A NATIONAL SYMPOSIUM
ON
ETHICS OF SCIENCE
A DRAFT NOTE

0100 PREAMBLE

The Indian Academy of Social Sciences (ISSA) proposes to organize a national symposium on Ethics of Science, so as to enable all sections of society derive equal benefits from science so as to improve the quality of their material, social and cultural life while taking cognizance of the longer-term implications of the use of various technologies.

0200 OBJECTIVES

1. To comprehend the concept and theory of ethics of science, and the influence on it of social and cultural factors.
2. To assess interconnections between the ethics of a capitalist society, global or otherwise, and ethics of science.
3. To evolve new concepts and theories of the ethics of science.
4. To work out new democratic institutional means to regulate, monitor and evaluate the praxis of ethics of science.
5. Any other.

0300 CONCEPT OF ETHICS OF SCIENCE

With the passage of time society changes and, with these changes in society, group norms, values, rules and laws too change. So ethics too could change with the changes in the society. For example, ethics in a feudal society and ethics in a capitalist society may not be the same.

Further, science is subject to social influences. The social status of those who put their labour into science, in any given society, influences the science produced by that society. On the other hand, dominant groups controlling science can manipulate science in their own interest without bothering or caring about its wider or longer-term social implications. Herein enters the question of ethics of science. Science and ethics, both, are public. Both involve practice in public domain.

0400 CONTEXT

Our society is increasingly dependent on science and technology. While some technologies such as genetically modified organisms are recognized as controversial, and

involving potential long-term risk, many other technologies have gained wide acceptance. Ubiquitous gadgets like the TV, computer, cellphones or cars are obvious indicators: an average middle class person spends a good part of the day engaging with one or the other of these gadgets.

But, even for these widely accepted technologies, some of the negative consequences are obvious enough. As a trite example, consider the urban pollution arising from the increasing use of cars. New laws have had to be enacted to control pollution. But no one yet knows for sure what the longer-term impact on global climate would be. This is a potentially dangerous situation for a country like India where rainfed agriculture is still the mainstay.

Do we take a balanced decision while acquiring technology? Do we take a balanced decision in deciding what kind of science to promote? Scientists, today, are under pressure to produce only the sort of science that can quickly be converted into profitable technology. Every such new technology is hyped as contributing to human welfare. However, it is unclear that every car added to Delhi roads increases, say, the sum total of human happiness. What it unquestionably does is to increase the sum total of profits for the various associated big businesses. Noticeably, the number of cars inexorably continues to increase, while the debate on the longer-term consequences languishes on the margins.

Likewise, the computer and Internet have necessitated the cyber laws to facilitate online business transactions. These laws are invasive and potentially disruptive of elementary civil liberties. However, most people are still unaware of all the civil liberties they lose by the simple act of purchasing a computer and connecting to the Internet! The situation for more controversial technologies such as nuclear technology, or genetically modified organisms is even more complex. Even the lawmakers are not clear about what laws ought to be used to regulate these technologies. They rely on "experts" who may push in a number of questionable features into these laws.

How do we ensure that these "experts" are knowledgeable enough to offer a worthwhile opinion? How do we determine whether they offered an honest opinion and were not influenced by this or that vested interest?

To this end, it helps to see the common patterns.

1. All these technologies involve big business.

2. All these technologies are hyped as being for the greater good of humanity or the nation etc., though little is known about the longer-term fallout: whether of carbon pollution, radioactivity, drug-resistant diseases, nano-pollution or genetic waste. On the entropy law, this "fallout" is inevitable, and is actually the primary consequence of mass technology use. So far as big business is concerned, it is fine if a new technology is allowed to persist for a few decades before being abandoned. Therefore, it is worthwhile looking into the stock process by which society repeatedly acquires a new technology

without being fully informed of its longer-term consequences, and then belatedly seeks to control those consequences.

3. The acquisition of new technology is inevitably guided by the opinion of "experts" (given behind closed doors) and not by any publicly-debated analysis of the costs and benefits to society.

4. Most people are scientifically illiterate, and unable to judge the validity of the opinion offered by these "experts". Without going into the origins of this state of scientific illiteracy, we simply note the fact that most people cannot fix a car or a computer which has broken down, or understand the mathematics of a digital signature, or a piece of statistical inference used to justify a new drug.

5. This is dangerous situation which can be exploited by vested interests who only need to manipulate the opinion of a few "experts". A scientifically illiterate society has no clear means to validate the opinion of experts, or even to judge who should properly be called an expert.

The last point may require some clarification. For example, in India, a science manager is typically confounded with a scientist, although it is a matter of common sense that one who occupies an administrative position will have less time for scientific or creative pursuits. Administrative positions, therefore, may be expected in course of time, to correlate inversely with the scientific knowledge of the individual.

There are many known instances of top science managers in India publicly demonstrating their ignorance of even the sort of elementary science which ought to be known to any school child (that a rectangular matrix has no diagonal, or that it is not a good idea to make a solar heater shiny from the outside). This sort of thing may well be a systematic feature of science management in post-independent India, which has often suppressed talented and knowledgeable people, in some cases regrettably with deliberate intent.

This combination of a scientifically illiterate society whose technological choices are guided by such ignorant "experts" is already potentially toxic. What happens when this combination acts in a society where the executive is deeply ridden with corruption? Do these "experts", who are part of the executive, ever offer an honest opinion (even granting that their knowledge is limited)? Or do they succumb to the pressures of big business and the state? Given the social processes which brought these "experts" to their administrative positions of power, it would be excessively naive to believe that such "experts" will never bend their opinion to suit powerful vested interests.

The recent case of a top scientific adminstrator illustrates some of the dilemmas involved. On the one hand, there is the fact of his numerous foreign trips funded by a foreign organization which probably spent more money on him than the salary paid to him by the government of India. On the other hand there is his "expert" opinion which was so closely aligned to that of the same foreign organization that it turned out to have

been directly plagiarized. (It was on such "expert" opinion that our laws related to intellectual property were to be founded.) A good science manager's role should surely be larger than that of a rubber stamp that socially legitimises his patrons.

While people at large may or may not understand the technical issues, they can and certainly ought to intervene in the ethical issues involved here, which are quite transparent. This has, however, not happened.

It is not easy to prove or demonstrate lack of ethics, especially where a person's opinion is involved on a complex subject. So one may expect that the exposed cases only represent the proverbial tip of the iceberg. So, when lack of ethics is exposed in one case, instead of hushing it up, it ought to be investigated further, its root causes located, and corrected. Unethical acts are rarely isolated: investigating one demonstrated case may open a Pandora's box of bad science-and-technology-related decisions that might have been systematically foisted on people. Unfortunately, this has not happened.

Recent much-discussed cases of alleged plagiarism are good illustrations. Whether or not these individuals are guilty, these incidents highlight the lack of a systematic intra-institutional mechanism to investigate these matters, recommend corrective action and enforce punishment, if necessary. In one of these cases, one of the investigative committees produced a careless report exonerating the individual, and this report was systematically ripped to bits in the open literature in an article in Current Science. Assuming the individual was innocent of any wrongdoing, the equivocal action of the investigative committee has actually done him a disservice by producing a careless report. If he was guilty, then the committee has done the scientific community a great disservice. In either case, the committee has done wrong. In the second incident, there was no systematic follow up action by the concerned university. This person was clearly guilty of plagiarism but his case seems to follow the well known laws of forgetfulness in our always amnesic society.

One reason for this is a great paucity of forums in which the ethics of these "experts" can be scrutinised. We cannot expect such scrutiny from other"experts" who may be living in the same glass house. The INSA has an ethics committee which noticeably remained silent when its own president was involved in an unethical act. This situation has unacceptable consequences. For example, just a short while before the above case became public, a complaint concerning the president of another society was brought to the attention of the president of the INSA. As can be judged from the social stature of the person involved, the idea inovlved was potentially extremely valuable, and the case had other egregious features. In this situation, the normal expectation was that the INSA ethics committee would be asked to look into the matter. But this did not happen. It is an open question whether the ethics committee of the INSA did not take up the case concerning the president of another society, just because its own president was under a deep cloud!

It is one thing that India, the wannabe knowledge society, has no knowledge managers competent enough to independently assess the value of a frontline scientific

development (except by the crude yardstick of social legitimation in the West—a policy of mimesis which condemns India to forever remain ten steps behind in scientific research). It is another, that larger concerns are so casually sacrificed for the personal interests of the science manager. What, after all, is the output the country expects for all the money it spends on theoretical research? More science managers? Is it not manifest that any actual scientific output can be easily appropriated if the ethics are not adequately safeguarded?

An even more dangerous development is that science managers with dubious backgrounds have infiltrated into ethics management! The executive committee of one body devoted to values has a person who was caught for having twice claimed money for one journey. The government took a political decision not to press charges in this case, but the point is that before such a person sits on an ethics body he must, publicly and transparently, clear himself of such charges. This is hardly an isolated case. Another person in that same executive committee has long stood accused of publishing manipulated experimental data that could not be reproduced and established something theoretically impossible! Once again, the point is not the accusation itself but the failure to clear it in a public and transparent way. Thus, there is the danger that even the few ethics bodies that exist might have been systematically captured by manipulative "fixers" who help in hushing up cases against really powerful people—e.g. by pretentiously taking some innocuous action. Given the poor ethical reputation of many Indian science managers, one can well understand the persistent "need" for such "fixers". If this be the case, as it possibly is, there is every possibility that the science they have promoted in post-independence India has been damaging for the interests of the society at large.

Finally, there is the neglected cultural dimension. The various new laws that are created in response to new technology are often just replicas of similar laws in the West. These are rarely assessed for their potential cultural impact. Such assessment, considered necessary for even a webpage, is not considered necessary for our laws, and was not carried out in the case of the cyber laws, for instance. This is insensitive: even the simple matter of dissection creates a cultural problem for many Indian school children wanting to study biology. These issues can become far more complex in matters concerning, say, genetic cloning, that our legislature would inevitably need to confront. If we do take up these issues, we cannot avoid confronting an even more complex set of issues concerning the penetration of cultural biases into science itself (through mathematics, for example). But because our science managers have enforced mimesis, these issues tend to be disregarded in India. In fact, we have simply no forums where issues concerning the interaction of science and culture can be articulated, developed, or discussed. But laws regulating technology will eventually have to take cognizance of culture one way or another: either through vision, foresight and planning, or more painfully through mimesis followed by confrontation and hindsight.

To summarise, society relies increasingly on science and technology. Every new technology brings with it a complex chain of consequences. These technologies are driven by big business, unconcerned with the longer-term consequences. In a scientifically illiterate society, the social value of these technologies is typically assessed

by “experts” who may be neither knowledgeable nor honest. Something must be done to ensure at least the latter, perhaps by setting up forums to document and monitor ethical norms in scientific research and management. There are precious few such forums in India, and even these function in a non-transparent way and involve persons with dubious backgrounds who might merely be acting as “fixers”. Given the difficulty of proving ethical violations, this situation provides a free hand for social exploitation of the sort which is disadvantageous to people at large, and puts future generations to serious risk. Any laws brought in to control these new technologies may need to be adapted to the cultural climate of India.

The seminar, then, could take stock of this situation, suggest possible solutions, deliberate on how to establish institutions to ensure ethical functioning of scientists, and to ensure that these institutions themselves function in a transparent way. It could also deliberate into longer-term solutions such as universal scientific literacy, and the difficulties involved in bringing it about. Finally, it could reflect upon the cultural aspects of ethics and science and on the need to sensitize our legislation to these aspects.