In the next ten minutes or so I want to explore some alternative approaches to compliance, and to suggest that we expand our thinking to include activities that develop and support compliance from the bottom up.

My aim here is to take off from Filippa's policy brief, and to share some new ideas or new ways to think about compliance.

[Filippa Lentzos, 'Hard to Prove: Compliance with the Biological Weapons Convention,' August 2013,available at: http://www.kcl.ac.uk/sspp/kpi/projects/secdefence/BWC-report2013.pdf]

Top Down Compliance

Involves:

- Creation of authority to determine if parties to an agreement are in compliance
- With a process to be followed, including a possibility of sanctions, if a party is found to be in non-compliance

We usually think of compliance as involving some sort of authority with the ability to monitor compliance—

someone who monitors and inspects parties to determine if there has been compliance,

with the possibility of some sort of sanctions being imposed if noncompliance is discovered.

This is a top-down, coercive approach to compliance.

Deterrent model of compliance

- Actors are continuously making cost/benefit calculations about whether to comply or not with agreements
- The only way to improve compliance is to improve the certainty and severity of sanctions for noncompliance

Coercive or top down compliance rests on a deterrent model,

where actors are understood to be making continuous cost/benefit calculations about whether to comply or not

and where the main way to improve compliance is to improve the certainty and severity of sanctions for noncompliance.

But we need to move beyond the top-down approach

- Attempt to negotiate a verification protocol came to an end in July 2001
  >>> no agreement on a top down approach for the BWC
- Increasing importance of 'new security actors' (McLeish and Feakes), in part due to globalization
  >>>top down approach is not sufficient
- Accelerating pace of innovation in biotechnology and life sciences
  >>>top down approach could never keep up

We need to move beyond the top down approach, for several reasons

- There's been no agreement on a top down approach for the BWC
- And even if such an approach is possible in the future,
- the increasing importance of 'new security actors', in part due to globalization, suggests that a top down approach will not be sufficient
- In addition the pace of innovation in biotechnology and the life sciences suggests that a top down approach would have difficulty staying current

One alternative is what I'm calling 'compliance from the bottom up'—this connects to what Filippa has referred to in the policy brief as network governance, which might involve a combination of normative regulation, soft law, and mimetic regulation

[Caitríona McLeish and Daniel Feakes "Biosecurity, Stakeholders and Networks", *Science and Public Po*licy vol 35 no 1, February 2008, pp5-12]

Bottom up compliance involves

Increasing capacity of all relevant actors (states, firms, NGOs, individuals) to understand and comply with the BWC and related efforts to improve biosecurity and biosafety

In this understanding, compliance includes:

- Development of common standards, voluntary programs and clubs [especially IOs and industry]
- Codes of conduct, education and training [NGOs, individual scientists, educators, etc.]
- Other…?

Bottom up compliance involves a range of activities that increase the capability of the various actors and stakeholders for compliance with the BCW

This includes things like the development of common standards and voluntary programs to certify adherence to those standards

It also allows for a necessary expansion of the subject matter of compliance to include policies to enhance biosecurity and biosafety

A state's promotion and institutionalisation of such activities can be an important way to convey the intent to comply and to assure other parties to the BWC of that intent

Management model of compliance

Chayes and Chayes (1993), for example, argue

'compliance problems often do not reflect a deliberate decision to violate an international undertaking on the basis of a calculation of interests'

and

that the roots of noncompliance are often to be found in

' 1) ambiguity and indeterminacy of treaty language,
2) limitations on the capacity of parties to carry out their undertakings, and
3) the temporal dimension of the social and economic changes contemplated by regulatory treaties'

This bottom up understanding of compliance is based in what has been called a management model.

It has its roots in a different understanding of the problem of compliance.

For example, Chayes and Chayes have argued that most noncompliance results not from deliberate, rational decisions to violate an international agreement, but from the ambiguity of treaty language, from limitations on capacity, and from changes over time in conditions and underlying circumstances.

Compliance from the bottom up can help to address these sources of non-compliance.

[Abram Chayes and Antonia Handler Chayes (1993), 'On compliance.' *International Organization*, 47, pp 175-205. doi:10.1017/S0020818300027910.]

Voluntary programs and clubs

- Establish standards of conduct
- Create badges or certificates that members can use to publicise their responsible conduct to potential customers, stockholders, governments, etc.

One example of such bottom up compliance is the creation of voluntary programs and clubs

Such clubs promulgate standards of conduct
and award members a ‘certificate’ or ‘badge’ for adhering to these standards

In turn, the certificate or badge can be used by the members to publicize their responsible conduct to potential customers, stockholders, governments and other audiences

Voluntary programs: ISO 140001

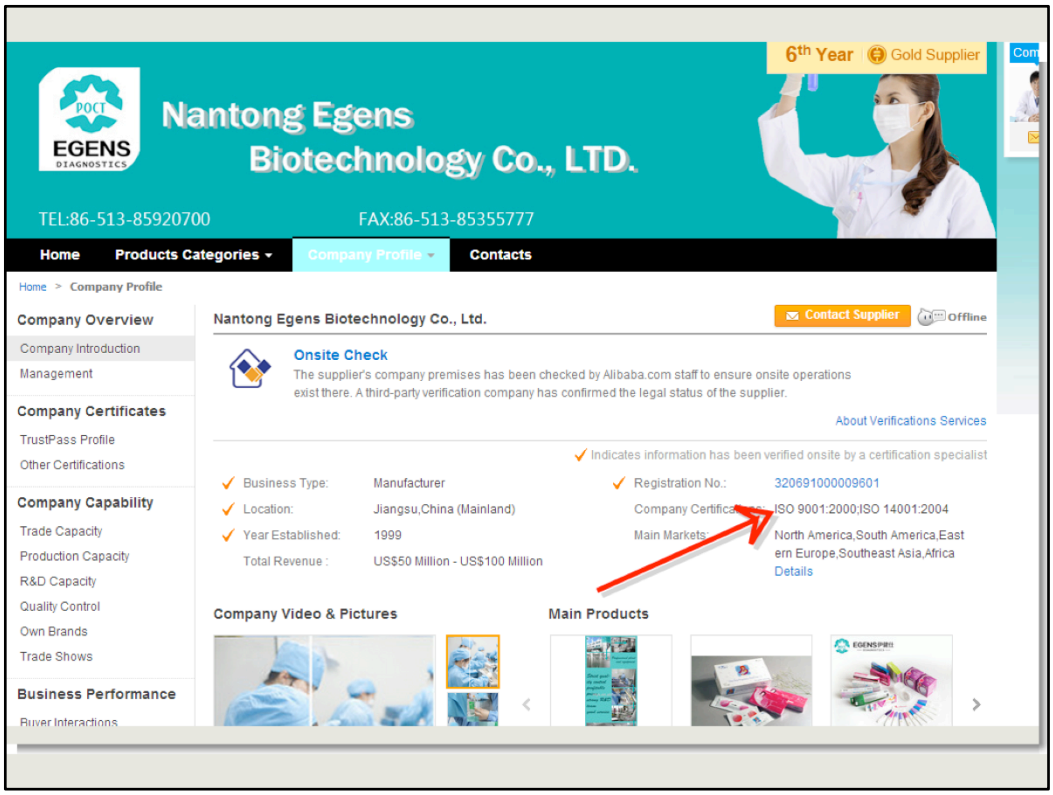
- Sponsored by International Organisation for Standardization
- ISO 140001 is a voluntary environmental management program
- Member firms can have their facilities certified, which entails auditing by a third party
- Evidence suggests that this voluntary program helps to increase compliance with government regulations

On example comes the environmental realm—

ISO 40001 is a voluntary environmental management program

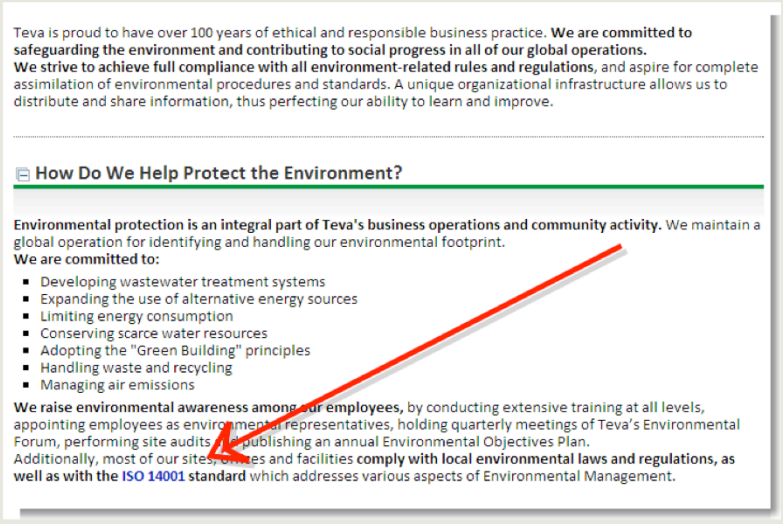
sponsored by the International Organisation for Standardisation

- Member firms can have their facilities certified,
- which entails auditing by a third party
- And evidence suggests that these sorts of voluntary program helps to increase compliance with government regulations



And it's notable given our context that various biotech companies are active participants in this and similar programs,

Teva Pharmaceutical Industries Ltd



Teva is proud to have over 100 years of ethical and responsible business practice. **We are committed to safeguarding the environment and contributing to social progress in all of our global operations.**
We strive to achieve full compliance with all environment-related rules and regulations, and aspire for complete assimilation of environmental procedures and standards. A unique organizational infrastructure allows us to distribute and share information, thus perfecting our ability to learn and improve.

How Do We Help Protect the Environment?

Environmental protection is an integral part of Teva's business operations and community activity. We maintain a global operation for identifying and handling our environmental footprint.
We are committed to:

- Developing wastewater treatment systems
- Expanding the use of alternative energy sources
- Limiting energy consumption
- Conserving scarce water resources
- Adopting the "Green Building" principles
- Handling waste and recycling
- Managing air emissions

We raise environmental awareness among our employees, by conducting extensive training at all levels, appointing employees as environmental representatives, holding quarterly meetings of Teva's Environmental Forum, performing site audits and publishing an annual Environmental Objectives Plan.
Additionally, most of our sites, companies and facilities **comply with local environmental laws and regulations, as well as with the ISO 14001 standard** which addresses various aspects of Environmental Management.

suggesting that they might also be willing to participate in

something similar that created standards for biosafety, biosecurity and procedures for dual-use research.

Responsible Care: Chemical Industry

- Involves nearly 60 national chemical manufacturing associations– and through them, thousands of chemical sites worldwide
- Part of the International Chemical Council Association's contribution to the United Nations' Strategic Approach to International Chemicals Management
- Aims of program include

  Improving environmental, health and safety, knowledge and performance of technologies, processes and products over their life cycles so as to avoid harm to people and the environment.

- Parallel initiative with biotech firms could cover biosafety, biosecurity, and procedures for dual use-research

Another example is the chemical industry's responsible care program

These kinds of voluntary 'club' programs may be particularly suited to industry, though we might also think about similar programs for university science departments or even individual researchers who could receive certification that would signal to funding agencies or publishers that they understand and adhere to standards that promote BWC compliance, biosafety and biosecurity.

Of course, there are already multiple efforts at creating codes of conduct for scientists and researchers in the biological area, but we need a more cohesive approach--

and a state's promotion of the creation and institutionalisation of such standards is one way of demonstrating intent to comply with the BWC and a way of building compliance capacity.

Education and training

In order to comply, all stakeholders and individuals in relevant positions need to understand what compliance entails,

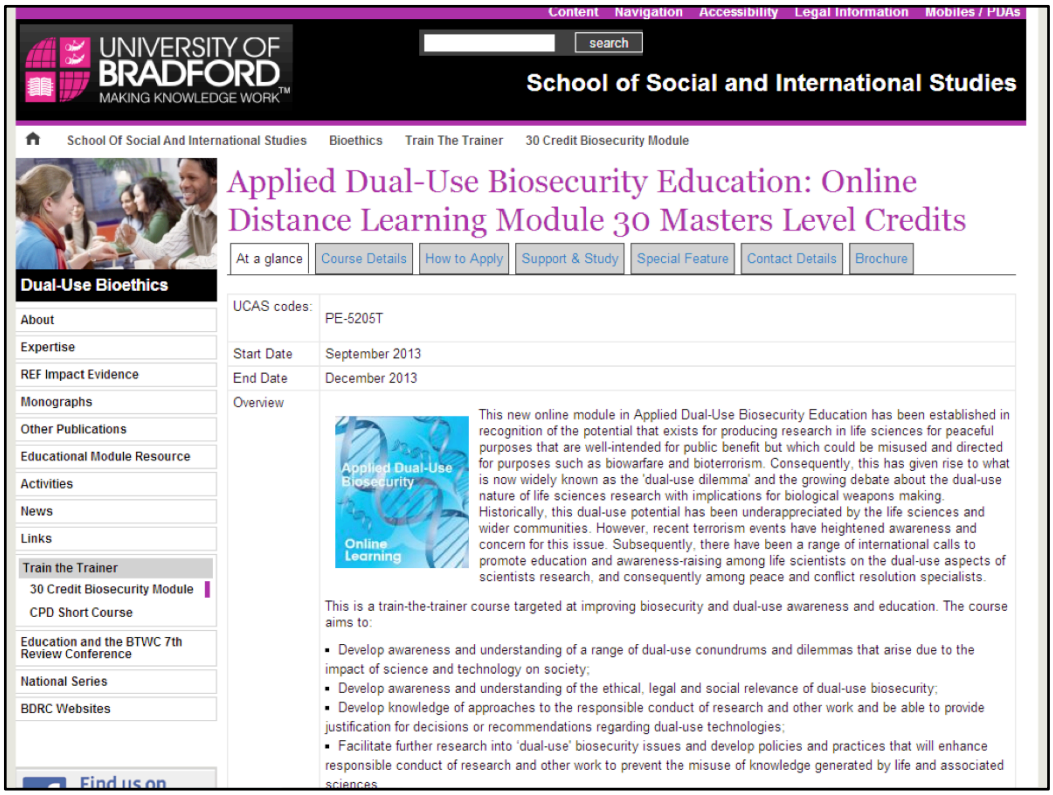
as well as how to set up procedures and operations in a way that will enhance compliance

Another key to compliance is education and training:

In order for compliance to be possible, all stakeholders and individuals in relevant positions need to understand what compliance entails, as well as how to set up procedures and operations in a way that will enhance compliance

The University of Bradford has made an excellent start on this—

With the development of ‘train the trainer’ resources to help life scientists and other educators prepare to teach others about biosecurity and dual use issues.



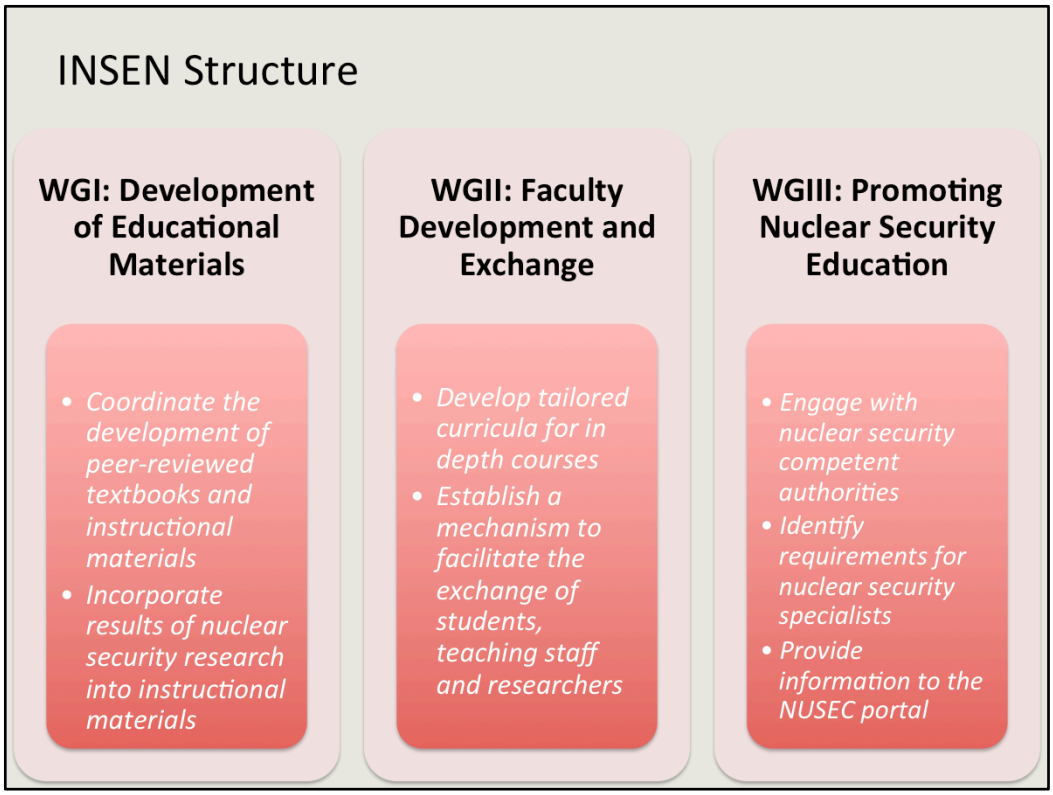
Bradford's efforts will help to increase the number of people capable of training others in these areas.

But we might also look at efforts in the nuclear security area as a way to build upon and enlarge these sorts of activities.

International Nuclear Security Education Network (INSEN)

INSEN is a partnership between the IAEA, education and research institutions, and competent authorities.

It's dedicated to the promotion and establishment of nuclear security education



INSEN has three working groups:

One focuses on the exchange of information and development of teaching and training material such as peer reviewed text books;

A second focuses on faculty development and cooperation among universities;

And a third focuses on the promotion of nuclear security education with all nuclear security competent authorities and other appropriate institutions.

Professional Development Courses - 'Introduction to nuclear security'

To establish a new cadre of nuclear security education and training experts, with the ultimate aim of strengthening nuclear security culture

Introduction:
2 x 1 week workshops at KCL:
- Class room sessions; assignments & site visit

No registration fee; supported by IAEA and PNS

Objective:
To provide guidance, a framework and an expert network within which to develop nuclear security modules/courses:
- Key content; teaching & assessment methods

Not to provide a fully developed course

Participants:
40 (total over three courses) from ~80 applicants
Institutes in 17 countries represented
All with plans to launch modules/courses in nuclear security at their home institutions

In partnership with INSEN, the Centre for Science and Security Studies at King's, and in particular Dr Chris Hobbs, has been running a series of Professional Development Courses.

Similar to what Bradford is doing on-line, this course is aimed at training the trainers, so that participants in the course can go back to their home institutions and home countries and include nuclear security in their existing courses or create new ones focused on nuclear security.

While the courses at KCL have involved participants from all over the globe, the next step is to help different regions set up their own 'train the trainer' programmes, which potentially will address both global and regional aspects of nuclear security.

The first of these regional programs will be in sub-Saharan Africa, to be followed by the Middle East and South Asia.

Is this really compliance?

Yes:

Addresses sources of non-compliance arising from limitations on parties' compliance capability and from social and economic changes

Serve as means of assurance, especially if carried through and institutionalised

OK, so at this point one thing you might be wondering is whether I have really been talking about compliance, or whether I'm just re-labelling activities that are better grouped together under education and training

My answer is that this is really all about compliance—most directly about building capacity for compliance

But also about enhancing assurance and signalling good faith

State involvement in sponsoring and promoting the sort of activities I've discussed today is one way to demonstrate an intent to comply with the BWC

Further , while as I mentioned these sorts of activities are mostly directed at the 'management' as opposed to deterrent understanding of the compliance problem, these sorts of activities may also enhance our capabilities to deter noncompliance

May also help to deter violations

Through social verification:

> 'the ways in which social actors and social activities can collectively contribute to the verification of arms control agreements' (Bansak 2012)

And by supporting a culture of compliance

In a recent article in the Bulletin of Atomic Scientists, Kirk Bansak describes what he calls 'social verification.'

He traces this notion back to at least 1958, when a professor at Columbia University argued that given 'the large number of people that would be required to carry out a major evasion of a disarmament agreement,'
pubic support and involvement could create a potent force for deterring violation

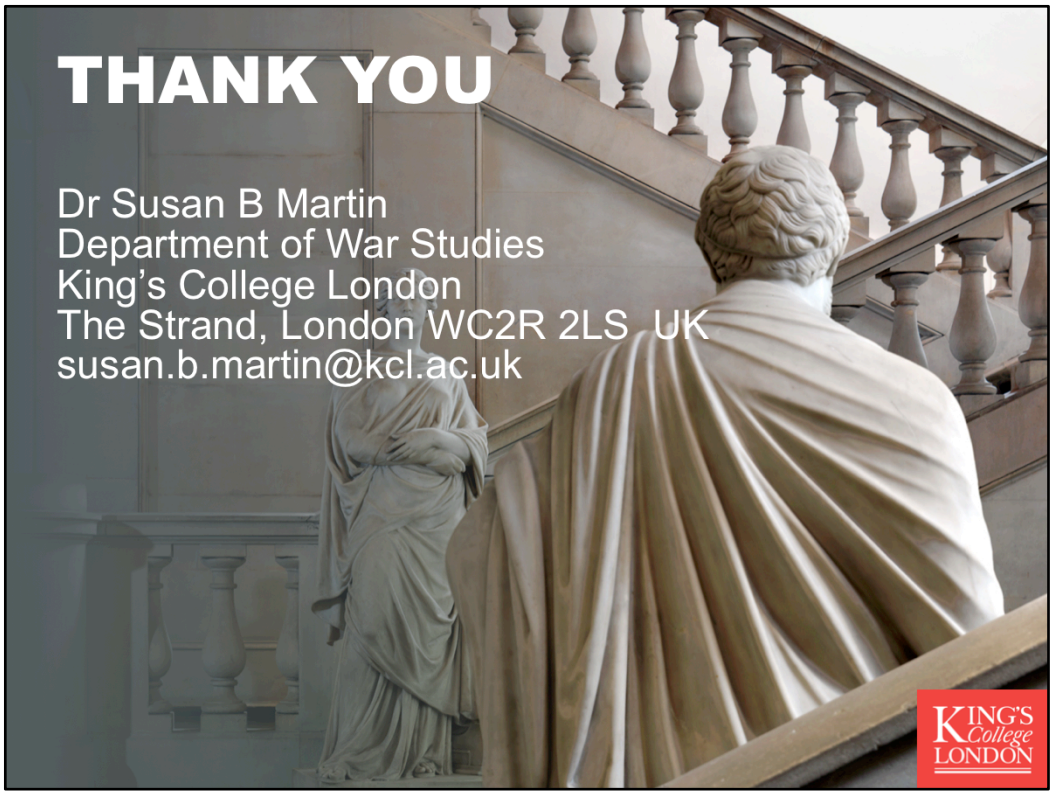
Today, globalization,
increasing access to dual use biological techniques and materials,
the rise of social movements,
and technology like the internet mean
that social verification is both more realistic and more necessary

The more people who are trained in and knowledgeable about obligations under the BWC and appropriate standards for biosafety and biosecurity,
the more opportunities they have to see others taking steps to promote compliance,
the greater the chance that a culture of compliance will develop.

Within such a culture, individuals will be less likely to participate in deliberate violations, and it becomes more likely that any deliberate violations that do occur will be noticed and publicised.

Social verification, and the education and training on which it rests, can serve as one means of increasing the risks and costs of deliberate violation—in other words, of deterring such violation, though of course in and of itself it cannot prevent deliberate violations.

[Kirk C. Bansak, 'Trust but socially verify,' *Bulletin of Atomic Scientist*s, 10 August 2012, available at: http://thebulletin.org/trust-socially-verify; see also Seymour Melman, 'How Can Inspection be Made to Work?' *Bulletin of Atomic Scientists*, September 1958, available at: http://books.google.co.uk/books?id=UwkAAAAAMBAJ&q=melman&redir_esc=y#v=onepage&q=melman&f=false]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