

Feature Environment

The Hazards of Radioactivity in Human Environments

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SINCE the end of the nineteenth century, when radioactivity was first discovered, we have learned a great deal about its effect on human beings. One of the most important lessons is that continuous exposure to low-level radiation can be just as dangerous as exposure to a single high dose. Low-level radiation, absorbed in sufficient dosage over time, can seriously impair and even destroy an organism's capacity to maintain and reproduce itself. In particular, it may cause genetic defects that can be transmitted to later generations — much later, in some cases.

nucleus as it decays. These types of radiation are known as particulate radiation. A radioactive substance also emits gamma rays, a high-frequency type of electromagnetic radiation, or vibrating waves of electron. Gamma radiation penetrates clothing, ordinary containers, and most walls or partitions. But not all radioactivity is equally dangerous or dangerous in the same fashion. For example, although alpha radiation from a source outside the body is relatively harmless, even a tiny amount can do severe damage from a source inside the body, as when a radioactive substance is inhaled or ingested.

There have been cases of radiation sickness from immediate fallout after weapons testing. It emits certain radionuclides like radioactive isotopes, or alternative forms of the same chemical element, having been produced as fallout by the nuclear fission process, tended to enter the human food chain and so accumulate in various parts of the body. The way in which radionuclides enter the food-chain may be illustrated by strontium-90. When strontium-90 is released into the atmosphere as fallout from a nuclear explosion, some of it may land grass. The grass is eaten by cows and then strontium-90 accumulates in the cows' milk, which is ingested by human beings, to accumulate in their bones.

Another fear raised by aboveground nuclear testing was that it would increase the level of background radiation; that is, the radiation that people absorb from their environment whether they like it or not. Most of this comes from cosmic waves, which have an even higher frequency than gamma rays. Astronauts and others whose occupation takes them to the ionosphere might conceivably suffer from the effects of cosmic rays.

Hot Air at The Earth Summit?

As the US stonewalls a Rio meeting, activists offer a planetsaving proposal

Over the next few months, delicate negotiations will determine whether the world's largest environmental meeting will produce real progress in saving the planet from man-made ruin. Or whether the session will merely add to global warming with hot-air emissions from about 100,000 parliamentarians, religious leaders, environmentalists and heads of state.

In our lifetime. When, if not at Rio, will we address these problems? It might ask the Bush Administration. The US is resisting pressure from the European Community and Japan to use the Rio conference as a forum to set targets and timetables for the reduction of warming gases, among other things. It has also resisted pressure to commit new funds so that developing economies can grow without destroying precious ecosystems.

nations would have an easier time accepting unpalatable initiatives on population stabilization, climate change and deforestation in return for a substantial quid pro quo. Its elements: debt forgiveness, direct financial aid to help end poverty, and technical help to reduce the poor nations' role in global environmental problems.

Hot-Spot Turning Glacier into Wasteland

ANOTHER vast virgin tract of ice, Asia's largest glacier, is falling prey to pollution by humans. The Siachen Glacier — 76 kilometres long and 2-8 km wide — in the divided state of Jammu and Kashmir, is in danger.

done snow truck buried deep under the snow, or an old kerene metal can, a bag of clothing, food packets or parcels. Worst of all, you may step right into a pile of human faeces covered with freshly fallen snow.

uneconomical and risky for army security reasons. Even non-biodegradable articles are being dumped in the open. The gravest effect of all this is the gradual melting of the glacier. Until a couple of years ago huge columns of ice at the glacier were used as helpads

moraine, scree and boulders. Avalanches, frostbite, mountain sickness and cardio-vascular ailments are other dangers and killers. Critics say that even the Environment and Forest Ministry at New Delhi is not worried about the polluting of the Siachen. An official said: "To the best of my knowledge there is no Siachen file in the ministry."

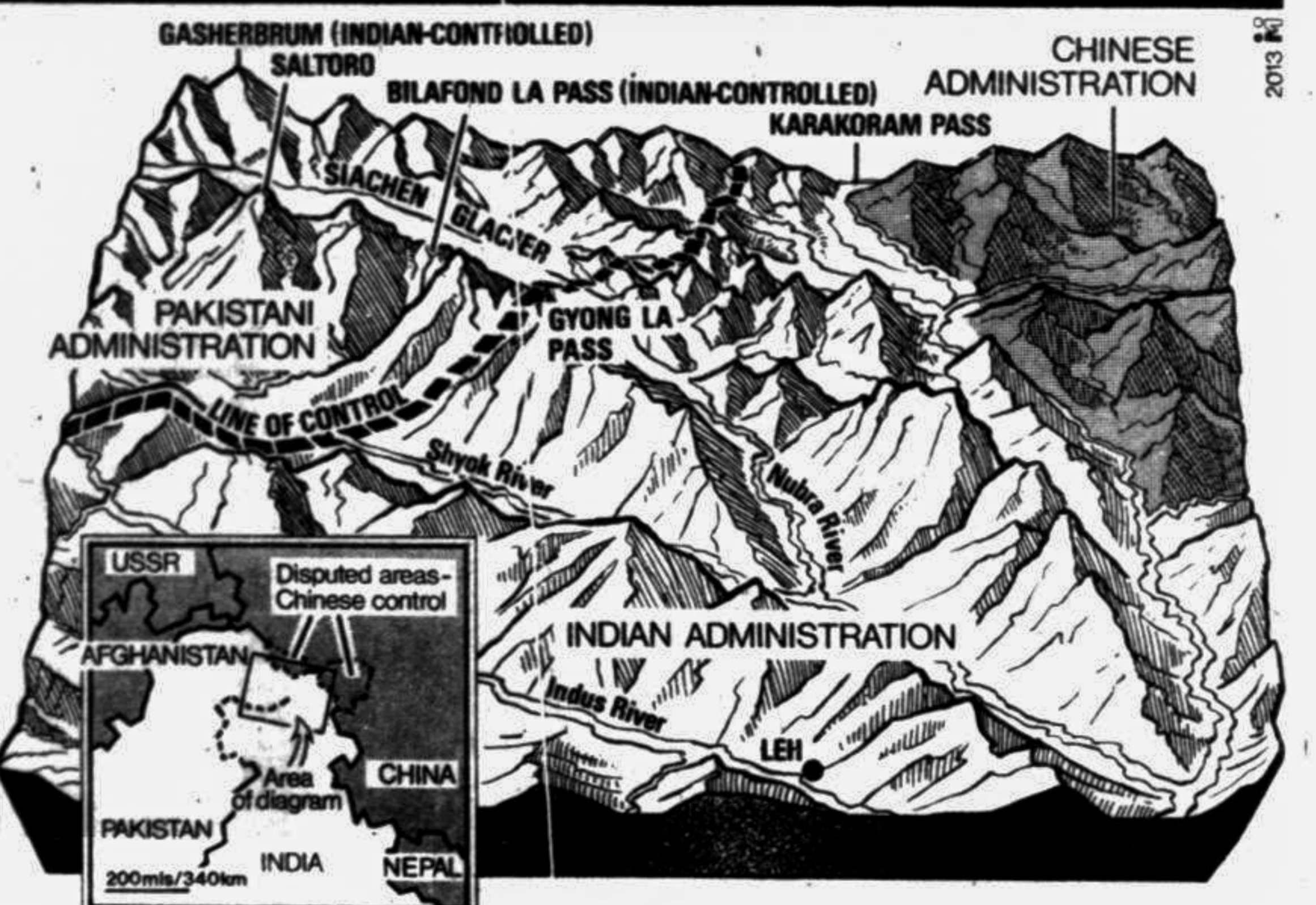
Nations Peer into the World's Cesspit of Waste

Nevertheless, there were rays of hope. Technological advances, she said, have yielded commercially-attractive processes which could substantially cut chromium waste from the leather industry. The industry has become a significant source of foreign exchange — \$5.5 billion dollars annually — in Third World countries.

Every tonne of coal we burn sends a kilo of arsenic into the atmosphere. And our industry spreads much more radioactivity than our five nuclear power plants. Half of the sulphuric acids we send up goes to surrounding countries, some 5 per cent of it to distant Norway to add to their environmental problem," he said.

reduce emissions of sulphur dioxide — one of the country's worst pollutants — by 60 per cent. Conference participants were adamant that the industrial expansion — which adds billions of tonnes of industrial waste to the mess every year — would continue. But it was agreed that global action is urgently needed to make industrial activity ecologically acceptable and to clean up the global cesspool their industries have created.

The coldest war



matic talks, but after two years nothing tangible has come out. Both armies are in a state of constant alert, expecting gunfire to break the snowy silence any time.

Scientists at the Jawaharlal Nehru University School of Environmental Studies are gravely concerned. They say that in other high-altitude areas bio-degradable items like urine and faeces can be disposed of naturally. In Siachen it does not happen that way due to the extremely rarified atmosphere.

Because the entire glacier is a war zone, the army's first priority is to defend it. Environmental concern is the last. Retired army officer Arjun Singh, who served at Siachen, says: "Crossing the glacier is a big problem for the troops. It is filled with bottomless crevasse and gullies interspersed with high ice pinnacles and seracs."

Further, de facto occupation of Siachen by Pakistan would weaken India's position in any future talks on the border issue with China. Although many rounds have taken place between India and China, no outcome is in sight.



normally boasts of what it has achieved over 40 years of rapid industrialisation, admitted it has paid a high environmental price for industrial development.

world's top ten producers of weapons, had employed 80,000 men and women. "We must diversify and produce other steel products in these factories, but it is not easy," Vavrousek said.

degrees how they were cutting pollution, developing nations could generally only demonstrate their concern: a lack of financial resources has prevented them from implementing programmes for a cleaner environment.

VIENTIANE: Ironically, the drug war may prove to be a strange awakening. Too often the developed world has viewed the problem of Third World rural hunger and poverty as a distant issue, a matter of impersonal rhetoric.

ter fighting between 1954 and 1973 that decimated the area and drove most of the people away. Since then, farming families have trickled back, trying to reclaim their land and lives.

methods that result in low crop yields, they depend on the income earned from the sale of the poppies to buy food. A recently approved project for Laos aims to substitute cash crops for opium poppies. The project is designed and largely funded by the International Fund for Agricultural Development (IFAD).

improve the food supplies and incomes of these people. A research programme will test and introduce improved varieties of cash crops as alternatives to the opium poppy. Extension services will train farmers in more effective farming methods.

A rural development fund will help by making credit available for land improvement and agricultural inputs. Half of the loans will go to women to enable them to increase family food supplies through gardening and income through rice marketing and the production and marketing of silk.

of course, is the ongoing battle in Colombia between the government and the "Extraditables," and the gang warfare that is making so many cities unsafe.

have been established, along with strict laws against possession, purchase and use. Border patrols, seizures of shipments, confiscation of bank accounts, and prosecution of traffickers and money launderers are all efforts to limit supplies and thwart sellers.

countries alone — Bolivia, Colombia and Peru — produced over 200,000 metric tons of coca leaves. Afghanistan, Bolivia, Iran and Laos together delivered more than 2,800 metric tons of opium to the world market. If the cultivation of coca plants and opium poppies can be halted, then the production of their derivatives — cocaine (from coca), heroin and opium (from poppies) will cease.

Opium Growers also Need 'High' for Development