

of the virus has shown near 70% lethality in people, but it is likely that the virus would lose some of this lethality as it acquires improved transmissibility. Still, it will be very dangerous, and the fact that no H5 subtype virus has ever circulated in the population, means that potentially, the entire human race will be vulnerable to it. This provides even more incentive for the development of a vaccine to protect the population.

Technically, there are some problems to be overcome, as the current H5N1 virus is so deadly to chickens, that the standard method of growing the virus in chicken eggs may have to be changed. Cell culture methods could certainly work, but the majority of vaccine manufacturers lack cell culture facilities of the scale needed to mass produce an influenza vaccine.

So far, the U.S. government has done nothing to address the lack of any plans to produce a vaccine against H5N1 influenza. Sen. Charles Schumer (D-N.Y.) proposed on March 6 that the Federal Government issue a guarantee of \$200 million to ensure that vaccine manufacturers here produce the vaccine without the fear of losing money. He also called on the Centers for Disease Control to begin stockpiling antiviral medications that could be used to treat the flu in the event of a pandemic.

The total vaccine production capacity globally today is only 300 million doses per year, but WHO experts say that more than 1 billion vaccine doses would be needed to control a new pandemic. In the United States, only two companies, Aventis Pasteur and Chiron, produce flu vaccine, and their production capacity is sufficient only to produce enough vaccine in six months to cover about 10% of the U.S. population.

Obviously, the United States needs to increase its vaccine production capacity to deal with the threat posed by avian influenza, and Senator Schumer's proposal is a step in the right direction. However, the nation is also vulnerable in its lack of surge capacity in hospitals and clinics, to be able to handle the tremendous increase in hospitalizations required in a pandemic. To solve this, requires a long-term perspective of rebuilding our public health infrastructure, including new hospitals and public clinics, and well-trained public health personnel who can contribute to an increased disease surveillance network.

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OECD Conference Backs Nuclear Energy

by Emmanuel Grenier

Seventy-four countries and ten international organizations came together in Paris on March 21-22, for an "International Conference on Nuclear Energy for the 21st Century," organized by the International Atomic Energy Agency (IAEA), in collaboration with the Organization for Economic Cooperation and Development (OECD) and its Nuclear Energy Agency.

The vast majority of the participants affirmed the desire to have nuclear energy, and also hydroelectric energy, make a major contribution to meeting energy needs and supporting world development. Because nuclear and hydroelectric energy sources would figure prominently in the international effort to reduce greenhouse gases, they were no longer the object of ideological exclusion, as has been the case up until now.

Such a meeting, and such conclusions, were unimaginable merely five years ago. In fact, it is the first time, since the launching of the Atoms for Peace program in 1954, that an international conference of this magnitude has been convened.

Patrick Devedjian, the French Minister of Industry who keynoted the conference, wanted the conference message to "reach out in particular to developing countries." In an interview in the French daily *Figaro*, Devedjian stated that nuclear power was "unavoidable" both in the context of the intransigently high price of oil and gas, and the challenge of limiting greenhouse gases.

Questioned at an OECD press conference on the lack of ministerial representation from those European countries that had announced their intention to abandon the nuclear power option, (Germany, Belgium, Austria, Italy, and Holland), Devedjian noted "a certain contradiction in these countries: They shun nuclear power at home, but wish to associate themselves with the relaunching of nuclear industry in France, especially via the development of a prototype of the EPR [the jointly sponsored European Power Reactor], and to develop the electrical grid to benefit clients of France."

Without a commitment to make nuclear energy the primary response to the energy challenges of the century, the conference, to a large degree, revolved around tactical considerations. Nuclear power, in effect, delivers electricity at a competitive and stable price, without emitting CO₂. Otherwise, in the majority of countries, it bolsters the security of their energy supplies.

ElBaradei: ‘Nuclear a Serious Option’

The necessity for nuclear energy was the theme underscored during the conference by the Director of the International Atomic Energy Agency, Mohamed ElBaradei. “It is clear that nuclear energy has regained credibility as a serious option,” he said. “The tragedy of the Chernobyl accident in 1986 dealt a severe blow to nuclear energy,” he admitted, because the leaders “did not sufficiently make public all the measures that were taken after Chernobyl to ensure that another nuclear accident would not happen.” But ElBaradei considers that era as finished. “The new prospects for nuclear energy, especially in the long term, will be further improved by the vigorous enactment of the Kyoto Protocol,” which calls for limits on power sources that produce CO₂ emissions.

The new IAEA energy projections forecast a global nuclear energy production of 427 gigawatts in 2020, or an additional 127 power plants of 1,000 megawatts or more over previous estimates. China plans to increase its nuclear energy production for electricity from 6.5 gigawatts today to 36 gigawatts in 2020, he said. The capacity of India will be “increased by a factor of 10 by 2022, and by 100-fold within a century,” ElBaradei stressed, and nuclear energy production in Russia will surpass the “22 gigawatts now produced, to 40-45 gigawatts in 2020.”

ElBaradei graphically made the point about the need for nuclear electricity in his speech, talking about his recent visit to Ghana and Nigeria. There, electrical consumption per person is, respectively, 300 and 70 kilowatts per year, he said. That corresponds to an average supply of 8 watts per Nigerian, not even enough to supply a light bulb! He compared this figure to that of France, where per capita consumption exceeds 7,300 kilowatt-hours per year.

“If we were to consider the ‘objectives of development for the millennium,’ proposed five years ago—such as the eradication of poverty and hunger, universal access to potable water, and the improvement of sanitary services—it is clear that the global supply of energy, and in particular, electricity, is crucial to the capability of the international community in attending to each of these objectives. . . . Here, in the ‘City of Lights,’ it would be easy to forget that for 1.6 billion persons in the world, there is no access to modern energy services.”

During the press conference, however, the pack of Anglo-American media were concerned only with the control of nuclear proliferation and negotiations with Iran, hounding ElBaradei on the supposed danger of that country—just as they had hounded him before the Iraq war about the supposed weapons of mass destruction in Iraq. The journalists’ questions were all on the risk of nuclear terrorism or on the dangers of nuclear energy, ignoring the global context within which ElBaradei had placed the debate.

The Problem of Nuclear Waste

On the subject of radioactive waste, which remains the Achilles heel of nuclear energy, ElBaradei began by recalling

that the total quantity of nuclear waste is tiny (12,000 metric tons), especially in comparison with the 25 billion metric tons of carbon waste put into the atmosphere each year by burning fossil fuels. In his opinion, the problem of sequestering and storing this waste is an already existing technology, “but public opinion will remain skeptical—and the storage of nuclear waste will most likely remain controversial—until the first geological storage sites become operational and the technologies well established.”

Recent developments in Finland, Sweden, and the United States give ElBaradei great hope, he said. In Finland, which launched construction of the first European central nuclear waste storage depot since 1991, the Government and the Parliament approved in principle a resolution for the construction of a terminal storage site for spent nuclear fuel. Construction will begin in 2011, and the first shipment will arrive in 2020. As for the United States, the site at Yucca Mountain in Nevada was finally granted approval in 2002 by the President and the Congress. Operations are scheduled to commence in 2012.

Along with these projects, ElBaradei noted, new advanced reactors are in construction or in the design stage. The Russian Federation has already proposed the KLT-40, a floating reactor of 60 megawatts, which can be easily transported by barge, based on the reactors now used by Soviet submarines and ice breakers. South Korea has decided to build, in 2008, a one-fifth-scale demonstration model of their 300-megawatt, SMART pressurized water reactor. The advantage of this reactor is that it can be reconfigured as a seawater desalinization plant.

Lastly, he said, South Africa has surmounted the first obstacles in developing the demonstration unit of their well-known Pebble Bed Modular Reactor, PBMR, a modular high-temperature reactor (HTR) with an output of 168-megawatts. China is equally active in tackling the HTR, and is working on its own pebble-bed design. Lastly, in the long term, the Generation IV research program has established an effective international effort on various types of reactors, including the fast-flux type (breeder reactors). These reactors will be in use by around 2030.

Nuclear Requires a New Bretton Woods!

One issue marred the discussion: the problem of financing these nuclear reactors, which require long-term investments and very low interest rates. If China already has the wherewithal to finance such a program, it is clear that the financial structures which allowed nuclear development in the United States, in France, and in Germany, are now lacking under the budget cuts mandated by ultraliberalism, speculators’ short-term profits, and the anti-nuclear forces. But, however much the anti-nuclear fanaticism remains a permanent worry, it is probable that the greatest obstacle to a nuclear renewal will be the financial order. Without an international reform of the type proposed by Lyndon LaRouche (the New Bretton Woods), there is no real future for nuclear energy.