Research Seminar (also STP-502y)
Science, Technology, and Innovation for Sustainable Prosperity
John F. Kennedy School of Government
Harvard University

Meetings: Mondays, 10:10-11:30 AM, alternating between the BCSIA Library (3rd floor of Littauer) and Perkins Room (Eliot 415).

Leaders: Bill Clark (L360, x53981), John Holdren (L370, x51464), Calestous Juma (L362, x68127) and Kelly Sims Gallagher (L333, x51960)

Sponsors: Science, Technology, and Public Policy Program, Belfer Center for Science & International Affairs; Science, Environment, and Development (SED)Groupu, Center for International Development.

Objectives: This seminar addresses the role of science, technology, and innovation in economic development in general, and with respect to the challenges of sustainable development in particular. The seminar employs a three-pronged strategy:

(1) Conduct a critical survey of the classic research literature and theory in the field of science, technology, innovation, and public policy in order to provide all participants with a common intellectual foundation.

(2) Identify and discuss the big unresolved questions in the field, gaps in our collective understanding, new controversies that are emerging, and methods that can be productively employed to contribute to the field.

(3) Discuss work in progress of selected seminar participants, with a view toward honing skills of presenting and ongoing research, and of giving and receiving constructive peer review.

Format: We will try to provide adequate time for discussion through the following guidelines. After the initial two orientation sessions of the seminar, when Seminar Leaders lecture, they will do so for <20 minutes, followed by commentary from one discussant for <10 min., followed by general discussion. When participants or outside guests present, they will get 35 min., with a <10 min. discussant commentary, and then general discussion.

Readings: Readings will be made available in electronic copies on the web site or distributed in paper copy (at the preceding session of the seminar, or on the table outside Bill Clark's office at L-360). The default form is electronic. If the reading is available only in paper copy, this will be noted on the syllabus and web site.

In order to boost the quality and relevance of discussions, participants in the seminar (including leaders) are asked to make the commitment to read the material for each session beforehand. Those who have not been able to complete the reading for a particular session should let others do the talking and questioning.
**Course credit:** PhD students may take the seminar for credit. Masters students with exceptional preparation (normally including research experience and an advanced degree) may apply to the seminar leaders in writing for permission to take the seminar for credit. Credit for one normal semester class, ie. 1.0 credit, will be given for the entire year's work, ie. fall plus spring term. Grades will be assigned on the basis of seminar participation, plus a substantial (eg. 5000 word) paper relevant to the seminar's focus. Specific topics should be negotiated with one of the seminar leaders. Regardless of topic, each participant taking the seminar for credit will be required to submit a one-page paper proposal by 30 October 2004, and a full proposal by 29 November 2004. A presentation and defense of the research proposal before a faculty panel will be scheduled for mid-December. The final paper will be due 4 April 2005.

**Communication:** Communication -- including news, schedules, readings, and discussions -- will be primarily through the seminar web site. This is set up using the KSG "Classpage" software under the course number STP-502y, and can be accessed via the KSG Intranet under "Courses." (If you do not have access to the KSG Intranet, go to the KSG home page, click 'Login' in the upper right corner, and follow the directions for a 'cross registered or auditing student'). Participants are expected to review the Classpage weekly.

### Seminars Schedule (Subject to change; see web site for updates)

**September 13, 2004**  
**Location:** Perkins Room  
**Chair:** All instructors  
**Topic:** “Self-Introductions and Overview of Seminar”  
**Required Readings:** none

**September 20, 2004**  
**Location:** BCSIA Library  
**Chair/Lecturer:** Holdren  
**Discussants:** Clark, Juma, and Gallagher  
**Topic:** “Overview: Science, Technology, and Innovation: Why and How it Matters”  
**Required Readings:**


2004 Update of the World Energy Assessment of the UN Development Programme, UN Dept of Economic and Social Affairs, and World Energy Council. Executive Summary.
Supplemental Readings:

2004 Update of the World Energy Assessment of the UN Development Programme, UN Dept of Economic and Social Affairs, and World Energy Council. [Body of the report]

September 27, 2004
Location: Perkins Room
Chair/Lecturer: Holdren
Discussant: Clark, Bob Frosch
Topic: “Overview 2: What is Sustainable Prosperity?”
Required Readings:


October 4, 2004
Location: BCSIA Library
Chair: Clark
Lecturer: Gallagher
Discussant: Ambuj Sagar
Topic: “Where Did Our Understanding of the Importance of Innovation Come From?”
Required Readings:


**October 11, 2004 – Columbus Day (no school)**

**October 18, 2004**
**Location:** Perkins Room  
**Chair:** Clark  
**Speaker:** Lorrae van Kerkhoff  
**Topic:** Change From the Inside Out: Investigating Innovative Environmental Research Organizations

**Readings:**


**October 25, 2004**
**Location:** BCSIA Library  
**Chair:** Clark  
**Speaker:** Darby Jack  
**Topic:** When do Poor Households Adopt New Technologies?  
**Required Readings**


**November 1, 2004**
**Location:** Perkins Room  
**Chair:** Gallagher  
**Speaker:** Richard Nelson, Columbia University  
**Topic:** On the Uneven Evolution of Human Know-How
Required Readings:


November 8, 2004
Location: BCSIA Library
Chair: Juma
Speaker: Alice Amsden
Topic: Innovation and Economic Development

Required Readings:


Amsden, Alice 2001, The Rise of the Rest: Challenges to the West from Late Industrializing Economies, Oxford University Press, Chapter 1.


November 15, 2004
Location: Perkins Room
Chair: Holdren
Speaker: Bill Rosenberg, CBG-ENRP-ETIP Fellow and Jennie Stephens, ETIP Fellow
Topic: “Integrating IGCC and Carbon Sequestration: Economic and Technical Challenges”

Readings:


November 22, 2004  
**Location**: BCSIA Library  
**Chair**: Clark  
**Speaker**: Marleen von der Kerkhof  
**Topic**: Joint Problem Solving  
**Required Readings:**


November 29, 2004  
**Location**: BCSIA Library  
**Chair**: Clark  
**Speaker**: Gene Skolnikoff  
**Topic**: Science & Technology in Foreign Policy  
**Readings:**


Supplementary readings (not required):


December 6, 2004
Location: BCSIA Library
Chair: Clark
Speaker: Arnulf Grubler, IIASA and Yale
Topic: What Can Science and Technology for Sustainability Learn from New Growth Theory?
Required Readings:


December 13, 2004
Location: Perkins Room
Chair: Gallagher
Speaker: Guodong Sun, ETIP Fellow
Topic: Success and Failure in Adopting and Demonstrating Complex Foreign Technologies: Two Cases in China

SEMESTER BREAK

SPRING SEMESTER TOPICS:
(See initial handout on tentative topics and readings, now posted on the web page under 'On-line materials'. This is still our basic plan, but remains open to suggestions as to topics, readings and speakers. We will produce a formal version with dates later in the semester.)