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

http://www.kcl.ac.uk/sspp/departments/warstudies/research/groups/csss/pubs/NSBB---Full-final.pdf

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?