

Chapter 6

Survey Findings

1. Introduction

6.1 The research methodology for the present study is a mix of desk-based analysis of data, review of literature and the survey carried out amongst the stakeholders of the food safety regulatory system in the country. While the results of the desk-based research are presented in the previous chapters, this chapter presents the survey findings.

6.2 The various stakeholders of the food safety regulatory system and their roles have been described in Chapter 3. The fixed-survey was carried amongst the stakeholders to gather information on the current status of laboratory and analytical capabilities for food testing in the country; state of integration of food monitoring and surveillance systems with the health management systems; adequacy of the risk assessment mechanism; and to explore the need for implementing an integrated risk assessment system that leads to a strong risk analysis framework. As stakeholders have different roles, one single questionnaire would not have served the purpose of gathering information. Hence, ten different questionnaires with ten questions each were designed for the stakeholders, and they are placed at **ANNEX I to X**. The number of responses received from each category is given in the table below:

Table 3: Stakeholder questionnaire and number of responses received

Stakeholder	Questionnaire	Number of responses received
Regulator	Central (ANNEX I)	Response received
	States (ANNEX II)	Out of 36 State/UT (s), only six

Stakeholder	Questionnaire	Number of responses received
		responded
Food Industry	Placed at ANNEX III	10
Research Institutes including referral laboratory	NIN (ANNEX IV)	Response received from all 5
	NCDC (ANNEX V)	
	AINPPR (ANNEX VI)	Response received from all 5
	IITR ANNEX (VII)	
	CFTRI ANNEX (VIII)	
Food Scientists/Researchers	ANNEX IX	17
Consumers	ANNEX X	61

2. Stakeholder-wise analysis of responses received

A. Regulators (Central as well as State/UT(s))

Analysis of the response of Central Regulator

6.3 FSSAI as the central food regulator and the State Food Safety Commissioners carry out functions as per the responsibilities assigned to them as per the FSSA, 2006, rules and regulations made thereunder. As per the mandate of the Act, the twin objectives of the Authority are: laying down science-based standards for food and ensuring safe and wholesome food for the consumers. Therefore, it is responsible for undertaking activities to achieve these objectives and also for the overall food safety policy framework in the country. The questions addressed to the central regulator, therefore, focussed on broad areas of: adequacy of the current status of laboratory and analytical capabilities for food testing in the country; risk assessment mechanism including conduct of Total Diet Study (TDS), if any; monitoring & surveillance of food including imported food; food safety policy; integration with other relevant networks like IDSP and implementation of the

integrated risk assessment system; and the study of such international systems, if any. The response received from the central regulator is tabulated below:

Table 4: Response of the Central Regulator (FSSAI)

S.No	Question	Response
1.	Is the current status of Laboratory & Analytical capabilities for food testing in the country adequate?	No
2.	If the answer to Question no.1 is NO, then what are the reasons for inadequate Laboratory & Analytical capabilities for food testing in the country?	(i)Inadequate/paucity of funds (ii) Lack of trained manpower
3.	Is the existing food risk assessment mechanism adequate to ensure safe food?	No
4.	Has any Total Diet Study been conducted in the country?	No
5.	Whether food monitoring & surveillance system (IT based or non-IT based) has been implemented in the country including the imported food received at the various ports?	Yes, IT-based
6.	If answer to above question is YES, then has it been integrated with the epidemiological data {Integrated Disease Surveillance Programme (IDSP)} of National Centre for Disease Control (NCDC),Health Management Information System (HMIS)} of Ministry of Health & Family Welfare and All India Network Project on Pesticide Residues (AINPPR) of the Ministry of Agriculture ?	No
7.	Are there any plans to integrate the various stand-alone elements to develop & implement an integrated risk assessment system like the National Food Risk Assessment Centre (NFSRAC) that leads to a strong risk analysis framework?	Yes
8.	Has the National Food Safety Policy been articulated?	No response to this question
9.	Has a study been done of the risk analysis framework put in place by other countries? If YES, then which of the following countries:	(i)Canadian Food Inspection Agency (ii)European Food Safety Agency

6.4 It is agreed by the Central regulator that the current status of laboratory & analytical capabilities for food testing in the country is not adequate and reasons assigned for that are the paucity of funds and lack of trained manpower. It is also agreed that existing food risk assessment mechanism is not sufficient to ensure safe food. Neither a food safety policy has been enunciated, nor a TDS conducted. It is informed that though an IT-based monitoring & surveillance system has been implemented in the country including the imported food received at the various ports, it is not integrated with other relevant networks like IDSP, HMIS, and AINPPR. It has also been informed that Canadian and European systems of food safety systems have been studied and there are plans to integrate the various stand-alone elements to develop & implement an integrated risk assessment system like the National Food Risk Assessment Centre (NFSRAC) that leads to a strong risk analysis framework.

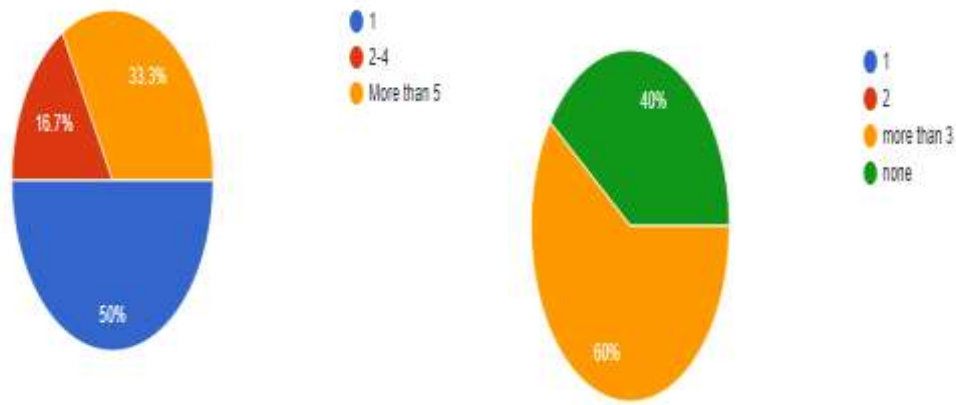
Analysis of the response of the State Regulators

6.5 Based on their work, the questionnaire for the State regulators focused on the food testing and analytical capability in the State/UT(s) in public as well as private sphere; factors impacting the availability of this infrastructure; monitoring & surveillance activities in the State/UT(s); and communication with the central regulator as well as consumers.

6.6 The questionnaire addressed to the State regulators was e-mailed on 25th January 2018 to all 36 Food safety commissioners on their official e-mail ids (accessed from FSSAI website), and despite repeated reminders following that e-

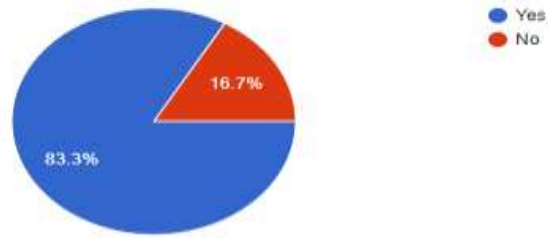
mail, responses were received from only six States viz., Goa, Maharashtra, Gujarat, Kerala, NCT of Delhi and Uttarakhand. 50% of the respondents felt that the current status of food testing and analytical capability was inadequate in their State and the reasons included lack of proper planning, the paucity of fund, lack of trained manpower and training. Three States had only one laboratory (50%), one had between 2-4(16.7%), two more than 5 and four of them (60%) were NABL accredited(**Figure 14**). Two states had more than ten private FSSAI accredited laboratories; 5-10 in one state and 1-5 in two states.

Figure 14: Status of functional State food testing laboratories including NABL accreditation



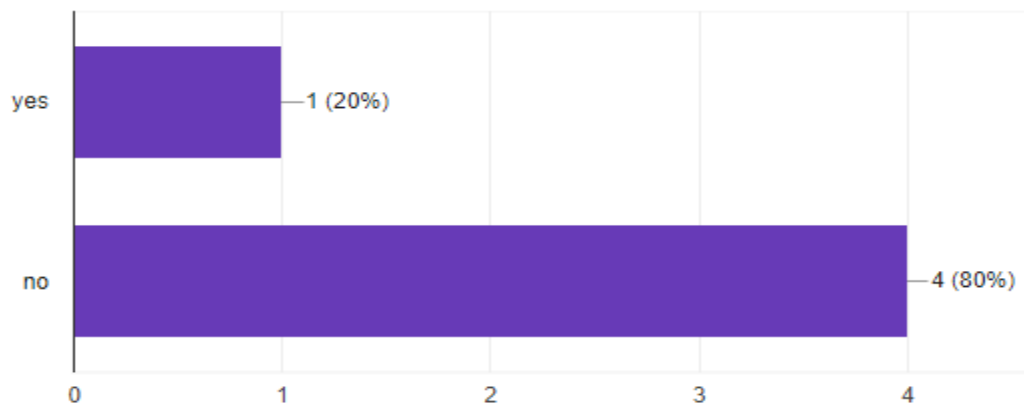
6.7 Five states (83.3%) responded by saying that they had a functional food monitoring and surveillance system in their state (**Figure 15**).

Figure 15: Status of functional food monitoring and surveillance system



6.8 Two states reported collecting samples in the range of 1-30, one collected in the range of 51-70 and two states collected more than 100 samples in a month. The result of food monitoring and surveillance is sent to FSSAI by 80% of states through e-mail, by post (hard copy), uploaded on the portal, while 20% do not report the results at all to FSSAI. Similarly, only one state (20%) was making these available to the consumers (**Figure 16**).

Figure 16: Status/Method of reporting monitoring and surveillance results to FSSAI



B. Food Industry

6.9 Apart from soliciting the feedback of the food industry on the current status of food testing and analytical capabilities in the country, the industry questionnaire also focussed on risk analysis framework including risk assessment mechanism in their organizations, regulatory impact assessment (RIA) and the need to have an integrated system for risk analysis. Ten responses were received from industry including consulting firms and government-owned industry boards/council. 70% of these respondents are from large companies and balance from medium-sized companies. 80% of the respondents are at the senior level and rest at the medium level.

6.10 The industry was unanimous in its response on the inadequacy of the laboratory & analytical capabilities for food testing in the country and primary reason attributed to this is the lack of trained manpower followed by lack of proper forecasting of the requirement. While 60% of respondents agreed that FSSAI is implementing science-based risk analysis before preparing any regulations, 70% recorded that RIA is not implemented by FSSAI and thus supported its implementation **(Figure 17)**.

6.11 71.4% of the respondents stated existing food risk assessment mechanism is not adequate to ensure safe food in the country. So far as surveillance by FSSAI of the food products in the market is concerned, only 20% felt it was doing it, 30% said 'no,' and 50% thought it was doing it sometimes **(Figure 18)**.

Figure 17: Implementation of risk analysis and RIA by FSSAI

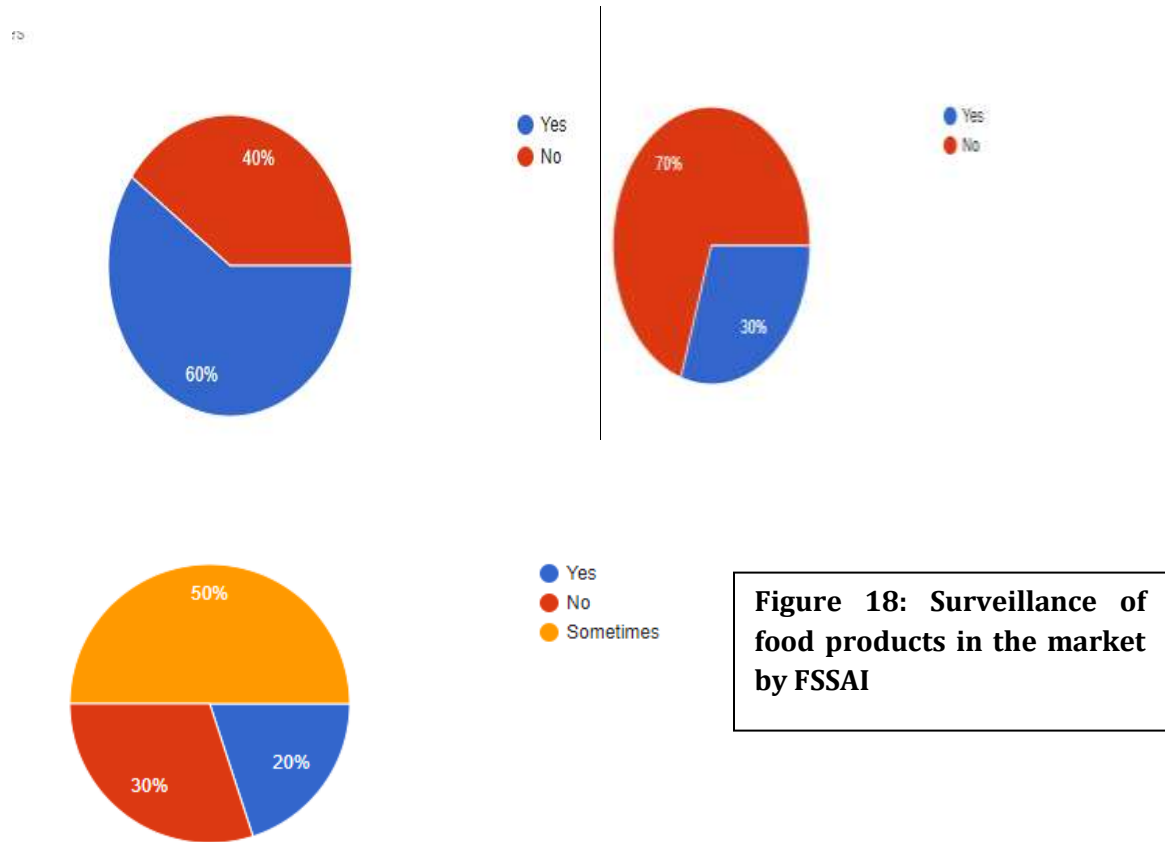


Figure 18: Surveillance of food products in the market by FSSAI

6.12 All the respondents were in favour of IT-based food monitoring & surveillance system to be implemented in the country including the imported food received at the various ports and to have an integrated system for risk analysis.

C. Research Institutes including referral laboratory

6.13 All the public research institutes selected for the survey have a vital role to play in the food safety scenario of the country as explained in Chapter 3 of the study. Apart from collecting responses on common questions like the status of current food-testing laboratory capabilities in the country, the focus of the questionnaire for research institutes is also on collecting data on their contribution to the food safety

system through research, data generated, etc. Specific questions based on their mandate were asked, for example, NIN was invited to share information about pan country TDS conducted if any. The response received from all the five institutes is tabulated in two tables. Table 5 (a) has the answer to common questions while Table 5(b) has institute specific responses.

Analysis of research institutes responses to common questions

6.14 The responses received to the common questions are tabulated below:

Table 5 (a): Responses to the common questions

Institute	Level of Mgt. responding	Adequacy of the current level of the lab. and analytical facilities for food testing	Reasons for the inadequate lab. and analytical facilities for food testing	Number of labs with food testing capabilities in your institute	Are these labs NABL accredited ?	Is the existing food risk assessment mechanism adequate to ensure safe food in the country?
NIN	Senior (Scientist E)	Not adequate	(i)Lack of proper forecasting of requirement (ii)Inadequate/Paucity of funds (iii)Lack of trained manpower	1-3	Yes	Yes
IITR	Senior Principal Scientist	Not adequate	Inadequate/Paucity of funds	4-6	Yes	No
NCDC	Middle (Senior Medical officer)	Not adequate	Lack of trained manpower	None	NA	No response
AINPPR	Senior (Senior scientist & Network coordinator)	Not adequate	Inadequate/Paucity of funds	10-30	Yes	Yes
CFTRI	Senior (Chief Scientist and Director, RFL Mysore)	Not adequate	Lack of trained manpower	1-3	Yes	No

6.15 All the research institutes were unanimous in their response to the inadequacy of the laboratory and analytical capabilities in the country and the lack of trained manpower. While two institutes are of the opinion that food risk assessment mechanism is adequate to ensure safe food in the country, two think it is not, and one has not responded.

Analysis of research institutes responses to specific questions

Table 5(b): Responses to institute specific questions

Institute	NIN	IITR	NCDC	AINPPR	CFTRI
Is the epidemiological data {Integrated Disease Surveillance Programme (IDSP)} of National Centre for Disease Control (NCDC), Health Management Information System (HMIS)} of Ministry of Health & Family Welfare and All India Network Project on Pesticide Residues (AINPPR) of the Ministry of Agriculture shared with your institute?	No	No	NCDC said yes there should be sharing of the epidemiological data of IDSP of NCDC HMIS of Ministry of Health & Family Welfare and AIPPR of the Ministry of Agriculture or data from any premier research institute with FSSAI. However, currently it is not sharing its data with FSSAI.	IDSP & HMIS data was not being shared with AINPPR.	No

Institute	NIN	IITR	NCDC	AINPPR	CFTRI
Do you think there is a need to integrate the various stand-alone elements to develop & implement an integrated risk assessment system like the National Food Risk Assessment Centre (NFSRAC) that leads to a strong risk analysis framework?	Yes	Yes	Yes	Yes	Yes
Does your institute share any data emerging from its studies/analysis with FSSAI on a regular basis through a formal arrangement?	No	No	No	No	Yes
Has a pan-country Total Diet Study been conducted?	No	NA*	NA	NA	NA
Has any pan India level study been conducted by your institute to quantify potential toxic agents in different matrices in food?	NA	Yes (URL was not shared)	NA	NA	NA
Does Integrated Disease Surveillance Programme (IDSP) of NCDC cover all the States/UTs in the country?	NA	NA	Yes	NA	NA
Are regular meetings held with FSSAI to discuss the foodborne illnesses	NA	NA	No	NA	NA

Institute	NIN	IITR	NCDC	AINPPR	CFTRI
and its public health impact?					
Is the data on pesticide residues collected on an All India basis? Please share the link/URL where it is available.	NA	NA	NA.	Yes. Annual reports are available with Joint Secretary (Plant Protection), Ministry of Agriculture.	NA
Has any study on food safety practices at a pan-India level been conducted by CFRTI? Share details.	NA	NA	NA	NA	Yes. Study on milk adulteration & prevalence study on Aflatoxins.

*NA-Is not relevant for that particular institute

6.16 Currently, IDSP data on disease outbreak is not being shared with any of the research institutes, and all were in favour of having an integrated risk assessment system. None of the institutes has a meeting with FSSAI on foodborne illnesses and its impact on public health. Except one (AINPPR), none of the institutes has a regular, formal arrangement with FSSAI for sharing its data emerging from its studies/analysis.

6.17 No pan country TDS has been conducted by NIN. IITR mentioned it had conducted pan India study to quantify potential toxic agents in different matrices in food but its URL was not shared. CFTRI reported having done a survey of milk and milk products and prevalence study on Aflatoxins. AINPPR data on all India pesticide residues could not be traced on the Ministry of Agriculture website.

D. Food Scientists/Researchers

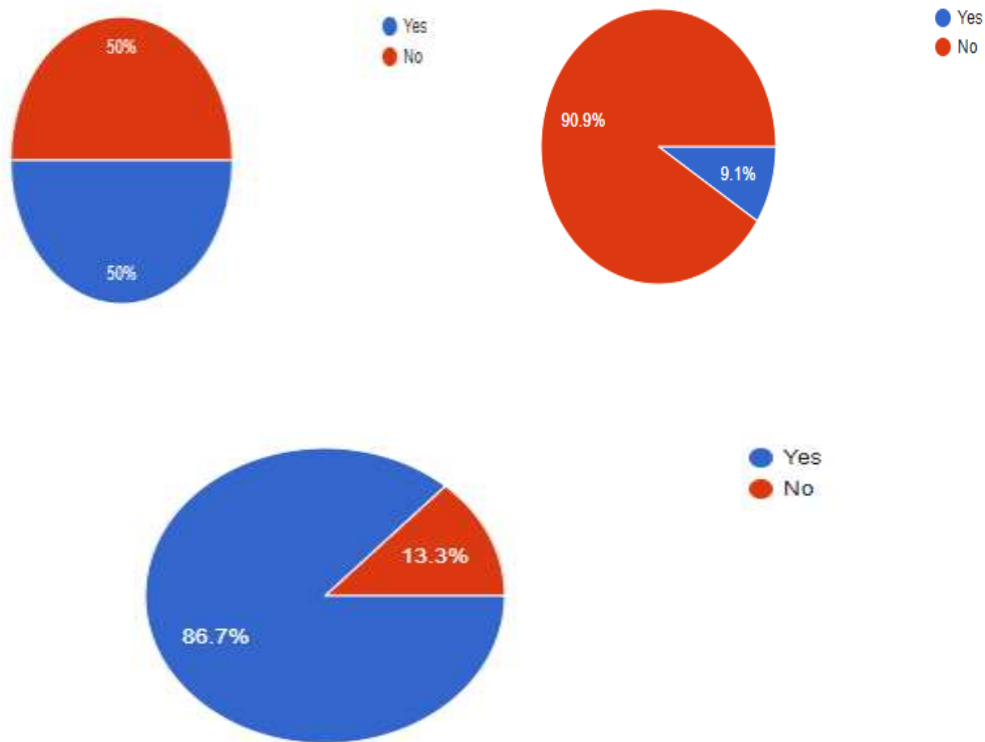
6.18 Food-safety research is vast and complex field as its domain ranges from food production processes; post-harvest activities; processing techniques; storage and packaging; and ultimately to consumer health. Farm to fork continuum requires the expertise of experts from plant and veterinary sciences; microbiology; toxicology; laboratory analysis; health & nutrition; public health; forensic science; IT; nanotechnology; packaging; behavioural sciences etc. (Gupta and Dudeja 2016).

6.19 Apart from having common questions on the laboratory & analytical capabilities, risk analysis framework including risk assessment mechanism; the questionnaire for food scientists/researchers also dwelled on essential areas of research. Views were solicited on the current research being conducted in the country on the subject of food safety including the foodborne illness burden, areas requiring focused research and who should fund it.

6.20 The responses received from 17 respondents. 88.2% of the respondents were at a senior level and 10 of them are from the private sector while remaining from public institutes. 94.1% of the respondents felt that current status of Laboratory & Analytical capabilities for food testing in the country is not adequate and primary reasons for this are the paucity of funds and lack of trained manpower. Though 76.5% of the respondents are of the view that FSSAI is implementing science-based risk analysis before preparing any regulation, guideline or related text, 93.3% felt that risk assessment mechanism is not adequate in the country.

6.21 50% of respondents felt that food monitoring & surveillance system has been implemented in the country including the imported food received at the various ports, but 90.9% are of the view that it has not been integrated with the epidemiological data of IDSP, HMIS, AINPPR or any other premier research institute of the country. 86.7% think that various stand-alone elements should be integrated into an integrated risk assessment system (**Figure 19**).

Figure 19: Food monitoring & surveillance system and its integration with IDSP etc



6.22 All food scientists/researchers are of the view that enough research is not being done in the country on the subject of food safety including the foodborne

illness burden. The various areas that were indicated in the questionnaire requiring focused research are given below including support for each of them:

- Food High in Fats, Sugar and Salt (HFSS) & NCDs-**70.6%**
- Burden of foodborne illness in the country including Non-Communicable Diseases (NCDs)-**64.7%**
- Total diet study including exposure assessment-**64.7%**
- Contaminants in food -**58.8%**
- Anti-Microbial resistance (AMR) -**58.8%**
- Pesticide residues in food-**52.9%**
- Use of additives in processed in food-**47.1%**
- Food fortification-**35.3%**
- Fats/oils in cooked/ processed food and its impact on health-**35.3%**
- Shelf-life studies-**29.4%**

6.23 In addition, following areas were also suggested by the respondents for undertaking research:

- Sanitary and hygienic practices
- High levels of vitamins and minerals in supplements-higher than Recommended Daily Allowance (RDA) or UTL-are they needed and what are safety issues especially as these are used unsupervised by healthcare professionals. Use of herbs known in India and safety issues, if any when used in combination with other foods
- Foodborne infections and prioritization thereof
- Need risk-based approach, most of the focus is still hazard based
- Incompatibilities among food items
- Study on primary agricultural practices to explore the factors responsible for high contaminants in primary agriculture
- How to ensure knowledge, attitude and practices on food safety through-assess contextual factors and developing behavioral modification strategies

6.24 So far as funding for research is concerned, the majority of the respondents are of the view that Ministry of Food Processing Industries (82.4%) should fund research followed by public-private collaboration (76.5%) and then Ministry of Health & Family Welfare (70.6%). Sources that could support research are tabulated below:

Table 6: Sources of funding for research in the area of food safety

S.No	Which Ministry/Organisation/any other arrangement should fund research	Number of Respondent (in %)
1.	Ministry of Food Processing Industries (MoFPI)	82.4
2.	Public-Private collaboration	76.5
3.	Ministry of Health & Family Welfare	70.6
4.	FSSAI	64.7
5.	CSIR	50.9
6.	Ministry of Science & Technology	47.1
7.	Private sector	47.1
8.	Department of Biotechnology	41.2

E. Consumers

6.25 The questionnaire for consumers is focussed on their awareness about FSSAI, its roles, their expectations from the food regulator and whether the regulator has been able to achieve its mandate.

Analysis of consumer responses

Socio-demographic profile

6.26 The respondents ranged in age from 18 to 74 year with majority of them in the range of 41-60 years (47.54%) followed by 34.42% in the range of 26-40 years. Most of the respondents were post-graduates (63.93%) followed by 29.50% graduates.

Half of the respondents were government employees, 19.67% employed in the private sector and 14.75% are students. Respondents are residing in various parts of the country, and all regions are represented in the response. Findings are tabulated below:

Table 7: Socio-demographic profile of the consumers

Parameter	Variables	Responses
Age (in years)	18-25	8 (13.11%)
	26-40	21(34.42%)
	41-60	29 (47.54%)
	61-75	3(4.91%)
Educational Qualification (in numbers)	Up to class X	0
	Up to class XII	4(6.55%)
	Graduate	18(29.50%)
	Post-graduate	39 (63.93%)
Profession	Government	31(50.81%)
	Private	12 (19.67%)
	Self-employed	4(6.55%)
	Retired from service	4(6.55%)
	Student	9 (14.75%)
	Homemaker	2(3.27%)
State where you are residing	Delhi	31
	Uttar Pradesh	6
	Haryana	1
	Andhra Pradesh	2
	Telangana	2
	Karnataka	1
	Tamil Nadu	7

Parameter	Variables	Responses
	Gujarat	7
	Maharashtra	2
	Meghalaya	1
	Mizoram	1

6.27 90% of the consumers in the survey were aware of FSSAI, and most of them had become aware of it through the FSSAI logo on packaged food. Least effective were the advertisements by FSSAI because only 20.4% respondents marked it as a channel through which they became aware of it. Electronic media along with internet (55.6%) is also a good channel for awareness generation (**Table 8**).

Table 8: Channels through which consumers became aware of FSSAI

S.No	Channel through which consumers became informed about FSSAI	%
1.	FSSAI logo on packaged food	61.1
2.	Electronic Media (TV & Radio)	31.5
3.	Word of mouth	27.8
4.	Print Media	25.9
5.	Internet	24.1
6.	Advertisement by FSSAI	20.4

6.28 76.7% of the respondents are aware of the roles and responsibilities of FSSAI. 79.2% feel setting standards is its most significant responsibility followed by ensuring safe food in the country (64.6%) to coordinating with all stakeholders

including industry to ensure food safety (58.3%). 54.2% feel informing consumers about food safety risks is also their responsibility while 47.9% felt ensuring the safety of imported food also as a responsibility. 91.4% think that an IT-based food monitoring & surveillance system should be implemented in the country including the imported food received at the various ports.

6.29 As compared to a higher awareness about the Central regulator, only 55% respondents were aware that their State has a Food Safety Commissioner. However, a large number of respondents almost 3/4th (72.4%) feel that FSSAI/ State Authorities have not been able to undertake their responsibilities appropriately **(Figure 20)**.

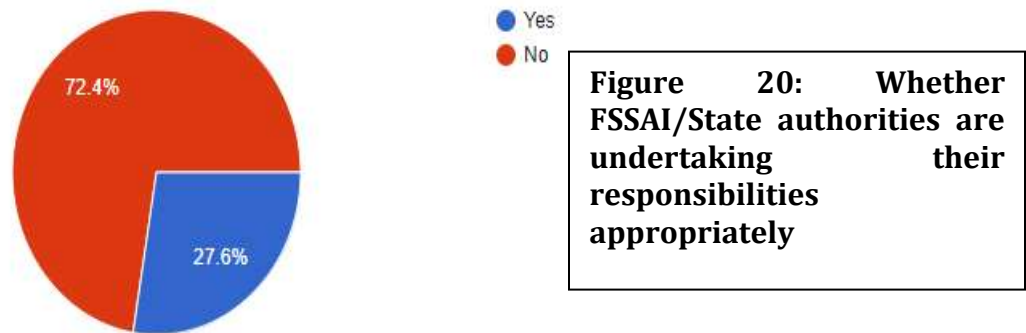


Figure 20: Whether FSSAI/State authorities are undertaking their responsibilities appropriately

6.30 Following reasons are attributed for FSSAI not able to undertake its responsibility appropriately:

Lack of governance including corruption issues-68.2%

Fragmented strategy to address complex area of food safety-54.5%

Inadequate planning-38.6%

- Lack of adequate manpower-31.8%
- Lack of vision-25%
- Paucity of funds-11.4%

6.31 Only 21.7% respondents have come across any advisory/communication/booklets issued by FSSAI that are directed towards consumers on the food safety and various associated risks. They referred to their brochures on safe practices at home, SNF portal, FSSAI webpage, Facebook page, tweets about @fssaiindia, etc. as the sources of this information.