

## CHAPTER II

### SECOND TERM OF REFERENCE

#### CRITERIA FOR SETTING STANDARDS FOR SOFT DRINKS, FRUIT JUICE AND OTHER BEVERAGES

##### SOFT DRINKS (CARBONATED WATER/SWEETENED AERATED WATER)

2.1 According to the PFA Act 1945, "A01.01—CARBONATED WATER means potable water impregnated with carbon dioxide under pressure and may contain any of the following singly or in combination. Sugar, liquid glucose, dextrose monohydrate, invert sugar, fructose, Sorbitol, honey, fruit and vegetables extractives and permitted flavouring, colouring matter, preservatives, emulsifying and stabilising agents, acids, (citric acid, fumaric acid, tartaric acid, phosphoric acid, lactic acid, ascorbic acid and malic acid), edible gums such as (guar, karaya, arabic, carobean, furcellaran, tragacanth, gum ghatti, edible gelatin, albumin, licorice and its derivatives) salts of sodium, calcium and magnesium, vitamins, caffeine." Carbonated water constitutes a defined and homogenous range, designated by a generic denomination and utilizing some common list of additives. Carbonated water includes the beverages which comply with this definition, which utilize these additives and which do not claim to be part of adjacent categories such as fruit juices and nectars, dairy drinks, mineral waters, etc.

##### The Market

2.2 As per a note furnished to the Committee, globally, carbonated soft drinks are the third most consumed beverages. *Per-capita* annual consumption of carbonated soft drinks is nearly four times the *per capita* consumption of fruit beverages. Soft drink consumption is growing by around 5% a year, according to Global Soft Drinks 2002 (Zenith International, 2002). Total volume reached 412,000 million litres in 2001, giving a global *per-capita* consumption of around 67.5 litres per year.

2.3 North America is the largest soft drinks market with 27 per cent of total world soft drink sales and a consumption of 48 gallons per person per year (192 litres/person/year). The European market accounts for 21 per cent, with a *per capita* consumption of 12.7 gallons per year (50.8 litres/person/year). The fastest growth in soft drink consumption is in Asia and South America. Carbonated drinks are the biggest soft drinks sector with 45% of global volume. The five fastest growing soft drink markets between 1996 and 2001 were from Asia, East Europe and the Middle East. The five fastest developing markets during 2001 and 2006 are all expected to come from Asia. Amongst them Pakistan is predicted to have the highest percentage growth rate while India is expected to make sizeable volume gains, as affluence spreads to more of its vast population. Indonesia, China and Vietnam complete the top five for future growth.

##### Indian Scenario

##### Market

2.4 According to Government estimates soft drinks marketed in India were 6540 million bottles in March 2001. The market growth rate, which was around 2-3% in 80s, increased to 5-6% in the early 90s and is presently 7-8% per annum.

## Consumption

2.5 *Per capita* consumption in India is among the lowest in the world at 6 bottles per annum compared to 80 bottles in Thailand and 800 bottles in USA. Delhi market has highest *per capita* consumption in the country with 50 bottles per annum.

## Types

2.6 Non-alcoholic soft drinks beverage market can be divided into fruit drinks and carbonated water. Soft drinks available in glass bottles, aluminium cans or, PET bottles. Carbonated water can also be divided into cola products and non-cola products. Cola Products like Pepsi, Coca Cola, Thums Up, and Diet Coke, Diet Pepsi etc. Non-Cola products based on the types of flavours available can be divided into Orange, Cloudy Lime, Clear Lime and Mango.

## Soft Drinks Ingredients

2.7 As per a note furnished to the Committee, the major ingredients of soft drinks include the following:—

### Water

2.8 The major ingredient of soft drinks is water and it accounts for 86%-92% of the soft drink composition.

### Aromatic Substances

2.9 Aromatic substances are added to soft drinks to give a pleasant taste and better stability to the taste. These could be natural aromatic substances like caffeine obtainable from a variety of leaves, seeds and fruits. Identical aromatic substance can be obtained more simply and cheaply, in purer forms from raw materials other than plant raw materials and have characteristics which correspond exactly with their natural equivalents.

### Sweeteners

2.10 There are many different types of sweeteners like sugar (sucrose). It is highly nutritious and is the invaluable carrier of the fruit aromas. It is made from sugar-beet or sugar cane or sweeteners found naturally in many fruits and vegetables. Two simple types of sugars found in fruits are fructose (fruit-sugar) and glucose (grape-sugar). There are also low-calorie artificial sweeteners like saccharin and aspartame (nutra-sweet). Saccharin, is a non-nutritious sweetener which is extremely sweet, stable, gives no energy (no calories). Aspartame is a nutrient-sweetener built up of two amino-acids, aspartic acid and phenylalanine (200 times sweeter than sucrose).

### Carbon dioxide

2.11 Carbon dioxide is another important ingredient added to the soft-drinks in liquid form. It makes the drink refreshing through its stimulation of the mouth's mucous membranes adding a sensation that the soft drink is colder than it actually is. The carbon dioxide also brings out the aroma since the carbon dioxide bubbles 'drag with them' the aromatic components. It also checks microbiological growth.

### Acids

2.12 The most common acids used in soft drinks are citric acid, phosphoric acid and malic acid. The function of acids in the drink is said to balance the sweetness.

## Colouring matter

2.13 Colour is added to soft drinks to make them presentable and attractive to consumers. Brown drinks are coloured with caramel (when sugar is heated, its colour changes to brown, it becomes less sweet and acquires a burnt taste) or beta-carotin, which is also the dominant colouring agent in carrots and oranges.

## Preservatives

2.14 Preservatives like sodium benzoate and potassium sorbate are added to increase the life of the product. Sulphur dioxide can also be used as a preservative.

## Antioxidants

2.15 Antioxidants are substances, which prevent reactions that destroy aromatic substances in soft drinks. The most common antioxidant used is ascorbic acid, *i.e.* Vitamin C.

## Other additives

2.16 Emulsifying agents, stabilizing agents and thickening agents are also added so that the contents of the drinks remain evenly distributed. Examples of stabilizing agents and thickening agents are pectin, which is obtained from citrus fruits or apples, and alginates and carragenan, which is obtained from algae.

## Manufacturing Process

2.17 The production of soft drinks begins by making a syrup of sugar and water and an aromatic concentrate mixture (soft drink concentrate) made of raw fruit-juice, other aromatic agents as well as an acid. Soft drinks are acidified either by the addition of fruit juice or by the inclusion of an acid such as that found naturally in fruits (malic or citric acid) or phosphoric acid which is generally used in cola drinks. The components are then mixed into a soft drink concentrated syrup.

2.18 The water used is treated to remove the oxygen to avoid reactions which destroy the aromatic substances (oxidation). In case of carbonated drinks, the water is 'carbonated' with carbon dioxide under high pressure. All the air is removed to prevent froth formation when the package is opened. The syrup and the carbonated water are mixed in the correct proportions. The drink is then bottled, canned or put into other packaging for retail sale.

## LICENCE TO SOFT DRINK INDUSTRIES UNDER FPO 1955

2.19 Soft drink industries are granted licence under the Fruit Products Order, 1955, which is a statutory Order issued under the Essential Commodities Act, 1955 and is administered by the Ministry of Food Processing Industries. Under this Order, a licence is granted to the manufacturers of fruit products covered under FPO, 1955. This licence is given after inspection of the premises of manufacturer as to the compliance of necessary dimensions and hygienic conditions of the place of manufacture. The other aspect looked into before grant of FPO licence is as to whether the water being used for the manufacture of product is potable or not. Towards this end, sample of water is taken and chemical and microbiological tests are conducted.

2.20 A big lacuna found by the Committee was that under FPO 1955, the definition/standards for potable water has not been notified. The Ministry of Food Processing Industry informed the Committee that by practice, potable water is expected to conform to the World Health Organisation/BIS drinking water norms, which has been followed uniformly under the FPO. FPO only stipulates that the level of pesticides should be below detectable limit and have not been quantified.

2.21 From the information furnished to the Committee it is noted that Coca Cola CSD manufacturing locations in India are 52 out of which Company Owned Bottling Plants are 27 and Franchisee Owned Bottling Plants are 25. PepsiCo India Holdings Pvt. Ltd. manufacturing locations in India are 38 out of which Company Owned Plants are 17 and Franchisee owned plants are 21. As per the Ministry of Food Processing Industries note the total turnover of these two products of two companies is estimated to be around Rs. 4000 crore per year. The production by other FPO Licensees (home scale and cottage scale approx. 900 number) of fruit juices, Sweetened Aerated Water (SAW) and ready to serve beverages is estimated to be around Rs.300 crore and by others (about 400 number) is approximately Rs. 2000 crore.

### **PRESENT REGULATIONS FOR SOFT DRINKS UNDER PFA ACT**

2.22 Standards for Soft drinks have been prescribed under PFA ACT, 1954 and Rules, 1955 under item A.01.01 of Appendix B, under the category of Carbonated Water. This includes plain carbonated water and sweetened carbonated water.

2.23 From the two mandatory regulations it is noted that under FPO, 1955 standards for Sweetened Aerated Water/carbonated water (soft drinks) does not include water quality standards as part of soft drink quality standards. It just mentions that water should be potable without giving any direction about the meaning of potable water.

2.24 PFA, 1954 also mentions that water in the soft drinks has to be potable without giving any quality standards for the potable water. However, it specifies microbiological contaminant standards for the final soft drinks.

2.25 Both FPO and PFA do not specify standards for inorganic and organic chemicals and pesticides for soft drinks. Both under FPO and PFA, standards have been set for carbonated drinks, and some of the soft drinks intended for consumption after dilution.

### **BIS STANDARDS FOR SOFT DRINKS**

2.26 While standards for carbonated beverages under the FPO, 1955 and PFA 1954 are mandatory regulations for the soft drinks, there is also a voluntary Standard of Bureau of Indian Standards for soft drinks (IS 2346 : 1992).

2.27 The voluntary BIS standard for carbonated beverages (soft drinks) (IS 2346:1992) however specifies the quality of water to be used in the manufacturing of soft drinks and its standards for microbiological parameters and heavy metals are for the final product.

2.28 According to BIS specification, the water used in the manufacture of soft drinks should meet the water quality standards for processed food industry IS 4251:1967. The water quality standards for processed food industry IS 4251 : 1967, has specified standards for bacteriological, physical and chemical tolerances, but does not mention pesticides.

2.29 From a note furnished by Bureau of Indian Standards (BIS), Committee noted that Drinks and Carbonated Beverage Sectional Committee, FAD 14 which is the BIS technical committee for developing standards in the field of all alcoholic and non-alcoholic drinks and other beverages including test methods for the same, conducted meetings for the review and revision of present voluntary standards of BIS. FAD 14 decided to revise IS2346:1992 Carbonated Beverages and made it more broad based as observed in other countries. The Committee deliberated in detail on the title so as to cover soft drinks and other ready to serve beverages which are water based and decided to use the title 'Ready to-serve non-alcoholic beverages' so as to cover all sweetened as well as unsweetened, carbonated as well as non-carbonated, flavoured and other type of water based ready-to-serve beverages.

2.30 The scope of the revised standards, however, do not include medical beverages, pure fruit vegetable juices or those containing or derived from dairy products. The technical recommendations on the standards for ready-to-serve non-alcoholic beverages which emerged out of the deliberations of FAD 14 were stated to be as under:—

- “(a) There is a need to regulate this product through a national standard as it is a value added processed food and consumed by all sections of the population including the vulnerable section like children and needed vigilant control to safeguard public health specially in a tropical country like India.
- (b) The standard should include as far as possible a wide range of ingredients that could be used in the formulation of this product.
- (c) The raw material ingredients should specifically state the quality and safety requirements so as to ensure a safe end-product. Limits for physical, chemical and microbiological parameters should be well defined as they are critical to safety. The consumer Organizations, NGOs, ICMR, CSIR, etc. strongly recommended that the end-product standard should include pesticide residue limits also in each case as pesticide residue contamination should not be allowed in the end-product. On the other hand CII, FICCI, Coca-cola and Pepsi representatives strongly recommended that consumer safety is ensured by following the international practice of fixing MRLs on raw agricultural commodities and water and no pesticide residue limits are recommended on the finished ready to-serve non-alcoholic beverages. They were supported by the agricultural scientists.
- (d) The quality of water is vital, as it is the base of this product and, therefore, its specified quality and safety standards should be strictly adhered to.
- (e) Hygienic requirements should be very specific as often this industry uses reusable containers and in order to safeguard public health, strict observance of hygienic practices were necessary, as also observed in some other country regulations/standards.
- (f) Packaging requirements in keeping with the latest packing materials should be included in the standard.

2.31 BIS technical Committee FAD, 14 proposed that the technical recommendations on ready to serve non-alcoholic beverages will be suitably modified into the draft Indian Standard and proposed as a National Standard in due course.

2.32 From CSE report, the Committee note that the soft drink industry remains not only unregulated but it is also exempted from the provisions of industrial licensing under the Industries (Development and Regulations) Act, 1951. It gets a one time license to operate from the

Ministry of Food Processing Industries, which includes a no objection certificate from the local government and a water analysis report from a public health laboratory. It also requires a no objection certificate from the concerned State Pollution Control Board. There is no mandatory requirement for Environment Impact Assessment or citing regulations for the industry. Its use of water— largely unpriced ground water—is not regulated.

## **PROPOSED STANDARDS FOR SOFT DRINKS AS PER DRAFT NOTIFICATION ISSUED BY MINISTRY OF HEALTH AND FAMILY WELFARE**

2.33 After finding of pesticide residues in soft drink samples by Centre for Science and Environment (CSE) a draft notification was issued by the Ministry of Health and Family Welfare specifying the pesticides and heavy metals limits in soft drinks, fruit juice and other beverages. Draft notification no.GSR 685 (E) (Annexure-I) dated 26th August 2003, issued by the Ministry of Health and Family Welfare *inter alia* stipulates the amount of insecticide residues in carbonated water and soft drink concentrates (after dilution as per direction) as follows:—

Pesticide residues considered individually

not more than 0.0001mg/litre

Total pesticide residues—

not more than 0.0005 mg/litre

2.34 The above norms are the same norms which have been made applicable for packaged drinking water *w.e.f.* 1.1.04.

2.35 From the files of the Ministry of Health and Family Welfare pertaining to issue of Draft notification, it was noted that draft notification was approved by the Minister for Health and Family Welfare on 14.08.2003 and was sent to press on 25.08.2003. Asked by the Committee as to why issue of above draft notification was not stopped once it was decided that JPC was going to be constituted, the Ministry of Health and Family Welfare in a written note furnished to the Committee stated as under:—

“The process for issue of draft notification was approved by Hon’ble HFM before the constitution of the JPC, though the draft notification was issued thereafter, for inviting objections and suggestions. The draft notification is subject to re-examination in the light of comments received from various sources on such draft notification.”

2.36 The Chairman of the JPC, Shri Sharad Pawar wrote to the Union Minister of Health and Family Welfare to extend the date for inviting the suggestions and objections on the above draft notification. Consequently, the Ministry of Health and Family Welfare extended the time period of draft notification for inviting objections and suggestions till 31st December, 2003 *i.e.* by 127 days and issued a revised draft notification No.GSR 769(E) (Annexure-II) dated 29.09.2003.

2.37 The Committee, noted that when first draft notification No. GSR 685(E) was issued, only 30 days time was given for inviting objections and suggestions on the draft notification.

2.38 Asked by the Committee as to why the time for inviting suggestions on draft notification was restricted to 30 days only and the basis for extending the time period from 30 days to 127 days, the Ministry of Health and Family Welfare in its note further stated:

“There is no set standard for giving time for sending the comments on notification. The time can be given on the basis of the importance of the subject. In the present case 30 days time was given because the matter was of urgent public importance. On earlier

occasions in some cases less than 30 days time had also been given. In this specific case the period of 30 days was extended to 127 days based on the letter received from Chairman, Joint Parliamentary Committee on Pesticide Residues."

2.39 The Committee asked the Secretary, Ministry of Health and Family Welfare who gave his oral evidence before the Committee to explain the present norms for carbonated water and packaged drinking water.

In reply Health Secretary stated:

"Sir, under the existing PFA rules, there is no limit set for pesticides residue in soft drinks. The limits are set for bottled drinking water actually. There it is mentioned that it should be below the detectable limits. That is how it is mentioned. There is no quantitative standard which has been fixed for the pesticide residues. That means essentially it is left to the laboratories which are testing the samples to see whether the below "**detectable limits**" is achieved or not. As you improve the technology and as you go for new methods of detection, this detectable limit will be come much lower and lower. There is a need to set quantitative norms instead of just leaving it to laboratories to fix the limit. One of the reasons why we went from the detectable limit to the quantitative standards to set an absolute standard so that can be the basis for testing for everybody. But so far as soft drinks are concerned, there is no specific norm set for pesticides in the notification except saying that it should be below detectable limits."

2.40 Asked to explain the present EU norms for soft drinks, Health Secretary in his reply stated:

"No specific norms for soft drinks but because water constitutes major component of the soft drinks, the norms for water is the same as we have now notified that norm applies to the soft drinks also."

## CRITERIA TO INITIATE A NEW STANDARD UNDER PFA ACT

2.41 As per a note submitted by the Ministry of Health and Family Welfare, new standard under PFA Act is initiated as per the criteria under Section 23 of PFA Act, 1954.

2.42 Section 23 of the Prevention of Food Adulteration Act, 1954 lays down the procedure for amendment of Prevention of Food Adulteration Rules including procedure prescribing amending the standards of food products. As per this provision, any proposal in respect of initiation of a new standard under PFA Act is considered by the Central Committee for Food Standards, which is a statutory Committee under the Act. On the basis of the recommendation of CCFS, the draft notification is published for inviting comments. Composition of CCFS is given in Annexure-III.

2.43 The Committee noted that revised norms for water were adopted for bottled drinking water which have come into effect from 1.1.04 after due deliberations and recommendation of Central Committee for Food Standards, which deals with setting of standards for various food items under PFA Act.

2.44 However strangely, CCFS was not consulted before issuing draft notification No. GSR 685(E) dated 26 August, 2003, stipulating pesticide residue standards in soft drinks, fruit juice and other beverages.

2.45 When asked by the Committee as to why CCFS was not consulted before issue of draft notification, in reply, the Ministry of Health and Family Welfare in their note furnished to the Committee stated as under:

“The draft notification proposing requirements of pesticide residues and other contaminants was issued as per the provisions contained in Section 23 of the PFA Act, 1954. The matter was of public importance, so the draft notification was issued without prior consultation with CCFS. As provided under Section 23 of the Act, the CCFS may be consulted within six months of the making of the rules.”

2.46 Since water is the major constituents of carbonated water (92%) and the norms for pesticide residues in bottled water are proposed to be extended to soft drinks as well, *vide* the draft notification issued by the Ministry of Health and Family Welfare, the Committee first discussed in detail various issues which led to adoption of EU water norms for pesticide residues in bottled water.

2.47 During evidence the Committee asked the representatives of the Ministry of Health and Family Welfare as to whether other norms were also considered before adopting EU water norms and the justification due to which CCFS recommended EU water norms for bottled drinking water. In reply, Secretary Ministry of Health and Family Welfare stated:

“...The issue before the Committee was that we should have the best standards because people are paying for this water. We did not examine the standards available in the whole world. We were concentrating on the issue that our people should have the best and the European norms are very high and people are paying for this bottled water. That was at the back of the mind of the experts. This is what was recommended. I will say that these recommendations were advisory in nature.”

2.48 Asked further as to whether the decision of CCFS of considering and recommending only EU norms was a correct one. In reply, DGHS during his evidence stated:

“If you look at the limited point from the point of view of public health, then probably the recommendations were correct. It is because people should have the best. This is not something that everyone consumes. The Committee was conscious of the fact that these are very stringent norms and the normal water that we take from the tap probably would have far more pesticide content than other things that we take. It was weighing on the minds of the members of this Committee that people who pay high amounts for this bottled water must have the best.”

2.49 BIS in their presentation informed the Committee that they had considered limits and norms of WHO, USEPA and other agencies before adopting EU norms.

2.50 Giving justification behind the recommendation made by CCFS for adopting EU water norms for bottled water, Secretary, Ministry of Health and Family Welfare stated as under:

“There are about 49 pesticides for which norms are prescribed by various countries in the world. The WHO norm for the pesticides covers only 24 pesticides out of these 49 pesticides. The WHO norm does not cover all the 49 pesticides which are found in the underground water. It prescribes only for 24 pesticides.

So far as the US EPA is concerned, the norms are prescribed only for 21 of these 49 pesticides for which limits need to be set. Whereas, the EU norms set a limit for all these 49 pesticides. That is one of the important factors which weighed with the Committee while taking the decision.”

2.51 On the concern expressed by Committee that the Ministry of Health and Family Welfare had merely copied EU norms, without considering other norms and applied them for bottled water, the Health Secretary stated:

"I once again, submit to the Hon'ble Committee that these norms are something which these people can easily meet. The bottled drinking water manufacturers can very easily get to the EU standards without investing in much of a capital equipment or anything of the sort and without much of an increase in the price of the bottle. So, when people are entitled to the best standards and when norms are available for pesticides, the Committee and the Government thought that these are the best norms that should be available to the people."

2.52 The Committee asked about the expenditure which would be incurred for achieving EU water norms. In reply, the Health Secretary stated :

".....But here, when we looked at what will be the additional cost that the bottled water manufacturers have to incur if the norm has to be prescribed, it is coming to a marginal amount. At the most, for one bottle, it may cost 50 paise or a rupee more. Today, we are paying Rs.15 or 20 for a bottle of quality drinking water. If somebody has to pay one more rupee, he will pay. I think a person who can afford to pay Rs. 20 can afford to pay Rs. 21 also. It is not that one is burdened too much."

2.53 On the proposed standards for soft drinks and other beverages, Secretary, Ministry of Health and Family Welfare during his evidence before the Committee stated:

"So far as soft drinks and other fruit juices are concerned, the draft notification mentions these norms, but the point is, in a soft drink, it is not just water there are many other constituents like sugar and other additives which have their own pesticide standards. So, definitely we look at soft drinks as a bottled product comprising of water and all these things."

2.54 The Committee pointed out that soft drinks besides water contain other ingredients also and it was not possible to equate soft drinks with water and asked as to why EU norms for water were made applicable to soft drinks as well. In reply, Health Secretary stated:

"...the draft notification is only meant to initiate a debate on this issue and invite claims and objections from different interested parties and then it again goes to an Expert Committee. It deliberates and then the final notification is issued. So, in most of our notifications, between the draft notification and the final notification, there are a lot of variations."

2.55 The Committee also invited representatives of Association of Indian Bottled Water Manufacturers to tender evidence before them. When asked by the Committee as to what were the methods and equipments available to make water free from all contamination, in reply the President of Association of Indian Bottled Water Manufacturers stated "There are lots of technologies available". Asked further as to whether through the above methods water impurity could be removed, his reply was in affirmative. Asked by the Committee about the cost of purification and treatment of water, in reply, representative of Bottled Water Manufacturers Association stated:

"processing cost is relatively small, very small. EU and WHO will not make a difference."

2.56 Asked to indicate exactly the expenditure incurred for purification and processing of water, the witness stated:

“May be two paise to four paise; including standardisation of the product and everything.”

2.57 The Committee asked the views of two major soft drink manufacturing companies viz. Coca Cola India and Pepsi Co India Holdings Private Limited on the proposed standards for soft drinks and the standards for soft drinks in other countries. In reply Coca Cola India in their note furnished to the Committee stated:

“..... proposed standards on pesticide residues do not follow the guidelines for setting standards for foods as per Codex Alimentarius. World wide standards are made only on agricultural commodities and not on finished products. Standards should be based on sound science and risk analysis. The above standard (GSR 685 E) is not based on scientific risk assessment nor does it consider any generally applied risk analysis principles. This proposed standard is based on the EC regulation for pesticides in potable water that is not even intended for multi-ingredient foods like soft drinks in Europe, only to the water used on the manufacture of foods and beverages. Soft drinks contain other ingredients in addition to water, such as sugar and other plant derived materials that are permitted to contain acceptable levels of pesticide residues. The European norm for water was based on the technical limit of quantification and it was recognized that not all countries will be able to meet this level of quantification. It is generally understood that product containing agricultural ingredients such as sugar and juice cannot be regulated as water.

The only common standard in other countries is that water used as an ingredient in manufacture of soft drinks and other processed food industries should meet the same standards as laid down for drinking water. We are not aware of any country that regulates pesticides in a composite food like soft drinks as proposed in the draft notification. This is not done in the Europe nor in the United States and would be contrary to the prevailing international practice. It is well recognized by regulatory authorities worldwide that agricultural ingredients such as sugar and juice may contain low levels of pesticide residues and, therefore, soft drinks are not regulated as water.”

2.58 Criticising the setting of standards for pesticide residues in water as per EU norms for soft drinks, Coca Cola India in its note further stated:

“We would like to dispel the myth that “the regulations for drinking water can be applied to soft drink despite complexity of the matrix.” This can be substantiated by the communication received from The Executive Office of Health and Human Services of the Commonwealth of Massachusetts (USA), which clearly states that “ ... While water may be the primary ingredient in a carbonated, non alcoholic beverage, the finished product’s analytical profile can be and usually is, affected by the addition of syrups, fruits, etc. It is our belief that one cannot utilize the same standards for two products with significantly different ingredients.

Soft drinks contain many other ingredients apart from water such as sugar, carbon dioxide, acidulants, preservatives, colouring and flavouring agents. Soft drinks contain ingredients which can interfere with the accurate determination of pesticide residue levels. The limits of determination for pesticides residues in a food matrix like soft drink will be quite different from the limit of determination for accurate detection in water. These are the two important reasons why simply adopting drinking water standards is also not appropriate for soft drinks or other composite food products. Pesticide application should be more

effectively managed at the source in the agricultural sector. Government, therefore needs to establish Maximum Residue Limits(MRL) for farm products & Raw Agricultural Commodities (RAC) only as the most effective, enforceable control point in the entire food chain. This can be achieved by adopting Good Agricultural Practices (GAP). Hence Pesticide Residue standards on complex, processed foods and beverages are not required. While the Government should adopt a high level of health protection in the development of food law it should apply such a law in a non-discriminatory manner.”

2.59 Pepsi Co. India holding Private Limited gave following views on setting of standards of limits for pesticide residues in water in soft drinks:

“As far as the proposed pesticide residue limits on finished beverages are concerned, it is not possible for any manufacturer (anywhere in the world) of beverages containing fruits, vegetables, sugar etc. which are of agriculture origin would be in a position to achieve these norms consistently. It is more important to fix pesticide residue norms on treated water which is used as an ingredient to prepare finished beverages, in line with WHO drinking water standards. The limits of heavy metals in finished beverages should be in line with CODEX as per our stated national policy of harmonization of food safety laws.”

2.60 Both Pepsi Co. India and Coca Cola India vehemently opposed the setting of Indian Standards for bottled drinking water to soft drinks as well on the plea that these standards were same as EU norms which were not based on any scientific criteria. They pleaded that standards for water used for manufacturing soft drinks should be based on WHO guidelines for water.

2.61 The Committee asked both the representatives of Pepsi Co. India and Coca Cola India as to what was the quality of water being used in their plants for manufacturing soft drinks. In reply a representative of Pepsi Co. India during his evidence before the Committee stated:

“Till February, when the CSE report was out our processes were engineered to deliver at least up to the Indian guidelines, up to the USEPA guidelines and WHO guidelines in which after that particular date when we are now checking our water against EU water norms. When we checked water against EU water norms, we were pleasantly surprised that our processes were engineered to even meet the EU water norms.

Till that time, the EU water norm was not even on the table. Therefore, over the past many years that we have been operating in the country we have been delivering water in accordance with international guidelines and we discovered this year that they are also meeting the EU water norms as such. We have been supplying clean water to the Consumers. There is no ambiguity about that.”

In this regard, a representative of Coca-Cola India stated as under:

“.....the big allegation against us was that we are not cleaning up water. We have gone on record to say that all our 52 plants meet treated water as per EU norms or Indian Standard norms.”

2.62 The Committee asked the representatives of Pepsi Co. India as to whether they check the quality of sugar before adding it in the soft drink. In reply, a representative of Pepsi Co. India stated as under:

“No Sir, because that is not the practice any where”.

2.63 Asked further as to whether they have the latest technology to clean the sugar so as to make it totally free from pesticides. In reply, a representative of Pepsi Co. India during evidence stated as under:

“..... yes, there are some technologies available for reducing pesticide residues from the sugar itself. It means using hot carbon treatment and, like you have quoted other major cola companies, we have exactly the same process of using hot carbon treatment which can reduce to some extent but not all the extent. If you have seen the data which has been given, the fact is that in 50 per cent of the cases it has been reduced and in the rest 50 per cent of the cases, it has not been reduced. These are not really evolved technologies and hence, the possibility of something coming out of the sugar and rightly so, it is not illegal because the farmer is using what is being recommended. All these exist.”

2.64 On cleaning up of sugar, a representative of Coca-Cola India stated as under:

“We cannot guarantee about sugar because the amount we will reduce will depend on the intake of the sugar. It will depend on batch to batch. We have shown you that we are taking all possible steps to clean the sugar coming, including buying the right sugar, authorizing the mills etc.”

2.65 Representatives of CSE appeared before the Committee to tender their oral evidence. The Committee asked CSE as to why the pesticides found in soft drinks were compared with EU limit for individual pesticides in water. In reply, representative of CSE during her evidence before the Committee stated as under:

“We chose EU norms because it is the cheapest to implement in this country. Let us be very clear because it is for single pesticide and multiple pesticides residue. You do not put in the money that you have to regulate 100 different pesticides and test different pesticides. You have a single value. As environmentalists, we very strongly believe that it is cheaper for you to pre-empt the problem. Therefore, you have to have tight systems and tight standards today because you are too poor to clean up. We have consistently made the point that even if the West can pay to clean up, you are too poor to clean up. What will rural India do? They cannot buy bottled water. Therefore, we have to put into place the most stringent requirements today and then, insist that they get followed— if not today, by tomorrow or day after or day after— but we have to have the willingness to say that health and public health cannot be jeopardised.”

2.66 Asked by the Committee to explain as to how standards for soft drinks should be set. In reply, representative of CSE during her evidence before the Committee stated:

“Standards for soft drinks are set on the basis of the MRLs of the ingredients. With multiple residues, it will be the sum of the MRLs of the various commodities as proportionately present. Therefore, if you take soft drinks and if you look at the FPO, Fruit Products Order, it says that a minimum of five percent sugar is allowed in soft drinks and three percent could be other constituents. We do not know about what other constituents are. No company has made it public. We know that caffeine is in it, but we do not know of other things that are part of other constituents. Ninety-two percent has to be water. Therefore, you would set the MRL by setting five percent of sugar MRL plus three percent of other MRLs.”

2.67 In a subsequent note CSE stated as under:

".....To set the pesticide standard for the finished product (ready to drink) you would calculate : (5% of sugar MRL) + (3% of other MRL) + (92% of water MRL).

As there is no MRL-standard-for sugarcane (hence sugar) for DDT, lindane, chlorpyrifos, malathion in the Indian law, that is, the Prevention of Food Adulteration Act or even in EU standards or USEPA, or CODEX, there can be no acceptable limit for these pesticides in sugar. Therefore, there will be no allowance for 5 per cent of the sugar MRL.

Similarly, there is no information about what constitutes 3 per cent of the soft drink and no MRL can be accepted.

Therefore, the MRL for the finished product would be as follows:

= (5% of sugar MRL) + (3% of other MRL) + (92% of water MRL)

= 0 + 0 + 92% of water MRL = 92% of water MRL

In other words, the MRL of the finished soft drink would be 8 per cent less than the MRL set for water, or even more stringent than the water MRL."

2.68 Asked by the Committee as to whether above method of calculation of MRL for soft drinks was correct. In reply, Ministry of Health and Family Welfare in their note furnished to the Committee stated as under:

"The MRL of pesticide residues has to be fixed on the final products. Because the ingredients used in preparation of food products are processed during manufacturing the final products. Water is the principal constituent in soft drinks. The other ingredients used in the products are food additives and sugar. Food additives are not agricultural products so there are no chances of presence of pesticide residues in these products. The maximum amount of sugar used in these products is 5 percent. Sugar (5 percent) is not likely to increase the pesticide residues in soft drinks."

2.69 The Committee asked the views of the Ministry of Food Processing Industries on setting of pesticide residues standards in soft drinks. In reply the Ministry of Food Processing Industries in their note stated as follows:

"The finished products consist of a number of ingredients. For example, the Sweetened Aerated Waters (also called soft drink) are manufactured by mixing water, sugar, additives like preservatives, colours, flavours etc. and addition of carbon-di-oxide. Even if it is assumed that the processing water will have the limits of pesticide residues as per EU norms, pesticide residues will come in the final products by virtue of sugar and other ingredients. It is technically not feasible to bring out the levels of pesticide residue in sugar. Therefore, it will not be technically feasible and practicable to prescribe the levels of pesticide residue at par with the level of packaged drinking water."

2.70 Giving his views on practice of setting of standards elsewhere and the standards that should be fixed for soft drinks, Secretary, Ministry of Food Processing Industries during his evidence before the Committee stated as under:

"The CODEX and other international norms follow the principle of residue limits for all final products. It should be derived on a product to product basis as summation of MRL. This is the point our Health Secretary had also made that if Coca-Cola consists of water plus sugar, additives and preservatives, then we have to sum the pesticide residue to each one of these ingredients and then arrive at the residue for the final product."

2.70A. As per a note furnished to the Committee, the standards of soft drinks have been prescribed by the following countries :

1. Brazil
2. Chile
3. South Africa
4. Australia
5. Japan; and
6. People Republic of China

On perusal of these standards it has been observed that in many of the countries requirements of metal contaminants have been prescribed. Japan has prescribed the standards of water to be used in manufacture of carbonated beverages. Requirement of pesticide residues in carbonated beverages has not been prescribed which means that these products should be free from pesticide residue because these are not agricultural produce and hence there is no likelihood that pesticide residues will be present in these products.

2.71 Giving their views on the methodology of calculation of MRL for finished products, CFTRI in their note furnished to the Committee stated:

“Perhaps the better way of calculation of MRL would be based on dietary intake value including water. The total intake of pesticide through all sources of food and water shall not exceed the ADI. The MRLs are calculated based on the total consumption of the specific product mg/person/day and not based on individual ingredients present in that product. This is not scientifically justified. The total quantity of pesticide ingested is compared with ADI to know the safety of the pesticide consumed. The total consumption of a particular agricultural commodity must also include finished product and also on consumption pattern. In this process, since soft drinks are in question, the MRLs be calculated including their calculated average daily intake also. Such food pattern change does happen in a changing society and we must give corrections to MRL dynamically from time to time and revisit it but finally adhering to the highest food safety aspect for the consumer.”

2.72 At present, MRLs for pesticide residues have not been laid down under FPO 1955 and PFA 1954 with regard to SAW (soft drinks), fruit juices and other beverages. In a note furnished by the Ministry of Food Processing Industries, the Committee were informed that in view of recent deliberations on the need for scientifically arriving at MRLs of pesticide residues of various food items, the Ministry of Food Processing Industries sent samples of soft drinks and other fruit products covered under FPO, 1955 to CFTRI, Mysore to assess the present levels of pesticide residues in these products and has also asked the National Institute of Nutrition, Hyderabad to start work to assess the acceptable daily intake of these products to work out the safe limits.

### **Use of Ground Water**

2.73 CSE has in their report *inter alia* stated that use of water by soft drink manufacturers is unpriced and unregulated. The Committee asked the manufacturers of major soft drink companies viz. Pepsi Co. India and Coca Cola India about the extent of use of water by them and

whether they were paying any price for using water as raw material. In reply, Pepsi Co. India holding in their note furnished to Committee stated :

“Pepsi Co. has in total 15 operational bottling plants throughout the country. The Company has taken the required approvals from the concerned authorities for use of water in the manufacturing of soft drinks and is paying the water charges as applicable throughout the country. The position of water charges paid by the Company in various parts of India is given in Annexure-IV.”

2.74 On the question of payment of price, the Coca Cola India stated:

“The water is not free. At all manufacturing facilities we pay water cess charges. Also number of units are being charged for water from irrigation department and industrial development corporation”.

2.75 In a subsequent note, Coca Cola India stated that all the bottled water plants of the company have applied for registration with Central Ground Water Authority alongwith registration fee duly paid as indicated below:—

S.No.	Plant Name	Location	Cm/L No. (ISI Mark)	CGWA Whether Applied	Registration fee paid	Remarks
1	2	3	4	5	6	7
1.	HCCB Pvt. Ltd.	Bhopal	8519889	Not Applicable	Not Applicable	Not required as they are using water from Govt. supply.
2.	HCCB Pvt. Ltd.	Ahmedabad	7377890	Yes	No fee required	First Application on Aug. 02, then it was communicated that it is not required, again reapplied on May 03.
3.	HCCB Pvt. Ltd.	Wada	7314563	Yes	Rs. 1000 per Borewell. Done for 12 Borewells	Renewal for the Registration done in Oct. 03 and the registration valid till 2005. All Borewells External lab reports are sent to the authority.
4.	HCCB Pvt. Ltd.	Goa	7334266	Yes	Rs. 1500 per Borewell. Done for 1 Borewell	Applied in July 2001, contained in July 2003.
5.	Surbhi Milk Foods & Beverages Ltd.	Ahmedabad	7373680	Yes	Rs. 1000 per Borewell. Done for 2 Borewells	Applied in Oct. 2002. Assessed in April 03 Certification not obtained till date.
6.	Kothari Beverages Ltd.	Shahapur	7323564	Yes	Rs. 1000 per Borewell. Done for 1 Borewell	Applied in July 2001 and got in July 2003
7.	Kothari Beverages Ltd.	Nadiad	7316466	Yes	Rs. 2000	Applied first on Jan 01, Reapplied on March 03, but no response till date.
8.	Sri Vinayaka Products Ltd.	Mumbai	7429479	Not Applicable	NA	Not required as they are using water from Govt. supply.
9.	Maestro Industries	Pune		Not Applicable	NA	Not required as they are using water from reservoir.
10.	HCCB Pvt. Ltd.	Bidadi	6262060	Yes	Rs. 1000 per Borewell	Applied in 1998 at the time of plant commissioning, the four borewells have been registered at 84 KL/day applied for re-registration in 2003 for higher capacity, but no response on that till date.
11.	South India Beverages Pvt. Ltd.	Bangalore	6319770	Yes	Rs. 1000 per Borewell. Applied for 2 Borewells	Applied in 2001, assessment by local authority happened in 2003 till date no certificate obtained.

1	2	3	4	5	6	7
12.	Nest Foods Beverage Co.	Cochin	6300547	Yes	Rs. 3000 per Borewell. Done for 1 Borewell	Applied in July 2003 got communication from CGWA, that the plant is not under notified area so not applicable.
13.	Bharatiyam Foods & Bev.	Bidadi	6395988	Yes	Rs. 1000 for 1 Borewell	Applied in May 2003 assessment by local authority happened in July 2003, till date no certificate obtained.
14.	M.V.R.	Nagalapuram	6389791	Yes	Rs. 4700 for 1 Borewell	Applied in July 03 got no objection certificate from Ground Water Authority at the State level.
15.	S.R. Mineral Water Pvt. Ltd.	Chennai	6270160	Yes	Rs. 1000 for 1 Borewell	Applied in Oct. 2001 till date no response from them.
16.	HCCB Pvt. Ltd.	Guwahati	5146356	Not Applicable	NA	Not required as they are using surface water.
17.	Global Aqua Pvt. Ltd.	Dankuni	5147863	Yes	Rs. 2000	
18.	Crystal Springs Pvt. Ltd.	Taratala	5146558	Not Applicable	NA	Not required as it is not within the critical zone.
19.	Brahmanand Mineral	Jamshedpur	5148663	Yes	Rs. 2000	
20.	HCCB Pvt. Ltd.	Dasna	8413570	Yes	Rs. 1000 per Borewell. Done for 3 Borewells	Applied on 2001, got registration in 2001. The certificate is yet to be collected.
21.	Brindavan Beverages Ltd.	Bareilly	9366996	Yes	Rs. 2000	
22.	Kandhari Beverages Ltd.	Baddi	9296395	Yes	Rs. 2000	
23.	Ludhiana Beverages Ltd.	Ludhiana		Yes	Rs. 2000	
24.	Moon Beverages Ltd.	Sahibabad	8473558	Yes	Rs. 1000 per Borewell. Applied for 3 Borewells	Valid upto 2005.
25.	IFCA Bottling Co. Ltd.	Jammu	9330066	Yes	Rs. 3000	
26.	Satyam Food Specialities Pvt. Ltd.	Jaipur	8538994	Yes	Not required	No fee required as communicated by the Authority.
27.	Moon Beverages Ltd.	Unnao	9328180	Yes	Rs. 2000 per Borewell. Done for 1 Borewell	Applied on 2002, got the registration in July 2003.
28.	Sri Sarvaraya Sugars Ltd.	Sathupally	6278277	Yes	Rs. 1000 per Borewell	Applied in 2002, got the certification in July 2003.
29.	Himjal Beverages Pvt. Ltd.	Hyderabad	6319366	Yes	Rs. 5000	

2.76 The Committee asked the representatives of Association of Indian Bottled Water Manufacturers during evidence as to whether they were paying any charges for using ground water, in reply their representative stated : "No there is No charge. Nobody has asked for it."

2.77 Asked by the Committee as to whether permission is taken from Gram Panchayat or any local body for drawing ground water, in reply, he stated:

"No Sir. But in some places you are required to have the permission for digging boring wells, like in Mumbai where you have to take the permission of the Municipal Corporation. I do not know about other places whether the permission is required or not."

## ROLE OF CENTRAL GROUND WATER AUTHORITY

2.78 The Central Ground Water Board (CGWB) has been constituted as an Authority on the directions of Hon'ble Supreme Court of India taking into consideration "the urgent need for regulating the indiscriminate boring and withdrawal of ground water in the country". Central Ground Water Authority (CGWA) is exercising powers conferred, under Environment Protection Act, 1986, for regulating the quantitative aspects of ground water resources.

2.79 As per the notification dated 14.01.1997, the CGWA has been constituted for "the purposes of regulation and control of Ground Water Management and Development...." The functions of the Authority are further specified at para 2 (iii) which reads as under:

"to regulate indiscriminate boring and withdrawal of ground water in the country and to issue necessary regulatory directions with a view to preserve and protect the ground water."

2.80 To a question by the Committee as to whether Central Ground Water Authority was charging any money for use of ground water by soft drink and bottled water industries, CGWA in their note furnished to the Committee stated:

"As water is State subject, the issues relating to pricing policy for use of ground water and various legal aspects involved are examined and decided by the State. State Pollution Control Boards except J&K are reported to levy and collect cess from industries under Water (Prevention and Control of Pollution) Cess Act, 1977. In addition to this, it is also reported that in some States, industries located in industrial development areas are charging for use of ground water at rates decided by the concerned States."

2.81 Pointing out the mandate of CGWA which *inter alia* requires them to regulate and control ground water management and development in the country, the Committee asked as to whether any money was being charged by CGWA from soft drink manufacturing companies for using ground water. In reply the Secretary, Ministry of Water Resources stated:

"So far as we know, the Government is charging no money for this purpose.

Secondly, you are aware of the statutory position. The statutory position about the ownership of the ground water is this. Whoever has the land is the owner of the water which can be extracted from the land. That is the position of the Act. If an agriculturist takes out water from his land, it is his land. The Government has nothing to do with it. So, this is the statutory position."

2.82 The Committee pointed out that the extraction of water by industrial houses could lead to over exploitation of water and asked as to whether any steps were being taken by the Ministry of Water Resources and Central Ground Water Authority in this regard. In reply, the Secretary of Ministry of Water Resources further stated:

".....Now we have made a detailed procedure for entertaining applications for extraction of ground water for industrial purposes in which we asked them to give details like depth of the borewell/tubewell, what will be the diameter of the borewell/tubewell, horse power of the machine which will extract water, for how many hours would that work, then distance of borewell from septic tank, soap-pit, sewer line or any source of contamination, quality of water which is going to be extracted, that is, pH colour, odour and various other parameters, distance from any other borewell, well and tubewell nearby, etc.

In fact, as far back as 1998, the Chairman, Central Pollution Control Board wrote to us and also to all the Chairmen of the State Pollution Control Boards and of Union Territories that industries must observe a discipline. It must be ensured that indiscriminate grant of permission to industries to extract water should not result in a situation—which you mentioned—that exploitation should not result in a situation where water become scarce for concentrated urban areas, for that matter even in village areas. So, this is the kind of precaution that we have got.”

2.83 Asked to comment on the impact of over exploitation of ground water on the water supply in the adjacent areas, Secretary, Ministry of Water Resources stated:

“..... I think, our ground water authorities are monitoring the situation. This is not the case.

Secondly, wherever industrial units are going to be set up, they have to take water from somewhere.”

2.84 To a question as to whether there should be a policy to restrict commercial use of ground water in water scarce areas. In reply, the Ministry of Water Resources in their note stated:

“Yes commercial use of ground water in water scarce areas need to be regulated.”

284A. To a question as to whether water being used for commercial purposes should be charged, Secretary, Ministry of Water Resources stated:

“I think, in some point in future we might have to consider it. I think this is my personal opinion and this is not the considerate opinion of the Ministry but I think some kind of levy or some charge might be there only for industrial purposes.”

2.85 For regularising usage of ground water, the Secretary, Ministry of Water Resources, stated:

“.....As you might be aware, eighty per cent of the drinking water needs of the country are being met from ground water and only twenty per cent needs are being met from surface water. What we need to do is to regulate it in a proper manner and not to have a complete ban or clamp a total shut down of use of ground water for industrial purposes. As you rightly said, the precautions like avoiding over exploitation, like avoiding any hardship to neighbouring areas, neighbouring urban population or neighbouring rural population must be observed very strictly. We will certainly try to do that and we will, after your direction, do that even more vigorously in future.”

2.86 When asked as to why CGWA was not restraining the extraction of water for private commercial activities through notification, CGWA in their note furnished to the Committee stated:

“The notification of the areas for regulating ground water development is done on the basis of ground water resource evaluation of large area like blocks/watersheds in consultation with State Governments after incorporation of water level data records collected by the States. As already clarified CGWA intervenes in areas, where there is over-exploitation of ground water. In case of heavy withdrawal of ground water by private commercial activities resulting in decline of ground water level, necessary action for notification of that block/watershed is taken by CGWA.”

2.87 The Committee pointed out that one of the functions of CGWA pertained to the study in the field of ground water pollution and environment and asked as to whether the authority had initiated any action in this regard. In reply the Chairman, CGWA stated:

“Primarily, we are looking into the over exploited aspects and along with that, we are going into the qualitative aspects regarding inorganic elements. In case of qualitative aspects, we do testing in our labs on a regular basis and, in case, we find that the quality has been affected because of over exploitation, we notify that area.”

2.88 Asked further as to what CGWA was doing to test the percentage of noxious elements including the insecticides in potable water, the Chairman, CGWA stated:

“..... So far as the issue of pesticide residues is concerned, the Board is not doing anything. However, we have a plan to introduce the testing of various pesticide elements.... We have already started testing the arsenic elements. We have tested in West Bengal, then we have started testing in Bihar and will start in other parts of the country also on a regular basis. Earlier, it was not done, but we are in the process of starting that. I think, this year, we will start testing the arsenic elements.”

## **CENTRAL AND STATE LEGISLATION ON WATER**

2.89 In view of unchecked and unregulated over exploitation of ground water, the Committee asked as to whether Ministry of Water Resources and CGWA had ever initiated any action for making a Central Legislation on water. In reply, the Ministry of Water Resources in their note furnished to the Committee stated:

“The issue of enactment of Central Legislation on regulation and control of ground water was considered in the year 1989 in consultation with the Ministry of Law. They had opined that:

“The ground water cannot be covered under item 54 or item 56 of the Union List of the Indian Constitution. It may rather be emphasized that the underground water is covered under the State list item no. 17 within the water and water supplies etc.”.

2.90 They were again requested in September, 2003 to tender their advice in the matter. They advised as under:

“The above view is the correct legal and constitutional position. The above note was also shown to the then Additional Secretary. We once again reiterate the view taken *vide* note dated 20.10.1989.”

2.91 The matter was subsequently considered and the Ministry of Law was requested to indicate if Central Legislation in the matter could be considered under Article 252 of the Constitution. The advice of the Ministry of Law is as under:

“Article 252 of the Constitution in respect of subject falling under State List, empowers the Parliament to legislate for two or more States by consent and adoption of such legislation by any other State. \*\*\*\*\* In view of above provisions of Article 252 of the Constitution, if the requirements of said Article are fulfilled, then it will be possible for Parliament to make Law to regulate and control the development of ground water, which falls under State List.”

Under Article 252, Parliament could pass an act in the matter only if Resolutions to that effect are passed by both the Houses of Legislatures of two or more States and the Act so passed shall apply to such States only and any other State by which it is adopted afterwards by Resolution passed in that behalf by the House or, where there are two Houses, by each of the Houses of the Legislature of that State. So far, none of the State Legislatures has passed such Resolution. Therefore, the requirement of Article 252 of the Constitution are presently not fulfilled.

Under these circumstances, it is considered that purpose of enactment of central legislation will be served, if the State Governments enact legislation for regulation/development of ground water resources.”

2.92 Asked further as to whether any of the States had enacted legislation pertaining to use of water. In reply, the Ministry in their note stated:

“The Ministry of Water Resources had circulated a Model Bill for adoption of the States to regulate over-exploitation of ground water as early as 1970. The Model Bill was modified and re-circulated in September, 1992 and June, 1996 to States/Union Territories requesting them to take necessary action for enactment. The salient features of the Model Bill are as follows:

Establishment of Ground Water Authority by the State/Union Territory Government to frame broad policies for administration of the legislation.

Empowering the State/Union Territory Government to control and/or regulate in public interest, the extraction or use or both in any form, in any area so notified, based on a report from the Ground Water Authority.

Requiring users of ground water to seek permission from the State Ground Water Authority to sink a well in the notified area for any purpose including domestic use made either on a personal or community basis.

With a view to bringing equity in the distribution of the resource, the ‘Small’ and ‘Marginal’ farmers have been exempted from seeking prior permission for construction of a well/.tubewell provided the water is intended to be used exclusively for personal purposes excluding commercial use. Such users shall, however, have to inform the Authority of their intentions to construct a well/tubewell.

Registration of existing users in the notified as well as non-notified areas in the States/UTs.

Manually driven wells e.g. hand pump, or wells where water is drawn by rope or bucket, have been exempted from the Bill.

So far, the Government of Goa, Tamil Nadu, Lakshadweep, Pondicherry and Kerala have enacted legislation in this regard. “Andhra Pradesh Water, Land and Tree, Act 2002” has been enacted by the Government of Andhra Pradesh with effect from April, 2002. Gujarat Ground Water Authority has also been formed by the Government of Gujarat for control and regulation of ground water resources.

The salient features of these legislation are as follows:

1. **Goa**—"The Goa Ground Water Regulation Act, 2002 (Goa Act 1 of 2002)" was adopted on 25.1.2002.
  - (a) It provides for Creation of Ground Water Cell in consultation with whom, an area can be declared as:
    - (i) Scheduled area
    - (ii) Water scarcity area
    - (iii) Over-exploited area
  - (b) The legislation prohibits any person from transporting ground water from a source of water in Scheduled area.
  - (c) The Ground Water Officer may take steps for prohibiting sinking of new wells, except for drinking purpose, in areas declared as Water Scarcity Areas or as over-exploited areas.
  - (d) The Ground Water Officer can also direct the owner of existing well in over-exploited areas to stop extraction of water forthwith and to close or seal the well on payment of compensation.
  - (e) The Ground Water Officer has also been authorized for acquisition of any well or water source from its owner in public interest for providing water for drinking purposes.
  - (f) It also envisages taking protection measures for public drinking water source and existing ground water structures in non-scheduled areas.
2. **Tamil Nadu**—Tamil Nadu Ground Water (Development and Management) Act, 2003 was adopted on 04.3.2003.
  - (a) It provides for conjunctive use of surface and ground water.
  - (b) Electrical energy not to be supplied for energizing wells sunk in contravention of the provisions of this Act.
  - (c) New provision like inviting/response to proposed notification of areas, periodic assessment of ground water resources in notified area, consultation with body etc., have been made.
3. **Lakshadweep**—Lakshadweep Ground Water Development and Control (Regulation) Act, 2001 was adopted on 01.11.2001. It is on the lines of Model Bill.
4. **Pondicherry** —Pondicherry Ground Water (Control and Regulation) Act, 2002 was adopted on 04.03.2003.
5. **Kerala** —Kerala Ground Water (Control and Regulation) Act, 1997 was adopted on October, 2002.
6. **Andhra Pradesh**—"Andhra Pradesh Water, Land and Tree Act, 2002" was adopted on 19.04.2002.

The Act provides for constitution of Water, Land and Trees Authority, which will, *inter-alia* take ground water protection measures like registration of well, prohibition of water pumping in certain areas, permission for well sinking near drinking water source, protection of public drinking water sources, registration of drilling rigs, prohibition of water contamination etc. The act also provide measures to improve ground water resources by rain water harvesting structures, re-use of water etc."

2.93 Asked as to what steps had been taken by the Ministry of Water Resources and CGWA to pursue the matter with State Governments. The Ministry of Water Resources in their note further stated as under:

“The matter has been repeatedly pursued with the State Governments at different levels and the following reminders were sent to them:

1. From Union Minister for Water Resources on 13.09.1996
2. From Union Secretary, Ministry of Water Resources on 09.12.1996.
3. From Union Minister of State for Water Resources on 04.08.1999.
4. From Union Minister for Water Resources on 01.02.2002.
5. From Union Secretary, Ministry of Water Resources on 05.09.2002.
6. From Joint Secretary (Admn.), Ministry of Water Resources on 27.03.2003.
7. From Union Secretary, Ministry of Water Resources to Secretary Water Resources/Irrigation of 25 States/UTs on 23.09.2003 and 20.10.2003.

The matter has also been discussed with the representatives of the State Governments during meetings held with them from time to time in connection with various issues relating to water resources at different levels and they have been requested to expedite such legislation. The last round of such discussions were held at the level of Secretary (WR) in August-September, 2003.”

## **SAFETY OF SOFT DRINKS**

2.94 Centre for Science and Environment in their report had *inter alia* stated that the number of times the pesticide residues in soft drinks were higher than EU limits for water ranged from 11 to 70 time in 6 samples out of 12 samples tested by them. CFTRI Mysore and CFL, Kolkata had also reported that the number of times the pesticide residues were higher than EU limits ranged from 1.2 to 5.22 times in 9 out of 12 samples tested by them.

2.95 Pointing out that despite detection of pesticides in soft drinks above EU limits, how the soft drinks manufacturing companies claimed that their products were safe and were within EU limits, in reply, Pepsi Co India Holding in their note furnished to the Committee stated as under:

- “(a) There are no existing EU standards for pesticide residues in finished soft drinks. The only standard specified for pesticide residue in soft drinks stipulates that the water used to manufacture soft drinks need to conform to EU drinking water guidelines. Treated water in all our plants currently conform to EU norms.
- (b) In addition, pesticide residues are controlled on the raw agricultural commodities by ensuring that Good Agricultural Practices (GAPs) are employed.
- (c) We are, therefore, within EU standards for the treated water used for beverage production, and all applicable raw materials which comprise our beverage.
- (d) In fact, products manufactured by us in India, from a quality perspective, can be sold anywhere within the member States of the EU.”

2.96 Elaborating further, Pepsi Co in their note furnished stated:

“First of all, we would like to state that comparing finished product pesticide residue results with any drinking water norms is incorrect and unscientific. This is never done anywhere in the world.

We also note the variability of the results from the two most respected laboratories in the country (CFTRI and CFL). The possible reasons for this variability are the analytical challenges which are there when analyzing complex matrices at sub-ppb levels.

However, even if the highest reported residues are assumed to be present all the time in all the soft drinks, their level is less than 0.1% of the respective Acceptable Daily Intakes (ADIs). This miniscule level gives us the confidence that our products are safe. Additionally, compared to any other refreshment beverages for example nimboo pani, tea, and coffee, where the MRLs are 100 to 1000 times higher than the reported results in soft drinks, further reinforces our belief that our product is safe compared to any other food/beverages normally consumed.”

2.97 Coca Cola India gave following justification for the safety of their products:

“The EC norms for water do not apply to soft drinks even in Europe. Analytical results conducted in independent laboratories in India and in Europe (in Holland and in the U.K.) do show that our ingredient water meets the stringent European standards for potable water. Therefore, our soft drinks would be acceptable in Europe as well.

There are no standards for pesticide residues for soft drinks in EU or CODEX. There are standards for water that is to be used in manufacture of food products. Our treated water results confirm that water meets all local as well as EU norms.”

## **EFFECT OF PESTICIDE IN SOFT DRINKS ON THE HEALTH**

2.98 The CSE mainly found 4 pesticides in the soft drinks which were— Lindane, DDT and its metabolites, Malathion and Chlorpyrifos. The CSE stated that these pesticides were harmful for the health of the human being. Giving the harmful effects of each of the above four pesticides, the CSE in their reply *inter alia* stated:

### **“Lindane**

Lindane is absorbed through respiratory, digestive or cutaneous routes and accumulates in fat tissues. It damages human liver, kidney neural and immune systems and induces birth defects, cancer and death.

Chronic administration results in endocrine disruption in birds as well as in mammals.

### **DDT and its metabolites**

DDT (dichlorodiphenyltrichloroethane) and its metabolites were detected in 81% of the soft drink samples. They have been linked to altered sexual development in various species, to a decrease semen quality and to increased risk of breast cancer in women.

### **Chlorpyrifos**

Chronic exposure to chlorpyrifos has been shown to cause immunological change. Comparison of chronic health complaints of twenty-nine individuals exposed to chlorpyrifos with respect to peripheral lymphocyte phenotypes; autoantibodies (nucleic acids and

nucleoproteins, parietal cell, brush border, mitochondria, smooth muscle, thyroid gland, and central nervous system/peripheral nervous system myellin) and compared with 3 control groups (*i.e.* 1 positive 2 negative) showed an increase in CD 26 expression, a decrease in percentage of CD5 phenotype, decreased mitogenesis in response to phytohemagglutinin and concanavillion, and an increased frequency of autoantibodies.”.

### **Malathion**

It has been shown to cause birth defects in a variety of wildlife and at levels lower than other pesticides. When administered to adult animals, malathion and related thiophosphonates stimulate and subsequently inhibit, the nicotinic sites in skeletal muscle, resulting in muscle weakness and paralysis. Neonates (newborn babies) are far more sensitive to these agents than adults, mainly because of a slower rate of detoxification of the metabolite (the metabolite in this case would be the liver breakdown product of malathion— malaxon which has been shown to be far more toxic than malathion itself).”

2.99 Asked as to whether any study had been conducted to find out the effect of different pesticide on human health, the Ministry of Health and Family Welfare in their note furnished to the Committee stated:

“Aldrin—Aldrin has been toxicological evaluated by JECFA. The Acceptable Daily Intake (ADI) of Aldrin is 0.0001 mg/kg. Aldrin has been banned for use in the country.

Lindane—Lindane has been toxicological evaluated by JECFA. The Acceptable Daily Intake (ADI) of Lindane is 0.001 mg/kg. The use of lindane in the prescribed doses in storage and public health programme is not likely to cause any health hazard.

Endosulphan— Endosulphan has been toxicological evaluated by JECFA. The Acceptable Daily Intake (ADI) of Endosulphan is 0.006 mg/kg. The use of endosulphan in the prescribed doses in storage is not likely to cause any health hazard.”

2.100 Besides the harmful effect of pesticide found in soft drinks, CSE stated about the adverse impact on health of other ingredients of soft drinks as follows:

“There is a growing concern in the medical and scientific communities about the harmful effects of some major ingredients of soft drinks, namely, carbon dioxide, artificial sweeteners like aspartame, saccharin, acesulfame-K etc., flavouring agents like caffeine, acids like phosphoric acid, some preservative and excessive sugar.

#### *I. Caffeine*

A methylated xanthine, caffeine is a mildly addictive stimulant drug, used in soft drinks, as a so-called “flavoring agent”. The FPO, 1955 allows 200 mg/l (ppm) caffeine in soft drinks or 60 mg per average bottle of soft drink (300 ml).

In a study conducted by the renowned Institution Johns Hopkins Medicine (Johns Hopkins Hospital) in 2000 and funded by the National Institute on Drug Abuse, USA, it was found that, despite claims of the soft drink manufacturers, caffeine could not be detected as a flavour in soft drinks— and its use in soft drinks is more to do with addiction to the soft drinks than flavour.

Large amounts of caffeine consumption can cause diseases and disorders such as insomnia, nervousness, anxiety, irritability, and deviations from the normal heart rate. A major concern about caffeine is that it increases the excretion of calcium in urine, which

increases the risk for osteoporosis in heavy caffeine consumers. Some epidemiological studies correlate exposure to caffeine during pregnancy to the occurrence of congenital malformations, fatal growth retardation, miscarriages (spontaneous abortions), behavioural effects and maternal fertility problems.

The ill effect of caffeine can be gauged by the fact that the US FDA (US Food and Drug Administration) issued an advisory in 1981 warning that “Pregnant women should avoid caffeine-containing foods and drugs, if possible, or consume them only sparingly.” The US FDA still maintains that advisory as its official policy.

## II. *Artificial low-calorie sweeteners*

Low-calorie sweeteners are non-sugar substances that are added to food and drink products instead of sugar. They have sweetness many times greater than conventional sugar. Artificial sweeteners like saccharin, aspartame and acesulfame-K have been linked with numerous diseases like cancer increasingly.

Saccharin has been linked in human studies to urinary-bladder cancer and in animal studies to cancers of the bladder and other organs. The safety of acesulfame-K, which was approved in 1998 for use in soft drinks in the USA, has been questioned by several cancer experts. Acesulfame-K use in the soft drinks is also allowed under the Indian PFA, 1955.

Aspartame is a potent neurotoxin and endocrine disrupter. Carefully controlled clinical studies show that aspartame is not an allergen. However, certain people with the genetic disease phenylketonuria (PKU), those with advanced liver disease, and pregnant women with hyperphenylalanine (high levels of phenylalanine in blood) have a problem with aspartame because they do not effectively metabolize the amino acid phenylalanine, one of aspartame’s components. High levels of this amino acid in body fluids can cause brain damage. Therefore, US FDA has ruled that all products containing aspartame must include a warning to phenylketonurics that the sweetener contains phenylalanine. This provision has also been included in the Indian PFA and needs to be strictly enforced.

## III. *Sugar*

The average bottle of soft drink (300 ml) contains about 15 grams of sugar, if we follow the specifications of soft drink quality given by the FPO, 1955, PFA, 1955 and IS 2346:1992. That’s 5 teaspoons of sugar. It is highly unlikely that an average individual would eat 5 teaspoons of sugar at a time every day, and eat it more than once a day. But by consuming soft drinks, that’s exactly what we end up doing.

It is well documented that diets high in refined sugar promotes obesity, which increases the risks of diabetes, high blood pressure, stroke, and heart disease. Sugary soft drinks also promote tooth decay. The high sugar content is a major reason why health professionals are concerned about frequent consumption of soft drinks.

## IV. *Acids and Carbon Dioxide*

Dentists around the world are reporting complete loss of the enamel on the front teeth in teenaged boys and girls, who habitually drink soft drinks. The culprit is phosphoric acid in soft drinks, which causes tooth rot, as well as digestive problems and bone loss.

Phosphoric acid has also been associated with calcium loss and kidney stones in numerous medical studies. Acidic drinks increase dentin permeability by opening dentinal tubules leaving a dentin surface completely uncovered and removing the smear layer.

Dental cavities are often associated with consumption of carbonated beverages because the amount of sugars that are consumed is important in forming caries caused by the bacteria mutans streptococci, which is a part of dental plaque. Lactobacillus and Actinomyces viscosus are two other kinds of bacteria that adversely affect teeth and survive well in very acidic environments, produce high amounts of acid from sugars and other types of acid.

A common problem that is associated with the consumption of a large quantity of soft drinks is the increased acid levels throughout the body causing gastronomic distress due to the inflammation of the stomach and erosion of the stomach lining leading to painful stomach ache as the stomach which maintains a very delicate acid-alkaline balance can be set out of balance by the consumption of a large number of soft drinks, which can create a constant acid state leading to indigestion and gassiness.

Carbon dioxide emitted from soft drinks is a waste product that humans excrete and can be harmful when ingested at high levels. Large amounts of sugar, bubbles caused by carbon dioxide, and phosphoric acid that are found in soft drinks remove nutritious minerals from bones allowing the bones to become weak and increasing the risk from them to break. This is done by the phosphoric acid disruption the calcium-phosphorus ratio, which dissolves calcium from the bones."

2.101 On the effect of pesticides on the health of human being in the Status Paper of National Institute of Nutrition entitled "Impact of Long Term Consumption of Pesticide residues on Health in India: Issues Needing of Further Research" has *inter-alia* stated as under:

"The Health effect issues

1. Published scientific work:

Considerable work has been carried out during the last several years in different parts of the world to find out the impact of long term consumption of pesticide residues on human health. Some of these summarized below:

(i) Reproduction disorders in women:

Epidemiological studies carried out have focused more on relationship between employment in agriculture and the incidence of congenital malformations, miscarriages, low birth weight, small for gestational age, pre-term delivery and still-births. The results of the analyses indicated that employment in agriculture increases the risk of congenital malformations to infants such as Orofacial cleft, birth marks in the form of haemangioma, as well as musculoskeletal and nervous system defects but also significant risk of reproductive disorders. The US collaborative Prenatal Project of National Institute of Health and 12 universities strongly suggest that DDT use increases pre-term births.

(ii) Chronic nervous system effects:

A recent study which investigated chronic nervous system effects of long term occupational exposure to DDT by comparing the neurobehavioural performance of

retired Malaria Control workers with a reference group of retired guards and drivers indicated that DDT exposed workers did worse on tests assessing various neurobehavioral functions than controls and the performance significantly deteriorated with increasing years of DDT application. Mexican children living in agricultural areas relying on the use of pesticides and comparing them to the children living in non-agriculture community indicated differences in developmental skills. Neuromuscular deficits in terms of coordination and stamina drawing and memory problems were found with the children in the agricultural communities.

(iii) Risk of human cancer:

Risk of several types of cancers such as pancreatic cancer, non-Hodgkin's lymphoma, breast cancer, leukemia, liver and biliary tract cancer in humans exposed to DDT have been documented.

(iv) Impaired lactation:

Higher levels of metabolite of DDT in maternal milk have been associated with shorter duration of lactation.

(v) Oestrogenic effects:

Pesticides such as DDT, endosulfan, dieldrin were assigned oestrogenic potencies. The environmental oestrogens can enhance or inhibit the action of endogenous hormones.

2.102 Pointing out the CSE contention that due to high risk from caffeine, soft drinks Companies were forced to sell non-caffeinated soft drinks in the US & Europe, the Committee asked the soft drinks manufacturers to give reason for selling non-caffeinated soft drink in USA & Europe and selling caffeinated soft drinks in India. In reply the Coca Cola India stated:

"The per capita consumption of soft drinks in USA & Europe are many folds higher than in India. The Company conducts market research to find out the preferences & needs of the consumers and develops products to suit the consumer needs. Based on such needs Company had launched non-caffeinated products in countries like USA & Europe. However the caffeinated products continue to have very high demand and the de-caffeinated sale is <10% because caffeine in our product is used as a flavour. Based on the consumer research, Coca-Cola India had also launched Diet Coke in India. Currently the sales of Diet Coke are less than 0.5% of total sales. Our consumer research studies do not indicate need for such products in the near future.

The Coca Cola Company sells caffeinated soft drinks in every country in which we do business, including the USA and all countries in Europe. Caffeine-free cola-products are sold in some countries, because market research has shown that a significant number of consumers want the choice between caffeinated and caffeine-free versions of some of our cola products. If consumers in India show a significant interest in caffeine-free cola products, then these products will be offered in India along with caffeinated cola products. We do provide several non caffeinated soft drinks in India, such as Limca, Sprite & RTS beverages like Maaza.

Caffeine is not a harmful or "high risk" food ingredient. According to a comprehensive review recently conducted by Canadian health officials, "The possibility that caffeine ingestion adversely affects human health was investigated based on review of (primarily) published human studies obtained through a comprehensive literature search. Based on the data reviewed, it is concluded that for the healthy adult population, moderate daily

caffeine intake at dose levels up to 400 mg day ..... is not associated with adverse effects such as general toxicity, cardiovascular effects, effects on bone status and calcium balance (with consumption of adequate calcium), changes in adult behaviour, increased incidence of cancer and effects on male fertility.”

It is not true that in USA soft drink companies have been forced to sell non-caffeinated soft drinks due to high risk from caffeine. It is out of consumer preference to drink beverages without caffeine than any other reasons like in overseas there are decaffeinated coffee available.

While many soft drinks are caffeine-free, some contain a small amount of caffeine as part of the flavor profile. An 8-ounce serving of Coca-Cola classic has no more than 31 milligrams of caffeine, which is about one-quarter the amount found in coffee, and about one-half of the caffeine content of tea.

According to the FDA, there is no evidence to show that caffeine in carbonated beverages would render these beverages injurious to health. Numerous studies have examined the relationship between caffeine and various diseases.

The bulk of scientific research does not support a link between caffeine consumption and heart disease, hypertension or irregular heart rate. Results of studies looking at a possible connection between caffeine and cancer confirm the position of the American Cancer Society, which states that ‘there is no indication that caffeine ..... is a risk factor in human cancer’. Also, both the National Cancer Institute and the American Medical Association has reported no connection between caffeine intake and fibrocystic breast disease. And, studies involving thousands of pregnant women also fail to show an increased risk of birth defects even among the heaviest caffeine consumers.”

2.103 About the reason for selling non-caffeinated soft drinks in USA and Europe and selling caffeinated soft drinks in India, PepsiCo India stated as under:

“Caffeine is a naturally occurring substance found in the leaves, seeds or fruits of at least 63 plant species worldwide, including cocoa beans, kola nuts and tea leaves. Caffeine is also added to some foods and beverages for flavor. It contributes to the overall flavor profile of those foods in which it is added. The most commonly known sources of caffeine are coffee, tea, some soft drinks and chocolate. The amount of caffeine in food products varies depending on the serving size, the type of product and preparation method. With teas and coffees, the plant variety also affects caffeine content.

Is Caffeine Safe?

In 1958, the U.S. Food and Drug Administration (FDA) classified caffeine as Generally Recognized As Safe (GRAS). In 1987, the FDA reaffirmed its position that normal caffeine intake produced no increased risk to health. In addition, both the American Medical Association and the American Cancer Society have statements confirming the safety of moderate caffeine consumption.

At the levels contained in cola beverages, caffeine has been deemed safe by the US Food and Drug Administration and other international food authorities. Coffee has 3 times the amount of caffeine found in colas; tea has more than twice the caffeine level. Caffeine is also naturally present in chocolate.

Sensitivity to caffeine's effects varies greatly among individuals. Most physicians and researchers today agree that it's perfectly safe for pregnant women to consume caffeine. Daily consumption of up to 300 mg/day (approximately two to three 8 oz. cups of brewed coffee) has been shown to have no adverse consequences during pregnancy. Consumption of caffeine from cola beverages is usually significantly below that amount. However, it is wise for pregnant women to practice moderation in consumption of all foods and beverages."

2.104 Though major soft drinks manufacturing companies justified the use of caffeine for the purpose of flavour and stated that it is fully safe, the representative of CSE during her evidence before the Committee stated that caffeine is added by soft drink manufacturers for the purpose of addiction.

2.105 In the report of Drinks and Carbonated Beverages Sectional Committee, FAD 14 of BIS, the proposed technical recommendation on ingredients it has *inter-alia* been stated that:

"Caffeine (IS 11911)—The Quantity of caffeine shall not be more than 200 mg/kg."

NOTE 1. This requirement is as per PFA.

2. The consumer organisations, NGOs, Government institutions like NIOH, ICMR, NSI etc. have recommended.

(a) 145 ppm caffeine in cola drinks and the absence of caffeine in decaffeinated cola drinks. The group recommends the adoption of the best practice for caffeine in carbonated beverages in the world. The best practice is currently that of Australia and we recommend that the same be followed for India also. Many countries follow similar practice. For example China allows only 150 ppm caffeine in only in Cola beverages. Currently under PFA, 200 ppm caffeine is allowed in carbonated beverages and no differentiation has been made between the Cola beverages and other beverages. The result is that even non-cola beverages like Pepsico's 'Mountain Dew' contain one of the highest amounts of caffeine.

(b) In case caffeine content exceeding 145 ppm is allowed in some energy drinks, where caffeine is added as stimulant and not as flavour as it is done in Cola drinks, the caffeine content of more than 145 mg/l may be allowed. However, the labeling requirement as mentioned below shall be adhered to.

1. The label on a package of formulated caffeinated beverage must include advisory statements to the effect that:

(a) The beverage contains (mention amount) caffeine;

(b) In decaffeinated 'cola drinks' the caffeine should be absent; and

(c) The beverage is not recommended for:

(i) children; and

(ii) pregnant or lactating women; and

(iii) individuals sensitive to caffeine.

2. The label on a package of formulated caffeinated beverage must include an advisory statement to the effect that:

'Consume no more than [amount of one-day quantity (as cans, bottles or ml)] per day'.

2.106 To the allegation of CSE that consumption of large quantity of soft drinks leads to increase in acid level throughout the body causing gastro-economic distress, the representatives of both the Companies have stated that there is no credible scientific evidence that acidic beverages remove minerals from the body and there is no danger to consume acidic beverages.

2.107 As regards the safety of phosphoric acid, they stated that the level of phosphorous consumed in a normal diet including cola beverages is not great enough to influence calcium balance and is not a risk factor in the development of osteoporosis and kidney stones. Since soft drinks provide only 2-3 per cent of the total phosphorous in the human diet, their use does not lead to calcium loss.

### **PRESERVATIVES IN SOFT DRINKS AND THEIR EFFECT ON HEALTH**

2.108 As per a note furnished by the Ministry of Health and Family Welfare, Sulphur Dioxide, Benzoic Acid and Ascorbic Acid and its salts have been allowed as preservatives in soft drinks under PFA Rules, 1955. The ADI of preservations was stated to be as under:

Sl. No.	Name of the preservatives	Acceptable Daily Intake (ADI) mg/kg Body Weight
1.	Sulphur Dioxide	0-0.7
2.	Benzoic Acid	0-5
3.	Ascorbic Acid and its calcium/sodium/potassium salts calculated as ascorbic acid	0-25
4.	Sodium and/or Potassium Nitrite expressed as Sodium Nitrite	0-0.06
5.	Nitrate	0-3.7
6.	Propionic Acid	Not specified (very low toxicity)
7.	Nisin	0-33000

2.109 On the impact of the above preservatives over the health of human beings, the Ministry of Health and Family Welfare stated:

"All these preservatives have been evaluated by the Joint WHO/FAO Expert Committee on Food Additives (JECFA) and the ADI shown above have been allocated by JECFA on the basis of toxicological evaluation of each preservatives. The use of these preservatives in the food products upto the prescribed requirements are not likely to cause any health hazard.

The Ministry of Health and Family Welfare, however, had not conducted any survey to assess the harmful effects of various preservatives."

## PLANTS OF COCA COLA AND PEPSI CO INDIA AT PLACHIMADA AND PALAKKAD IN KERALA

2.110 BBC in July, 2003 came out with a story stating that waste product from Coca Cola Plant in India which the Company provides contains toxic chemicals. It was further stated that the chemicals were traced in investigation by BBC Radio 4's 'Face The Facts' programme prompted scientists to call for the practice to be halted immediately. The lab's senior scientist, David Santillo, said "What is particularly disturbing is that the contamination has spread to the water supply—with levels of lead in a nearby well at levels well above those, set by the World Health Organisation."

2.111 A non-Governmental organization in their Memorandum furnished to the Committee stated as dangerous the features of one of the largest Cola plants in Asia, located in Plachimada, Palakkad district of Kerala, owned by Hindustan Coca Cola Beverages Pvt. Ltd. (HCCBPL). It further stated that the situation where the Pepsi Cola Plant is operating ten kilometers away from Plachimada, is no different.

2.112 The NGO further stated:

"Agricultural operations have also been affected due to the operations of Coca Cola company within a short span of three years. The working of the HCCBPL factory at Plachimada has brought untold misery to the people in the surrounding villages.

After the Cola plant started production, the water levels in the open wells in the area were affected. When protests arose, the Cola company is said to have let into the earth waste water through shallow tubewells. This mixed with surface water, led to the rise of water levels in the wells. However, these waters proved to be contaminated.

The operation of the Coca Cola Plant in Plachimada has led to various environmental problems: pollution of water, ground water depletion, reduced crop yields and skin disorders and other physical ailments among the inhabitants. The factory is releasing waste water to the tune of 1.5 to 3 lakh litres per day.

The licence to the Company was given by the Perumatti Panchayat under certain conditions. As per the laws, the Company has to first get a land use certificate for industrial purpose which was not done. It applied for installation of one pump but started drawing water through borewells without prior sanction and began indiscriminate use of ground water. The District Medical Officer who stipulated certain conditions like protection of public health needs, observation of factory laws, had also instructed that before commencing production there should be a final fitness certificate obtained. But the Cola company did not abide by these.

When the Panchayat asked for details, failing to comply with which they cancelled the licence, the company disputed the very powers of the Panchayat and resorted to the path of litigation than observing the laws and the conditions on the basis of which the licence was issued.

On 3 November, 2003, the Perumatti Panchayat sought information on various matters relating to the functioning of the plant and violations by the company. HCCBPL in its reply failed to provide the details sought by the Panchayat and instead asked the Panchayat to reply to their questions."

2.113 Perumatti Gram Panchayat filed a petition before the Hon'ble High Court of Kerala.

2.114 In view of the revelations made in BBC report and objections raised by NGO, the Committee asked both the soft drink manufacturing companies to clarify the position on the working of their plants in Kerala. On the working of their plant in Plachimada, Kerala, Coca Cola India stated as under:

"1. Ground Water Levels and quality

The Coca-Cola Plant at Palakkad, Kerala, not only complies with all local regulatory requirements but also adheres to the stringent global company standards. It is certified to Environment Management Systems ISO 14001 and independent studies from Government agencies concerned with the environment have given our plant a clean bill of health.....

Recognizing the concerns of local people we have commissioned studies into our impact on the water supply and the State Government has also conducted their own tests. Reports from Kerala State Ground Water Board, Central Ground Water Board and an eminent scientist from National Geophysical Research Institute in Hyderabad have, in the last year, confirmed that the plant's operation is not impacting the water supply to the local villages or depleting the aquifer."

2.115 On the functioning of their Plant at Palakkad, PepsiCo India *inter-alia* stated as follows:

"While the factual position is that Palakkad area has plenty of water in the aquifers with no sign of deficiency of water at all, we do everything possible as a responsible corporate citizen to conserve water through good water management system. We use/draw a fraction of water through bore-wells and only two bore-wells out of 7 are used by rotation which helps recharging of aquifers. In addition, once again as a responsible corporate citizen, we take extra steps to conserve water. We have been practicing extensively techniques of water conservation."

2.116 With all the rain water harvesting structures, the net recharge into the ground water is more than the water drawl, thus maintaining a positive water balance in the site.

## **Recharging of Water**

2.117 From the details given by the representatives of PepsiCo India, Committee were informed that annual consumption of water by PepsiCo India at their plant was 300 million gallons per year. Out of which 30 million gallons water every year is recharged *i.e.*, 10% of the total water consumed.

2.118 Giving details of recharging the ground water at their plant by Coca Cola India, a representative of Coca Cola India during evidence stated:

"We are recharging the ground-water. We are recharging the ground water in our Palghat Plant to the extent of 50 per cent."

2.119 In view of allegations against major soft drink manufacturing companies regarding over exploitation of ground water and causing environmental pollution, the Committee sought the views of the Ministry of Water Resources, Central Ground Water Authority, the Ministry of Environment and Forests and Central Pollution Control Board on their role in checking environment pollution which was allegedly being caused by various plants of soft drink manufacturing companies.

2.120 In a note furnished to the Committee CPCB *inter-alia* stated that they had tested the samples of raw water as well as treated water from different bottling plants in the country and found high levels of cadmium and heavy metals in the sludge from the effluent treatment plants of some of the units.

2.121 As regards M/s Hindustan Coca Cola Beverages Plant at Palghat, Kerala, CPCB in their note stated that the sludge from the effluent treatment plant was hazardous as cadmium (Cd) content was found to be more than 50 mg/kg.

2.122 Accordingly, CPCB have advised the State Board to direct the concerned units to dispose of sludge of ETP as per Hazardous Waste (Management and Handling) Rules, 1989 where heavy metal concentrations are exceeding the limits.

2.123 On the action taken by Kerala State Pollution Control Board (KSPCB) to the advice of CPCB, in a note furnished to the Committee, KSPCB stated:

“A joint sampling was conducted by the officers of the Board along with the officers of the Central Pollution Control Board at the Coca Cola factory on 12.09.2003. Sludge analysis revealed cadmium content upto 338.8 mg/kg. The Central Pollution Control Board has therefore advised the State Board to direct the Company to dispose of the effluent treatment sludge as per the Hazardous Wastes Rules.

More detailed study will be done under different production scenario in future. Samples of raw water from individual wells of and around the factories need be analysed. Samples of raw materials like sugar, lime, soda ash, ferrous sulphate and activated carbon and the intake water need also be analysed. Action in this regard is being taken.

In compliance with the Board's instruction, the Coca Cola Company has applied for authorization under the Hazardous Wastes Rules. The application is under processing.”

2.124 The Committee were informed by State Government of Kerala that petition No.34292/03 filed by Perumutti Gram Panchyat before the High Court of Kerala has been disposed of by the Hon'ble High Court on 16.12.2003.

2.125 In the judgement given by Hon'ble High Court of Kerala, it has *inter-alia* been stated:

“In view of the above authoritative statement of the Hon'ble Supreme Court, it can be safely concluded that the underground water belongs to the public. The State and its instrumentalities should act as trustees of this great wealth. The State has got a duty to protect ground water against excessive exploitation and the inaction of the State in this regard will tantamount to infringement of the right to life of the people guaranteed under Article 21 of the Constitution of India. The Apex Court has repeatedly held that the right to clean air and unpolluted water forms part of the right to life under Article 21 of the Constitution. So, even in the absence of any law governing ground water, I am of the view that the Panchayat and the State are bound to protect ground water from excessive exploitation. In other words, the ground water, under the land of the 2nd respondent, does not belong to it. Normally, every land owner can draw a reasonable amount of water, which is necessary for his domestic use and also to meet the agricultural requirements. It is a customary right. But, here, 510 kilolitres of water is extracted per day, converted into products and transported away, breaking the natural water cycle. A portion of the rain water is stored as ground water and the balance flows away. The ground water stored in normal circumstances is partially depleted by moderate extraction

for domestic and agricultural purposes and also by evaporation through vegetation on the surface. Again, when the rains come, the underground reservoirs called aquifers get recharged and the cycle goes on. If there is artificial interference with the ground water collection by excessive extraction, it is sure to create ecological imbalance. No great knowledge of Science or Ecology is necessary to infer this inevitable result. If the 2nd respondent is permitted to drain away this much of water, every land owner in the area can also do that and if all of them start extracting huge quantities of ground water, in no time, the entire panchayat will turn a desert..... Therefore, I feel that the extraction of ground water, even at the admitted amounts by the 2nd respondent is illegal. It has no legal right to extract this much of national wealth. The Panchayat and the State are bound to prevent it. The duty of the Panchayat can be correlated with its mandatory function No.3 under the third schedule to Panchayat Raj Act namely, "Maintenance of traditional drinking water sources" and that of the State to Article 21 of the Constitution of India. Though ground water is not expressly mentioned, Section 218 of the Act makes the Panchayat, the custodian of all natural water resources. Therefore, the action taken by the Panchayat against the 2nd respondent to prevent extraction of ground water has to be upheld. So Ext.P6 order, to the extent it allows the 2nd respondent to continue the extraction of water till the Panchayat decides the matter with the help of experts, cannot be sustained. Even assuming the experts opine that the present level of consumption by the 2nd respondent is harmless, the same should not be permitted for the following reasons.

The underground water belongs to the general public and the 2nd respondent has no right to claim a huge share of it and the Government have no power to allow a private party to extract such a huge quantity of ground water, which is a property, held by it in trust.

If the 2nd respondent is permitted to draw such a huge quantity of ground water, then similar claims of other land owners will also have to be allowed. The same will result in drying up of the underground aqua-reservoirs."

2.126 An expert Committee has been appointed by the High Court of Kerala on 20th December, 2003 to study the matter and file the report. The Committee is learnt to have planned to commence work by 1st January, 2004.

## **CARBONATED WATER CONCENTRATE**

2.127 Carbonated water concentrate is used in the manufacturing of soft drinks. Registration Certificate for manufacture of these concentrate is issued by the Ministry of Finance, Central Excise Department. While the ingredients used in the manufacture of soft drinks and its constitution are kept confidential by the soft drink manufacturers, Coca Cola India and PepsiCo India informed the Committee that they had installed concentrate manufacturing plants in India. Giving further details about the manufacture of concentrates, Coca Cola India in their note furnished to the Committee stated:

"Concentrate is manufactured in India. Our concentrates begin with flavouring ingredients. All of these flavouring ingredients are tested to confirm the specifications guaranteed by the supplier and approved in Atlanta, Georgia, before the supplier is allowed to ship flavourings to concentrate plants around the world. The specifications and testing procedures are the same no matter where the product is being shipped. We base our use of flavours on the Flavour and Extract Manufacturers Association of North America list

of flavours which are Generally Recognised As Safe (FEMA-GRAS). For other ingredients such as colourings, preservatives, minerals, salts and vitamins, we use Codex specifications and our own global standards and test to confirm our suppliers guarantees. The concentrate plant performs similar tests on ingredients they receive directly from suppliers. All our ingredients are food grade quality. Further, all food additives used in our products in India have been cleared by the Central Committee for Food Safety of India based on JECFA (Joint FAO/WHO Expert Committee on Food Additives) standards.

Further whenever concentrates or ingredients are imported, the Indian Customs Authorities are required to test samples *vide* circular No.PHO/JNP/F1/2471-2500 dated 17th July, 2003."

2.128 PepsiCo India gave the following details regarding concentrate being used by them:

"Soft drinks produced by us in India, use the concentrate manufactured in India at our plant located at Village Channo, district Sangrur, Punjab. The ingredients used to make concentrate are from the same international suppliers which supply to all our other concentrate manufacturing locations throughout the world. These suppliers have gone through detailed supplier approval process by our Central Research and Development. Concentrate produced at Channo is of the same quality and standard as anywhere else in the world and all PepsiCo plants throughout the world are authorized to source their concentrate requirements from Channo. In fact Channo has exported concentrates to Europe as well as to South Asia."

2.129 Asked by the Committee as to whether pesticide analysis of soft drink concentrate is done, in reply, PepsiCo India stated:

"It is finished product made from a mixture of various ingredients like preservatives, colour, flavours, sequestering and buffering agents, emulsifying and stabilizing agents etc. As such it is a 'finished product' for use by bottling plants. In keeping with the current national and international practice followed through out the world, pesticide residue testing is not done."

## **LIABILITY OF FRANCHISEE PLANTS**

2.130 Out of a total of 52 Plants of Coca Cola India as many as 25 are franchisee owned plants. PepsiCo India has 21 franchisee owned plants out of a total of 38 plants being run by them in India. The Committee asked both the Companies to explain their legal liability and control over franchisee plants. In reply, Coca Cola India in their note furnished to the Committee stated:

"All Indian bottlers of Coca Cola Company, whether franchisee or company owned, have signed SIBA (Standard International Bottlers Agreement) which is renewed on a periodical basis. The Bottlers Agreement is uniform across the world and in India and both the Franchisee and the company owned Bottler execute a similar agreement.

The Coca Cola Company has only one Quality System for its entire bottling systems (Company Owned & Franchisee Owned) around the world. The control mechanism includes issuing Quality, Environment & Safety standards, conducting review and assessments, diligently monitoring the operations on an on going basis. The Company has a franchise manager for Franchisees and Regional Technical & Quality Managers who ensures constant monitoring. The Company also provides technical assistance and training to the people and system capability. It will be not out of place to mention here that

while 10% of the Company's employees are engaged in quality monitoring activities, 25-30 Quality Operation Trainee Executives (QUOTEs) are employed each year by Bottlers and trained by the Company to continuously augment the quality monitoring resources.

In this regard we also wish to draw your kind attention to clause 18A of the Bottlers agreement which states as under:

The Bottler covenants and agrees that in preparing, packaging and distributing the Beverages, the Bottler shall at all times conform to the standards, including quality, hygienic, environmental and otherwise, establishes in writing from time to time by the Company and comply with all legal requirements.

Further being the owner of the Trade Marks under which the Beverage is sold, the Company remains ever vigilant and committed to ensure that the quality of the products manufactured is maintained as per its global quality policies and standard."

2.131 Explaining their position with regard to franchisee plants, PepsiCo India stated:

"Franchisee bottlers are liable for their business and Pepsi has no responsibility in respect thereof. They do business with Pepsi on a principal to principal basis. Franchisee bottlers are exclusively responsible to ensure compliance with all the laws & regulations, including adherence to the standards specified under the Prevention of Food Adulteration Act, 1954 and Fruits Product Order, 1955, in respect of the operations carried out and products manufactured by them. Franchisee bottlers are also required to adhere to all the quality control specifications and other standards laid down by Pepsi from time to time."

## **FRUIT JUICE AND OTHER BEVERAGES**

2.132 Fruit juice and other beverages are covered under clause 2(d) of the Fruit Product Order (FPO), 1955. FPO administered by the Ministry of Food Processing Industry *inter-alia* lays down specifications and quality control requirement of fruit juice and ready to serve beverages.

2.133 Following Articles are covered under Fruit Products:

- (i) Synthetic beverages, syrups and sharbats;
- (ii) Vinegar, whether brewed or synthetic
- (iii) Pickles;
- (iv) Dehydrated fruits and vegetables;
- (v) Squashes, crushes, cordials, fruit syrup, barley water, barrelled juice and ready-to-serve beverages, fruit nectars or any other beverages containing fruit juices or fruit pulp;
- (vi) Jams, jellies and marmalades;
- (vii) Tomato products, ketchup and sauces;
- (viii) Preserves, candied and crystallized fruits and peels;
- (ix) Chutneys;
- (x) Canned and bottled fruits, juices and pulp;
- (xi) Canned and bottled vegetables;

- (xii) Frozen fruits and vegetables;
- (xiii) Sweetened aerated water with or without fruit juice or fruit pulp;
- (xiv) Fruit cereal flakes;
- (xv) Any other unspecified items relating to fruits and vegetables.

2.134 Fruit Juice: General characteristics of fruit juice under FPO have been defined as under:

“Fruit juice shall be unconcentrated liquid product expressed from ripe fruit and may contain portions of the pulp and other cellular matter natural to the fruit.”

## CONSTITUENTS OF FRUIT JUICE

2.135 As per FPO 1955, which is a statutory order issued under the Essential Commodities Act, 1955 the only substances that may be added to sweetened juice/pulp are water, peel oil, fruit essences and flavours, common salt, sugar, invert sugar and/or liquid glucose, ascorbic acid, citric acid, permitted colours and preservatives. The minimum percentage of fruit juice in the final product should be 85% and minimum percentage of total soluble solids in the final product (by weight) should be 10%.

2.136 **Ready to Serve Beverages:**—Under FPO, beverages are mentioned as ready to serve fruit beverages including aerated water containing fruit juice or pulp. As per FPO ready-to-serve beverage should have a good keeping quality and show no sign of fermentation, have a good flavour and be free from objectionable taints and flavours. Ready-to-serve beverages may be carbonated. When frozen, the product may be described as ice squash or ice cordial in conjunction with the name of the fruit such as ice orange squash and the like. The minimum percentage of fruit juice in final product in ready-to-serve beverage should be 10% and minimum percentage of total soluble solids in the final product (by weight) should be 10%.

2.137 As per a note furnished to the Committee by the Ministry of Health and Family Welfare, ready to serve beverage are of many kinds such as:

1. Carbonated water
2. Sherbats
3. Fruits Drinks and Fruit Nectar
4. Fruits Juices
5. Ready to serve tea and coffee
6. Flavoured Milk
7. Lassi

2.138 Water is the principal constituent in these products. Additionally, sugar and food additives are used in all these products. In fruit drink/fruit nectar and juices, fruit pulp are used as one of the ingredients. In tea and coffee beverages, tea and coffee extracts respectively are used as ingredient. In flavoured milk and lassi, milk and curd respectively are used as ingredients.”

## **BIS STANDARDS FOR FRUIT JUICE AND OTHER BEVERAGES**

2.139 BIS has formulated Standards for fruit juice and other beverages. The Standards of BIS on fruit juice, alcoholic and non-alcoholic beverages are given in Annexure-V.

The Technical Standards developed by BIS are reviewed by the Sectional Committee responsible, not more than five years of the publication for reaffirmation revision or declaration of obsolescence.

### **Report of Drinks and Carbonated Beverages Sectional Committee FAD 14 of Bureau of Indian Standards (BIS)**

2.140 Drinks and Carbonate Beverages sectional Committee, FAD 14 which is BIS technical Committee for developing Standards in the field of all alcoholic and non alcoholic drinks and ready-to-serve beverages including test methods for the same in their meeting for revision of IS 2346; 1992 (Standard for soft drink) proposed revised standard now to cover all water based non-alcoholic ready-to-serve beverages.

2.141 Pure fruit and vegetables, fruit drinks or beverages made out of powder or syrups or any other dilutable and beverages based out of dairy products have not been included in the above standards.

2.142 The Committee note that on the above revised standards a letter dated 31.12.2003 was written by DGHS to BIS wherein it was *inter-alia* stated:—

“We do not agree to include products containing fruit and vegetable juices to be included under these standards because different products have been standardized in different categories under PFA Rules and these cannot be covered in one category.

The paragraph that due consideration has been given to PFA Act and Rules is not correct because under PFA Rules, 1955 one product has been categorized under different category so it violates the provision of PFA Rules 1955.”

2.143 In their subsequent note furnished to the Committee, Ministry of Health and Family Welfare stated that above letter was not approved at appropriate level in the Ministry and has now been withdrawn.

## **ISSUE OF LICENCE TO FRUIT JUICE AND OTHER BEVERAGES MANUFACTURING INDUSTRIES**

2.144 As per the present provision of law, fruit juice and other beverages manufacturing industries are issued Licence under F.P.O. 1955, administered by the Ministry of Food Processing Industries and their quality is enforced through PFA Act, 1954 of the Ministry of Health and Family Welfare. The licence is granted after the inspection of the premises of the manufacturer and fulfilling of minimum sanitary/hygienic requirements as specified under FPO. The other aspect which is taken into consideration for grant of licence is whether water being used is potable or not. For this, the samples of water are drawn for undertaking chemical and biological testing.

2.145 The Committee noted that while CSE had given its findings on pesticide residues in soft drinks only, surprisingly the Ministry of Health and Family Welfare included fruit juices and other ready-to-serve beverages also in the draft notification issued by them.

2.146 Asked as to why fruit juice and other ready-to-serve beverages had also been included in the draft Notification No. GSR 685(E) dated 26th August, 2003 issued by the Ministry of Health and Family Welfare, and whether it was really logical to prescribe same standard for fruit juice and ready-to-serve beverages, in reply, the Ministry of Health and Family Welfare in their note furnished to the Committee stated as under:

“The draft notification was just a proposal for inviting objections and suggestions subject to the modifications/changes as may be considered necessary at the time of final notification based on feedback from various sources.”

#### **PRESENT LIMITS OF PESTICIDE AND HEAVY METAL RESIDUES IN FRUITS AND VEGETABLES**

2.147 PFA Act, 1954 lays down limits for Pesticides and heavy metal residues in fruits and vegetables.

2.148 The Committee noted that Limits of Pesticide Residues prescribed under PFA Rules 1955 for fruits and vegetables are in variance with the proposed limits in finished products as required under draft notification which is evident from the following table:

Name of Pesticide	Name of Food	Existing limits (ppm)	Proposed Limits in Finished Products (ppm)
DDT (DDD, DDE)	Fruits and Vegetables	3.5	0.0001
Malathion	Fruits Vegetables	4.0 3.0	0.0001
Chlorpyrifos	Fruits Other- Vegetables Cauliflower, Cabbage	0.5  0.2 0.01	0.0001
Lindane	Fruits & Vegetables	1.0	0.0001

**2.149 The existing and proposed Limits of Heavy Metals content in Beverages and Fruit Juices under PFA Rules are as under:**

All Figures in ppm

Item	PFA Fruit Juice	
	Existing Limits	Proposed Limits
1	2	3
Lead	1.0	0.01
Copper	5.0	0.05

1	2	3
Arsenic	0.2	0.05
Tin	250	250
Zinc	5.0	5.0
Cadmium		0.01
Mercury		0.001
Chromium		0.05
Nickel		0.02

2.150 FPO, 1955 does not provide any standards for pesticide residue in food products. While PFA 1954 lays down pesticide limit for raw fruits and vegetables it sets no limit for fruit juice and beverage.

2.151 The PFA Act at Rule 65 provides pesticide residue limits in different fruits and vegetables in the range 0.1, 1.0, 2.0, 5.0, 7.0, 15.0, 20.0, 30.9 mg/kg *i.e.* in raw product. Asked as to how fruit and vegetables juices, fruit beverages, fruit squashes, fruit drinks etc. can meet the Pesticide Residues Limit of 0.0001 mg/litre as proposed in the Draft Notification when the fruits and vegetables have pesticide residue levels as high as 0.1—30.0 mg/kg, in reply the Ministry of Health and Family Welfare in their note furnished to Committee stated:

“The maximum residue limits for certain pesticides have been prescribed for fruits and vegetables in raw. When the product is prepared out of fruits and vegetables a process is involved. The process is washing, peeling, cutting and extraction of juice or preparation of any other products. In this process pesticide residues are removed. Because water is the principal constituent in these products, so the requirements for pesticide residues and metals were proposed at par with that of packaged drinking water.”

2.152 Pointing out that present Limit of Pesticide and heavy metals under PFA, 1954 in fruits and vegetables were many times higher than the limits set under draft notification which food and other beverages industries are required to achieve in the final product *i.e.* fruit juice and other beverages, the Committee asked the Ministry of Food Processing Industries to state as to whether it was possible to achieve the proposed norms for fruit juice and other beverages. In reply during his evidence before the Committee Secretary, Ministry of Food Processing Industries stated as under:

“Under existing norm under PFA Act 1954 DDT residue in fruits and vegetables should not be more than 3.5 ppm. To bring it down to .0001 ppm from 3.5 ppm overnight is not feasible technologically similarly for Malathion, from the current limit to the proposed limit you have to multiply it by thousand times to get that level. So technically it is not feasible to do that.”

2.153 Asked as to whether the Ministry of Food Processing Industries had at any time taken up the matter with the Ministry of Health and Family Welfare expressing difficulties in reducing the pesticide and heavy metals residues from present level to the level prescribed under draft

notification. In reply, Ministry of Food Processing Industries in their note furnished to the Committee stated as follows:

“Yes, Ministry of Food Processing Industries has taken up this matter at Secretary level as well as in CCFS meeting. The Ministry of Food Processing Industries had taken up the matter at Secretary level with Ministry of Health and Family Welfare on the criteria as well as setting up of standards for pesticide residues in the soft drinks, fruit juices and other beverages. The representative of this Ministry also raised these issues in the CCFS meeting, but, the views of this Ministry has not been reflected properly in the minutes. Accordingly, this Ministry wrote to the Chairman of CCFS to amend the minutes. The issues of the Ministry are that these standards should be arrived at on a scientific basis and not on a knee-jerk reaction basis.”

2.154 When asked by the Committee as to what were the norms being followed internationally for setting pesticides limits in ready-to-serve beverages, the Ministry of Food Processing Industries in their audio-visual presentation before the Committee stated:

“Pesticide residue limits are referenced for raw agricultural commodities. CODEX and other International Norms follow the principle that Maximum Residue Limits (MRL) for all finished final products should be derived on a product to product basis as a summation of MRLs.”

2.155 The Committee asked Secretary, Ministry of Food Processing Industries to give his views on setting of standards for fruit juice and other beverages. In reply Secretary, during evidence stated:

“The standards for pesticide residues and contaminants for end products should be based on CODEX. This is the internationally acceptable standard. 167 countries are following it. We can also follow it. It will safeguard our exports. The two cardinal principles, as I have explained, are the maximum residue limit, which is derived from good agricultural practice, and acceptable daily intake which follows the health risk assessment. If the proposed norms are enforced, the food processing industry will have to source raw materials from abroad.

As we understand, the object of the standard is to mitigate health risk to Indian population. So, if the health risk is the paramount consideration, then we have to evolve our own database and we have to keep our food habits into account. What is our food habit? What is our data? What is our baseline data? As of today, how much of pesticide residue, how much of heavy metal is entering in various raw products? We have to have a baseline data and then, take into account the pattern of consumption of processed and non-processed foods. We are eating raw fruits, raw vegetables and municipal water. In addition to that, we are taking processed foods. So, we have to see what is the basket of processed and non-processed foods, what are the current levels of contaminants and pesticides in processed and non-processed foods, pesticide usage in agriculture and public health programme. After taking into account all these things, our own institutions like ICMR and National Institute of Nutrition have to derive database and then, fix the standard. Then, of course, we have to consult all the stakeholders before notifying it.”

2.156 Giving justification of following CODEX norms and difficulties in achieving the proposed norms, laid down under draft notification, Secretary Ministry of Food Processing Industries stated:

“My humble submission is that CODEX norm is the norm which is relevant for the purposes of export. It is being followed by 167 countries and we should also fall in line with CODEX

norms. If the object is to facilitate exports, then the logical thing to do would be to follow CODEX norms. I have just tried to explain how CODEX norms have been fixed. They are based on two fundamental concepts of maximum residue limit and ADI. We have to apply the same concept here. Except that, in our case, our food habits are different. We consume more wheat and more rice. So, for rice and wheat, our standards will have to be more stringent than even CODEX because foreigners do not consume so much of wheat and rice in their consumption basket. So, taking into account our own habits of food consumption, we will have to set these norms. Now, if you want to protect the Indian industry, they must be able to source raw materials from within the country. If I prescribe norms which are so stringent that he will stop buying apples and grapes in India and start importing them from abroad, that is not a happy state of affairs when we want to expand our own horticulture and agriculture. Therefore, if you want to fix a standard even for health consideration, you have to first compile a baseline data of what is the pesticide and heavy metal residue in our agricultural and horticultural products. Then, you have to see from the health perspective what limit should be set. Once you know that, then over a period of time—you cannot do it overnight—you have to change agricultural process. If the DDT residue is unacceptably high, then you have to change agricultural practice and stop use of DDT both in agriculture and horticulture as well as public health programme. Until and unless you do that, you cannot conform to the standard. That is my humble submission.”

2.157 To a question as to why CODEX norms should be preferred *vis-a-vis* EU norms, Secretary, Ministry of Food Processing Industries during his evidence stated:

“EU norm is not based on any scientific assessment of health risk factor. It is based on some idealistic standard, that is, one part per billion. That is an idealistic standard which virtually means ‘zero’, whereas the CODEX is a realistic standard.”

2.158 To a question by the Committee as to whether codex norms were fully safe from the point of view of health under Indian conditions. In reply, Secretary, Ministry of Food Processing Industries stated as under:

“Suppose, I say that the CODEX standard is not acceptable, then what is the basis for that? On what grounds is it not acceptable? Is it because of health risks? If it is so, then an institution under the ICMR like the National Institute of Nutrition and the Central Food Technology Research Institute in Mysore have to determine based on the present level of heavy metals and pesticides in various products and the quantity that is being ingested—whether it is in conformity with the Acceptable Daily Intake (ADI). If it is in conformity with the present standards then there is no need to revise the standard. But, if it is proved that it is higher than the ADI, then your question is 100 per cent correct. Then, under such circumstances, we will have to revise the standards. Then the question that will come up before us is : “How we should revise it?” But, the first determination itself has not been made, to the best of my knowledge.”

2.159 The Committee invited the representatives of All India Food Processors’ Association to tender their oral evidence before them and sought their views as to whether it was possible to reduce pesticide residues in fruit juice to the level as stated in draft notification. In reply, their representative stated:

“Coming to the issue of fruit juice and ready to drink beverages, as you are aware, the primary ingredients for these are fresh fruits, vegetables, milk, sugar, water, citric acid, colour and flavours — for products where there is a need for flavour to be added to the product.

The industry uses fruits and vegetables as raw materials. In turn these are processed to make juice, pulp and concentrate. Prevention of Food Adulteration (PFA) Act has fixed MRLs for pesticide residues in raw fruits and vegetables. The MRLs in the final product cannot be less than the permissible limits of the sum of ingredients, depending upon the level of dilution.....Sir, we use raw materials that we get from the farmers or the market. So, there is no technology, which has been developed, where during processing, you can separate out the pesticide residues from the fruit pulp. If it is done, it will be very costly and it will not be viable to have any fruit juice at all. I am saying this because once it enters the system, it is impossible to separate it.

Therefore, what we are going to submit is that the pesticide residue limit in the final products has to be dependent on the pesticide residue limit in the raw material. There cannot be any dichotomy on this issue. I will give you some examples.....

For grapes, the PFA allows 32.75 ppm pesticides. So, when you are making grape juice, it will contain the same amount of pesticide and when you are diluting it, it would come down to 3.28 ppm of pesticide with 10 per cent juice.

Similar is the case with tomatoes also. Tomato puree or tomato ketchup, which has 50 per cent tomato pulp, will necessarily have 16.35 ppm of pesticide. If any law says that it must be reduced, then there has to be an intermediate process, which is not technologically possible today. Given the current level of pesticide residues in fruits and vegetables, it would be practically impossible to reduce the minimum residue levels in fruit juices and beverages to EU norms for drinking water. As long as we have the permitted levels in raw fruits, we cannot reduce it in the final product.....

2.160 Emphasising the need for separate safety standard for fruit juice and vegetables, the representative of All India Food Processors Association further stated:

"...Worldwide, the practice is that they fix the standards for primary agricultural products. Nowhere, in any country, not even in US or European Union, do they have standards for pesticide residues in finished products. If we do it in India, it will be first time in the world. There are good reasons as to why they do not do it because once it is in raw materials, there is no way you can take them out. Once you make the raw material safe, then the finished product will be automatically safe because the food processors do not use pesticides or no one injects pesticides into the product. We only carry what is there is the raw materials."

## **READY-TO-SERVE BEVERAGES**

2.161 Ready to serve beverages like tea, coffee, lassi, etc. are milk based: Asked by the Committee as to whether pesticides can be removed from milk and milk based products, in reply another representative of Food Processors Association of India stated:

"Milk is also a raw material. We are saying, fix the MRL for raw milk before you fix for the milk products. We cannot fix a standard for the finished product without fixing the standard for the raw material.

There is no technology available where pesticides can be removed from milk and milk products. As it was explained, it comes from the fodder or water that the animals drink and finally it goes to the milk. There is no technology available to remove pesticides hundred per cent.”

2.162 Representative of Ministry of Food Processing Industries during his evidence before the Committee had stated that most juices, ready to drink teas, and sugar sweetened finished beverages would not be able to meet the proposed standard. Asked to give their comment to above statement, the Ministry of Health and Family Welfare in their note furnished to Committee stated:

“Tea and coffee based drinks, milk based drinks are not likely to meet the requirements for pesticide residues for packaged drinking water.”

2.163 The Committee asked the representatives of CFTRI to clarify as to whether it was correct to apply standards of drinking water to fruit based beverages, milk and milk products. In reply CFTRI in their note furnished to the Committee stated as under:—

“ It is not correct to apply standards of drinking water to fruit based beverages, milk and milk products. The MRL for water and food vary depending upon the toxicity of the chemical particularly Acceptable Daily Intake (ADI), Dietary intake, residue level in food commodities and, comparison of total ingestion of pesticides from all sources of food in a day per person per kg body weight with the ADI values. Also intake water which can be purified by various techniques like reverse osmosis, micro-filtration to reduce and minimize contaminant cannot be used for fruit juices, milk and milk products. Also in these products the technological limitations to process after any contamination has occurred is very difficult and hence good manufacturing practice and declaration of the label such as ‘Safe for use by the Consumer’ is a better proposition. Therefore, it is not scientifically justifiable to apply standards of one commodity to another commodity.”

## **MRL FOR PESTICIDES RESIDUE IN FRUIT JUICE AND VEGETABLE BEVERAGES**

2.164 MRL for pesticide residue have not been laid down under FPO 1955 and PFA 1954 with regard to fruit juice and other beverages. The Committee were informed by the Ministry of Food Processing Industries (FPI) that in view of recent deliberation on the need for scientifically arriving at MRL of pesticide residue of various food items the Ministry of Food Processing Industries sent samples of fruit products covered under FPO, 1955 to CFTRI, Mysore to assess the present level of pesticide residues in them. On receipt of existing levels of pesticide residues in the products, a study may be undertaken through National Institute of Nutrition, Hyderabad to assess the acceptable daily intake of these products and to work out the safe limits.

2.165 Asked to give details of the findings of CFTRI and follow up steps taken by the Ministry of Food Processing Industry, the Ministry in their note furnished to Committee stated as under:—

“The Ministry of Food Processing Industries has also sent the samples of other fruit and vegetable products such as juices, beverages etc. to CFTRI, Mysore, for testing the presence of pesticide residues. The test results have not been received.

Ministry of Food Processing Industries has asked the National Institute of Nutrition, Hyderabad to start work to assess the acceptable daily intake of these products and to work out the safe Limits and also to submit a project proposal indicating cost and other expenditure for financial assistance from this Ministry.”

## DEFECTIVE PACKAGING

2.166 During evidence, the Committee pointed out that certain Indian consignments sent from India have been rejected due to defective packaging or their container being rusty and asked as to whether due attention was being given to the quality aspect of finished food products. In reply representative of All India Food Processors Association stated as under:

“The Hon. Member’s statement about packaging is absolutely right. Yes, it was there and it is still there today. There are two reasons for this. If we have to go for the latest technology like Tetra-Pack technology, the plant costs about Rs. 10 crores. Today, can the small scale industry afford to invest Rs. 10 crores on this? ...What you say is absolutely right. It is well taken but at the same time the technology for making cans has also changed recently. If you see the outer packing of cans, today we go only for lacquer coated cans. Many exporters have faced big problems because of rusting of cans.

Many consignments have been mainly from Saudi Arabia even if there is a slightest rust on the can. Today, what has happened is that the latest technology has come of coating the cans with lacquer. After we finish the product, the cans are oiled with vegetable oil on the top so that even if we keep the cans for a longer time, they do not get rusted. Gradually, it has taken a little time for the industry to know the problems because most of the can units are in small scale sector.”

2.167 On the issue of defective package, another representative of All India Food Processor’s Association stated as under:

“Sir, the industry was in infancy. It is slowly improving. The economics of the industry is not so far that good. Technological innovations have to be adapted. They are taking time. But I can assure you that this process has already started and some smaller units are also trying to pack in tetra pack now.

As far as the question of cans is concerned, these are called Open Top Sanitary (OTS). Only four to five units in the country are making them. They are very specialised units. The Tin Plate Company of India is manufacturing some parts. Except that, almost 80 per cent of this tin plate is not Indian. They fabricate improvements like lacquer coating which are coming now. That will help. Plus, the environmental conditions are there which have to be taken into account.

Final thing is the awareness of the processor. If a stock is left for four to five months, the environment has its affect, therefore, that stock should not be sent and something else has to be done with it. We are generating awareness about this. It is a multi-point aspect.”

## AMENDMENT OF FPO, 1955

2.168 Asked as to whether the Ministry of Food Processing Industries had any proposals to amend FPO, 1955 and further strengthen it to strictly enforce the safety standards for food products and other beverages, in reply, a representative of the Ministry of Food Processing Industries stated as under:—

“.....We have a Fruit Product Advisory Committee. We had held three meetings in the last two years and decided upon a number of amendments. ....taking into account the new developments, we have already proposed a number of amendments. They are being vetted by the Ministry of Law and justice. We will soon come out with further amendments on this issue.”

2.169 From the amendments proposed by the Ministry of Food processing industries it is noted that no proposal has been made for setting pesticide limit in food products.

## CONCLUSIONS/RECOMMENDATIONS

2.170 The Committee note with deep concern that the soft drink (Carbonated water/Sweetened Aerated water) industry in India with an annual turnover of Rs. 6000 crores is unregulated. It is exempted from Industrial licensing under the Industries (Development and Regulation) Act, 1951 and gets a one time license to operate from the Ministry of Food Processing Industries under the Fruit Products Order (FPO) 1955 and a no objection certificate from the local government and the State Pollution Control Board.

2.171 What further dismays the Committee is the fact that whatever action has been taken recently by the concerned Ministries is only as a result of the findings of an NGO with respect to the presence of pesticides in the soft drinks rather than any systematic approach based on scientific studies. For instance the Ministry of Health and Family Welfare which is a nodal Ministry for laying down standards of safety for all food items suddenly became alive to the entire issue only after Centre for Science and Environment—NGO based in New Delhi published its report on the presence of pesticides in soft drinks on 5th Aug, 2003. It issued a draft notification No. GSR 685 dated 26.8.2003 prescribing the same standards for soft drinks, fruit juices and other beverages as prescribed for packaged drinking water which were notified again after the Report by the same NGO was made public and under which EU norms for individual and total pesticides have been prescribed, without trying to ascertain as to how under the same notification soft drinks could be clubbed with fruit juices particularly when the MRLs fixed in the case of raw fruits and vegetables happen to be much higher under the existing provisions of the PFA Act, 1954. The Ministry did not take the opinion of the Central Committee on Food Standards (CCFS), which is a statutory Committee under the Act for laying down standards for various food items. This step of the Ministry according to their own admission was in a way unprecedented. The plea taken by the Ministry, therefore, that it had issued the said notification under the provisions contained in the bye-laws and section 23 of the PFA Act because the matter was of public importance, is not at all acceptable to the Committee. The Ministry further submitted that Government approved the draft notification on 14.8.2003 and issued the same on 26.8.2003, in between JPC was also constituted to look into the matter. Though normally the time allowed for inviting objections is 90 days but under the aforementioned draft notification only 30 days were allowed, with the result that the JPC had to intervene and take up the matter with the Government, which agreed to extend the date by 31.12.2003. The Draft notification naturally resulted in raising concerns about the feasibility and practicability of implementing these identical standards for soft drinks and fruit juices, from not only the Chambers of Industry representing the manufacturers of the soft drinks, fruit juices and other ready-to-serve beverages but also from the other Govt. Agencies viz. Ministry of Food Processing Industries, APEDA and CFTRI etc.

2.172 The Committee, therefore, feel that in future the modifications in the standards should not be done in haste but should only be taken after full scientific studies based on proper risk assessment and after holding wide consultations in the CCFS and its sub-committees where the Ministries, experts, scientists, trade and industry, farmers' representatives, consumer organizations as well as the States/UTs are represented. Moreover, keeping in view the vital issue of the health of the population of our country, the revision of standards has to be an ongoing and regular process which should draw the serious attention of all the concerned ministries and particularly of the Ministry of Health and Family Welfare which is at the center-stage for administering food laws and implementation of various health programmes.

2.173 The Committee are of the view that Codex matters are of very serious nature under WTO regime. It is therefore necessary that Indian delegations are not under prepared and should have the required technical qualification and experience to discuss complex technical matters in Codex meetings. The Committee, therefore, desire that scientists must head the Codex teams representing India in all Codex meetings and these should not be headed by the bureaucrats from different ministries as is the present practice, since the latter often lack required professional/technical knowledge and do not have expertise and relevant experience. It is also desirable that all position papers on all agenda papers are submitted to the Head of the Govt. Department before the Codex meetings. The technical experts, must submit detailed independent reports to the Government, after attending Codex meetings.

2.174 The Committee note that soft drinks under the PFA Act, "A01.01 are defined as Carbonated Water meaning potable water impregnated with carbon dioxide under pressure and may contain other ingredients such as sugar, liquid glucose, dextrose, invert sugar, fructose, honey, fruit and vegetable extractives and permitted flavouring, colouring matter, preservatives, emulsifying and stabilising agents etc. The major ingredient of soft drinks is water which accounts for 86%-92% of the total soft drink composition. Besides water, soft drinks contain sugar varying from 5 to 10%, carbon dioxide, acids like citric acid, phosphoric acid and malic acid which are added to balance and the concentrate. It is however extremely surprising that though water is the major constituent, so far neither it has been defined properly nor the standards laid down either under PFA, FPO or BIS certification scheme are monitored and enforced effectively. The only stipulation with regard to the water mentioned under FPO in the Second Schedule Part 1 (A) is that the water used in the manufacture shall be potable and if required by the Licensing Officer it shall be got examined chemically and bacteriologically by any recognized laboratory, but the same has not been defined. Further FPO mentions limits of poisonous metals (lead, copper, arsenic, tin, Zinc etc.) in fruit products but makes no mention of pesticide residue levels either in the water used in the manufacture of juices or in the beverages. The norms about quality and standard for the potable water that is used by the soft drink manufacturers has not been prescribed. The irony is that only at the time of issuing the license, a certificate from a recognized laboratory is insisted upon. The other condition that is stressed upon is that the premises should be maintained in a hygienic way. Similarly, under the Prevention of Food Adulteration Act, 1954 and Rules 1955, under item A.01.01 of Appendix B, water under the category of carbonated water only mentions that water has to be potable but no quality standards except for the microbiological contaminant standards for the final soft drinks are specified. Like FPO, PFA also does not specify any standards for inorganic and organic chemicals and pesticides for soft drinks.

2.175 Apart from these two mandatory regulations, there is also a voluntary specification of BIS for Carbonated beverages (IS 2346:1992). It specifies the quality of water to be used in the manufacturing of soft drinks which should meet the water quality standard for the processed food industry IS 4251:1967, which in turn specifies standards for bacteriological, physical and chemical tolerances but does not mention pesticides. It is only recently that the Ministry of Health and Family Welfare issued notification No.GSR.554(E) Dated 18.7.2003 prescribing standards of 0.0001mg/litre for individual pesticides and 0.0005 mg/litre for total pesticides for the packaged drinking water which are in conformity with the standards of EU and these norms have already been enforced w.e.f. 1.1.2004. The packaged drinking water has also been brought under the definition of 'Food' in the year 2001. The same norms however, have been prescribed in the notification issued on 26.8.2003 for the soft drinks and other beverages on the plea that water is the main constituent in these. From the depositions made before the Committee by the Coca-Cola, Pepsico, Delhi Jal Board, Indian Bottled Water Manufacturers Association and a few others

including the Ministry of Health and Family Welfare, it was made amply clear that it is not difficult to meet the new norms for water since most of the manufacturers have already installed the requisite equipment which is not very costly and they are already meeting the new standards. In fact the Bottled Water Manufacturers Association as well as the Ministry of Health & Family Welfare, had also clarified that the processing charges involved in processing the water are almost negligible. The Committee were also informed by a number of experts that the technology for removing the pesticides from water already exists and these can be removed to any level.

2.176 The Committee are of the view that Carbonated beverages cannot be clubbed with fruit juices, because these are different products with different specifications and the existing law already differentiates between these products. Moreover, the soft drinks do not form part of the nutritious diet, and though the present per-capita consumption of the soft drinks is not much in our country as compared to other countries like United States or European countries, but the trend towards more consumption is gradually growing in the entire Asian region and in future can expand to a significant extent in India also. The Committee are therefore, of the considered opinion that the water used in manufacturing the soft drinks should be in conformity with the new norms which have already been notified under notification No. GSR 554(E) dated 18.7.2003 so that the consumers are not deprived of the best standards.

2.177 Though it has been stated by some manufacturers of soft drinks that there is a possibility of pesticides entering into the beverages through sugar, the Committee are not inclined to accept the same and desire that this requires to be investigated in detail. The following may be considered while investigating:

According to the Package of Practices provided by Extension Departments, most of the sugarcane farmers are using only three to five types of pesticides. Most of the pesticides in sugarcane cultivation are used at the time of pre-planting stage, planting stage and first six months of crop growth (February to June). In case there is any insect or disease attack on the crop, two or three types of pesticides are used till harvesting. This time gap between spray of pesticide and sugar extraction only results in degradation of pesticides. According to Current Science Vol. 85, No.10 25th Nov. 2003, under tropical conditions microbial activities in soil are high, hence degradation of pesticides is also faster. According to sugar technologists, the refining process of sugar from sugarcane juice involves boiling, clarification by lime, sulphur dioxide gas, centrifugation of massecuite to remove molasses and sugar crystal. Sugar produced by crystallization is a process, which itself ensures the purity of the product and reduces impurities like dust, dirt and pesticide residues. According to United States Department of Agriculture's Pesticide Data Program (USDA-PDP) supplemented with information from Food and Drug Administration Centre for Food Safety and Applied Nutrition (FDA/CFSAN) on Organophosphorus Chemicals on Food Crops, "a knowledge of highly refined nature of sugar and syrups supported by the limited residues data mentioned above is the basis of assumption that negligible residues of pesticides would be expected to occur in sugar and syrups".

2.178 This indicates that the number of pesticides present in carbonated water and the levels may not be from the sugar source.

2.179 Carbonated water manufacturers have already mentioned before JPC that they have foolproof process to select and treat the sugar and this treatment is uniform worldwide to ensure good quality sugar syrup for the products. These companies are already purifying the sugar syrup with Hot Carbon Treatment Process, which is effective in reducing most of the pesticide residues to below detectable level or below 0.1 ppb levels. The Committee feel that sugar, therefore, can not be the only source of pesticide residues.

2.180 If the pesticides could be controlled to a large extent by adopting new water standards for packaged drinking water and also by subjecting sugar syrup through hot carbon process, the only other ingredients through which there is a chance of pesticides entering is either through the concentrate or other acids or flavours and colours etc. which also constitute about 3-4% of all the ingredients used in the manufacture of the soft drinks. So far as concentrate is concerned, it is not subjected to any quality testing by the Government laboratories under PFA.

2.181 So far as other ingredients are concerned, their percentage is not significant. The Committee therefore opine that in case the standards of water are strictly adhered to and the entry of pesticides could be checked to a large extent by prescribing MRLs for all the pesticides which are used in the case of sugarcane, this problem can be tackled to a large extent. The Committee have observed from the oral/written evidence tendered before them that EU and others have formulated their norms keeping in view their environment, agricultural practices, pesticide usage, etc. The Committee have also noted that EU norms are not based on any toxicological criteria or any realistic basis, but are a surrogate for zero. Moreover, these norms are often used as non-tariff barriers by the European countries against the developing nations, to protect their agriculture, trade and industry. For various agro-based products EU standards for produce within the European Union are much liberal compared to products imported from developing countries—for example, the different MRL standards for cane sugar vs. beet sugar and apple vs. mangoes, etc. The Committee, therefore, recommend that India should formulate its own food standards, which are based on scientific criteria, protects the interest and health of its people and are in keeping with the internationally acceptable norms. The Committee therefore recommend that standards for carbonated beverages, which are best suited for the Indian conditions need to be fixed in the overall perspective of public health. These standards should also be stringent enough. The reason that the other countries have not fixed such limits, should not dissuade our law makers in attempting to do so, particularly when a vulnerable section of our population who are young and constitute a vast national asset are consuming the soft drinks. In Committee's view therefore, it is prudent to seek complete freedom from pesticide residues in sweetened aerated waters. 'Unsafe even if trace' should be the eventual goal.

2.182 The other area of concern to the Committee is the use of ground water by the soft drink manufacturing companies as well as bottled water manufacturing companies. The Committee find that though these companies are extracting huge amount of ground water but they are not being charged anything for using the water. The only charges that they pay is a petty amount as water cess which is being levied by the State Pollution Control Boards under Water (Prevention & Control of Pollution) Cess Act. States also do not seem to have uniform procedure in this regard as in some States, industries located in the industrial development areas are charged for use of ground water at rates decided by the concerned States and in others there is no such practice. Though the Secretary, Ministry of Water Resources tried to put forth the legal position in this regard before the Committee by stating that no charges can be levied on the use of ground water because legally speaking the land and the resources located under it belong to the owner who is free to use his assets in the manner he likes, but in view of the recent judgement delivered by the Hon'ble High Court of Kerala on 16.12.2003 in the case of Plachimada plant of Coca Cola India, the stand taken by the Secretary loses relevance. The Hon'ble High Court has opined in no uncertain terms that the use of water is free only in case the same is used for the domestic or agricultural use by the owner and since ground water belongs to the public, its commercial use has to be adequately restricted and even in the absence of any law governing ground water, the Panchayat and State are bound to protect ground water from excessive exploitation. The Secretary however had assured the Committee that in future perhaps the water if used for commercial and industrial purpose will have to be charged. The Committee

however, note with utter dismay that the Central Ground Water Authority (CGWA) which has been constituted as an authority on the directions of the Hon'ble Supreme Court of India, taking into consideration the urgent need for regulating the indiscriminate boring and withdrawal of ground water in the country, has so far hardly taken any concrete steps to properly regulate or coordinate effectively the extraction of ground water for industrial purposes. Taking into account that the water level in many parts of the country is getting depleted alarmingly, the Committee desire that this requires to be properly regulated so that at least on account of indiscriminate use of water for commercial purposes the level does not go down further. The Central Ground Water Authority must take immediate steps in this regard and also impress upon the State Governments to do so without further loss of time. The Committee note that water being a State subject, the central legislation cannot be enacted unless the concerned state legislatures pass a resolution and only a few states have enacted laws to regulate over-exploitation of ground water. The Committee desire that the Ministry of Water Resources must pursue the matter vigorously with the States and impress upon them the need to regulate water particularly for commercial purposes and also fix the price for water after taking into account the price being charged for water which is being used for domestic purposes.

2.183 In India a variety of pesticides have been used for the last several years both in the agriculture as well as health programmes and these include the environmentally persistent organochlorine compounds such as DDT, BHC, Aldrin, Endosulphan etc. There is already published scientific work by the National Institute of Nutrition, Hyderabad and National Institute of Occupational Health which has established that long term consumption of DDT can cause reproduction disorders in women, cause chronic disorders and also cause different types of cancers. Pesticides such as DDT, Endosulphan and Dieldrin have been assigned oestrogenic potencies. Other than the scientific papers published, there have been flood of reports both in the print and electronic media on the harmful effects of pesticides. The most recent media report is on Endosulphan in cashew plantations in Kasargode district of Kerala, which has caused a variety of health problems in a few villages in the area ranging from cerebral palsy to congenital neurological disorders. Besides the harmful effects of pesticides, it has also been alleged by CSE that the other major ingredients of soft drinks namely, carbon dioxide, certified sweeteners like aspartame, saccharine, acesulfame-K etc. and flavouring agents such as caffeine and phosphoric acid are also injurious to health.

2.184 At present however no survey has been carried out to establish the daily intake of various food items including water, soft drinks and other beverages, which can be used for deciding the intake rate of pesticides. There is therefore an urgent need to initiate research studies on total exposure. Surveillance studies to identify high risk area, seasons, foods, high risk population groups etc. to pesticide residues especially organochlorines need to be undertaken in different agro-climatic zones of the country. The data needs to be combined with dietary intake studies. Thus exposure assessment from multiple exposure routes needs to be calculated so as to qualify the aggregate exposure. The Committee therefore suggest that in order to achieve this, a co-ordinated research project should be undertaken by the ICMR involving CSIR, Indian Agricultural Research Institute, National Institute of Occupational Health, National Institute of Nutrition, Vector Control Research Center and various other research centres. It is expected that building up of a vast data base on pesticide residues, its occurrence in food and environment, total intake by humans along with the long term effects of pesticides on the health will go a long way in taking appropriate control measures.

2.185 The Committee find that soft drink companies are selling non-caffeinated soft drinks in every country besides the caffeinated ones including the United States and all countries in

Europe. In India their production of non-caffeinated soft drinks is very little, as only Limca, Sprite and Mazza are stated to be non-caffeinated. Though the soft drink manufacturers have contended that more non-caffeinated products can be made available in India also provided there is a demand from the consumers, the Committee desire that at least option should be made available to the consumers to choose between the two. It is therefore desirable that all brands should include caffeinated and non-caffeinated drinks. They also desire that there should be no difference in the quality of products being marketed in India as compared to those which are being sold in the USA or other European countries.

2.186 The Committee have been informed that Drink and Carbonated Beverages Sectional Committee FAD 14 which is BIS Technical Committee have decided to revise IS 2346-1992 which are standards for carbonated beverages and make it more broad based. In their report, the Technical Committee has advocated for restricting the use of caffeine in carbonated beverages as has already been done by some countries like Australia and China. They have also desired that the label on the caffeinated beverage must include advisory statements to the effect that the beverage contains caffeine and the same is not recommended for children, pregnant or lactating women and individuals sensitive to caffeine. The Committee desire that this recommendation be implemented based on best practices globally regarding caffeine regulations and its effects on human health. However, the Ministry may consider bringing down the present limit of 200 ppm in carbonated beverages as prescribed under PFA.

2.187 The Committee were informed that due to operation of Coca Cola and Pepsico plants at Plachimada in District Palakkad in Kerala, agricultural operations have badly been affected. It has been alleged that operations of these plants have resulted in causing pollution of water, depletion of ground water, reduced yield in crops, skin disorders and other ailments among the inhabitants. The allegations have mainly been made against the Hindustan Coca Cola Beverage Private Ltd. plant at Plachimada. The High Court of Kerala, where a case was filed by the Perumatti Gram Panchayat against the company has delivered the judgement on 16.12. 2003 according to which the extraction of ground water even at the admitted amounts has been declared illegal. An expert Committee has also been appointed by the High Court of Kerala on 20th December, 2003 to study the entire matter and file a report. The Committee were however informed that the application of the company regarding alternative source of water as well as power is pending with the State Government for the last more than four years. The Committee strongly recommend that the entire issue should be resolved and the company should also take into account the strong sentiments of the local people and various environmental issues positively. The State government must intervene in this regard and take necessary steps to resolve this serious issue. The Committee have been informed that the Hon'ble Supreme Court of India has constituted recently a Monitoring Committee on Hazardous Waste Management. One of the terms of reference of this Committee serviced by the Ministry of Environment and Forests is to oversee the implementation of hazardous waste management and submit a report to the Court on quaterly basis. It has jurisdiction over the entire country. The Committee suggest that implementation of discharge of effluent sludge in Palakkad and Plachimada be also monitored by the above Monitoring Committee.

2.188 The Committee also find that though huge amount of ground water is being extracted by both the Coca Cola and Pepsico plants at Plachimada and Palakkad respectively, but the efforts made in recharging the water are not commensurate enough. While the Hindustan Coca Cola plant is recharging the water to the extent of 50% of the total water used, the position is far from satisfactory in the case of Pepsico plant which is recharging merely 10% of the total water used. Taking into account the importance of preserving our ground water resources which

are vitally important for all sections of society, the Committee strongly recommend that provision in this regard needs to be incorporated in the relevant Act making it mandatory for those who use the water for commercial purposes to recharge ground water to the maximum extent possible.

2.189 The Committee note that more than half of the total plants of Coca Cola India and Pepsico India Holding Private Limited are franchisee owned plants. Out of 52 plants of Coca Cola India, 25 are franchisee owned plants. Pepsico India has 21 Franchisee owned plants out of a total of 38 plants in India. They also note that all bottlers of Coca Cola company whether franchisee or company owned have signed Standard International Bottlers Agreement (SIBA) which is uniform across the world and the quality control system for the company owned and franchisee owned plants is the same. However, Pepsico India has not even signed the agreement and have stated that Franchisee bottlers are liable for their business and the company has no responsibility in respect thereof. Thus even though franchisees bottlers are required to adhere to quality control specification and other standards of parent company, they have no legal liability over their action and inaction.

2.190 The Committee consider these explanations tendered by Pepsico and Coca Cola India unsatisfactory in the context of the findings of Pesticide residues in their brand of soft drinks. The Committee feel that the existence of a bottlers agreement can not absolve the producers and marketers of their responsibility towards ensuring freedom from contamination of the beverages sold to the consumers. Whether its own bottling units or a franchisee bottling units, it is the absolute responsibility of the brand owner who selects the bottlers, provides the processing technology quality know-how, the concentrate and finally markets the end products, to ensure that consumers get a product which is in conformity with the prescribed norms of quality and safety. The Committee therefore, recommend that onus for maintaining the quality should lie with the parent companies/brand owners and its compliance should be ensured.

#### FRUIT JUICE AND OTHER BEVERAGES

2.191 Fruit juice and other Beverages are covered under Clause 2 (d) of the Fruit Products Order, 1955 as fruit products. As per FPO, fruit juices are defined as unconcentrated liquid product extracted from ripe fruit and may contain portions of the pulp and other cellular matter natural to the fruit. FPO specifies that percentage of fruit juice in the final product should not be less than 85% and total soluble solids in the final product by weight should not be less than 10%.

2.192 Other beverages under FPO mentioned as ready-to-serve fruit beverages including aerated water containing fruit juice or pulps, should have a good flavour and be free from objectionable taints and flavours and show no sign of fermentation. FPO specifies that minimum percentage of fruit juice in the final product i.e. ready-to-serve beverages should be 10% and minimum percentage of total soluble solids in the final product (by weight) should be 10%.

2.193 Carbonated water, Sherbat, Fruit drinks and fruit nectar, flavoured milk and lassi are some of examples of ready-to-serve beverages.

2.194 Like soft drinks, the fruit juice and other beverages manufacturing industries are issued license under FPO, 1955 and their quality is enforced through PFA Act, 1954.

2.195 Besides minimum sanitary and hygienic requirements other conditions required for grant of licence under FPO is that water should be potable. BIS has formulated standards for fruit juice, alcoholic and non-alcoholic beverages which are voluntary in nature.

2.196 As already commented earlier Draft Notification No. GSR 685 dated 26.8.03 issued by the Ministry of Health & Family Welfare as a sequel to the detection of pesticides residues in soft drink samples, besides soft drinks prescribes pesticide limit for fruit juice and other beverages also. The Committee are unable to understand the logic behind clubbing of fruit juice and other beverages with soft drinks.

2.197 Fruit juices are multi-component systems where water is an ingredient but not the main ingredient. Ready-to-serve beverages are mainly derived from agriculture products like fruit, tea, coffee, milk for which MRLs for pesticides prescribed in PFA are many times higher. The technology like reverse osmosis, micro filtration, ozonation etc. which are used for purifying water cannot be used for fruit juice, milk and milk products. Further more, water in fruit juices derive essentially from the fruits and raw horticulture and plantation produce which identifies with the fruit juice. Under PFA 1954, MRLs of pesticide in fruit and vegetable products, which are the raw material for preparation of fruit juice, vary from 0.1-30.0 mg/kg. The Committee have been informed by the representatives of Ministry of Food Processing Industries, All India Food Processors Association, that it is not technologically feasible to bring down the present level of pesticide residue in fruit and vegetable to 0.0001 ppm as stipulated in draft notification. The Committee are surprised with the argument advanced by the Ministry of Health and Family Welfare that in the process of washing, peeling, cutting and extraction of juice pesticide residues are removed. The above statement of the Ministry of Health & Family Welfare is completely vague and illogical and not based on any scientific assessment. It does not indicate as up to what level the pesticides are removed by the above process. It seems the Ministry of Health & Family Welfare is merely concerned with laying of standards without scientifically assessing as to whether they can be achieved to the desired levels and enforced properly.

2.198 It seems, it is only after Committee's repetitive query to the Ministry of Health and Family Welfare about the rationale of clubbing fruit juice and other beverages with soft drinks that the wisdom seems to have dawned upon the Ministry of Health & Family Welfare as they have now stated in their latest reply that tea and coffee based drinks are not likely to meet the requirements for pesticide residues for packaged drinking water. They had also asked the Bureau of Indian Standards which is in the process of revising standards (IS2346:1992) for carbonated beverages *vide* their letter No. P.15021/8/2003-PH(Food) dated 31.12.2003 to make it more broad based and not to include products containing fruit and vegetable juices in the revised standards. This letter has however, been withdrawn recently according to Ministry as it was not approved at the appropriate level in the Ministry.

2.199 Secretary, Ministry of Food Processing Industries, representatives of All India Food Processors Association and others have drawn the attention of the Committee towards non-availability of any technology in the world to reduce pesticide residues to the level of 0.0001ppm from the present levels in fruits and vegetables. The representatives of Ministry of Food Processing Industry in the 49th meeting of CCFS held on 26th Sept., 2003, have also raised objections on laying down of standards for processed food and vegetable products under PFA which, as alleged by them, were not even properly reflected in the minutes of the meeting.

2.200 Fruit juice and other ready-to-serve beverages have nutritional value. Even if some technology is developed to clean them from the pesticide residues, the Committee are not sure whether the nutritional value of the raw products used for extracting juices will be ultimately retained in the fruit juice as well.

2.201 Soft drinks market is dominated by two global giants with access to state-of-the-art technologies and techniques and thus would be expected to show the way to better food safety. Fruit juices and beverages are primarily in the small and medium sectors and are labour

intensive. There are millions of fruit and vegetable farmers who provide the raw materials and thus constitute a principal support base to the fruit juices and beverages units. Given the current levels of pesticide residues allowed in raw fruits and vegetables, and given the socio-economic ground realities, the fruit juices and beverages industry needs to be treated differently compared to the carbonated water sector. The same standards cannot apply to them equally. Pesticide residues in food are a phenomena related to agricultural practices as they enter the soil and plant systems and work their way into the food chain. It is not a manufacture related issue and, therefore, it will not be fair or proper to apply the carbonated water and packaged water (pesticide) residue levels to the fruits and vegetable juices and such beverages.

2.202 The Committee, therefore, recommend that standards notified under draft notification for pesticide residue should not be made applicable for fruit juice and other beverages.

2.203 The Committee note that Ministry of Food Processing Industries have sent samples of fruit and vegetable juice and beverages to CFTRI, Mysore for testing the presence of pesticide residue and also asked National Institute of Nutrition, Hyderabad to assess the daily intake and safe limits of these products.

2.204 The Committee desire that on the basis of test results of CFTRI, Mysore and assessment from National Institute of Nutrition, Hyderabad, steps may be taken in consultation with CCFS for fixing residue limits of pesticide residue in fruit juice and beverages based on consumption pattern and safe limits (ADI).

2.205 The Committee also recommend that institutions like ICMR, National Institute of Nutrition, CFTRI etc. should evolve database taking into account our food habits with regard to consumption of processed and non-processed food, level of contaminants, and pesticides in these food products, their conformity with acceptable daily intake, usage of pesticide in agriculture and public health programme and based on their database. Standards for fruit juice and other beverages may be fixed after due deliberations in CCFS. Incidentally, European Directive (97/41/EC) provides for a system to set MRLs in processed products and composite foodstuffs, based on the MRLs fixed for raw agricultural products. Such guidelines may also be consulted.

2.206 The Committee note that Indian consignments of food products being exported from India have many a time been rejected merely on account of defective packaging. Due to high cost of packaging, food processing industries, which are mainly in the small scale sector, have not been able to adopt state-of-the-art technology. In view of stringent norms for packaging of export products and the inability of our food processing units to adopt state-of-the-art technology for packaging, the Committee recommend that Public Sector Undertakings like Hindustan Machine Tools etc. may be asked to make available cost effective packaging technology for the food products being exported by food processors in small scale units.

2.207 The Committee note that fruit products advisory Committee of the Ministry of Food Processing Industries has proposed amendments to Fruit Products Order, 1955, which, as stated by them are being vetted by the Ministry of Law and Justice. From the details of amendments, the Committee find that they mostly pertain to labeling, microbiological requirements, methods of analysis, sampling defects and contaminants. No mention of pesticide residue in food products and legal definition of potable water has been made in the proposed amendments. In view of the need for setting of pesticide residue limit in fruits, vegetables and other food products on a scientific basis and setting quality standards for potable water, the Committee desire that necessary provisions for defining potable water and setting of pesticide residue limits in fruits, vegetables/juices may also be incorporated in the proposed amendments, in consultation with CCFS.