Which cooking oil is best for us? We are bombarded with advertising messages telling us a particular healthy oil is good for our heart. These advertisements talk of monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA) and of course, catch-us-words like omega properties. Food is, after all, nutrition and even medicine. It must be taken seriously. So, we as aware citizens go out and buy the healthy oil.

But the truth is that we only know what companies selling their products are telling us. Centre for Science and Environment’s Pollution Monitoring Laboratory tested various types—from peanut and mustard, to safflower, sunflower, olive and more. The objective was to not only understand the fat of the matter, but also to check for quantity of trans fatty acids, a particularly noxious ingredient in the oil we eat. As the results come in, we compared them with what we knew about these oils. It is then we realised we do not even begin to understand the science of our food and its relation with our bodies—in a world, where our food is not our own anymore. The business is in our kitchen. In this business, our nutrition and its science are also a business, even profit. If food regulators slip — are unmindful or negligent — our health is compromised.

The story of our cooking oil is about our bodies. CSE researchers started with the presumption, verified by nutrition regulators, that a healthy oil is one that has less saturated fat, more MUFA and the level of PUFA is balanced between saturated and mono. In addition, we need to consider the sub-constituents, the essential fatty acids — omega 6, omega 3 and the current posterboy, omega 9. The oil which has these in some proportions, is the best. We thought we had cracked it. But no, there is much more to the art and science of oil in our food. Read to learn what we found and what governments and you need to do about it.

1. What is healthy oil?
The oil we eat is essential for our bodies to function. We cannot do without it. So, it is important to understand its chemistry. It is agreed that healthy oil is one which has less saturated fat, more monounsaturated fat (MUFA) and polyunsaturated fats (PUFA) which is balanced between the two. It should also be rich in omega 3, 6 and 9 fatty acids (see Box: The bare essentials of the oils we ingest).
2. Which is the best oil?
It is impossible to say with certainty what oil is the best. The reason is partly to do with commercial interests, which give oil’s good and bad labels. This is because big interests are involved in growing and selling a particular oil. So, the politics of oil in our kitchen must be understood before deciding on what to buy.

3. What is the global politics of oil?
Certain good oils have been given a bad name, simply because there is no one to ‘fight’ for them. For instance, coconut oil, which has a high amount of saturated fat, scores poorly on this good-oil matrix. But studies found that the oil is healthy because its carbon chains are shorter in length than other saturated fats. A study in Kerala in 1995 on 64 volunteers showed that adding coconut kernel to the diet did not bring about any change in the total cholesterol, HDL cholesterol or LDL cholesterol, in the serum.

Research has also found that coconut oil has antimicrobial components and leads to normalisation of body lipids, protects against alcohol damage to the liver and improves the immune system’s anti-inflammatory response.

But it is still not the preferred medium for the market because coconut oil is expensive; it is shunned by the food industry. The industry prefers oils like canola (rapeseed), says Mary Enig, a nutritionist in the US, who writes on fats and their impacts on human bodies. She says this industry-friendly oil was marketed as being “as healthy as olive oil” because it is similarly rich in MUFA. But then research found that about two-thirds of the MUFA in rapeseed is erucic acid, which was associated with fibrotic lesions in the heart. To fix this, Canadian plant breeders developed a variety of rapeseed low on erucic acid and high on omega 3 and oleic acid, which is an omega 9 fatty acid.

This new oil, sold as lear oil, bombed in the US as farmers and consumers shunned it. Industry then went to town to sell and decided to change the name — from ‘rape’ and ‘lear’ to canola, to give a healthy image for what Enig calls the Cinderella oil.

All of a sudden, canola oil began to appear in recipe books as something which was perfect for Mediterranean diets, replacing olive. Research and recipes were pushed, this time extolling omega 3; canola is high on this fatty acid.

Enig notes that this hard-sell was not right. A large numbers of studies point to the fact that “canola oil is definitely not healthy for the cardiovascular system”. She points out that these studies also find that the use of this oil retards

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Fats and oils are made up of chains of carbon atoms. The bonds between the carbon atoms classify the oil into saturated and unsaturated fats.

Saturated fats have a single bond between carbon atoms (they have more hydrogen atoms).

Unsaturated fats have double bonds between the carbon atoms. Where double bonds are formed, hydrogen atoms are eliminated and energy is released.

The unsaturated fats are further classified into monounsaturated fats (MUFA) containing one double bond and polyunsaturated fats (PUFA) containing more than one double bond.

MUFA includes omega 9.
PUFA includes omega 6 and omega 3.

The body needs these essential fatty acids to manufacture and repair cell membranes, to enable the cells to obtain optimum nutrition and expel harmful waste products. It is now accepted that omega 9 found in MUFA, could be the best.

In relation to our health, it is broadly accepted that PUFA protects against cardiovascular diseases by providing more membrane fluidity than MUFA.

On the other hand, it is also found that foods with MUFA lower LDL (bad) cholesterol, while possibly raising the HDL (good) cholesterol.

Trans fats are produced when unsaturated fats are partially hydrogenated. These hydrogen atoms saturate the double bonds and also change the configuration to trans.

While both MUFA and PUFA oils can give rise to trans fats, oils rich in PUFA have more double bonds and result in fats rich in trans fats.
growth, which is why the US Food and Drug Administration does not allow it in infant formula.

But then, how were people in China, Japan and India, where rapeseed oil has been traditionally used, coping? Research has found that the adverse impacts of rapeseed oil can be mitigated if it is combined with butter or ghee. The problem is not with the content of the erucic acid, but with the high levels of omega 3 in the absence of saturated fats. In other words, explains Enig, the real problem was the advice given to Indian housewives not to use butter and ghee, which were used traditionally in combination with rapeseed oil.

Another problem is the way the oil is processed. In the past, rapeseed oil was cold pressed in neighbourhood mills and consumed fresh. This, Enig says, gave it its added benefits.

4. Is cold pressed oil better than processed and refined oil?
This is another debate in the science of oil and nutrition. Olive oil is considered the best for the heart only when it is cold pressed. Research published in the open-source journal BMC Cancer, done by Spanish researchers, found that the major complex phenols present in extra-virgin olive oil also prevent cancer. These are not present when the oil is extracted through solvents.

In India, there is a similar perception about cold-pressed mustard oil, which is considered better. While health reasons are propelling a growing interest in other traditional oils like rice bran and coconut, these are shunned by the modern oil industry.

5. What is the importance of omega factors in oil?
While there is a growing attention on the omega factors in oil, researchers cannot agree on what works best in which circumstance. It is accepted that the human body needs a ratio of 5-10:1 of omega 6 to omega 3. A P Simopoulos from the Center for Genetics, Nutrition and Health, Washington DC, in the September 1999 issue of American Journal of Clinical Nutrition, found that over the past few years, there has been an enormous increase in the consumption of omega 6 fatty acids due to the increased intake of vegetable oils from corn, sunflower seeds, safflower seeds, cottonseeds and soybeans. As a result, today’s Western diet has a ratio of omega 6 to omega 3 of 30:1.

But the jury is still out on what is the best ratio of omega 6 to omega 3. It is clearly the issue to understand better in the years to come.

6. Then what oil should we buy?
Frankly, there is no straight answer for this question. In spite of all the hard-sell for one type of oil being the best, nutritionists are of the view that the best oil is the one used in moderation and switched frequently to get the maximum nutrition value.

D Prabhakaran, executive director of the Centre for Chronic Disease Control in Delhi suggests combining mustard, canola and peanut oil. Swati Bhardwaj, nutritionist and diet consultant with the Diabetes Foundation (India), says canola, olive and rice bran oils are the best options available in the market for Indians. Others say the best option would be to use oils rich in MUFA, like olive, mustard and groundnut as well as those rich in PUFA, like soyabean and sunflower.

But the important issue is that the choice must be yours (and not the company’s) to make (see Box: Your guidebook to oils).

7. What are South Asians eating?
Anoop Misra, director, department of diabetes and metabolic diseases, Fortis Hospital, New Delhi, and his colleagues have reviewed the oils and fats that South Asians are consuming and the linkages with human health.

They found several studies had reported diets in India which had higher intakes of carbohydrates, saturated fatty acids and omega 6. These studies also found low intakes of MUFA, omega 3 and fibers. Intervention studies, which added omega 3 to the diet, improved the lipid profile, but did not show a beneficial effect on insulin resistance.

The problem, Misra’s study points out, is that South Asians, particularly Indians, are prone to developing insulin resistance. Therefore, the current diet is contributing to the development of metabolic syndrome and diabetes. The doctors advise it is critical for Indians to replace unhealthy fast food with healthy options.

8. Who regulates oil for health and safety?
The question is, how is the oil we consume regulated in the country. There are a number of players — from the Food Safety and Standards Authority, which regulates the Food Safety and Standards Act to the Bureau of Indian Standards, which has a voluntary standard for oil, the Agmark (the Agricultural Produce Grading and Marking Act) that set guidelines for its sale. In September 2008, the government revised its labelling requirements for food, which include provisions for companies to publish nutritional information. Under this notification, companies have to publish information on the different fatty acids, including trans fats, MUFA and PUFA, in their product.

The regulation leaves a lot of room for
manoeuvre. As a result, companies can give the composition in a range — Rath Vanaspati says its package has saturated fatty acids in the range of 16-54 per cent; MUFA 36-65 per cent; PUFA 3-44 per cent and trans fats 8-33 per cent. Others print values that are standard compositions of oils found in academic literature. The CSE laboratory study detected differences between the labelling claims and its analytical study. Who checks the companies’ claims? Do we have MUFA-PUFA inspectors?

The Directorate of Vanaspati, Vegetable Oils and Fats has supposedly got inspectors to check quality. In addition, the food and drug administrations of different state governments are required to inspect food that is sold to enforce the provision of Food Safety and Standards Act. There are also inspectors of the directorates of marketing and inspection to check grade, quality and packaging. Seems there is no shortage of inspectors. But are they checking?

As there are no mandatory standards for oil manufacturers, it is anybody’s guess what is checked and what is bottled. In mid-2008, the UK Food Standards Agency claimed it had found significant amounts of mineral oil mixed in the sunflower oil being sold in the country. It asked for this brand to be recalled. But India does not do such checks. The rule is what we do not know, does not hurt. But it does hurt, we just don’t know.

### YOUR GUIDEBOOK TO OILS

On the basis of results on fatty acid profile of different oils in the market, CSE presented a matrix which you could use to figure out what to cook your food with. The matrix ranks the oils on the basis of saturated fats – the lesser the better – and unsaturated fats like MUFA, PUFA and essential fatty acids like omega 3, 6 and 9 – the more the better. The laboratory study also provided classification of the oils on the basis of WHO’s recommendations. These are based on the ratio of PUFA and saturated fats – the ratio should be between 0.8 and 1. Another ranking is on the basis of ratio of omega 6 and omega 3 – this should be between 5 and 10.

<table>
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<tr>
<th>Saturated fatty acids</th>
<th>Monounsaturated fatty acids</th>
<th>Polyunsaturated fatty acids</th>
<th>Omega 5</th>
<th>Omega 6</th>
<th>Omega 3</th>
<th>PUFA/SFA</th>
<th>Omega 6/ Omega 3</th>
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<td>Coconut 0.00</td>
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</tr>
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Note: Blend — Blended Safflower + Rice bran oil; Average value of different oils tested by CSE lab

### WHO MAKES THE OIL WE EAT?

- **RATH**: Agro Tech Foods Ltd, Secunderabad, affiliated to ConAgra Foods Inc of USA, one of the world’s largest food companies. It acquired Rath vanaspati brand from Siel Ltd.
- **DALDA**: Now made by Bunge Limited, a mega-food giant in the US. World leader in agribusiness, fertilizer and food products, the multinational bought Dalda from Hindustan Lever.
- **GEMINI**: By Cargill Inc in the US, which deals in seeds and genetic food, among other things. Largest selling edible oil brand in Maharashtra, according to A C Nielsen Retail Audit November 2007.
- **RAAG**: Joint venture between the Adani group in Gujarat and the Wilmar International Limited in Singapore. The Adani-Wilmar owned Fortune brand was India’s No 1 edible oil brand in 2006, said the A C Nielsen Retail Audit November 2006.
- **JINDAL**: Jindal group, with a wide manufacturing range, from steel to electric goods.
- **GAGAN**: Amrit Banaspati Company, Chandigarh; claims to be India’s largest selling vanaspati.
- **PANGHAT**: Part of the Siel group, Mawana Sugars Ltd is its new name.
4.4 THE TRUTH ABOUT TRANS FATS

Oil is essential for our body to function. But when CSE tested the cooking mediums used in our food, it discovered that the branded edible oils were full of unhealthy trans fats. Trans fats are formed during the process of addition of hydrogen atoms to oils, a process industry prefers as it keeps the oil from turning rancid and ensures a longer shelf life. CSE’s study results showed that trans fats in seven leading vanaspati brands were five to 12 times the 2 per cent standard set by Denmark. The standards set by Denmark are the most stringent.

Trans fats are associated with a host of serious health problems ranging from diabetes and heart diseases to cancer; and this is reason enough to regulate them. The Indian government has been ‘considering’ the issue of trans fatty acids in vanaspati for nearly eight years. Under pressure, the health ministry came out with a notification in 2008 for labeling food including trans fats. But without any standards, this notification remains toothless.

1. What are trans fats?
Trans fats or trans fatty acids (TFA) are formed during the process of adding hydrogen atoms to cooking oil.

In the 1970s, when concern about the link between saturated fats (like butter, lard, tallow) and heart diseases started growing, experts suggested a shift to unsaturated fats, which are in liquid form. But the food processing industry needed semi-solids for products like cakes and biscuits, for which they partially hydrogenated the oil. Hydrogenation is the addition of hydrogen atoms to break oil’s double bond. In oils, the hydrogen atoms are on the same side of the double bond of the carbon chain – ‘cis’ (from Latin: on the same side). During partial hydrogenation, the chain is twisted in a way that the hydrogen atoms end up on different sides of the chain – ‘trans’ (from Latin: across). The product is a semi-solid which carries the unhealthy component, trans fats. Industry needed hydrogenation because it ensures that its product is less likely to turn rancid, can withstand repeated heating and food cooked in it stays fresh.

2. In 2008, the CSE lab conducted a study of trans fats in cooking oils. What had prompted the lab to do this study?
CSE’s study was driven by a concern for public health. A large proportion of India’s population is
identified as genetically predisposed to cardiovascular diseases (CVDs); the risk is compounded due to the consumption of vanaspati and trans fatty acids, which are especially bad for the heart as they reduce the amount of good cholesterol (for more on health impacts, see Box: What trans fats do to us).

Moreover, consumers in India are largely unaware that cooking mediums used outside their kitchens, especially to make certain packaged foods, are packed with these unhealthy trans fats. Companies manufacturing these foods and edible oils make loud claims of using or producing ‘healthy’ oils. CSE researchers, therefore, started examining branded edible oils to understand what the industry meant by its claims.

3. What did the CSE study find?
CSE’s Pollution Monitoring Lab tested 30 samples of branded edible oil widely available in the market. The total fatty acid profile (saturated and unsaturated) comprising 37 components and nine trans fats was analysed.

These samples comprised vegetable oils (21 samples) – soybean, sunflower, safflower, groundnut, mustard, coconut, olive, sesame oil, rice bran and palm oil; partially hydrogenated oils (seven samples), desi ghee (one sample) and butter (one sample). They were tested according to the internationally used methodology of the Association of Official Analytical Chemists (AOAC) for fatty acids analysis (Method 969.33 Fatty Acids in Oils and Fats).

The tests found that in all the vanaspati brands, trans fat levels were five to 12 times higher than the world’s only standard for trans fats in oil, set in Denmark, at 2 per cent of the total oil.

The level ranged from 23.7 per cent in the case of ‘Panghat’ (a Mawana Sugar brand), to the lowest level of 3.73 per cent in desi ghee of Milk Foods Ltd and Amul butter (see Graph: Trans fats of the land).

4. Does India have regulations for trans fats in cooking oil?
The edible oil industry is regulated under different standards:

● The Food Safety and Standards Act (FSSA), 2006, which became operational in August 2011, has...
taken the rules regulating the edible oil from its predecessor, the Prevention of Food Adulteration Act, 1956. The Act, under Schedule I of the regulation 4.1.9, specifies standards of edible oil and vanaspati giving broad specifications for different oils – cottonseed, coconut, groundnut, linseed, mahua, rapeseed, olive, sunflower etc. It includes standards for blended vegetable oils, which allow different oils to be blended and sold. Under this standard, companies can mix any quantity of any ‘harmless’ vegetable oil in their brand and can vary it as well.

- There are no standards for the cut-off of trans fats in the FSSA, 2006. The Act, however, provides for the labeling of trans fats, which has been included in a notification introduced by the ministry of health and family welfare in September 2008 on labeling for nutrition and health claims. It says only those products where trans fat is less than 0.2 gram (g) per serving of food should claim to be trans-fat-free. In case a company makes nutrition or health claims on edible oil, then it is required to provide information on its package about the amount or the type of fatty acids including cholesterol, saturated fatty acids, MUFA (monounsaturated fatty acids), PUFA and trans fats.

- Bureau of Indian Standards lays down different specifications for edible oils and vanaspati, but has no standards for trans fats.

- AGMARK: This is a voluntary standard for vegetable oils and vanaspati governed by the Directorate of Marketing and Inspection of the Union ministry of agriculture, as per the Agricultural Produce Grading and Marking Act (1937). Blended edible vegetable oils and fat spreads are compulsorily required to be certified under AGMARK. But it does not have any standards for fatty acids or trans fats.

5. How can companies make oil without trans fatty acids?

There are options to reduce trans fats. Some of them are expensive, industry-patented and require a different technology. For example, Cargill has a line of all-purpose, semi-solid fats, TransEnd, which are made of a blend of canola oil and fully hydrogenated soybean oil, with less than 2 per cent trans fats. Bunge Oils has developed a proprietary method to hydrogenate edible oils with the production of less than 10 per cent trans fats during the process. But these are not available in India.

The other option is to use catalytic methods at relatively low temperatures. Another industrial way is to manipulate the fatty acid composition of oil seed using plant breeding and genetic engineering.

A simpler way is to change the oil – for instance, palm oil has lower trans fat potential. One can also move towards naturally saturated oils like coconut. Denmark, for example, found that 70 per cent of the products had substituted partially hydrogenated products with coconut and palm oil.

The problem is the Indian oil industry remains poorly regulated. It is allowed to mix oils. Technology allows it to get away, as it is possible to refine the oil and then doubly refine it so that we lose its feel and taste.

6. What are the global regulations for trans fats?

- World Health Organization (WHO) has recommended that governments around the world phase out partially hydrogenated oils if trans fat labeling alone does not lead to significant reductions. WHO also recommends that the trans fatty acids consumption should be less than 1 per cent of the total daily energy intake.

- Denmark became the first country to introduce laws strictly regulating the sale of many foods containing trans fats – a move which effectively bans partially hydrogenated oils. In March 2003, following notification in 2002, the Danish food authorities, on the ground that the measure was justified on public health grounds and was aiming at minimising the
risk of cardiovascular diseases, adopted a legislation which introduced (with effect from June 1, 2003) a limit on the level of trans fatty acids.

The following provisions are laid down pursuant to section 13, section 55(2) and section 78(3) of Act No. 471 of July 1, 1998 on foods (the Danish Food Act):

“A. From 1 June 2003, the content of trans fatty acids in the oils and fats covered by this Executive Order shall not exceed 2 grams per 100 grams of oil or fat, but see sub-article (2).

B. From 1 June 2003 to 31 December 2003, the content of trans fatty acids in the oils and fats covered by this Executive Order which are part of processed foods in which food ingredients other than oils and fats are also contained, and which are manufactured in the food industry, the retail trade, catering businesses, restaurants, institutions, bakeries etc. may, however, be up to 5 g per 100 of oil or fat. From 1st January 2004, \(<2\%\) TFA are permitted in oils and fats used in both local and imported processed foods.

C. In products claimed to be “free of trans fatty acids”, the content of trans fatty acids shall be less than 1 gram per 100 grams of the individual oil or the individual fat in the finished product. Trans fatty acids shall be defined as the sum of all isomeric fatty acids with 14, 16, 18, 20 and 22 carbon atoms and one or more trans double bonds, i.e. \(C_{14:1}\), \(C_{16:1}\), \(C_{18:1}\), \(C_{18:2}\), \(C_{18:3}\), \(C_{20:1}\), \(C_{20:2}\), \(C_{22:1}\), \(C_{22:2}\) trans isomeric fatty acids, but only polyunsaturated fatty acids with methylene-interrupted double bonds.\(^1\)

- **Canada:** In January 2003, changes were made to the nutrition information in the country’s Food and Drug Regulations. These required compliance by December 12, 2005 for large manufacturers, and by December 12, 2007 for small manufacturers. If claims are made (such as of reduced TFA levels), immediate compliance is required. Under its regulation, all vegetable oils and spreadable margarines must limit trans fat content to 2 per cent of total fat content. A limit of 5 per cent trans fat of total fat content in all products sold to consumers has been set.

- **USA:** On July 11, 2003, the US Food and Drug Administration (FDA) published a final rule in the Federal Register that amended its regulations on food labeling to require trans fatty acids be declared in the nutrition label of conventional foods and dietary supplements (68FR 41434) (effective from January 1, 2006). In August 2003, the FDA issued a detailed guidance document on interpretation of the regulations, titled ‘Guidance for Industry: Food labeling: Trans Fatty acids in Nutrition labeling, Nutrient content Claims, and Health Claims’. In April 2004, the FDA Advisory Committee recommended that TFA intake be reduced to \(\ldots\text{\(\ldots\)}\%\) of energy intake\(\ldots\text{\(\ldots\)}\). Subsequently (January 2006), the FDA required TFA levels also to be included on food labels, with percentage of saturated fat equal to the sum of saturated and trans fatty acids.

The FDA decided not to distinguish between industrially produced TFAs and those derived from rumen hydrogenation; thus, dairy products must be labeled with TFA levels. This rule took effect on January 1, 2006.

Trans fatty acids should be listed as “trans fat” or "trans" on a separate line under the listing of saturated fats in the nutrition label. Trans fat content must be expressed as grams per serving to the nearest 0.5 g increment below 5 g and to the nearest gram above 5 g.

If a serving contains less than 0.5 g per serving, it can be labeled as ‘0’ gram per serving or trans fat-free. Foods containing greater than 4 g saturated+trans fatty acids cannot carry a health claim.\(^2\)

- **European Union:** The European Food Safety Authority was asked to produce a scientific opinion on trans fats (European Food Safety Authority 2004). Declarations of the amount of TFA in a food are subject to the rules on nutrition labeling harmonized at the EU level. Nutrition labeling is voluntary unless a nutrition claim is made. Separate identification of the amount of TFA, as a component of the total fat content of the food is only required if a TFA nutrition claim is made. The commission has announced that the directive on nutrition labeling will soon be amended. In the UK and many other European countries, the situation is complicated. Although there is no specific requirement for labeling of trans fats on food labels, some manufacturers have started to do so voluntarily.

- **Australia and New Zealand:** Mandatory TFA labeling was considered during a comprehensive review of the Food Standards Code in 1999-2002; however, the Food Standards Australia New Zealand (FSANZ) and its precursor decided not to mandate labeling of TFAs as it was believed that TFA consumption was relatively low; and that similar reductions in saturated fat intake would be more likely to have a greater impact. TFA contents are required on labels only if a nutrition claim is made.
with respect to cholesterol, saturated or unsaturated fatty acids or TFAs. Voluntary labeling is permitted and many vegetable oil spread manufacturers include TFA levels on labels. The Australian Heart Foundation recommends that saturated fats and TFAs should be 8 per cent of the total energy intake.

7. What has the Indian government done to set standards for trans fats?
Currently, India only has labeling laws on trans fats. The unanimous opinion is that food containing trans fats should be banned in the country or strictly limited in the manufacture of oil. But the government continues to drag its feet.

Discussions on setting TFA standards began way back in September 24, 2004. The Union health ministry’s Oil and Fats Sub-Committee took up the matter of trans fatty acid in vanaspati. The sub-committee noted: trans fatty acids are health hazards; more harmful than saturated fats; and a 10-15 per cent limit may be safe. Based on this, the sub-committee requested the chairperson to prepare a paper.

On August 25, 2006 discussions resumed on the note prepared by the chair. But there was opposition. The director (vanaspati) of the government of India took the position that if standards are set many manufacturing units would not be able to meet the requirements; also that the number of samples tested were too small to fix the level of trans fats content. It is agreed that directorate of vanaspati would collect more data and submit it to the sub-committee.

On April 16, 2007, the sub-committee informed the Central Committee for Food Standards (CCFS) about its recommendation to set a limit of 15 per cent trans fats content in vanaspati. But again, there is resistance. The CCFS says that there isn’t enough data to lay down limits. “The matter should be thoroughly debated by the sub-committee and then specific recommendations made,” it says.

On January 7, 2008, the sub-committee met again. It discussed that the issue is gaining urgency, “in the light of growing presence of multinationals in the fast food business who have taken steps to limit trans fats in their products in western countries, but will take advantage of the lax regulatory control in the country”. This will prove detrimental to our children, who are prone to obesity and their resultant diseases like diabetes and heart problems. A three-phase introduction of standards is recommended.

On February 18, 2008, the CCFS agreed to endorse the recommendation. It even asked for the standard to be set urgently, but called for data from the oil industry. This is where the matter ended.

8. What are the sticking points in setting the standard?
There are two central issues that dominate the discussion on trans fats. First is the limit of TFA in vanaspati/partially hydrogenated vegetable oil which is proposed to be fixed at 10 per cent and brought down to 5 per cent in three years.

According to the WHO, in order to reduce the risk of cardiovascular diseases, not more than 1 per cent of the total energy should be derived from trans fatty acids. Similarly, the WHO says that not more than 10 per cent of the total energy in case of a healthy person and 7 per cent for those with cardiac problems should be derived from saturated fatty acids.

According to a risk assessment report prepared by the National Institute of Nutrition (NIN) on trans fatty acids in Indian diets, the fat consumption in rural and urban India is 20 g and 30 g per day, respectively. If a 10 per cent trans fatty acid level is permitted in vanaspati/PHVO, a person consuming 2,000 kcal will derive 0.9 and 1.35 per cent energy from the trans fatty acids. This shows that even at 10 per cent trans fatty acid level, vanaspati/PHVO will pose a risk to the urban consumer as it exceeds the 1 per cent energy limits to be derived for trans fatty acids as recommended by the WHO.

The second issue is that of the melting point. Trans fats are produced due to partial hydrogenation of oil that allows them to remain in a semi-solid state. Complete hydrogenation of the oil will lead to total removal of trans fats and will solidify the oil. The current melting point limit is set to 32°C to 43°C.

The vanaspati industry wants an increase in the melting point of its final product to reduce trans fats. But it is not so simple. Studies by the NIN have shown that a higher melting point increases the level of cholesterol in serum. Other studies have said vanaspati at a high melting point is difficult to digest. Also, there is a standard for the melting point, set by Agmark, at 31-41°C.

Oil major and multinational food company Bunge has proposed that the melting point of vanaspati should be increased to 44°C to carry out complete hydrogenation to reduce trans fats content. The Confederation of Indian Industry is arguing that if the melting point was increased to 45°C, trans fats level of 1 per cent was possible.

Caving in due to the pressure, the FSSAI has proposed to increase the melting point limit to 54°C or remove it all together.

Keeping the limit at 54°C does not solve the purpose because the industries do not prefer to hydrogenate at this temperature, as it leads to oil becoming too solidified which is not desirable to the
Increasing the melting point limit will increase the saturated fatty acids content in the oil, which will then produce more than 10 per cent energy and which is beyond WHO’s acceptable limit. Therefore it is up to the regulators to choose the lesser of two evils: trans fatty acids or saturated fatty acids. Both saturated fatty acids and trans fatty acids are detrimental to one’s health. Saturated fatty acids are naturally occurring fatty acids found in fats that are derived from animal products such as meat, dairy and eggs. They are also found in some plant-based sources such as coconut, palm and palm kernel oils. Saturated fatty acids directly raise the bad cholesterol levels (LDL). Trans fatty acids, on the other hand, not only increase bad cholesterol (LDL), they also decrease the good cholesterol (HDL).

9. What has happened since the CSE study?

In 2009, after the release of the CSE report, discussions on trans fats ‘heated’ up again. In March 2009, the Oil and Fats Sub-committee of the ministry of health and family welfare met to discuss the matter. It agreed to set a limit of 10 per cent TFA in vanaspati, but with the condition that the levels would be brought down to 5 per cent in three years. In other words, if the standard had been set, India would have achieved near-global standard by 2012.

But this recommendation was watered down. In November 26, 2009, the newly formed Food Safety and Standards Authority convened and agreed to recommend the limit of 10 per cent TFA in vanaspati. In January 2010, the NIN conducted a national consultation on trans fatty acids. The consultation concluded that TFA levels in vanaspati should be below 10 per cent. It also recommended that the existing regulations for melting point, which stands at 44°C-52°C, should be removed. This will be in line with the Codex Alimentarius guidelines.

In June 2010, the FSSAI issued a draft Regulation of Trans Fatty Acids (TFAs) in Partially Hydrogenated Vegetable Oils (PHVOs). The draft requires the level of TFA to be fixed at 10 per cent maximum and brought down to 5 per cent in three years (see Box: Draft remains a draft: Proposed regulations on TFA). The proposal, says FSSAI, will “reduce daily intake of trans fats by Indian consumers of all age groups to 1-2 per cent of energy intake consistence with dietary recommendations, over a period of three years.” It is not clear how this conclusion is arrived at, given that the draft proposes higher limits as well as allow greater mixing of oil.

The draft remains a draft. But the FSSAI claims that its recommendations have been sent to the ministry for notification; the ministry pleads ignorance. In the meanwhile, our health is being compromised, each day.