relevant. For the response item Somewhat Relevant, one in every seven respondents felt each of the 10 presentations was somewhat relevant. Not surprisingly, no participant suggested any of the presentations was not relevant.

**Figure 7: Responses to the Question, “What is your Rating of Relevance of each Presentation from nuclear safeguards module?”**

<table>
<thead>
<tr>
<th>Presentations from Nuclear Safeguards Module</th>
<th>No of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Relevant</td>
<td></td>
</tr>
<tr>
<td>Somewhat Relevant</td>
<td></td>
</tr>
<tr>
<td>Not Relevant</td>
<td></td>
</tr>
</tbody>
</table>

**Question 4: What is your Rating of Learning from each Presentation from the Nuclear Safeguards Module?**

Figure 8 (on the next page) shows the scores of respondents on Learning from each presentation from the nuclear safeguards module. From the figure, the most significant items are as follows. There are two response items here. For the response item, I Learned Valuable Information, two in every three respondents considered they learned valuable new information from each presentation. In particular, 11 of 14 respondents judged they learned valuable new information from four presentations—*Human Capital Development for an SSAC, Review of Publicly Available Safeguards Resources, and Integrating Safeguards Courses/Modules into a Nuclear Engineering Curriculum*. The following comments can be made about the response items; I Learned New Information and I Did Not Learn New Information. On average, one in three respondents believed he or she learned new information from each presentation. No respondent felt he/she did not learn new information from any of the presentation.
Figure 8: Responses to the Question, “What is your Rating Learning from each Presentation from the Nuclear Safeguards Module?”

**Presentations from Nuclear Safeguards Module**

- I learned Valuable New Information
- I learned New Information
- I Did Not Learn New Information

**COMMENTS**

**DURATION**

“Very educative with practical experience on the table top exercise.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Sahara Africa held in Accra, Ghana in 2015.

“All is OK.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Sahara Africa held in Accra, Ghana in 2015.
“Excellent presentations. The PDC training programme was worth every effort put in place by the organizers. Looking forward to another inspiring session in the second week.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

"In this section, it is clear that the resource persons did well by putting their best in presenting well-articulated lectures. Moreover, the topics were just right and eductive.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“The method employed should be maintained in the subsequent meetings, it should also be adopted for the other part of the developing world where the nuclear security and safeguards issues are to be introduced.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“I believe the organizers should find a way of increasing the duration of presentations for the table top exercises and breaks for professional discussions.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“PDC was productive and very interesting however it would have been better if Nuclear Security was covered in more depth.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“The entire program is okay to me.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“In my opinion, none of the presentations were too long, except that more time should be spent by the presenter in explaining the equations, data, tables and other illustrations therein.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“Time given to the courses is too small.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

QUALITY

“Excellent.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“I am satisfied.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“Interesting Sessions and highly informative.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“The knowledge acquired as a result of the presentation by the able expert cannot be measured, they did an excellent job, a lot of information have been learned, especially by us the participants, it is superb.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“The quality of the various content of presentations given was highly acceptable.
“The content is rich.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“For the purpose of academic curriculum development, I think it is important that those of us from the academic community be given alongside with presentation slides, the full lecture notes. But if that is not possible, then we should give links to free e-book copies of text materials. Thank you.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

RELEVANCE

“The above topics are highly relevant to my career as a regulator with nuclear industry” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“All are relevant to me and the institutions am working with.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“All the sessions are very relevant for emplacement of a robust Nuclear Security regime and safeguards in the Sub-Saharan region.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“It is educative in all ramification; I have gained a lot.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“All the issues discussed were highly relevant for my professional development.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“The program is highly relevant to my work.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

LEARNING

“Very Educatve.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“I Learned some new and valuable information.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“The information I received were very relevant for my improvement in the discharge of my duty as Nuclear Security Regulator.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“I will recommend that, this program should be made bi-annually, and the period should be extended to four weeks instead of two.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“Highly relevant and informative.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.
"I learned a lot from the various sessions of this Professional Development Course. Bravo! To all the organizers and sponsors of this Course. Thank You." - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“I learned a lot of valuable new information.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“In my opinion, the Accra-PDC gave me lots of new information on nuclear security and safeguards.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

“All presenters did very well, especially Prof. Stainback, Dr. Bernard and Dr. Sternat. Thank you.” - attendee review from the PDC on Introduction to Nuclear Security and Safeguards for Sub-Saharan Africa held in Accra, Ghana in 2015.

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**REMARKS**

**CONCLUSION**

If any conclusions may be drawn from the data, they are, perhaps, as follows. Academic university faculties, research institutions, intelligence agencies, research reactor facilities, nuclear regulatory authorities, and atomic commissions in Sub-Saharan Africa unambiguously have a strong interest in human resource development in the areas of nuclear security and safeguards. Respondents from these institutions consider the quality of the module contents and design by PNS and INSEP to be excellent. They agree the course content and module is highly relevant to the development of skills necessary for them to be effective and efficient in their workplace. Respondents agree they learned valuable new information from all presentations in the nuclear security and safeguards modules. Some topics are presumably in higher demand and require more time in the form of advanced PDCs, academic certificate programs, or both.

Possible areas of focus for advanced PDCs include Nuclear Security Threat and Ethical Behavior in the Workplace for the nuclear security module. For the safeguards module, areas include Integrating Safeguards Courses/Modules into a Nuclear Engineering Curriculum and Nuclear Material Accounting and Control. Although there is the clear relevance of both modules, there is probably higher relevance for some topics to Sub-Saharan Africa. For the nuclear security module, areas include Nuclear Security Design, Human Reliability and Trust Worthiness Programs, Insider Threat Preventative Measures, and Nuclear Security Culture. For the safeguards module, there is probably higher demand for Safeguards Approaches for Nuclear Power Plants, Human Capital Development for an SSAC, NM&A Exercises. Apart from the presentations, discussion and country information sharing, the idea of a multi-institution consortium also emerged as an initiative that could leverage existing effort and resources for human resource development regionally. Education and public outreach was also identified as a tool for awareness raising and engagement of relevant stakeholders to advance the subject within and across states.
RECOMMENDATIONS

- High – the greatest potential for improved relevance
- Medium – the greater potential for improved relevance
- Low – the potential for improved relevance

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Effect</th>
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<tbody>
<tr>
<td>1 Conduct a follow-up advanced PDCs in 2016 and beyond</td>
<td>High</td>
</tr>
<tr>
<td>2 Initiate an academic certificate program through a consortium of Sub-Saharan Universities with support from the US universities, PNS, and INSEP</td>
<td>Medium</td>
</tr>
<tr>
<td>3 Conduct education and public outreach activities on nuclear security and safeguards issues at national and regional level</td>
<td>Low</td>
</tr>
</tbody>
</table>

APPENDIX

Annex A: Scores of four impact factors for all 33 presentations at the workshop grouped under the nuclear security and safeguards modules

<table>
<thead>
<tr>
<th>Presentations of Nuclear Security Module</th>
<th>DURATION</th>
<th>QUALITY</th>
<th>RELEVANCE</th>
<th>LEARNING</th>
<th>Total Checks of All Participants for All Factors Per Presentation</th>
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<tbody>
<tr>
<td>Overview of International Nuclear Security Education Network (INSEN) (Hubert)</td>
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<td>1</td>
<td>1</td>
<td>8</td>
<td>6 0 13 1 0 9 5 0 56</td>
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<tr>
<td>Basics of Nuclear Energy and Technologies (Sernat)</td>
<td>12</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>6 0 13 1 0 6 7 1 56</td>
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<td>Nuclear Security Threat (Sternat)</td>
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<td>Nuclear Security Design(Sternat)</td>
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<td>Nuclear Security Culture(Sternat)</td>
<td>13</td>
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<tr>
<td>Human Reliability and Insider Threat (Stainback)</td>
<td>12</td>
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<tr>
<td>Insider Threat Preventative Measures(Stainback)</td>
<td>12</td>
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<tr>
<td>Table Top Exercise Methodologies(Sternat) &amp; (Stainback)</td>
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<td>Human Reliability and Trust Worthiness Programs(Stainback)</td>
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<td>Case Studies in Insider Threat (Stainback)</td>
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<td>Nuclear Material Accounting and Control Terminologies(Sternat)</td>
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<td>WINS Best Practice Guide (Battistella)</td>
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<tr>
<td>Nuclear Safeguards and Security Educational Portal Modules (Sternat)</td>
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<tr>
<td>Nuclear Security Course Design at Texas A &amp; M University (Sternat)</td>
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<tr>
<td>Nuclear Security Course Design at University of Tennessee (Stainback)</td>
<td>13</td>
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<td>Break Out Session 3: Exercise Continued (Stainback)</td>
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<td>Behavioral Observations and Psychological Perspectives(Stainback)</td>
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<td>Ghana’s Nuclear Energy Efforts</td>
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<tr>
<td>Ethical Behavior in the Workplace (Stainback)</td>
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<td>12</td>
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<tr>
<td>Scenario Development (Sternat)</td>
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<td>9</td>
<td>5</td>
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<tr>
<td>Target Identification: Sabotage and Theft (Sternat)</td>
<td>13</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td>4</td>
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<tr>
<td>Table Top Exercises in Nuclear Security Education: Research Reactor Insider Threat as an example (Stainback &amp; Sternat)</td>
<td>13</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>5</td>
</tr>
</tbody>
</table>

**Presentations of Nuclear Safeguards Module**

<p>| The Nonproliferation Regime &amp; International Safeguards (Don Kovacic) | 12 | 0 | 2 | 7  | 7 | 0 | 12 | 2 | 0 | 8  | 6 | 0 | 56 |
| Human Capital Development for an SSAC (J’Tia Hart) | 11 | 1 | 2 | 10 | 4 | 0 | 12 | 2 | 0 | 11 | 3 | 0 | 56 |
| Overview of Safeguards Approaches for Nuclear Power Plants (Marcano) | 12 | 0 | 2 | 6  | 8 | 0 | 12 | 2 | 0 | 7  | 7 | 0 | 56 |
| Exercise: NM&amp;A Exercise (Marcano) | 9  | 0 | 5 | 8  | 6 | 0 | 12 | 2 | 0 | 10 | 4 | 0 | 56 |
| Building Partnerships between Universities and Laboratories (J’Tia Hart) | 12 | 0 | 2 | 9  | 5 | 0 | 12 | 2 | 0 | 10 | 4 | 0 | 56 |
| Review of Publicly Available Safeguards Resources (J’Tia Hart) | 12 | 0 | 2 | 6  | 8 | 0 | 12 | 2 | 0 | 11 | 3 | 0 | 56 |</p>
<table>
<thead>
<tr>
<th><strong>Country Presentations:</strong> National Nuclear Education Opportunities (Ghana, Nigeria, Kenya)</th>
<th>10</th>
<th>0</th>
<th>4</th>
<th>4</th>
<th>9</th>
<th>1</th>
<th>11</th>
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<tbody>
<tr>
<td><strong>Integrating Safeguards Courses into a Nuclear Engineering Curriculum (Bernard)</strong></td>
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<td><strong>Discussion:</strong> Opportunities and Challenges Associated with Leveraging Resources within and outside your country to develop safeguards and security curriculum (Don &amp; Bernards)</td>
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