

FLC 301/Fall 2001

Instructor: H. Kurthen

Minutes of 11/14/2001

**Briefing on Functioning of Global Institutions
International Atomic Energy Association (IAEA)**

by

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1. Class Grades

Using student ID's to secure anonymity, the instructor circulated a list with all student grades to provide information about the current academic standing.

2. Evaluation of our United Nations Class Visit

The instructor and students commented on the trip to the United Nations and our discussion. Most students were impressed by the honesty and frankness of our discussion with UN Ambassador Kamal. Most diplomats and politicians we encounter in the media seem to avoid clear statements and "diplomatically" avoid a poignant criticism of the powers to be (such as the U.S. government, powerful corporations, PAC's, or other donors). But criticism of government or policies is part and parcel of a democratic discourse between the people and the elected government. Criticism is by itself not an unpatriotic act. Rather, it is a much needed democratic requirement to ensure that our (the peoples) voices are heard and respected. And criticism by non-citizens can help us to understand their concerns and avoid misunderstanding and serious mistakes in our foreign policy. Professor Kurthen reported that the Ambassador was impressed by the quality of our class questions and that the Ambassador confirmed that he himself had learned a lot from the meeting and discussion.

3. Briefing on Nuclear Fission and the IAEA

Since a student briefing was not available, Prof. Kurthen began with a brief history of atomic research and the application of nuclear energy. Beginning with the philosophers of classic antiquity, who claimed that matter consists of small particles (see the Greek word 'atomos,' meaning "undivided"), he continued by naming important dates and scientists, such as Roentgen (discovering x-rays in 1895), followed by Becquerel, Marie and Pierre Curie, Rutherford, Bohr, Hahn and Strassmann, Fermi, etc. The decisive stage of using the nuclear chain reaction for making bombs began with the U.S. *Manhattan* project in 1942. The first nuclear bombs exploded over the Japanese cities of Hiroshima and Nagasaki, costing the lives of about 250,000 civilian victims. Other nations followed the U.S. in developing and testing nuclear weapons, such the Soviet Union (1949), the U.K. (1952), France (1960), China (1964), India (1974), Pakistan (1976), and Israel (1978?). Between 1945 and 1976 a total of 1081 nuclear explosions were conducted with dangerous and long-term health effects of the nuclear fall-out. This lead eventually to the 1963 Nuclear Test Stop Agreement between the U.S., Soviet Union, and the U.K. The development and testing of nuclear weapons spawned also UN initiatives for arms control and disarmament, not least because the UN's purpose after World War II was to prevent future wars. Article 26 of the UN Charter entrusts the Security Council with responsibility for formulating plans for the regulation of armaments. As a result, the UN Committee on Disarmament completed the

Comprehensive Test Ban Treaty (CTBT) in 1996, banning proliferation (NPT) and development of new weapons designs.

The development of a framework for the peaceful use of nuclear power took longer. Although the Security Council formed the United Nations Energy Commission in 1946, this initiative was ineffective at first. Only after civil nuclear reactors came into use, the U.S. proposed in 1953 an international agency to spread information about the peaceful use of atomic energy and to provide a system of safeguards to prevent diversion of fissionable material. This resulted in the beginnings of the IAEA as a specialized UN organization in 1957. The IAEA was dormant until the UN became involved in the nuclear non-proliferation treaty (NPT), which was introduced by Sweden and Ireland in 1961, concluded in 1968, and is in force since 1970. In return for the non-nuclear states' pledge not to develop weapons they are aided in their access to peaceful nuclear technologies. The treaty basically divides countries into a two-class system. Only Cuba, Israel, Pakistan, and India do not abide to the treaty. The IAEA monitors through a safeguard inspection regime all nuclear materials of non-nuclear weapon states. However, it is not fully functional since it is under-equipped and under-funded and because the weapons monopoly of the "first class" is resented. The discovery of a secret Iraqi nuclear arms program in 1991 confirmed the belief that several states violate the treaty.

Our TA, Rebecca Woloszyn, continued the briefing by discussing current issues of the IAEA based on the Annual Report 2000. She elaborated on the four pillars of the IAEA:

1. technology: management and disposal of radioactive waste; research on reactor types and fuel cycle designs and their efficiency; application of nuclear technology in food production, health, and environment (see the example of Tse-Tse fly sterilization);
2. safety: monitoring of reactor safety and standards; reporting of waste safety and radiation accidents;
3. verification: safeguarding and verification of international non-proliferation and disarmament agreements through on-site visits and/or remote and unattended monitoring, satellites, etc. The IAEA currently counts 438 operating nuclear power reactors in 30 countries producing 16% of global electricity.
4. management: IAEA outreach to civil society/academic institutions/think-tanks; the measurement of IAEA management performance and management priorities with the help of indicators.

4. Guest Lecture about the IAEA

Professor Fishbone of Long Island's Brookhaven National Lab worked four years at IAEA headquarters in Vienna/Austria. As an employee of the United Nations, he was issued a UN passport that he generously passed around for the class to see. Using an overhead projector, Professor Fishbone began his lecture with an explanation of IAEA key terms ("jargon"). Then he continued with an outline of the organization. As a representative body of 132 member states, the IAEA is organized similarly as the United Nations Headquarters in New York City: it has a "General Conference," a "Board of Governors," and a "Secretariat" with a "Director General." The present Director General of the IAEA is Dr. Mohammad ElBaradei of Egypt.

Prof. Fishbone worked as a staff member of the Safeguard Department in the area of conceptualizing and planning. The Safeguard Department works to ensure peaceful use of nuclear power. Inspections of nuclear plants are made to ensure IAEA regulations and standards are being met by signatory states. Professor Fishbone discussed at length the Non-Proliferation Treaty of Nuclear Weapons (NPT) and its safeguards (see Briefing 11/14/2001). He also reported about UN and IAEA negotiations with Iraq and North Korea who are seen as treaty violators.

5. Discussion

The discussion covered a wide range of student questions, ranging from fuel cycle types (light-water, heavy-water, and gas-cooled reactors) to reactor distribution. In France, for example, almost all nuclear plants are standardized 'light-water' reactors because they are cheaper to build and to maintain. In the U.S., in contrast, several companies build different types of reactors. In Africa, despite the continent's major energy crisis, almost no nuclear power energy is produced. Our class also discussed the issue of different security standards in different countries with different reactor designs. Professor Fishbone mentioned his current involvement in helping to improve Russian nuclear safety and provided background information about the lack of Iraq's compliance with UN Security Council Resolutions and U.S. government efforts to contain North Korea's (DPRK) nuclear weapons program. Fishbone stressed that the IAEA's success depends on the political will of nations to abide to treaties and the enforcement provided by the five permanent members of the Security Council. The IAEA is simply a reporting agency without enforcement power. Any negative feedback about a country's non-compliance returns to the UN Security Council, which can use economic sanctions, political pressure, or the threat of war to ensure compliance. Asked what was being done to recruit or interest people in a career in nuclear science, our class learned that the industry is not thriving any more, although it is expected that nuclear energy will be an important source of energy for the next 100 years. The lack of specialists is a major problem in the U.S., although the Navy still trains quite a number of students because many U.S. ships and submarines use nuclear energy as driving power.