

# Vietnam Is Ready to Go Nuclear!

by Marjorie Mazel Hecht



Vietnam, a nation of 85 million, has set an ambitious goal of supplying 15-20 percent of its electricity needs from nuclear by the year 2030. The first step will be the construction of four 1,000-megawatt nuclear plants to start in 2014, with the first unit coming online in 2020, and the others to follow in the next four years. At this point, Vietnam leads the way for the rest of the Southeast Asian nations—Thailand, Indonesia, and Malaysia in particular—which have discussed building nuclear plants for many years, but which have not instituted the laws and infrastructure necessary, nor mustered the necessary political will.

At present, most of Vietnam's power (about 60 percent) is supplied by hydro-power, and the remainder from gas-fired plants in the south, coal-fired plants in the north, and imports of electricity from neighboring states. Government studies expect that electricity production can continue to meet demand, until the year 2015, at which point there will be a shortfall of from 11 to 65 terawatt hours, depending on whether there is low economic growth (6.3 percent), baseline

*The Vietnam Atomic Energy Commission economic studies determined that the nation will need 2,000 to 4,000 megawatts of nuclear power in its electricity grid by 2020, to meet the needs of its growing population.*



VAEC

*The Dalat Nuclear Research Institute, which houses Vietnam's nuclear research reactor, began operating in 1963 to produce radioisotopes for medical uses and for food preservation. Dalat is in the highlands of Vietnam, with a temperate climate. A new research reactor is now under study.*

economic growth (7.1 percent), or high growth (7.5 percent).

### Atoms for Peace

Vietnam's impressive development plan for nuclear dates back to 1958, when Vietnam was one of the first nations under the Atoms for Peace program to order a small research reactor, the General Atomics-built Triga-Mark II, used for training of scientists and engineers and producing medical isotopes. The reactor began operations in 1963.

The Second Indochina War (the first having been fought against the French colonialists in the 1950s) interrupted Vietnam's development plans. Vietnam was at war again until 1975, and during that war, the United States dismantled the U.S.-supplied Triga reactor. Immediately after the war, the reunified nation began to rebuild its infrastructure and governmental agencies, establishing the Vietnam Atomic Energy Commission early in 1976, under the management of the Ministry of Science and Technology.

In 1980, the Russians reconstructed the research reactor on the Triga site in Dalat, making it a unique combination of a Russian reactor core and Triga infrastructure. Since that time, the Dalat research reactor has been used to conduct basic research and development in reactor physics and engineering, train scientists and engineers, and produce medical isotopes. Many of Vietnam's senior nuclear scientists and engineers were trained in former Soviet countries.

### Doi Moi—Innovation

Guiding the nuclear program has been Vietnam's overall policy for uplifting the nation's socio-economic level from its postwar poverty and chaos: *Doi Moi* or innovation, in which the "science driver" approach to development is a priority.

In the last two decades, Vietnam began to put in place the regulatory and other groundwork required for a nuclear economy, setting up a Radiation Protection and Nuclear Safety Authority, and working with the Ministry of Industry to survey potential nuclear sites, environmental im-



Lothar Wedekind/IAEA

*Luong Van Chinh, a farmer in Dong Tien in Southeast Vietnam's Binh Phuoc province, explains how he cultivated his hardy crop of rice. He used seeds developed by plant breeders at the South Vietnam Institute of Agricultural Science in an IAEA-supported technical cooperation project.*

pacts, the nuclear fuel cycle, waste management, economics, and other issues. As part of the National Research and Development program, the Vietnam Atomic Energy Agency carried out an analysis of a future role for nuclear in the economy and the infrastructure required.

Vietnam has worked with the International Atomic Energy Agency on many joint projects to train personnel and to study nuclear technologies and safety. For example, Vietnam has worked with the IAEA to use radiation mutation techniques to create new varieties of high yield rice.

To explore the different reactor possibilities, Vietnam has collaborated on

many bilateral projects with nuclear suppliers, including with Toshiba and JCI, Mitsubishi, the Atomic Energy Commission of Canada, and Korea's utility KEPCO. An international exhibition on nuclear in 2008 was attended by many nuclear companies and national representatives—all of which are contenders for contracts to build Vietnam's nuclear plants and supply other required technology.

### Education Key

Key in all this is education. Vietnam not only needs to train significant numbers of engineers, technicians, and scientists to support new nuclear plants by the year 2020, but it also requires an educated public. To carry out this education,

the Atomic Energy Commission and the Ministry of Industry, with the support of Japan's nuclear industry, organized three public exhibitions on the "use of atomic energy for peace" in the cities near the selected nuclear sites and in Ho Chi Minh City. The enthusiastic local attendance at these exhibitions has the character of optimism that typified the Atoms for Peace era, during which Vietnam began its nuclear program.

Vietnam's Atomic Energy Law went into effect at the beginning of 2009, and the National Assembly gave its go-ahead to the proposed nuclear construction plans in November 2009. Vietnam will be the

first Southeast Asian country to build *and operate* a nuclear plant. The Philippines completed its Bataan nuclear plant in 1984, but it was shut down by the Kissinger faction before the plant could operate. (Now plans are under way to revive the mothballed Bataan plant, but they are not on a fast track.)

Vietnam thus leads the way in Southeast Asia as part of the booming nuclear renaissance centered in the Pacific. We need a rapid change in the United States to join this renaissance, and infrastructure building, to ensure that we move mankind forward.



Lothar Wedekind/IAEA

*Education is a top priority for a nuclear economy. Here a school boy dressed in his school colors, in Thanh Gia, a small rice farming village outside Hanoi.*