Indian atomic energy programme was begun by visionaries, who set their sights high. Nuclear energys to be that magic talisman which would wipe the tear from every eye, make the deserts blossom and for the country her rightful place in the community of nations. How ever much fault one may now (with sight) find with their judgment and with some of the elitist presumptions that underlay that judgment can be no denying of the fact that these people were indeed visionaries who dared to dream.

picture, that the whole programme presents today is an altogether different one. Patriotic idealism, dery, enthusiasm for the challenging tasks ahead are all now well and truly a thing of the past. Gone into along with the noble dream. Today, visionaries have been replaced by mercenaries; who dare not dream by scheme. The whole accent is: make your pile while the going remains good.

of the latest examples of this selfish, short-sighted and profoundly anti-people attitude is the proposal by Atomic Energy Commission to accept spent nuclear fuel from other countries for reprocessing here. Seen the nucleocrat's point of view this proposal has some attractive features. Presumably, it will earn some exchange and in our present desperate state this carrot alone will make the political leaders' mouths and be sufficient to obtain their consent. Secondly, it will present an occasion to tom-tom their own 'great' ements... how India is only the fifth or maybe the eighth country in the whole world able to master this.
These wastes and areas around reprocessing plants in different parts of the world, whether in U.S.A., or U.K. are all badly polluted. (See "Back to the Land" on page 5 of this issue.)

The risk posed by nuclear transport of materials over potholed roads and under the prevailing driving conditions, about which senior nucleocrats including two former chairmen (H.N.Sethna and Raja Ramanna) to say just seven years ago in a paper presented at an international symposium in Vienna: "Economic considerations would warrant a large-capacity fuel-reprocessing plant, centrally located, along with required radioactive waste management capability. But in a highly populated, developing country such logistical constraints, in terms of an adequate transportation network of suitable standards and infrastructural requirements need to be reckoned with. For instance, movement of irradiated fuel over roads can pose a problem as the track-widths adopted varies along the route. Similarly use of roadways are cumbersome, as in certain areas the load bearing capacity of the existing roads is inadequate for the movement of heavily shielded consignments."

One would like to ask these worthies and their successors is; in what way has the infrastructural ties eased over the last seven years for them to contemplate large-scale transport of radioactive wastes all over the land? Have the roads become any better today? Or have the drivers become suddenly less prone?

Processing of spent fuel is done in Trombay and at Tarapur while another plant at Kalpakkam is almost certainly now been given a quiet burial. Since the nucleocrats are determined to provide the 'benefits' of energy in the concrete form of nuclear power stations to all parts of the country, that would have simply meant sacrificing vast areas to waste. However, the new strategy of moving radioactive waste around only no improvement. And to be moving not only our own waste but that of foreigners as well for little money just indicates complete intellectual as well as moral bankruptcy.

Plutonium is an aptly named material. Pluto is the king of the underworld. Over the last forty years we have slowly but inexorably marching towards his kingdom. Our goals have become ever more modest, our sights en fixed lower and lower as befits a nether world people. One can almost predict the next proposal that nucleocrats will come up with. A few years further down the road with the foreign exchange position even precarious they would solve the hitherto insoluble nuclear waste problem. After all, West - the repository of good things of life including nucleocrats' children - should not have to deal with this problem at all. We we for! India has vast land areas and stable geological formations where all this waste could be safely forever, as long as that precious foreign exchange keeps trickling in.

Surendra G
The Beginning in Bangalore

Nuclear groups in India have been somewhat like village republics of old — independent, self-sufficient and isolated from each other. The three day conference, held at the premises of the Indian Social Institute and organized by Alternatives to Nuclear Energy, was an attempt to braid the various groups together. There is no doubt at all that the conference's hard work was crowned with success. All the participants at the end of the three days felt closer to each other, and part of a nation-wide movement.

New friendships have been forged, contacts established, concrete proposals of mutual help put forward; all these would be of great help in the days finally halting the nuclear steamroller from moving on.

More than sixty participants came from different parts of the country. Besides Karnataka; Goa, Kerala and West Bengal were well represented. There were also some friends from Tamilnadu, Andhra, Orissa and Delhi. The absence of representatives from around Rawatbhata, Jaduguda and Jodhpur was most keenly felt. The imminence of elections prevented groups from Andhra Pradesh from attending which too was a great pity.

Not only did the participants come from very different backgrounds, they also had very divergent expectations from the meeting. These ranged the whole spectrum, "How this meeting can help to close down Rawatbhata" and "What can be done to build a model movement," to "Can nuclear energy be used for good ends without hazards in the Indian context." However large, the expectations of the participants were divided into four broad categories:

- Strengthening contacts
- Exchanging information and sources of information
- Exchanging experiences
- Envisioning

An example of the flexibility and accommodating nature of the organisers was forthcoming even before the meet formally began; since a number of participants expressed a desire for some form of direct action to mark Chernobyl day, the organisation scrapped the scheduled programme. The first afternoon and the evening were spent in taking out a protest march from the venue of the conference to the offices of the Nuclear Power Corporation. The rally ended by presenting a short memorandum to the officials present there exhorting them to join the movement and save the world from a repetition of Chernobyl horror. Needless to say, these worthies remained unmoved! Afterwards there was a street play performed by participants from Uttar Kannada.

The meeting was formally inaugurated by a retired justice of the Karnataka High Court, Justice N. Thiruvalluvar, Srinivas Rao. The first morning was spent in getting acquainted and in analyzing the various strategies and actions used by different groups in trying to raise public awareness among various special interest groups such as for example students and legislators and lawyers.

The first programme on the second day was a talk by Prof. D.K. Subramaniam of the Indian Institute of Science. Prof Subramaniam gave a very fascinating description of the vast scope available in India regarding energy conservation and how by being more efficient India could eliminate the need to develop more conventional new sources be they coal, oil or nuclear.

This talk was followed by an information exchange session with the participants breaking into three groups; one on nuclear energy, the other on movement strategies and a third on alternatives.

The afternoon session was spent by various groups in conducting a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of their own movements and then reporting the results to the plenary session.
it would have been more beneficial. The
givers had expected this give and take to take place informally during free times. This
did happen a lot and yet there was dissatisfaction on
part—another indication of the extent of earlier
dissension amongst the various groups and their keen-
to-pool their strengths together.

Dinner times were meant for slide-shows and
presentations. First evening, there was an ex-
ercited animated discussion which lasted till past
ight following a slide presentation on the condi-
tion of the people around Rawatbhata and the screening
of a video film, "The Price of Power," dealing with
the subject. The second night there was a slide
show by Nagesh Hegde on nuclear power followed by
presentations on the Narmada movement, "Save Water—Save
Arch," and on the Indian Rare Earths plant at
Kerala.

Next day was occupied fully in forming plans for
future. There was great interest in closer cooper-
ations and there were many suggestions made for
pursuing it.

Six of the proposals which elicited a great deal of
enthusiasm were:

- Making antinuclear movement a strongly
  women's oriented movement:

The participants felt that the movement should
have a women's oriented focus. Not everyone (not
all of them men) agreed with this emphasis. How-
ever, there was general agreement that special
resources were needed to raise awareness amongst
women. In this connection Dr Kusuma (Contact
Address: Snehakunja, Kasarkod, Taluka Hon-
rar, Dist: Uttara Kannada, Karnataka) agreed
that this be a focal point of a women's action programme.

- Collecting reliable data on the health effects
  of operating nuclear power stations:

One of the major shortcomings of the antinuclear
movement in India till now has been the lack of
information on the health effects of operating nuclear
power stations: Rawatbhata, so that they could see and expect
for themselves the kind of havoc even 'safe'
operating nuclear power stations cause in their
immediate vicinity. There were demands that
slides and pictures of the people around
Rawatbhata, be made available to each group
that they could be widely displayed. (In this
connection the Anumukti group has already dis-
tributed five sets of slides to different groups
in various parts of the country.) The need to con-
local workshops in small towns near nuclear
stations was also widely expressed. There was
suggestion that dates like the Hiroshima-day
and the Chernobyl-day be specifically reserved for
local activities by activists and national level
programmes be taken up during other times.

Another proposal which had a great deal of seri-
was for simultaneous cycle marches to Kair
various antinuclear groups from different parts
the country. However the logistics of these may
be worked out.

- Better intercommunications:

How to achieve better communications bet-
various groups took up a lot of time. It was de-
that this task be divided into two. Coordin-
tions between various groups would be the respon-
sibility of CANE while information exchange
be conducted through Anumukti. Anumukti show
publish a proposed date of publication of the
issue and a last date for receiving communicate
There should be a separate column in Anumukti
for such group communications.

- Available Resources:

Claude Alvares from the Goa group said that
had facilities for publishing books in English
were already bringing out small booklets on
different nuclear power plants and would like
make that an ongoing project. They also had
assured distribution network. The Gujarat
group said that in Sampoorna Kranti Vidyalaya at
Vedchhi, they had a very good training cen-
Back to the Land:

Sea-to-Land Transfer of Radioactive Pollution

The British nuclear lobby have ceased to deny that they have made the seas around Britain the most radioactive in the world, they continue to insist that this is having no impact on the health of those who live or work on or near the sea. But research by the nuclear industry into the effects of the discharge of man-made radioactivity has been characterized by the use of inefficient techniques and mischosen sites for monitoring and analysis, and has been undertaken against a background of basic ignorance about the behaviour of radioactivity in the sea.

Some forty years, the British government has put logic on its head and allowed the nuclear industry to discharge radioactivity into the sea in the despite ignorance of its consequences. The little knowledge that has been acquired about the dilution and dispersal of radioactivity in the sea has been obtained only by monitoring the radioactivity after it has been discharged.

The incidence of childhood leukaemia found near coastal nuclear plants at Sellafield, Dounreay and Traws Point have been linked to the radioactive discharges from these sites. But the link is by no means clear cut; indeed if conventional dose-risk estimates are used the discharges are likely to have contributed only a very small part of the cumulative dose. But the link is there and has been documented in the medical literature.

Yet the definitive Atlas of the Seas around the British Isles, admits that for all British waters the main overall weakness in the study of water circulation is the lack of systematic, long term collection in almost all areas." For the Irish Sea it lacks of data means that the authors can say no more than "it would appear that more often than not there is a South to North flow to the West of Isle of Man. For the region in the vicinity of the nuclear installations at Sellafield, Chapelcross, Springfields, Calder and Heysham this definitive work says "that circulation shown for the region is still a matter of argument."

Knowledge of the residence time of the pollutants
Reprocessing

The first step in the treatment of spent fuel is to store it for several months in water filled pools at the nuclear power station. During this period the radioactivity and the evolution of heat decrease by a factor of about 10,000. The uranium oxide elements that fuel power reactors are encased in long, slender tubes, made of either stainless steel or of an alloy of zirconium called Zircalloy. Such rods are prepared for processing by chopping the tubes into short sections and dissolving out the oxide ("chop-leach.")

The fission products are isotopes of elements ranging in atomic number from 30 (zinc) to 66 (dysprosium). Most of them are radioactive with half-lives that range from less than a second to thousands of years. The fission products are the chief source of heat and radiation from spent fuel. A dozen or so combine intense radiation and long half-life with chemical and physical properties that are troublesome in reprocessing or in the ultimate disposal of the wastes.

The "Purex" process, which is the most commonly used reprocessing method all over the world, employs TBP (tributyl phosphate) dissolved in a kerosene like hydrocarbon as the separating agent. When uranium and plutonium ions are highly oxidized they are more soluble in the TBP solution than they are in an aqueous solution. Under the same conditions hundreds of fission products are more soluble in a strongly acid aqueous solution than in the organic one. The process involves making the aqueous and organic solutions flow in opposite directions through a column or some other kind of a mixing chamber that disperses one of the solutions as small droplets through the other. Thus the solvent can extract uranium and plutonium in their highly oxidized forms from the aqueous feed solution which contains most of the fission products. In separating the plutonium from the uranium, the plutonium is reduced to its trivalent form making it insoluble in the solvent which then contains all the uranium.

It is inevitable that sites as complex as nuclear establishments will suffer from accidental leaks. The 1983 pipeline leak was only discovered because Greenpeace protesters were working off the end of a ship.