Lessons from Educational Approaches to Nuclear Security

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Centre for Science and Security Studies

www.kcl.ac.uk/csss

• Established in 2003 with a grant from the MacArthur Foundation
  • 9 core staff
  • 20 PhD students
  • 2 MA programmes

• 3 core areas of activity
  • Nonproliferation
  • Nuclear security
  • Disarmament and Strategic Stability

• Academically rigorous, policy relevant research

• Funders include MoD, FCO, DECC, IAEA, US Dept. of State, US Dept. of Defence, Carnegie Corp. of New York
Nuclear Security Education and Outreach

• Recent years have seen growing recognition of the need to develop nuclear security education – prior to 2010, there were only a handful of academic courses that dealt with this subject

• 2012 Nuclear Security Summit Communiqué - Emphasised the importance of education and training for raising awareness of key issues and strengthening nuclear security culture

• Consequently, there has been a concerted effort to promote and support nuclear security education and training – CSSS has been heavily involved in this effort
Nuclear Security
Professional Development Courses (PDCs)

- ‘Train the Trainer’ Professional Development Courses (PDCs)

- Bottom up’ approach to nuclear security education –
  - Train those responsible for providing nuclear security education, focus on academia but also relevant for industry and regulators
  - Contribute to the development of a new cadre of nuclear security experts

- First sponsored by the IAEA and held at KCL in 2011

- Success of model encouraged broader application
  - Regional hubs for nuclear security education and training
  - South Africa, Indonesia and MENA country
  - Funded by IAEA and PNS – new 4 year contract funded by DECC
Nuclear Security Professional Development Courses (PDCs)

PDCs span two weeks (separated by one month) and cover a range of nuclear security issues:

• Information security and Cyber Security
• Insider threats and security culture
• Nuclear Security and Regulation

Content delivered by international SMEs and local experts

• Academics, industry professionals, representatives from regulatory bodies

Combination of pedagogy and nuclear security-related content – the aim is to increase knowledge of nuclear security and how to teach it

• Course approach and Educational handbook

Highly interactive sessions – groupwork, desktop exercises...
Nuclear Security
Professional Development Courses (PDCs)

Research into the impact of the South African PDC series shows that the process is having a tangible impact

• PDC participants have established new courses on nuclear security in universities in South Africa, Morocco and Egypt, for example

• Participants have adapted course materials and designed innovative context-specific materials for their own courses

• Industry professionals and members of the policy community are also incorporating nuclear security education into existing training courses
Nuclear Security Education Handbook

• Handbook to support efforts in nuclear security education

• Sets out latest developments in teaching, learning and assessment

• Explores strengths and weaknesses of different teaching methods and examines process of curriculum design

• Applies pedagogical theory and methods to context of nuclear security
Nuclear Security Briefing Book

• Reference guide distributed to state delegates at the 2014 NSS

• Comprises three parts:
  • An introductory guide to nuclear terrorism;
  • An overview of international instruments and initiatives related to nuclear security and how these have developed in recent years;
  • An overview of the evolution and key outcomes of the NSS process to date

Collaborating on Nuclear Security Education

*International Nuclear Security Education Network (INSEN)*

• Established by IAEA in 2010 in partnership with education and research institutions – KCL founding member and current Chair

• **Mission** – enhance global nuclear security by developing, sharing and promoting excellence in nuclear security education

• Currently over 100 members from 38 IAEA member states

• Three working groups
  • WGI – Educational materials
  • WGII – Faculty development
  • WGIII – Promote nuclear security education

Example – textbook on IT/Cyber security at a nuclear facility
INSEN achievements

WGI
• Authored 3 textbooks on nuclear security issues – currently nearing end of peer review and revision process
• Teaching materials – a range of presentations, datasets and exercises

WGII
• ‘Train the trainer’ PDCs
  • KCL
  • Brandenburg – IT/Cyber Security
  • WITS in partnership with KCL – Introduction to NS, NS Culture and Information Security, Insider Threats
• Currently surveying INSEN members to chart areas of competency
  • Create database of SMEs
INSEN achievements

WGIII

• Growth of INSEN network – 14 new members in the past 6 months
• Broad approach to awareness raising and recruitment
  • Promotion of INSEN activities at international conferences and workshops
  • Design of INSEN flyers, presentations, posters
• Beginning to engage with social media - @IntNSEduNet
Lessons learned

- Value of the PDC model
  - The combination of educational methods and nuclear security content
  - Providing a forum for educators to interact, develop collaborations and gain exposure to new approaches and methods
  - Massively increases the potential range and scope of dissemination

- Strength of sustained and meaningful international collaboration such as INSEN

- Need to develop resources and materials to support educators in their efforts
Questions?