NUCLEAR OR NOT — OUR CHOICE

. STAN ROWE, Dept. of Plant Ecology, University of Saskatchewan, Saskatoon
7N 0W0

Should there be uranium development in Saskatchewan? In practical erms this means:

) Should Amok and other uranium-mining ventures in the north be given the go-ahead to extract and mill uranium ore?
) Should Eldorado Nuclear be allowed to build a uranium refinery at Warman?
) Should Saskatchewan "go nuclear" with Sask Power eventually setting up an electricity-generating reactor or two on the shores of Lake Diefenbaker?

These are all related questions. A yes" or "no" to any one of them eads logically to the likelihood of the ame answer to the others. We tend o make decisions by increments, ith each incremental decision mak- g more likely a continuation in the irection it sets. Therefore, when fac- d with important problems we ought o step back and ask where a "yes" or no" is leading us. In what directions nd to what goals will the develop- ent of uraniun in Saskatchewan take s?

Now, such development will cer- inly be good financially for some eople, perhaps for the province too, the short run. There's money to be ade from rich uranium deposits, easured in millions and billions. A finery near Saskatoon would "help e economy," providing jobs for ore city people and added revenues r various levels of government. But hat about long-term benefits? Over is question a heavy mushroom oud hangs that the boom of quick ofits does little to dispel. In fact, the ual cycle for a northern mine is ins- nt prosperity for a few short years followed by instant poverty for many long years after the ore has run out, with the government picking up the tab. This traditional exploitation of the north and its people by foreign entrepreneurs is no longer acceptable. Suppose that this time we do it in a different way, a way that keeps a good slice of the profits in Saskatchewan and a slice of the slice in the north. Now is it O.K.?

The answer depends on whether the nuclear business is carrying us in the environmental and social directions that seem desirable, for here I point out that we are not discussing any ordinary kind of business. Uranium is not mined, milled and refined to build machinery nor to fabricate tools. It represents highly concentrated energy and power; the heat from fission of one pound of U-235 being the equivalent of that from 300,000 gallons of fuel oil or 14,000 tons of coal. A commitment to uranium development implies the goal of a hard-technology energy-intensive society, living it up electrically surrounded by a surplus of weapons-grade radioactive wastes. Once this path is taken the capital necessary for the development of alternate, softer, more benign energy sources will dry up, for the nuclear industry is exceedingly capital intensive "at the front end." One hundred to one hundred and fifty reactors for Canada by the end of the century (a figure mentioned by most nuclear enthusiasts) will cost about as many billion dollars. Furthermore, once headed in this direction, we will have to opt for a "plutonium economy" as the limited supplies of fissile uranium run out. Once the economy has been organized around nuclear power, it will inevitably follow that plutonium be generated and burned in breeder reactors, weighting the already heavy environmental burden with one of the most hazardous substances invented by man.

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In Knelman's words: Uranium and Thorium are better left permanently at rest in the earth's crust; they already contribute to our global burden of natural background radiation, but we greatly increase this burden when we embark on a nuclear fuel cycle. Thus, nuclear development as a source of energy should be humanity's last resort, as it poses environmental and social hazards which are unacceptable.

ENVIRONMENTAL HAZARDS

The entire cycle from mining to milling to refining and use in reactors produces a Pandora's box of radiating substances. Unlike fossil fuels that are relatively safe (for they are the products of a life process, photosynthesis), the by-products of nuclear energy are alien to life and exceedingly dangerous. Their ionizing radiation can disorganize cellular tissues, increasing the incidence of genetic defects and of cancer. (It is estimated that 90% of cancer is environmentally induced; we ought not to add carcinogens to air, water and soil.) Intense doses of radiation cause radiation sickness and death. Some of the soluble forms, dispersed in air and water, can be concentrated in plant and animal tissues so that their effects are amplified in the food chain.

Much argument can be heard about standards of safety in mines, mills, refineries and reactor plants but the fact is that no one can say what a "safe" or "permissible" dose of radiation ought to be. A profound secrecy surrounds much of the nuclear goings-on in Canada, where the safety performances and standards of operation of many installations badly need opening up to public scrutiny. Debate also continues as to whether it will be possible to contain adequately the many dangerous, long-lived wastes; the problem may be intractable. Undoubtedly these "hot" residues can be isolated from the environment in steel containers and concrete bunkers for a short time, but what about the next 1,000 or 100,000 years? Alvin Weinberg has suggested the need for a "priestly class" that for hundreds of generations will devot itself to tending and guarding th radioactive poisons, and this implies perfectly stable society only possibl with perfect people!

In short, the primary environmenta objections to "going nuclear" revolv around waste disposal. It is this spec tre that recently led the U.K. Roya Commission of Environmental Pollu tion to the conclusion that: Ther should be no commitment to a larg program of fission power until it ha been demonstrated beyon reasonable doubt that a method exist to ensure the safe containment o long-lived highly radioactive wast for the indefinite future. From th viewpoint, nuclear power may we be dying.

SOCIAL AND CULTURAL PROBLEMS

At least as serious as the en vironmental are the social im plications of the large nuclea programmes projected for the future There can be no such thing as decentralized nuclear energy societ because the sizes of the installation and the dependence on electricit will impose a need for centralize control. Vulnerability of the electrica system, plus the availability of nuclea materials from which weapons an bombs can readily be fabricated, wi necessitate the kind of securit precautions that are appropriate t the garrison state. It will becom necessary to keep all potentially diss dent individuals and organization under police surveillance, while quar ding also every phase of the nuclea fuel cycle against sabotage. Here th assumption is that, if people are im perfect, at least there can be a perfec police force. However, Sir Bria Flowers raises some doubts: I do no believe it is a question of whethe someone will deliberately acquir plutonium for purposes of terrorism or blackmail, but only when and ho often. (Bulletin of Atomic Scientist December 1976, p.27). The nuclea society, as someone has pointed ou can only succeed if society is perfectl stable. Yet it provides exactly th

means and the opportunities by which that stability can be subverted.

ALTERNATIVES

The requirements of a democratic society can only be met by a decentralized, non-nuclear, soft (renewable) energy technology. This alternative calls for conservation, by which — according to most authorities — fifty percent of current energy use could be saved. It calls for stretching out fossil fuel supplies over the next twenty-five to fifty years, while means to capture dilute solar energy are perfected. It calls for a mix of energy options suited to the geographic resources of Canadian terrain, using wind, geothermal and tidal power where appropriate. But most of all it means at this moment setting our directions resolutely away from the nuclear option.

anita muscaria Hans Dommasch