

DR. SHIVARAO SHANTARAM WAGLE & ORS.

v.

UNION OF INDIA & ORS.

MARCH 8, 1988

[A.P. SEN AND L.M. SHARMA, JJ.]

Seeking ban on release of Irish butter for public distribution and human consumption on the ground that the butter was contaminated by nuclear fall-out after Chernobyl disaster.

This special leave petition was directed against the judgment and order of the Bombay High Court, declining to issue a writ in the nature of *Mandamus* and other appropriate writ, directions or orders, directing the respondents to forbear from releasing 7500 cartons (200 MT) of Irish butter imported into India for operation Flood Programme, supplied to the Greater Bombay Milk Scheme by respondent No. 2, National Dairy Development Board, on the ground that the butter was contaminated by nuclear fall-out.

Soon after the Chernobyl disaster, when it was realised that the imported milk and food products particularly from the EEC countries had the possibility of radio-active contamination, the Bhabha Atomic Research Centre took up the matter with the respective agencies and advised them to get the representative samples for radio-active analysis before releasing them for public distribution in India.

This Court appointed a Committee of three experts,

(i) Professor M.G.K. Menon, Member Planning Commission & Scientific Advisor to the Prime Minister (2) Dr. P.K. Iyenger, Director Bhabha Atomic Research Centre, Bombay and (3) G.V.K. Rao, Vice-chairman, Economic & Planning Council, Govt. of Karnataka, Bangalore to give its opinion on the question whether milk and dairy products and other food products containing man-made radionuclides within permissible levels fixed by the Atomic Energy Regulatory Board on 27th August, 1987, were safe and/or harmless for human consumption. The Committee of Experts examined the question in depth and by its report dt. February 19, 1988, expressed its opinion that the consignment of the imported butter was safe and harmless for human consumption.

A Dismissing the special leave petition, the Court,

B HELD: There was no substance in any of the objections formulated by the petitioners. In its most recent recommendations, the International Commission on Radiological Protection observed that 'limits for the inhalation or ingestion of radio-active material depend on the concentration of those materials in limiting target organs'. The petitioners showed different permissible limits in different countries as France, UK, E.E.C., and Australia at 3700, 2000, 370 and 100. These are the limits of radioactivity prescribed by these countries for imported foodstuffs. As against these, the prescribed limit for India admittedly is 40 (bq/l). [120C-E]

C The analysis of the imported butter by the Bhabha Atomic Research Centre, which according to the Committee of Experts must be treated to be accurate, showed the presence in the samples of imported butter of CS-137 at limits ranging from 0.6 Bq/kg to 2.9 Bq/kg. The petitioners relied upon letters sent by some internationally known scientists including Nobel laureates tending to show that it was desirable to avoid foodstuffs containing low level radio-activity which, according to them, might in the long run prove to be hazardous. Those letters were in general terms and only represented a particular school of thought. Surely, the Committee of Experts comprising two eminent scientists and an equally well-known Agro-Economist, was well aware of this point of view. [120E-G]

E The Court could not accept the contention of the petitioners that the Court should give a direction that all articles of foodstuffs using the imported butter should carry a label 'Manufactured out of Butter Imported from the EEC countries.' [120G-H]

F The Court shared the opinion of this Court expressed in the *Vincenti's* case, where a direction was sought in public interest for banning the import, manufacture, sale and distribution of certain drugs recommended by the Drugs Consultative Committee and this Court had observed that having regard to the magnitude, complexity and technical nature of the enquiry involved in the matter and keeping in view the far-reaching implications of the total ban of certain medicines for which the petitioner had prayed, it must be indicated that a judicial proceeding of the nature initiated was not an appropriate one for determination of such matters. [121A-C]

H The order of *status quo* granted by the High Court was discharged. [121D]

CIVIL APPELLATE JURISDICTION: Special Leave Petition No. 15408 of 1987.

From the Order of the Bombay High Court dated 24.1.1987 in Writ Petition No. 4858 of 1987

Ms. Indira Jai Singh, Anand Grover and Mukul Mudgal for the Petitioners.

K. Parasaran, Attorney General, Kuldeep Singh, Additional Solicitor General, A.K. Setalwad, A.S. Rajadhyahsha, R.K. Kulkarni, Ms. Seita Vaidainathan and P. Parmeshwaran for the Respondents.

Mohan Katarki, D.B. Vohra, Mrs. Maza Daruwala and L.R. Singh for the Intervener.

The following order of the Court was delivered:

O R D E R

This special leave petition is directed against the judgment and order of the Bombay High Court dated November 24, 1987 declining to issue a writ in the nature of mandamus and other appropriate writs, directions or orders under Art. 226 of the Constitution as prayed for by the petitioners to direct the respondents to forbear from releasing 7500 cartons (200 MT) of Irish butter imported into India under the EEC Grant-in-Aid for Operation Flood Programme, supplied to the Greater Bombay Milk Scheme by respondent No. 2 National Dairy Development Board, on the ground that the butter was contaminated by nuclear fallout.

From the counter-affidavit filed on behalf of respondent No.1 Union of India and respondent No. 2 National Dairy Development Board it appears that soon after the Chernoby 1 disaster when it was realised that the imported milk and food products particularly from the EEC countries had the possibility of radio-active contamination, and so the Bhabha Atomic Research Centre took up the matter with the respective agencies and advised them to get the representative samples for radio-active analysis before releasing them for public distribution in India. It further appears that the Atomic Energy Regulatory Board which is a statutory body, has set limits for radio-activity for imported foodstuffs. In disallowing the writ petition, the High Court observed:

- A. "We are satisfied that the best scientific brain available in the country has applied itself to the question. The question is whether in the product with which we are concerned here there is radioactivity above the permissible limit. This question has been sought to be answered by the respondents on the basis of laboratory tests conducted on their behalf, Fixation of the permissible limit of radioactivity in a product, naturally, is for the scientists to decide, but the tests themselves are carried on by persons working in the laboratory, naturally, again under the guidance of the scientists concerned. We have not found that any defect is disclosed in the material which has been placed before us in the manner of testing. We have also not been shown that any other better method is available. Mr. Setalvad appearing for respondent No. 2 has told us that if any other method of sampling is suggested the respondents will willingly examine the same and conduct the tests accordingly."
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- E At one stage, the High Court felt disturbed about the concept of the 'permissible limit' and asked counsel appearing for both the sides to examine the question in the light of certain queries which arose in its mind. It wanted to know on what basis the permissible limit of radioactivity was determined, and in particular, whether this permissible limit had been determined on the basis of consumption by human beings of any natural food in which radio-activity was present or was it based upon the external irradiation, and added:

- F "This question can, naturally, be answered if there is also answer to the question whether natural foods contain radioactivity under normal circumstances."

- G The High Court relied upon a letter dated November 13, 1987 from the Secretary, Atomic Energy Regulatory Board produced along with an affidavit which furnished an answer to the question. As regards the contention that the radio-activity that is found naturally in articles of human consumption and the radio-activity that is found in such articles acquired by pollution are qualitatively different, and therefore, the concept of permissible limit evolved by the scientists in India should not be accepted, and further that the permissible limit so evolved based upon studies on articles for human consumption, which include articles such as Potassium, was a dangerous concept because
- H Potassium and Caesium-137 have different radio-active properties,

the High Court declined to be drawn into the controversy which was of a highly technical nature placing reliance to the words of caution administered by this Court in *Vincent v. Union of India*, A.I.R. (1987) SC 990. In conclusion, the High Court observed:

“We have already broadly indicated the complicated nature of the questions involved. We are also satisfied that the authorities concerned are fully aware of the problem at the highest level. They have adopted methods regarded by them as best suited—methods which have been approved by scientists. In these circumstances, we do not see how in a petition under Article 226 of the Constitution it is possible for us to resolve this controversy.”

After hearing Ms. Indira Jai Singh, learned counsel for the petitioners, Shri Atul Setalvad, learned counsel for respondent No. 2 National Dairy Development Board and Shri Kuldeep Singh, learned Additional Solicitor General at quite some length on January 20, 1988 this Court having given the matter its anxious consideration thought it desirable to appoint a committee of three experts, namely (1) Professor M.G.K. Menon (2) Dr. P.K. Iyengar and (3) G.V.K. Rao to give its opinion on the following question:

“Whether milk and dairy products and other food products containing man-made radionuclides within permissible levels by the Atomic Energy Regulatory Board on 27th August, 1987, are safe and/or, harmless for human consumption.”

The Committee of Experts after due deliberation examined the question in depth and by its report dated February 19, 1988 has expressed its opinion that the consignment of imported butter was safe and harmless for human consumption. The conclusions reached by the Committee can best be stated in its own words:

“1. The permissible levels of radioactivity in milk, dairy and other food products fixed by the Atomic Energy Regulatory Board as per its communication of August 27, 1987 have been arrived at after due consideration of ICRP does limits for the General population.

2. The AERB has allowed more safety margin than other countries, and international organisations like PAO and

A WHO in arriving at the levels fixed for milk, dairy and other food products. The levels adopted by AERB are one of the lowest in the world.

B 3. The consumption of milk, dairy and other food products, having levels of man-made radionuclides below the permissible levels fixed by AERB, by all sections of population, and through-out the year, are safe and harmless."

The report of the Committee of Experts shall become and form part of this order.

C We have heard learned counsel for the petitioners at considerable length on the objections formulated by them in the counter-affidavit and gone through the annexures thereto. We do not find any substance in any of them. In its most recent recommendations, the International Commission on Radiological Protection observes that 'limits for the inhalation or ingestion of radioactive material depend on

D the concentration of those materials in limiting target organs'. The petitioners in their counter-affidavit have shown different permissible limits in different countries such as France, U.K., E.E.C., and Australia at 3700, 2000, 370 and 100. These are the limits of radioactivity prescribed by these countries for imported foodstuffs. As against this, the prescribed limit for India admittedly is 40 (Bq/1). As already

E stated, the analysis of the imported butter by the Bhabha Atomic Research Centre which according to the Committee of Experts must be treated to be accurate, showed the presence in the samples of imported butter of CS-137 at limits ranging from 0.6 Bq/kg to 2.9 Bq/kg. The learned counsel for the petitioners read out letters sent in reply by some internationally known scientists including Nobel

F laureates tending to show that it is desirable to avoid foodstuffs containing low level radio-activity which according to them might in the long run prove to be hazardous. What is remarkable about these letters is that they are in general terms and only represent a particular school of thought. Surely, the Committee of Experts comprising of two eminent scientists and an equally well-known Agro-Economist was

G well aware of this point of view. Lastly, learned counsel for the petitioners suggested that the Court should give a direction that all articles of foodstuffs using the imported butter should carry a label 'Manufactured Out of Butter Imported From The EEC Countries'. We are afraid, the contention cannot be accepted.

H In *Vincent's* case, this Court in dealing with a case where a direc-

tion was sought in public interest for banning of Import, manufacture, sale and distribution of certain drugs which had been recommended for banning by the Drugs Consultative Committee, had occasion to observe:

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"Having regard to the magnitude, complexity and technical nature of the enquiry involved in the matter and keeping in view the far-reaching implications of the total ban of certain medicines for which the petitioner has prayed, we must at the outset clearly indicate that a judicial proceeding of the nature initiated is not an appropriate one for determination of such matters."

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We are of like opinion.

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Special leave petition is dismissed and also the order of *status quo* granted by the High Court stands discharged.

S.L.

Petition dismissed.

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Report of the Committee appointed by the Supreme Court in their Order of January 20, 1988.

SPECIAL LEAVE PETITION (CIVIL) No. 15408 OF 1987

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The Committee had three meetings.

1. The first one was held in the room of Prof. M.G.K. Menon, Member, Planning Commission, Yojana Bhavan, New Delhi on 3 February, 1988. The Committee examined all the records, and had a preliminary discussion.
2. Prof. M.G.K. Menon and Dr. P.K. Iyengar met in the Tata Institute of Fundamental Research, Bombay on 8 February, 1988 and had technical discussions.
3. The Committee had a third and final meeting at the Raman Research Institute, Bangalor on 19th February, 1988.
4. The Committee has gone through the paper book and the documents.

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- A 5. After detailed discussions, the Committee has adopted the report which is appended herewith.

Sd/-	Sd/-	Sd/-
Prof. M.G.K. Menon	Dr. P.K. Iyengar	G.V.K. Rao

B 19th February, 1988

REPORT OF THE COMMITTEE

Background

- C The Hon'ble Supreme Court by its order dated January 20, 1988 appointed this Expert Committee to give its opinion to the Court on the following question, arising in the proceedings of the Special Leave Petition (Civil) No. 15408 of 1987.

- D "Whether milk and dairy products and other food products containing man-made radionuclides within permissible levels by the Atomic Energy Regulatory Board on 27th August, 1987, are safe and/or, harmless for human consumption".

- E 1. The committee examined in detail the Special Leave Petition, various affidavits and other supplementary documents sent by the Hon. Court. The Committee have also deliberated on the issues raised by the petitioners, and explanations of the respondents for understanding the background of the petition.

- F 2. The internationally followed practices in radiation protection were examined, and it was observed that the concept of permissible levels of radioactivity and radiation exposure is universally followed both for occupational workers and members of the public. India is no exception.

- G 3. After ascertaining this, the Committee went into the basis used by Atomic Energy Regulatory Board (AERB) in arriving at the permissible levels for milk, dairy and food products prescribed by the Board. It concluded its deliberations by discussing the specific question referred to the Committee and arrived at the unanimous opinion given at the end.

- H Scientific Background

1. The issues raised and apprehensions expressed by the petitioners arise from the fact that Chernobyl reactor accident, which occurred in USSR in April, 1986, deposited radioactivity in measurable and varying quantities in several European countries. Consequently, the possibility exists that milk and dairy products produced soon after the accident in such countries contain radioactive contamination. The specific issue raised is about Irish butter imported into India after the accident. The apprehension is that if such contaminated food products are consumed by the Indian population, harmful effects may be caused.

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2. On the basis of scientific information available, the following facts would be the relevant background to take a balanced view on the issues raised.

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1. Man has evolved in the background of natural radioactivity, and atomic and nuclear radiations, which have been present on the earth since its formation. The important sources of natural radiation exposures to man have been continuous cosmic radiations coming from the Sun and Outer space, natural radioactivity such as due to K-40, and to a lesser extent due to uranium and thorium and their daughter products in the environment. The human body itself contains several (of the order of three) thousands bequerels of radioactivity, mostly due to K-40. *Exposure to natural radiation sources is thus unavoidable.*

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The Cosmic ray component of natural radiation exposure varies with altitude and latitude. Terrestrial component also varies from place to place due to differences in the concentrations of K-40, uranium and thorium in the soils. Exposure due to inhalation of radon and its daughters, from uranium present in the soil, varies even at the same place with the time of the day and season of the year. Similarly, concentrations of natural radionuclides in food items vary depending on the place where they are produced. Thus, the total exposure to man from natural causes varies considerably (upto a factor of 10) in different parts of India.

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2. The effects of radioactivity or radiation exposure in human beings are related to the radiation dose delivered to body tissues. The radiation dose depends on a number of parameters i.e. physical half-life, energy and type of radiation, biological half-life, sensitive body organ etc.

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- A 3. The effect on human body is, thus, determined by the above complex parameters. The human body does not differentiate between natural and man-made sources of radiation exposure as regards their effects.
- B 4. Consequent to the chernoby1 reactor accident, radioactive fallout deposited over several European countries. Ireland was also affected by this radioactive fallout, though to a smaller extent as compared to several other European countries, e.g. Sweden, Norway, Poland, Finland, Switzerland, etc. The most important radionuclides so dispersed were I-131, Cs-137 and Sr-90. I-131 being a short-lived radionuclide (half-life 8 days) was of concern to the countries receiving the fallout, and not to India. By the time imported food items arrived in India, I-131 even if it was present when the item was produced, it must have decayed. Strontium-90 being long lived (half-life 29 years) could have been of concern, but it was deposited in small amounts, and the ratio of Sr-90/Cs-137 in milk observed in European countries was of the order of 1% (UN Scientific Committee on the Effects of Atomic Radiation draft report No. A/AC. 82/R. 461 dt. 4.4.87, relevant papers annexed to SLP, Additional Documents submitted by Respondent 2 pp 47-49). Measurements in India on selected dairy product samples also confirmed Sr-90/Cs-137 ratio reported by UNSCEAR to be in the range 0.5-1.5%. In most of the imported milk powder samples Sr-90 was below detection limits. Therefore, Cs-137 is the most important long-lived radionuclide from the Chernoby1 accident; life time of Cs-137 is 30 years. Since it can also be measured in a short-time by a sensitive gamma spectrometer, it is the ideal radionuclide for screening of imported food items. It is for these reasons that not only India, but most of the other countries also adopted Cs-137 measurements for screening of the imported food items.
- G 5. Direct deposition of radioactive fallout on a grass surface (called foliar deposition) can rapidly transfer Cs-137 contamination to milk, through the grass-cattle-milk pathway. Therefore, in the first few months after the fallout, there is a greater possibility of milk and dairy products from such areas to be contaminated, as compared to other food items. Of course, over long periods this mode of radioactivity transfer is reduced because once Cs-137 deposits on the soil, its up-take
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by grass through roots is smaller. In view of these facts, milk and dairy products become important items of food which should be carefully measured for possible contamination. Since milk is the staple diet of children, they are a particularly sensitive group of the population.

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6. Even though milk and other dairy products are more susceptible to radioactive contamination due to fallout, amongst various dairy products, butter oil is likely to be less contaminated with Cs-137. This is because butter oil is composed of fat, which is separated from the liquid milk fraction in the process of its manufacture. Caesium compounds being highly water soluble, almost all of the Cs-137 is left behind in the liquid portion.

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7. The International Commission on Radiological Protection (ICRP) is an unique international non-governmental body of professionals from related disciplines involved in assessing radiation effects and recommending guidelines for the protection of man and his environment. It was established in 1928. ICRP recommendations are followed universally. ICRP has defined limits for the general public as 1 mSv per year averaged over a life span, but in any single year, it should not exceed 5 mSv. The maximum permissible limits for food items etc., are derived by each country as per its national policy, dietary components etc. Therefore, derived limits for food items and dairy products vary from country to country.

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8. The Atomic Energy Regulatory Board (AERB) constituted by the Government of India in 1983 is the competent authority for this country for radiological protection, and has been empowered to prescribe acceptable limits of radiation exposure to occupational workers, and members of the public, and to approve acceptable limits of environmental release of radioactive substances.

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9. In arriving at maximum permissible limits for butter oil, milk and other food products, AERB has considered ICRP recommendations regarding dose limits for the members of the public and several other factors, e.g. sensitive population group, dietary pattern etc. It has adopted a more conservative approach than other countries. For example, out of 1 mSv/year dose limit recommended by ICRP, AERB has allowed

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A only 10% to the exposure through intake of food items (0.1 mSv/y). Further, taking into account the dietary pattern in India and considering milk, meat, cereals and vegetables as the important constituents of Indian diet and their daily consumption by an average Indian, it has allowed only 0.013 mSv/y through milk and dairy products. Therefore, if the milk and dairy products containing the permissible level of Cs-137 are consumed in an unrestricted manner throughout the year by an average Indian, the resulting dose for one full year would only be 0.013 mSv, which is less than the dose permitted by ICRP by a factor of more than 50. It is because of this extra safety and caution, that the limits prescribed by AERB, as given in the table at the end, are one of the lowest. Several other countries, and agencies like FAO, on the other hand, have allowed a higher portion of the permitted dose by ICRP (upto full 1 mSv/year) to milk and dairy products, and consequently their permissible limits are higher than those prescribed by AERB.

D 10. The natural radiation dose varies from place to place in India by a factor of 10, the average being around .7 mSv/year. Even at the same place it can vary by a factor of 2 and more in different seasons. The biological effects, if any, due to the consumption of food items containing permissible levels of radionuclides will be insignificant and indistinguishable, from those, if any, due to natural sources of radiation in the general population.

E 11. The concept of permissible levels is not unique to radionuclides. Such levels are prescribed by appropriate agencies for other harmful substances as well, in the case of air and water pollutants and contaminants (microbial, chemical etc.).

F 12. Man-made radiosotopes like Cs-137 existed in milk and other dairy and food products in measurable quantities due to atmospheric testing of nuclear weapons, even prior to Chernobyl accident. In India, a net-work of monitoring stations for such food items has been in operation at BARC since mid-fifties. After the cessation of large scale testing of nuclear weapons in the atmosphere in 1962, as a result of the partial test ban treaty, the levels of Cs-137 in India started declining, after reaching their highest levels during 1964-65. China and France continued atmospheric testing of weapons

upto 70's, though on a much smaller scale, which gave rise to measurable levels of Cs-137 in Indian milk and dairy products. However, at no time the levels exceeded the permissible levels prescribed by AERB.

13. As a consequence of the above monitoring programme pursued at BARC, very sensitive equipment and techniques as well as sampling and monitoring experience has accumulated over the years. AERB, therefore, entrusted them with the task of measuring postchernoby 1 samples of imported food items including milk and dairy products. Thus, in the opinion of the Committee, measurement of butter oil samples has been entrusted to the most competent agency in the country.

14. The butter oil is normally used to make up the fat content of the reconstituted milk (6% for whole milk, for example), and hence it will not form more than a few per cent (maximum 6 per cent) of the milk to be distributed to the public. The level of radioactivity in reconstituted milk will, therefore, be diluted by a large factor. Even if it is used for preparation of ghee as the end product, the level of radioactivity in ghee will not be significantly different, as both have nearly same (around 99 per cent) fat content. Thus, no mechanism is envisaged by which the radioactivity in the product meant for public distribution, using this butter oil, can get concentrated.

15. The petition makes a mention of sampling and measurement procedures for the butter oil consignment received by IDC (now NDDB). In this connection it is observed that three sets of samples from the consignment have been measured at BARC. The first set comprises of 2 samples collected by IDC, the second set of 10 samples collected and sent by the Quality Control Officer of Greater Bombay Milk Scheme (GBMS) and the third set of 20 samples collected jointly by the Quality Control Officer of GBMS and the scientists of BARC. Only the first 2 samples showed very small levels of Cs-137 (2.9 Bq/kg and 1.3 Bq/kg), close to the detection level and all the rest showed below detection levels (detection level being 0.6 Bq/kg of Cs-137 activity). The fact that none of the packages sampled in the three sets of samples collected have shown any

A significant amount of radioactivity, with the most sensitive equipment used in BARC, is a clear indication that it is most unlikely that any of the unsampled packages are contaminated with Cs-137 to the permissible limit set by AERB.

B The procedures laid down by Indian Standards Institution (now called Bureau of Indian Standards) for materials which are produced in bulk and packed in smaller volume elements should in principle be adequate. These procedures have been followed for the butter consignment. Therefore, on scientific considerations, the steps taken by the respondents are satisfactory.

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OPINION

D On a consideration of all the relevant facts, the unanimous opinion of the Committee on the question referred to it is as follows:

E 1. The permissible levels of radioactivity in milk, dairy and other food products fixed by the Atomic Energy Regulatory Board as per its communication of August 27, 1987 have been arrived at after due consideration of ICRP dose limits for the general population.

F 2. The AERB has allowed more safety margin than other countries, and international organisations like FAO and WHO, in arriving at the levels fixed for milk, dairy and other food products. The levels adopted by AERB are one of the lowest in the world.

G 3. The consumption of milk, dairy and other food products, having levels of man-made radionuclides below the permissible levels fixed by AERB, by all sections of population, and through-out the year, are safe and harmless.

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H Prof. M.G.K. Menon Dr. P.K. Iyengar
19th February, 1988

G.V.K. Rao

TABLE
Post-Chernobyl "Action Levels" applied by different countries as in
December 1986 for Cs-137 in Imported food*

<i>Country</i>	<i>Radionuclide</i>	<i>Food</i>	<i>Action Level (Bg/kg or Bq/</i>
Brazil	Cs-134+Cs-137	Milk Powder	3700
		Other Foods	600
Canada	Cs-137	Milk	50
		Dairy Products	100
		Other foods	300
		Spices	3000
European Community Countries	Cs-134+Cs-137	Milk and Infant Foods	370
		Other foods	600
Peoples Republic of China	Cs-137	Milk	4600
		Fruits and Vegetables	100
		Cereals	1200
		Beverages	460
Poland	Total beta activity	Milk powder for infants and children upto 6 years	1320
Sweden	Cs-137	All foods	300
USA	Cs-134+Cs-137	All foods	370
India	Cs-137	Milk	30 Bq/l
		Milk Powder	330 Bq/kg
		Butter and Butter Oil	40 Bq/kg
		All other food items (Meats, cereals, vegetables)	40 Bq/kg

* Indian values are from AERB document of August 27, 1987. All the other values are from Report of FAO Expert Group meeting at Rome, during December 1-5, 1986.