Deemed Exports
An Academic's View

Deemed Export Advisory Committee
January 22, 2006
Arthur Bienenstock
Stanford University
Arthur Bienenstock

- Stanford professor since 1967
- Director, Stanford Synchrotron Radiation Laboratory, 1978-97
- Associate Director, Stanford Linear Accelerator Center, 1992-7
- Associate Director for Science, White House Office of Science and Technology Policy, 1997-2001 (on leave from Stanford)
- Vice Provost and Dean of Research and Graduate Policy, 2003-2006
- Special Assistant to the President for Federal Research Policy, 2006-
Stanford is Committed to Compliance with Export Control Regulations

- R. Claus, General Counsel's Office
- A. George, Assistant Dean of Research
- S. Eisner, Export Control Officer
  - Website
  - Export Control Decision Tree
  - Meeting with relevant departments
- Seeking to ensure that faculty know their responsibilities and meet them
- GAO Export Control Report pointed out that other universities rely on Stanford (and 3 others) for best practices
### Geographic Origins of Stanford Graduate Students - 2006

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>3,138</td>
<td>(38%)</td>
</tr>
<tr>
<td>Other U.S.</td>
<td>2,356</td>
<td>(29%)</td>
</tr>
<tr>
<td>Foreign (94 countries)</td>
<td>2,682</td>
<td>(33%)</td>
</tr>
</tbody>
</table>

#### Breakdown of Foreign

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>1,553</td>
<td>(58%)</td>
</tr>
<tr>
<td>Europe</td>
<td>484</td>
<td>(18%)</td>
</tr>
<tr>
<td>The Americas</td>
<td>357</td>
<td>(13%)</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>206</td>
<td>(8%)</td>
</tr>
<tr>
<td>Pacific Basin</td>
<td>53</td>
<td>(2%)</td>
</tr>
<tr>
<td>Africa</td>
<td>29</td>
<td>(1%)</td>
</tr>
</tbody>
</table>
Stanford Performs Fundamental Research

• Contracts or grants cannot:
  – restrict publication
  – limit participants in research based on nationality, religion, gender, etc.
Confidential Data

• Access to confidential data is **allowed** if peripheral to research, so that person who does not have access to data can participate fully in the research

• Examples
  – date of a satellite launch
  – mounting bolt locations on a satellite
  – Proprietary corporate information

• Stanford has explicit policies and procedures to deal with these situations
  – E.g., Mutual Nondisclosure Agreement

• These situations are rare and controllable

• Faculty also obtain confidential data while consulting
  – These situations are covered by the consulting contracts
  – The University has no role
Stanford Policies Based on Over-Arching Applicability of NSDD-189

• “No restrictions may be placed upon the conduct or reporting of federally-funded fundamental research that has not received national security classification, except as provided in applicable U.S. Statutes.”
Possible Types of Commerce Controls for Fundamental Research

• Classified and proprietary materials
  – Stanford already has mechanisms for this
• Technical manuals not publicly available
  – Manuals come with equipment
  – Commerce must take responsibility to ensure there is accurate and readily available list
  – If these manuals are worth protecting, those faculty who must protect them should have reliable information that is readily available
• “Use” in its various forms
  – Negative consequences for nation far greater than positive
Negative Consequences of “Use” Control

- Foreign students treated as second-class on campus
  - Will have to be readily identifiable
  - Access to labs containing controlled instruments will have to be limited
- Will discourage students from coming
- Will discourage faculty with controlled equipment from supervising foreign students
- U.S. likely to see marked decrease in foreign student enrollment
Negative Consequences of “Use” Control - 2

• Nation is dependent on foreign students for S&T workforce

• Indicators 2006, Vol. 1, p. 2-6
  – “Students on temporary visas earned about one-third (32%) of all S&E doctorates awarded in the United States in 2003.”
  – “More than half (55%) of engineering doctorates were awarded to students on temporary visas.”
  – “Historically, half or more of students on temporary visas have stayed in the United States immediately after degree conferral; however, this percentage has risen in recent years.”
But - Commerce Visit to Stanford

- Commerce & OSTP Export Control team visited - April '05
  - Stanford Nanofabrication Facility
  - Geballe Laboratory for Advanced Materials
  - Materials Science Department laboratories

- No instrument required license for use by foreign nationals because relevant technology was publicly available

- Initial disagreement among Commerce experts about status of one instrument - illustrates difficulties universities would face

- Considerable university mechanisms would have to be established to determine status of >30,000 instruments at Stanford

- BIS has report of visit
Negative Consequences of “Use” Control - 3

- Some faculty will avoid work using controlled instruments
- Universities will avoid purchasing controlled instruments
  - Negative impact on important industries
- Academic research will suffer
- Economy and national security will suffer
- University costs will rise, without reimbursement -
tuition
  - Presently, unreimbursed indirects and cost sharing amount to ~$1,000 per year per student at research universities on average
Weak Justification for “Use” Control

• Inspector General’s report provides no real evidence that justifies it

• Classified meeting for AAU/COGR Task Force – attendees say no real justification presented
Weak Justification for “Use” Control - 2

- Timothy Bereznay, Asst. Dir. for Counterintelligence, FBI
  - Talk at May Meeting of NAS Committee on a New Government-University Partnership for Science and Security
  - [http://www7.nationalacademies.org/stl/032896.pdf](http://www7.nationalacademies.org/stl/032896.pdf)
  - p. 118 “25 arrests over the last two years of U.S. citizens of Chinese ancestry who are involved in the collection of dual use technology for the benefit of China.”
  - Trend identified
    - PhDs at U.S. universities
    - Work in non-classified industrial positions
    - Become U.S. citizens
    - Work in classified industrial positions
    - Collection of dual use technology for benefit of China

- Agreed that deemed export control at U.S. universities is blunt tool for dealing with such small number of cases that develop years later
AAU/COGR on NSDD-189 and Deemed Exports

- My understanding - Do not believe statutory requirement for deemed export control at universities
- If so, NSDD-189 indicates that no restrictions on conduct or report of fundamental research
- DEAC should clarify
My Recommendations

• If no statutory requirement, make that clear
• If statutory requirement, seek carve-out
  – Various costs are too high
  – Justification for cost is weak
• Improve visa mechanisms for keeping out very small number of bad actors
  – Ensure relevant expertise at embassies (cheaper for nation than instituting use control at universities)
  – Dept. of State keeps improving, particularly having Science Adviser
My Recommendations - 2

• If no carve-out, ensure existence of Commerce-certified web-site that provides control status of every instrument and technical manual likely to be in university laboratories