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Food Adulteration And Its Overlooked Impacts On Public Health – A Study Of The Indian Legal Framework, Challenges And Reforms

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Abstract
Food is the basis of human survival and is crucial for maintaining physical as well as mental wellbeing of an individual. Food adulteration is a global public health concern. And with time, it is turning into a menace especially with respect to children, women and other marginalized population. Due to the fact that consumption of adulterated food does not have imminent health effects on consumers, a large number of cases related to food adulteration go unnoticed and unreported. In India, the concerned laws have undergone amendments but food, instead of being a source of nutrition and wellness is becoming a source of ill-health to individuals. The issue of food adulteration in India raises a serious concern towards the inefficiencies in the legal system despite having the relevant laws in place.
The paper proceeds on the premise that food safety is one of the fundamental public health concerns as adulterated food leads to various long-term illnesses like cancer, multiple organ damage, and can be fatal too. The paper seeks to highlight the economic impact of food adulteration which is, the increased health care cost on the consumers in the form of out-of- pocket expenses which is already high in India. The paper further seeks to identify cases of food adulteration in India and explore its impact on public health among the Indian population. The study further delves into evaluating the existing law related to food adulteration in India and to examine how effective the current legal framework in India is thereby evaluating the inefficiencies in implementation leading to degraded public health outcomes. Understanding the risks involved with the ill-effects of food adulteration would help in devising an efficient strategy to alleviate the adverse health consequences. The study also aims at making a cross-country analysis comparing food adulteration trends and regulations in developed and developing countries.
The present paper is divided into five parts. The first part gives an overview of the issue of food adulteration at the domestic and global level and throws light on the effects on the healthcare sector. The second part deals with how food adulteration is a public health concern in India with special focus on the epidemiological studies across the country. The third part of the paper explains the existing Indian legal framework that covers the issue of food safety and the Laws criminalizing food adulteration in India. The fourth part delves into the role played by Food Safety Standards Association of India (FSSAI) and the Indian Judicial System in strengthening food safety. Part Five includes the conclusion and suggestions by the authors.

Keywords: *Public Health, Food adulteration, India, Governance, accountability, Institutional reform, Consumer awareness.*

1. Concept of food adulteration – An introduction

While talking about the concept of food adulteration, it basically refers to any addition or subtraction of an ingredient that would affect the normal composition of the food as well its value. It was in 1820 when Frederick Accum discovered toxic metals in food and beverages. Further, intentionally adding prohibited substances or replacing healthy ingredients with lesser quality ingredient or sub-standard materials would also fall under the meaning of food adulteration. In other words, any change that is brought about in the quality, quantity, colour, appearance, texture of a food product is bound to amount to adulteration. Similarly, the US Food and Drug Administration (FDA) considers adulterated food if a substance dangerous to health is added; a cheaper or lower-quality product is added to the food, a valuable ingredient is removed from the basic food, substandard food quality, or any substance added to increase mass or weight to make it appear more valuable. Adulteration can take place at various levels of food supply chain. Storage of raw materials, manufacturing, processing of food products, transportation, marketing to retailers, and purchase of the final food products by the consumers are the stages at which food can be subject to adulteration.
The primary cause behind food adulteration is economic or financial gain. Cheaper or low-quality ingredients

are added to a food product so that the manufacturing costs can be lowered down and profit margin may increase. This has a direct bearing on the health of the consumers and that is precisely why studies related to food adulteration have gained immense significance in the recent years. Some of the other reasons as to why we need to prioritize investigations into the causes of food adulteration is food security; to maintain people's trust into the food systems, and to ensure food safety that is, to ensure that the food we consume is safe is for our health. Besides these, a major cause behind increasing cases of food adulteration is the lack of proper regulation and enforcement of food safety standards. Most of the countries have exhaustive food laws in place but due to poor implementation, it affords an opportunity to dishonest traders to thrive on such weak regulation and gain undue profits at the cost of public health.

1.1 Food adulteration as a global issue: its prevalence and significance

For the low- and middle-income countries like India, Bangladesh, Vietnam etc. food adulteration is a very common problem. Food adulteration refers to the changes made deliberately in the quality of the food by adding ingredients of lesser or no value to gain financial advantage by compromising on the cost of the food product. Adulteration in food products may lead to change in colour, appearance, weight of the product including a change in the taste as well. Food adulteration amounts to food fraud due to the reason that it is economically motivated and the substitution is done by replacing or adding ingredients with carcinogenic properties which affect human health adversely. Food borne illness is one of the top concerns for more than fifty percent of Americans when it comes to making food choices. Further, the importance of food and beverage purchases based on taste has slipped post the covid-19 pandemic and now individuals in United States rely on the healthfulness and environmental sustainability of the food that they purchase. Food safety is undeniably a public health concern at the global level but the available statistics relating to food adulteration is alarming. Almost fifty percent of the food that we consume on an everyday basis is adulterated.

It is pertinent to highlight that developing countries bear the brunt of food fraud practices more due to the fact that a gap exists amongst raw material suppliers, manufacturer, retail suppliers and the ultimate consumers. The supply chain providers play a crucial role both in food adulteration and to control the threat that arises out of it. Similarly, under-developed countries become more vulnerable to the problem of food adulteration as the scope of adulteration widens due to low paying capacity. Individuals in less developed countries are compelled to compromise on the quality of food and therefore those traders who would want to benefit from the situation do so by cutting down on the manufacturing costs by using cheaper and low-quality raw material to increase the profit margin. Milk and milk products, fats and oils, food grains, fruits and vegetables, spices, honey, tea, coffee and almost everything that is being consumed on a daily basis is subject to adulteration.

1.2 Case studies on food adulteration across USA, Spain, Ireland and other countries.

Food adulteration takes place at multiple levels from manufacturing, processing, and distribution to the final sale of food products. There have been myriad cases of food adulteration around the world. To start with United States, first case related to the contaminated olive oil, which was actually grape seed oil. 'Aniline' is a chemical compound which is used to make dyes and plastic. In the year 1981, this chemical compound was added to the grape seed oil and the contamination was sold as 'olive oil' in Spain. As a result, thousands of people died due to an allergic reaction called 'Toxic Oil Syndrome'. Another instance relates to what was known as the 'Chinese Milk' in the year 2008, wherein Melamine (which is considered high in protein) was added to milk by reducing the quantity of milk and by replacing it with water mixed with melamine, that enabled the milk samples to pass the protein test. One of the disadvantages of melamine is that the substance dramatically increases the probability of kidney problems including stones. This scandal resulted in thousands of adults and children being hospitalized.

Thirdly, Melamine had played yet another role in food contamination through the Pet food scandal of 2007 which occurred in USA even prior to the Milk scandal, wherein pet food in USA was produced using 'melamine-tainted wheat gluten' resulting in deaths of thousands of pets including chicken. Not surprising that humans who consumed those chicken that had eaten melamine wheat, also died. Usually animal foods are generally less stringently regulated as compared to foods that humans consume, and this scandal was a reminder that

ignoring any step in the food chain can prove to be dangerous to humans as well. Further, the famous Horse-meat scandal is not unknown to anyone where horse meat was replaced with beef in beef-burgers in Ireland in 2013 owing to the fact that horse meat was cheaper than beef and was easily available across European countries. Another case of intentional food fraud occurred where salmonella contaminated peanut butter was knowingly shipped across states in United States.

1.3 Food safety and the cases of food adulteration in the healthcare sector:

Food safety is definitely a public health priority. But the same does not appear to be true for India. India is no exception to cases of food adulteration and in fact the cases are rising every day. Somewhere around the year 1988, Behala, a suburb in the south-west of the then Calcutta witnessed an unfortunate tragedy where hundreds of people fell sick and were left paralyzed after consuming rapeseed oil. It was discovered that a chemical used in making aero fuel, TC Phosphate was mixed with the oil that led to the ailment. A similar case happened in the year 1972 in North Calcutta (now Kolkata) where a number of people were physically crippled after consuming adulterated mustard oil. Undoubtedly with urbanization, the development of various food processing technologies has made the food industry susceptible to contamination. Various emulsifiers, thickening agents, food enhancers, colouring agents, sweetening agents are being added to food products to increase their shelf life and also so that the food looks more appealable to consumers.

1.3.1. Food safety inside the hospital canteens in India

Presence of adulterated food in the healthcare services sector is an alarming situation to deal with. For example, hospitals comprise of a vulnerable population of patients dealing with several kinds of diseases which is why, hospitals are expected to be more hygienic than any other place. Usually, the food served to the patients is being channelized through the canteens established by the hospital management and is normally prepared and served inside the hospital premises itself. While some hospitals may be clean and may meet the safety standards, it is not the case with all.

In the year 2015, Vishakhapatnam witnessed an incident where 375 kilograms of adulterated red gram was found in a hospital canteen being served to consumers. The canteen was later sealed by the food safety wing of the Vishakhapatnam Municipal Corporation. The Jaipur High Court *In Re: Public Health – Protect the present and safeguard the future from food adulteration* has expanded upon the meaning assigned to the term 'Right to life' under article 21 of the Constitution of India and has observed that 'Life' refers to a safe and healthy life. The court has also emphasized upon the duty of the welfare state under article 47 of the Constitution of India to protect its citizens against hazardous food substances. Further in February 2025, a state-wide inspection of canteens of the government hospitals was done in Telangana state to see if the safety regulations were being complied with. The inspection was carried out across 19 hospitals wherein violations relating to the food hygiene were found common to all.

As diet forms a key component of the secondary healthcare services, it becomes important to mention that hospitals are instrumental in promoting and maintaining good health of their patients. In order to sustain a healthy life, a well-balanced diet full of nutrition would be central to a patient's recovery. The Ministry of Health and Family Welfare, Government of India has issued Guidelines for Modern kitchen and Dietary Services in the year 2022. The district hospitals will be developed as training centres for dietary services to be provided to hospitals, mid-day meals in schools too. The primary aim of issuing the guidelines is to provide for clean and hygienic food to indoor patients. Establishing dietary services inside the hospitals would also include Dietary OPD Clinics, Nutrition Counselling etc. Studies have shown that the patients, especially those in the Intensive Care Unit (ICU) tend to eat less because of the fatigue of the illness and thus are malnourished, which leads to poor health outcomes. Hence, the need for the dietary services is emphasized.

1.3.2. Food adulteration controversies on the Indian landscape

The World Health Organization (WHO) has reported that food contamination results in getting 600 million people sick, further leading to death of around 4,20,000 people approximately. A majority of the victims happen to belong to the poor and marginalized sections of the society. Unfortunately, India has one of the highest numbers of cases of food contamination in line with Africa and other South –East Asian countries. The year

2015 witnessed a ban on the popular Maggi noodles manufactured by Nestle India. The Food Safety and Standards Authority of India (FSSAI) in its complaint alleged excessive amount of lead and Monosodium glutamate (MSG) present in the product that exceeded the permitted limits. That was the reason the product failed the to clear the laboratory test and were temporarily banned in the month of June 2015 across several states in India. Resultantly, Nestle India pulled over the Maggi noodles from the market and destroyed approximately 35,000 tons of the product. The FSSAI had also alleged unfair trade practices over mislabeling over the package. The packaging claimed 'No added MSG' but the same was found to be present during the lab testing. However, the ban was lifted later and the product was in the stores by November. 2015. Meanwhile, as a dreary reminder of what happened in 2015, two years later, Maggi noodles again failed to clear a laboratory test in District Shahjahanpur, Uttar Pradesh in the year 2017. A fine was also imposed on Nestle India along with its distributors and few sellers.

In April, 2024 the National Consumer Disputes Redressal Commission (NCDRC) had finally put the 2015 controversy to rest and dismissed the complaint of the government against Nestle India. Maggi had earlier offered to withdraw the claim for 'No added MSG' on the product.

Further, the recent incidents of food safety violations in the city of Hyderabad, India has brought surprising facts to light. 90% of the eateries have found to be violating the food safety regulations. During the inspections carried out in the Hyderabad city, it has been discovered that storage of expired food is a common practice amongst various restaurants and hotels in the city. Also, the eateries which include several sweet shops and bakeries have been found to be using expired, adulterated products. The condition is worse at hotels serving non-vegetarian food where meat is found to be rotten as it was kept under unhygienic conditions and the ideal temperature for the storage was not maintained. Some of the eateries were found to be infested with cockroaches and rats. Sanitary conditions are subpar and food is usually prepared around stagnant, contaminated water.

It is pertinent to mention here that food cooked in such contaminated and unsanitary conditions are bound to trigger allergic responses and cause digestive disorders. Also, consumption of expired or rotten food products on a regular basis increases the likelihood of developing cancer as well because expiration dates play a crucial role in food safety. Once expired, a product is no longer considered safe to consume. Hence, dairy products, meat, and packaged goods which are perishable in nature require an expiry date within which the product needs to be consumed. Consumption of expired or rotten food products may lead to food poisoning, allergic reactions, increased risk of food borne diseases and digestive disorders. Most importantly, unsafe foods create a vicious cycle of malnutrition, food related disorders, and other disease leading to increase in the healthcare expenditure, affecting the socio-economic development of the country. India is prone to outbreaks of food poisoning due to the fact that cultural and religious events are more frequent in the Indian setting which calls for food to be prepared in large quantities, coupled with an unhygienic environment and, fluctuating weather conditions making it more susceptible to loss of nutrition and becoming unfit for human consumption.

2. Food safety and public health concerns in India – Regulatory fallacies

Both developed and developing countries face the problem of food adulteration but instances of adulteration prevail more in developing countries. India is one such example of a developing country where instances of food adulteration are rampant due to weak regulatory systems and policies. Apart from India, many developing countries, like Pakistan, Bangladesh, Vietnam, Somalia etc. have been going through this serious issue of food adulteration where approximately almost 57% of the health risks arise due to the presence of contaminants or adulterants in the foods. Adulteration undoubtedly makes the food consumption unsafe, unhygienic and sometimes fatal to human population. Serious diseases like cancer, asthma, ulcers etc. are majorly a result of the long-term consumption of adulterated food products.

Despite the fact that India has multiple laws and regulations relating to food safety, food adulteration is a common problem that persists majorly due to weak enforcement and regulatory gaps. Public health impacts of consuming adulterated food can be witnessed at various levels i.e. individuals can have short term health impacts in the form of food poisoning, diarrhoea or nausea. The long-term health impacts might be neurological disorders, kidney failure or cancer. Consumption of adulterated food for a long period of time may have health impacts which may be asymptomatic in nature leading sometimes to developmental issues in children as they are vulnerable to food adulterants. We are living in an India where the essential oils from green cardamoms are

extracted and thereafter, they are sold in the open market by mixing them with the good quality green cardamoms and coloured saw dust is being mixed with the red chillie powder to make it appear like authentic red chillie powder in order to increase its quantity. In addition to that, saw dust is also added to tea which is injurious to health and causes cancer. Literature on the subject revealed that 'Lead chromate' is mixed with spices like turmeric that leads to abortion, paralysis and brain damage. Varieties of almonds are also available in the market where the essential oils are extracted beforehand. Fraudulent packaging would make the product appear healthy with all essential nutrients but the mislabeling on the packaged products is no guarantee of the authenticity of the product. One of the ways to identify the fraud is to observe if a particular food product is available at a low price than expected. Another impact of consuming adulterated food is that it increases the cost of healthcare on individuals as well as on the government and results in loss of productivity.

Apart from adulteration, soil and water remain the main source of food contamination in India. Vegetables and other agricultural produce grown in the vicinity of industries manufacturing metals, contain high levels of metals. For example, lead and arsenic poisoning is very common the state of West Bengal due to establishment of industries on a large scale, which leads to groundwater contamination. It becomes relevant to mention here that consumers are mostly unaware of the adulteration that is already present in their food. They may choose to buy pre- packaged food or may buy it 'loose' i.e. without any packaging and branding. This fact needs to be highlighted because the illiterate consumers are either completely oblivious of the adulteration or may get confused with identification of the adulterants, thereby falling prey to the malpractices and irregularities. A very common example would be sale of pulses or grains where sand, stones, gravels are being mixed with the pulses/grains to increase the quantity of the product. Further, healthy grains are mixed with moldy grains and cannot be thus identified easily. Food adulteration, thus has no limits and can be easily done with various other food products like cooking oils, pulses, butter, milk etc. and the list is endless. Many a times, black pepper seeds are replaced with papaya seeds and are coated with charcoal dust. What is surprising is that despite the alarming effects of these adulteration practices, the legislative and regulatory measures have failed to be effective. The ill effect of food adulteration on public health are not unknown and is a major concern for individuals to suffer from long term illnesses which sometimes prove fatal too. Thus, the paper seeks to analyze the existing law on the subject and tries to identify the gaps within the regulatory framework in India.

2.1 Epidemiological studies from India measuring the impact of food adulteration on public health

In the year 2012 a study in India on outbreak of food borne diseases from 1980-2009 caused due to adulteration, or contamination were reviewed. The study revealed a total of 37 outbreaks involving 3485 individuals who were affected by the food poisoning. Although bacterial contamination was found to be a major cause, deaths occurred in higher number due to the presence of chemical contaminants in the food. In order to assess awareness and perceptions of food adulteration amongst individuals, a study was conducted in Chennai by way of a survey with 222 respondents. The study revealed that almost 74% of the population was aware of the rising food adulteration practices. But 28% of the population was completely unaware that food adulteration that results from manufacturing and processing food can also have adverse health effects on humans. Further, 33.33% of the population was slightly aware about the long-term effects food adulteration such as cancer. However, a general consensus regarding adverse health impacts was reached amongst the respondents. 37.62% agreed and 30.48% strongly agreed that the nutritional content of the food is strongly compromised due to adulteration practices. The study revealed that a majority of the population was aware about the long-term health impacts of adulterated food such as cancer, organ damage, and other chronic illnesses but there still exists a gap in knowledge about specific health risks. The aforementioned study further revealed an urban-rural divide with respect to awareness about food adulteration. There was found to be a geographical disparity wherein people from urban areas were more aware of food adulteration as compared to people in rural areas who were less aware of the same.

2.2 Milk adulteration in India

Milk is one of the most common food products prone to adulteration. Mixing of chalk powder and detergents has become very common in India. A mixture of caustic soda, urea and refined oil along with detergents is made to manufacture synthetic milk as a substitute of original milk. A study was conducted in different regions of

Delhi, Faridabad, Gurgaon and Noida. Both packaged and unpackaged samples were collected from each region. The study revealed that all the milk samples were collected with neutralizers. The job of neutralizers is to prevent curdling of the milk, thereby increasing the shelf life of the milk. Neutralized samples mostly samples of packaged milk, which are usually believed to be safer as compared to unpackaged milk. Urea was added to increase the consistency of the milk, which, in turn is harmful for the kidneys and lead to renal failure. The Food Safety and Standards Authority of India, the statutory body that regulates food safety in India conducted a national survey in the year 2015 and reported that 44.69% of milk samples were found to be adulterated with skimmed milk powder (SMP). The study also brought to light the cases of adulteration in the sub-urban areas of West Bengal, Gujarat and other states.

3. Legal framework relating to food safety in India

In India, multiple legislations exist in order to address the issue of food adulteration. The evolution of the legal framework stems from the Prevention of Food Adulteration Act, 1954 which was the primary legislation governing food adulteration till 2006. The Food Safety and Standards Act came into existence in the year 2006 repealing the Prevention of Food Adulteration Act, 1954.

The main purpose of enacting the Prevention of Food Adulteration Act, 1954 was abatement of adulteration in food articles which are available for human consumption. The said Act emphasized upon the 'wholesomeness' of food and aimed to ensure that the food remains unadulterated. However, the Act was focused more on imposing penalties and did not evolve effective prevention methods or strategies for preventing adulteration in food. The definitions provided under the said Act were unclear and vague and were open to multiple interpretations. Also, no permissible limit of contaminants was provided by the Act. Apart from this, the burden of implementation of the provisions of the Act was on the state and local authorities. The problem with the implementation mainly arose because of the fact that the local authorities usually lack the required expertise and resources for an effective implementation. The Act also lacked the incorporation of modern technologies in food processing like neither nanotechnology; nor the emerging issue of genetically modified foods is addressed by the Act.

3.1 Introduction of the Food Safety and Standards Act, 2006

It was in the year 2006 that the legislature enacted the Food Safety and Standards Act that was aimed at removing the ambiguities in the previous 1954 Act and to consolidate the laws relating to food safety and food standards in India. The Food Safety and Standards Act has repealed all other laws and several orders attached to it such as the Food Products Order, 1973, Milk and Milk Products Order, 1955 etc. Further, the Food Safety and Standards Act established the Food Safety and Standards Authority of India, (FSSAI). It is the regulatory body responsible for regulating the manufacture, processing, storage, distribution, sale, import and safe handling of food products in India.

New rules framed by the Central government under the Food Safety and Standards Act 2006 include the following:

1. Food safety and Standards (Licensing and Registration of Food Businesses) Regulation, 2011. Schedule IV of the regulation provides that in order to prevent food adulteration; the food business operators must meet the necessary sanitary and hygiene requirements to avoid health risks.

2. Food safety and Standards (Packaging and Labeling) Regulation, 2011.

3. Food safety and Standards (Laboratory and Sampling Analysis) Regulation, 2011. This regulation provides for food sampling and checking the safety of the food articles to prevent or avoid food adulteration. This acts a crucial step to stop the adulterated food from being sold to public at large.

4. Food safety and Standards (Food Products Standards and Food Additives) Regulation, 2011.

5. Food safety and Standards (Food recall Procedure) Regulation, 2017. Under this regulation, any food product which is found to be adulterated and unsafe for human consumption can be recalled under these regulations. In order to ensure compliance of the recall procedure, the mandate of the FSSAI demands the business operators to submit a 'pre' and 'post' recall reports to the Chief Executive Officer of the FSSAI.

3.2 The Bharatiya Nyaya Sanhita, 2023: Criminalizing food adulteration

The Bharatiya Nyaya Sanhita, 2023 (BNS, 2023) considers food adulteration an offence and makes it punishable. Adulteration and intentional selling of food or drink is made punishable with an imprisonment of six months along with fine. Similarly, adulteration of drugs and its sale thereof has been made punishable with a term of one year and six months respectively. The inclusion of food adulteration and drug adulteration are considered as 'offences against public health' and has been included under the BNS, 2023 through a separate chapter relating thereto.

One of the objectives of the present paper is to critically analyze the food safety regime that is present in India. With such a vast population, India has both organized and unorganized food sectors. On the one hand there are several manufacturing units which engage in unfair practices and fail to adhere to food safety norms; on the other hand, a large number of individuals are consumers to the unorganized food sector which cater to economically weaker section of the society (street foods are popular but the hygiene and cleanliness concern are grave). Food safety concerns are greater in case of the latter. Food safety revolves around preparation and handling of food articles in a manner that the risk of individuals falling ill due to food borne illnesses is reduced. One of the paramount rights enshrined under the Constitution of India is article 21 dealing with 'Right to Life' and right to healthy food is undeniable a part of it. Adulterated or unsafe food articles are a direct threat to public health and directly violate the mandate of article

21. Further, a conjoint reading of articles 21 and 47 establishes that protection of human life and health is a duty cast on the state to achieve.

4. The Role of FSSAI and Indian Judiciary in Strengthening Food Safety Standards

Food safety refers to the process and practices by which the preparation, handling and storage of food articles are handled in a manner to prevent contamination of food thereby further reducing the risk of food-borne illnesses. India's food safety landscape is governed by the Food Safety and Standards Act, 2006. Food Safety and Standards Association of India (FSSAI) is the regulatory body established under the 2006 Act. The Act has laid down food safety standards to ensure the availability of food which is wholesome and safe for human consumption. FSSAI is responsible for enforcing these food safety standards and taking regulatory measures to curb food adulteration practices around the country.

Although the legal framework under the Food Safety and Standards Act, 2006 is comprehensive, the problem lies with the implementation. From time to time, FSSAI has been conducting inspections and imposing penalties for non-compliance with the safety standards. Despite this, smaller food manufacturers or smaller processors often do not comply with the safety standards and cases of food adulteration do not come to light. Similar is the case with cloud kitchens being run from houses and other small places where monitoring necessary compliance becomes an issue. Further, enforcement of the provisions of the 2006 Act is a challenge in the informal sector too. Street food vendors or small food manufacturers (especially milk processors) do not maintain enough hygiene and contribute to malpractices to maximize profits. Lack of hygiene, maximization of profits and lack of inspections make the informal food sector more prone to adulteration.

4.1 The role of FSSAI in food regulation: Recent initiatives

4.1.1 Training Program(s) in India

Emphasizing upon the importance of regular food safety surveillance, FSSAI has focused on training food business operators. Food Safety Training and Certification Program (FoSTaC) is the nationwide program aimed at training 2.5 million food handlers by March 2026. The initiative also includes strengthening surveillance at warehouses used by e-commerce platforms. The need for food safety surveillance at tourist destinations is also one of the measures along with other consumer awareness initiatives to be taken by the states.

4.1.2. Detect Adulteration with Rapid Test Book (DART)

In order to induce awareness among the consumers and to reduce their dependency on scientific lab tests for testing if the food they consume is adulterated or not, the FSSAI has come up with the DART booklet. The booklet provides for quick tests for detection of food adulteration and can be conducted at households by anyone.

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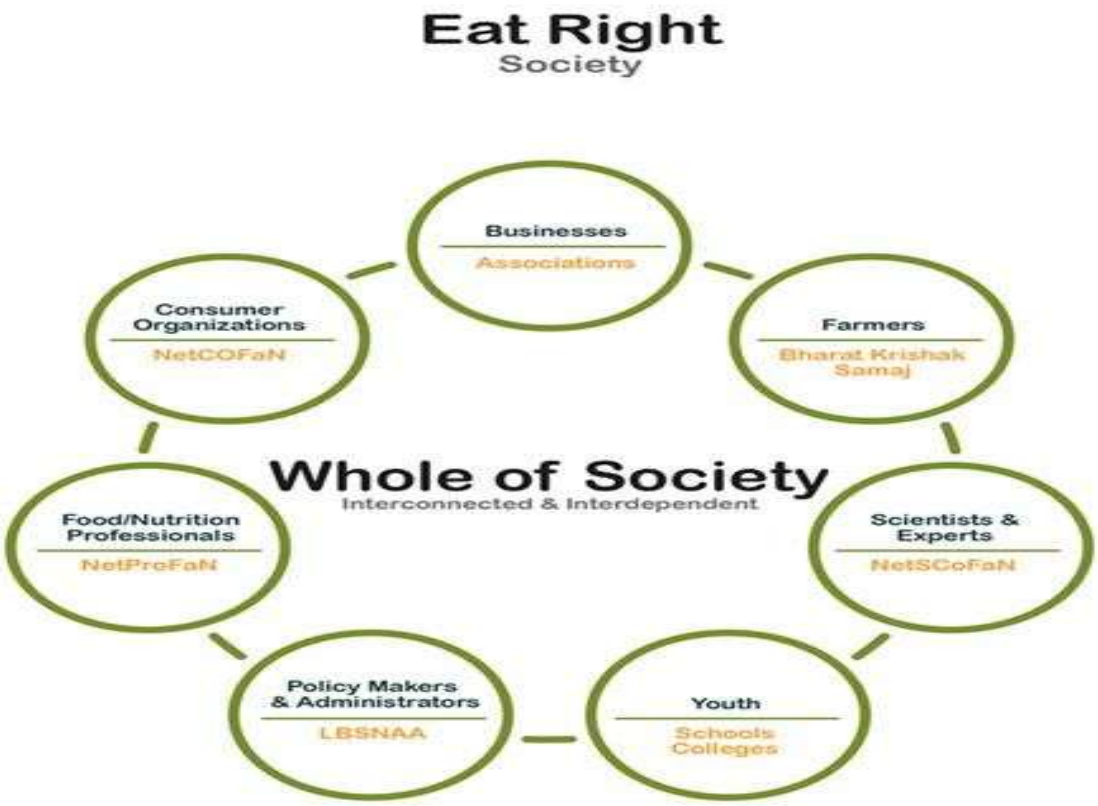
4.1.3. The 'Eat-Right- India' Movement

In order to transform India's food system, Eat right India movement has been launched by the Government of India to ensure healthy, safe and sustainable food for India's citizens. The movement is regulatory in nature and also aims at capacity building amongst various stakeholders such as food business operators, the government, civil society organizations, consumers/citizens, healthcare experts, policy makers etc. The below mentioned graph fairly depicts the integrated approach adopted by the government as it encompasses food, agriculture, health and other ministries.



The Eat Right Movement is attached with the National Health Policy 2017. As opposed to curative healthcare that addresses curing of diseases, the movement aims at promotive healthcare whereby individuals are empowered to take control of their health and well-being through education, awareness and availing policy initiatives by the government from time to time. Preventive healthcare is also emphasized by the Eat Right Movement. Moreover, government flagship programs like Ayushman Bharat Scheme, POSHAN Abhiyan, Swachh Bharat Mission are also aligned with the aforesaid movement.

4.1.4. E-commerce food operators and consumer protection guidelines by FSSAI.

E-commerce food business operators such as Swiggy, Zomato, Big Basket have received directives from the FSSAI whereby the platforms have been asked to strictly adhere to food safety norms including following hygiene practices, maintaining food quality standards and keeping the food free from contamination. The consumers must be provided with complete information related to the food product available on e- platforms on sale. The directive seeks to maintain transparency and to ensure that the consumers receive accurately represented products.

The advisory on the food safety compliance also stressed on the need to prioritize well trained staff who can maintain safe handling and hygiene while the food product is in transit. Further, food products being delivered by e-platforms must have sufficient remaining shelf life at least of 30% or at least 45 days before the product

expires. Display of FSSAI license or registration number is also encouraged enabling consumers to make an informed purchase.

4.2 Judiciary and the Food Safety Enforcement in India

Centre for Public Interest Litigation v. Union of India brought to fore the role of FSSAI in regulating the food safety standards set by the Food Safety and Standards Act, 2006. The petitioner had approached the court praying for constituting an independent technical committee to examine and evaluate the harmful effects of soft drinks on human health especially its effects on children. The other reliefs prayed for related to mandatory disclosure by the manufacturers about the contents and quantity of the soft drinks mentioned on the labels. Moreover, the petitioner also sought to prevent misleading advertising by the manufacturers targeted at vulnerable population including children. The petitioners also wanted warnings to be issued in case any harmful ingredient is present in the soft drink.

The case of *Parle Beverages Pvt. Ltd. And Ors. Vs Thakore Pratapji Kacharaji* revolved around the issue of food adulteration, an offence punishable under sections 272 and 273 of the Indian Penal Code, 1860 (Now Bharatiya Nyaya Sanhita, 2023). The case revolved around the fact where insects were found inside a sealed bottle of soft drink 'Thumbs up' supplied by the Parle Beverages followed by a complaint under the provisions of the then Indian Penal Code (IPC). The Supreme Court of India had observed that in the absence of an inconsistency between the IPC and the provisions of the Prevention of Food Adulteration Act, 1954 the complaint can be filed under either of them invoking the jurisdiction of court in such cases.

Swami Achyutanand Tirth and others v. Union of India and others, a case related to the sale and expansion of adulterated milk throughout the Indian territory led to the filing of a public interest litigation before the Supreme Court of India. The court had issued specific directions to the Central and the State governments to abide by the provisions of the Food Safety and Standards Act, 2006 strictly. The State Food Safety Authority (SFSA) was given the task of identifying the high-risk locations and time periods when the consumption of milk is higher as compared to normal times. Adequate lab infrastructure for testing samples of adulterated food along with sufficient staff was also emphasized upon by the Court.

The Supreme Court, this year, has reiterated that public health considerations would always take precedence over principles of reformative justice and hence, stricter penalties for food adulteration cannot be avoided. In this case, the accused persons who were convicted under the Prevention of Food Adulteration Act, 1954 demanded the benefit of probation under the Probation of Offenders Act citing principles of reformative justice. They pleaded that a lighter sentencing regime has been introduced by the new Food Safety and Standards Act, 2006 ('FSS Act' for brevity) and thus the benefit of the same must be extended to them. The said plea was dismissed by the Court on the ground of section 97 of the FSS Act, 2006 which is the savings clause and aims to preserve the penalties for offences committed before its repeal.

5. Conclusion and Suggestions

The judicial pillar of our democratic system in India has been instrumental in upholding the spirit of article 21 of the Indian Constitution. Securing a dignified life undoubtedly includes food safety for one's population. There is no dearth of effective laws in India when it comes to food safety regulation. Right from the Prevention of Food Adulteration Act, 1954 to the FSS Act, 2006 the Indian Legislature has focused strongly on preventing and penalizing the wrongdoers engaged in the food adulteration activities.

Safeguarding public health calls for an integrated approach wherein a smooth coordination between the Indian Judiciary and the FSSAI is required for the effective monitoring and enforcement of the food safety standards in India. There is a need to strengthen the surveillance mechanisms when it comes to food safety measures. Timely and appropriate surveillance in detecting food adulteration would benefit the public health in general. If the food contamination or counterfeit food products can be identified well in advance, that would help in maintain the consumer confidence in the food industry as well.

Public awareness campaigns to educate the stakeholders about the ways and manner in which their everyday food is susceptible to adulteration, can help in raising the consumer awareness too. Because food has a direct relation to the overall health of an individual and also to prevent the individual from a state of illness/disease, it is important that the food quality and other aspects related to food manufacturing, processing, distribution must

be carefully regulated by the governments, Central and State. Health, being a subject in the State List, the state governments must be held accountable for any failure in the implementation of the Food Safety Standards Act, 2006.

Additionally, mandatory labelling and disclosure of ingredients and additives must be strictly monitored by the FSSAI. Publishing inspection reports and making them public would help raising the awareness amongst the consumers to help them choose the right food articles for themselves. Technology integration can be introduced as a food safety measure to identify tampering with the food articles. Accountability mechanisms can exist at several levels. For example, sudden and unpredictable checks and stricter penalties in the form of fines and imprisonment, and holding food industry/food manufacturers accountable would be an effective method of meeting up food safety regulations. Apart from this, consumers or anyone identifying a violation must be encouraged to report those violations. And lastly, revised laws with stringent legal framework and dedicated courts to deal with cases relating to food adulteration and food safety is an urgent need of the hour.

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