Impact Assessment of Goods and Service Tax (GST) on the Use of Selected Agricultural Inputs in Gujarat

Submitted to the

Gujarat Economic Association
Silver Jubilee Trust
(Reg. No. E-5048) C/5, Dr. C. S. Patel Enclave
3, Pratapgunj, Vadodara - 390002 (Gujarat)

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Foreword

Indian agriculture has set new milestones in its progress. Since independence, major strides have been made in production of food grains, not only due to increase in area but also due to technology. As a result, the food grains production increased from 50.82 million tonnes in 1950-51 to 283.37 million tonnes in 2018-19. The phenomenal growth in agricultural production since independence has been triggered by higher input use, particularly purchased inputs as well as technology induced productivity enhancement, massive extension efforts, improved farm practices and, above all, ingenuity and hard work of Indian farmers since the Green Revolution Period in late 1960s. The introduction of High-Yielding-Varieties of seed (HYVs), the increased use of chemical fertilizers and irrigation were the major features of the Green Revolution, which resulted in increase in production needed to make India self-sufficient in food grains. The Indian farmers widely adopted the technological innovations so as to raise the farm productivity and profits. The increased technological adoption further raised the demand for various agricultural inputs such as farm machinery and equipment, credit and labour, among others. Thus, the key inputs which changed the scenario of agriculture since Green Revolution Period, included adoption of HYV seeds, chemical fertilizers, irrigation, pesticides, farm machinery and equipment, credit and labour. Efficient technologies like drip irrigation and sprinklers have benefits like reduced usage of water, thereby conserving energy and water simultaneously.

Farm inputs determine the fate of farmers even in a normal monsoon year. These inputs, including seeds, fertilizers, pesticides, irrigation tools, machines and appliances, availability of credit, etc., in turn depend on the business and industry dealing with the production and sales of these products and related services. The quality, quantity and prices related information about these inputs determine the costs of production of the agricultural produce. The challenging task before the farmer is to get the best inputs at the lowest prices with the guarantee of quality, quantity and prices being true to the claim. In order to increase productivity and profitability of agriculture, Government has been implementing various schemes providing subsidies on agricultural inputs, farm implements and machinery. However, a policy dilemma was observed recently whereby on one hand various central and state government schemes attempted to support the use of inputs and installation of such micro irrigation schemes, and on the other hand Goods and Service Tax (GST) was levied on such equipment. Prior to GST drip irrigation and sprinklers attracted 5% VAT in the state of Gujarat. With the introduction of GST, the rate levied increased up to 18%. However, due to a revision in GST rates after the GST council meet on 9.9.2017 the revised rates reduced from 18% to 12% on sprinklers and nozzles for drip irrigation equipment. Nevertheless, these rates are still higher compared to the pre-GST regime. Also other agricultural inputs sale reported to be suffer because of same. Hence, various questions arise regarding the implementation of GST on agricultural inputs and its implications. As it is well know that with the rise in the production cost of agriculture products, an immediate rise in inflation, special food inflation can be triggered. Therefore, a need was felt to assess the impact of GST on various inputs and materials used in agriculture

and allied sectors. The current study is an inquiry into the impact assessment of Goods and Service Tax (GST) on the use of selected inputs in Gujarat. The study came out with important and relevant policy implications which would facilitate policy formulations and provide relevant information to prospective researchers.

I am thankful to authors and their research team for putting in a lot of efforts to complete this excellent piece of work. I also thank the Gujarat Economic Association Silver Jubilee Trust, Vadodara for giving us an opportunity to undertake this study.

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The study would not have reached to this stage without the active co-operation of the respondent farmers from selected villages, dealers & retailers and input producers from each district who provided all the required data for the study without any hesitation and expectation. We thank each one of them for their invaluable support.

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Contents

List of Tables

List of Figure

List of Map

List of Annexures

List of Abbreviations

AERC	:	Agro-Economic Research Centre
API	:	Application Programming Interface
Av.	:	Average
CACP	:	Commission for Agricultural Costs and Prices
CED	:	Central Excise duties
CGST	:	Central Goods and Service Tax
CVAT	:	Central Value Added Tax
DISCOMs	:	Electricity Distribution Companies
FAO	:	Food and Agriculture Organization, Rome
GCA	:	Gross Cropped Area
GDP	:	Gross Domestic Product
GEASJT	:	Gujarat Economic Association Silver Jubilee Trust
GGRC	:	Gujarat Green Revolution Company
GIA	:	Gross Irrigated Area
GOG	:	Government of Gujarat
GOI	:	Government of India
GST	:	Goods and Service Tax
GSVA	:	Gross State Value Added
ha	:	Hectare
HSN	:	Harmonized System of Nomenclature
HVYs	:	High Yielding Varieties Seeds
IASRI	:	Indian Agricultural Statistical Research Institute
IGST	:	Integrated Goods and Service Tax
IWMI	:	International Water Management Institute
K	:	Potassium
mha	:	Million hectares
MIS	:	Micro Irrigation System
MRP	:	Maximum Retail Price
MSP	:	Minimum Support Price
mt	:	Million tonnes
N	:	Nitrogen

NSDP	:	Net State Domestic Product
OBC	:	Other Backward Classes
P	:	Provisional
P	:	Phosphorus
SC	:	Scheduled Caste
SGST	:	State Goods and Service Tax
ST	:	Scheduled Tribe
TE	:	Triennium Endings
VAT	:	Value Added Tax

Executive Summary

Impact Assessment of Goods and Service Tax (GST) on the Use of Selected Agricultural Inputs in Gujarat

1. Introduction:

Farm inputs determine the fate of farmers even in a normal monsoon year. These inputs, including seeds, fertilizers, pesticides, irrigation tools, machines and appliances, availability of credit, etc., in turn depend on the business and industry dealing with the production and sales of these products and related services. The quality, quantity and prices related information about these inputs determine the costs of production of the agricultural produce. The challenging task before the farmer is to get the best seeds at the lowest prices with the guarantee of quality, quantity and prices being true to the claim. The same is true of other inputs as well. In order to increase productivity and profitability of agriculture, Government has been implementing various schemes providing subsidies on agricultural inputs, farm implements and machinery. However, despite the best possible development schemes to ensure their availability at subsidised rates and at the right time, farmers often fail to get quality farm inputs at affordable prices

Agricultural production is a function of inputs, and is influenced by physical and policy environment among others. Hence, a change in any of these has repercussions for the whole agricultural production system. Until 2017, the country was under the excise and variable VAT regime of indirect taxation with differential tax rates on commodities across states. In this context, GST has some influence on the costs of agricultural inputs and services as well as on the policy environment in which the inputs, services and output of the agricultural system are being transacted. A policy dilemma was observed recently whereby on one hand various central and state government schemes attempted to increase use of various agricultural inputs, installation of micro irrigation schemes (drip and sprinklers), as well mechanization of agriculture and on the other hand Goods and Service Tax (GST) was levied on such equipment. Various questions have evolved regarding the implementation of GST on agricultural inputs and irrigation tools and its implications. Like, is the levy of such tax justifiable on agricultural inputs and irrigation tools? If at all such a tax were levied, what is the farmer's reaction towards it? Accordingly, what is the impact on the use of agricultural inputs and adoption of irrigation tools? How has it affected the profitability of the farmers, traders and producers involved? Therefore, there is need to have a reality check about the impact of GST levied on various inputs and materials used in agriculture and allied sectors on associated stakeholders like farmers, traders and producers of agricultural inputs in Gujarat.

2. Data and Methodology

The study is based on both primary and secondary level data. The secondary data was collected from various published sources, minutes of the meetings of GST Council, the government publications and research papers amongst others. The primary data was collected by using a structured interview schedule exercised in 2019 over a sample farmers, input dealers, irrigation tool suppliers, and other stakeholders covering the agriculture year 2018-19. The interview schedule was finalized after inputs and necessary corrections from pilot survey. The study is confined to the State of Gujarat and covers all the districts of the state. The time period for analysis include the data collection covering before and after GST period to compare its impact on sale and purchase of agricultural inputs in selected districts of Gujarat. For collection of data for the period before GST from the stakeholders, recall method was used. All the 33 districts of the State of Gujarat were selected for the study. In view to get response on the topic under study, appropriate input market places were selected and data were collected from the stakeholders. From every district, five farmers and five inputs dealers were contacted. Input producers were contacted and information was collected wherever they had their business of production of agricultural inputs. The information related to input use and GST implications were collected from 170 farmers and 168 input dealers and 16 input producers. After scrutiny of schedules, 170 farmers, 168 input dealers and 15 input producers were considered for the analysis.

3. Findings:

- *On a positive note, it was reported that many farmers observed a shut-down of the shop by many suppliers that were expectedly dubious. They had an apprehension that those suppliers were involved in spurious activities. They believed that the dubious suppliers could not sustain in GST regime in continuing with their spurious activities and so they shut down.*
- *Farmers reported that the buyers of their produce were also preparing bills and insisting upon preparing appropriate invoices and were handed over to the farmers by the buyers of their agricultural produce, more often since the implementation of GST.*
- *Most of the traders felt that with the introduction of GST many benefits were deduced like, more timely preparation of accounts, increased transparency and ease due to fully online process, ease in preparation of accounts due to single tax that merged multiple tax. Some traders were also happy with the brunt felt by illegal traders who were compelled to shut down due to increased transparency.*
- *However, traders also felt that introduction of GST induced increased cost of maintenance of records in the form of software installation and maintenance and costs incurred in hiring trained manpower or outsourcing the same.*
- *Traders found it difficult to seek from their suppliers and extend to farmers, certain facilities like credit, return of sold out goods, availing / providing / negotiating discounts, etc. which was smoothly handled before the implementation of GST. Such facilities can prove to be vital for success of agriculture.*
- *Dealers' margins have reduced, which can pose threat of sustainability for the business. With increase in GST, while many manufacturers of tractors in particular have absorbed the increased tax burden, but for some agri-inputs whereby manufacturers have not absorbed the rise in the burden, it's the dealers who have to accommodate the rise in the tax by cutting their margin. Innumerate traders provide important support service to the agriculture sector and are important stakeholders for agricultural businesses. It is important to assure that they continue to provide services in the form of traders to the farmers.*
- *Most of the producers reported a rise in the cost of production due to increased rates of GST charged by their suppliers of raw-materials, machinery and other inputs.*
- *Producers reported that the details regarding GST number was sought by their suppliers, and they too in turn sought the same from the traders to whom they supplied the produced goods. It thus suggested that the rule of tax credit to be sought sequentially through-out the supply chain was being implemented. It would thus be difficult for anyone to survive in the market without GST registration, since they would not be able to further claim GST tax credit paid by them to their supplier. So the chain of paying the tax charged to them continues consecutively.*
- *Impact on producers involved gestation period in production and time-lag to see any kind of impact. Demand for producers' goods is a derived demand from stakeholders vertically foolwoing producers like traders and finally farmers. Once the farmer gets affected, it gets communicated to trader and thus to the producer in the supply chain. Hence if the demand was negatively affected, it cannot be immediately communicated / indicated to the producers or implemented through likewise changes in production instantaneously. Hence a change in sales as an impact of GST was observed to be after time-lag of at-least six months' duration for certain products like fertilizers, insecticides, etc. to more than a few years for inputs like tractors, heavy machineries or irrigation tools.*
- *All producers were on consensus that the GST regime had brought more transparency in the entire logistic supply chain, and thus was a better system than its predecessor.*

4. Recommendations:

- *As was observed, farmers had merely heard about GST, but were largely unaware of the charges, whether it increased the prices of inputs or not and whether the cost of production increased for them or not. To assure a smooth transition and lesser ambiguity among the stakeholders, wide propagation of the strategy of implementation, schedule and method of implementation, before and after implementing the rates of GST, rise or stability in prices to be expected post-implementation,*

etc. and its effective timely communication would have better prepared farmers to be aware as to what to expect from the implementation of GST. Lack of communication and resulting ambiguity can provide an opportunity to those who want to unduly benefit by such lack of clarity.Henceforth, any such policy implementation can take care of such procedural suggestions.

- *A big challenge with regards to any data to be procured from farmers is the lack of record-keeping of the expenses incurred in agriculture. Farmers should be acquainted of the benefits that can be derived by proper record keeping and hence be motivated to maintain agriculture associated records in the form of a log book, for all future references and comparison in such situations as implementation of GST. If they had systematically maintained record, a clear comparison of before and after prices, post implementation of GST paid by them could have improved their bargaining power with the suppliers or even policy makers, while identifying any errors / mal-practices committed by traders or suppliers while supplying agricultural inputs. In the absence of records, they at best rely on recall method and loose power to negotiate with either suppliers or policy makers.*
- *While attempts are being made to 'double farmers' income' besides considering the uncertainties associated with agriculture, it is in the best interest for the country to not charge GST on agricultural inputs. Any tax on agricultural inputs increases the cost of production and thereby reduces the net farmers' income. Instead at best, tax can be levied on those inputs, the use of which is intended to be reduced in phased manner to assure sustainable agriculture, like the use of harmful chemicals, among others. A 'nil' tax rate on water-saving irrigation facilities (like drip irrigation and sprinklers) would motivate its use and prove to be both economically and ecologically helpful. Similarly, 'nil' tax rates on 'green house structures', agricultural technological tools, etc. would motivate the farmers to use them and thereby contribute in doubling farmer's income by producing sophisticated, expensive, and fragile crops at lower cost of production and in turn protecting the environment.*
- *Due to the nature of agricultural income and accordingly lack of working capital, farmers need inputs on credit from suppliers. Besides, certain times farmers feel dissatisfied with the use of certain inputs and may require to exchange, purchased input with an alternate one. However due to stringent and inflexible GST procedures, farmers are largely not given such facilities since its implementation. Such provisions may prove to be helpful to resort such challenges faced by farmers.*
- *Farmers were fearful as well as misguided regarding GST by those who wanted to benefit from the doubts persisting in the minds of the farmers, like vendors or traders. Appropriate communication with the stakeholders particularly with illiterate farmers is important to assure that they are not cheated by miscreants in the name of GST, by charging them for those rates that do not have legal sanctity.*
- *As for the traders, infrequent changes in the GST rates would facilitate the implementation of procedures. There should be non-ambiguous mass communication of the manner in which the rates are charged under the GST regime. Hence it is recommended that rates of GST should not be changed frequently. While the survey was carried out to cover the initial stages of implementation of GST and so changes were frequent, with the passage of time, more stability in the rates can be expected.*
- *Traders dealing with tractor and implement spare parts felt annoyed and irritated due to different rates of GST on different spare parts. Dealers have to deal with hundreds of spare parts every-day and found it difficult to keep abreast with the rate differences. It was suggested that all tractor and agricultural equipment spare parts should charge the same rate of GST to avoid delay and confusion while preparing bills.*
- *Many traders suggested that instead of monthly reporting of the accounts, quarterly preparation of the bills would be more convenient. Monthly reporting by dealers need to accommodate the delays either at the end of suppliers or by the farmers and so the request was for a quarterly reporting. However, there was also a group of traders who appreciated monthly payments since in that manner the burden was equally distributed across the year and the financial year end pressures were mitigated. Since it became a monthly routine it was not found burdensome after certain time due to the familiarity with the procedure.*

- *A reduction in the penalty due to delay was suggested, since at times traders faced genuine issues like internet connectivity issues, power supply, crowding on portal and thus lack of response, etc. Some farmers learnt to cope-up with the passage of time by doing the procedures much before the deadline to avoid delays or penalties.*
- *GST council should acknowledge and provide for facilities to extend credit, discounts and scope for prolonged return of goods, since these are vital for fragile agriculture sector, which would facilitate extending such facilities in a manner similar to that before the implementation of GST. Large part of the farmer community belongs to the small and marginal section with lack of financial liquidity. Credit facility and deferred payment facilities that was provided by the traders was a survival strategy to cope up with deferred income.*
- *The fact that the sales of fertilizers, pesticides, and oil engines was negatively affected and that of solar equipment, organic material was positively affected indicates, that GST can be used as a tool to incentivize and dis-incentivize appropriately the use of different agricultural inputs. For example, if organic production is to be motivated, then organic inputs should be imposed less GST and inorganic inputs should be charged higher GST.*
- *Some of the traders also voiced concerns that for the sustainability of agriculture sector and to truly achieve 'doubling of farmers' income' GST should be completely abolished on all agri-inputs. It was not found convincing that on one side we are trying to assure doubling of farmers' income, while on the other side increasing the costs of agriculture.*
- *Lesser of nil GST on efficient irrigation systems like sprinklers, and drip irrigation are inevitable to motivate the users to buy more of the same. This would prove ecologically/environmentally beneficial besides being economically promising by saving the water usage on the most water exhausting activity – agriculture. Besides technological upgradation inducing equipment like tractors, rotavator, green-house structures and their spare-parts, if charged with lesser GST can result in increased farmers' income with the production of more sophisticated and mechanized agricultural output.*
- *Most of the traders unanimously suggested that all agri-inputs should be charged uniform GST, if at all, and at very low rate, so that no one can cheat farmer, the end user by charging higher in the name of GST. Amidst ambiguity, asymmetric information and confusion few traders may indulge into malpractice of charging higher rates from the farmer. Uniform GST rates across the logistic supply chain will reduce the scope of misdeeds by any of the stakeholders and with increased awareness the stakeholders will also be less vulnerable to such malpractices. At the same time, it would also reduce transaction costs, time and efforts during transactions facilitating all stakeholders. It would also reduce time, efforts and money involved in filing GST.*
- *Producers faced a peculiar dilemma that they paid higher GST rates on the inputs supplied by their suppliers and instead could not charge as much GST on the finished product sold by them with the change in the nature of the product produced. Hence, if a common same percentage is charged in the entire logistic supply chain, such dilemmas could be overcome. For example, if the supplier of raw material was charging eighteen percent and if the producer was able to charge only five percent on the finished goods with value addition sold by him. Due to the nature of the finished product, he would have to face loss since the producer will be able to get tax credit for the amount that he is able to charge from his trader to whom he supplies the finished goods. Instead if the supplier of raw material was also charging five percent and if the producer was also charging five percent on the finished goods with value addition sold by him, such a problem would be solved.*
- *Seed-cum-fertilizer drill, zero till drill, lazer levelers and various farm implements and tools need to be popularized along with bullock drawn implements for small and marginal farmers. Seed dressers, sprayers, weeding implements, and other drudgery reduction implements should be further popularized. Custom hiring system should be promoted and popularized using the concept of Agri-Clinics.*

Chapter I
Introduction

1.1 Introduction

Agriculture's role in the process of economic growth has been a central theme in development economics for several decades (e.g., Johnston and Mellor, 1961, Schultz, 1968). In most of the developing economies, agriculture is the core sector providing livelihood to a significant proportion of the population, especially in rural areas. The sector faces the largest brunt of underemployment, unemployment and poverty. Increasing the productive capacity of agriculture through higher productivity has been an important goal in developing countries. Accordingly there is a lot of scope for the growing agriculture and allied sector to contribute vastly to overall growth and poverty alleviation. It has been suggested that due to limited scope for expansion of arable land, there is a need to increase yields to their technically highest levels through appropriate investment in basic infrastructure, human development, and research and extension services (Chavas, 2006; Zepada, 2006). Some of these issues are very relevant for a country like India where agriculture continues to be the core sector of the economy, with over two third of country's population dependent on it for their livelihood.

Agriculture is the main stay of Indian economy because of its high share in employment and livelihood creation notwithstanding its reduced contribution to the nation's Gross Domestic Product (GDP). The share of agriculture in GDP has registered a steady decline from 36.4 percent in 1982-83 to 17.8 percent in 2018-19. Yet this sector continues to support more than half a billion people providing employment to 52 percent of the workforce. Agricultural sector also contributed 12.86 percent to national exports in 2017-18 (GOI, 2019). Therefore, in the predominantly agricultural country like India, the performance of the agricultural sector influences the growth of the Indian economy. Agricultural development is important not only because of its high potential to raise the income and employment to poverty stricken rural masses but also due to its capacity to provide food, raw material and ever expanding market for industrial goods. It can thus result into speedy development of overall economy (Kalamkar, 2004). Agriculture forms the backbone of Indian economy and despite large industrialization in last fifty years; agriculture still occupies a place of pride. In spite of rapid urbanization during last few decades, India's rural

population still accounts for about three fourth of the total population. It is observed that growth in agriculture contributed to poverty alleviation and employment generation in rural areas and achievements of higher rates of economic growth. Thus, prosperity of the rural economy is closely linked to agriculture and allied activities.

During the last six decades of development, Indian agriculture has set new milestones in its progress. Since independence, major strides have been made in production of food grains, not only due to increase in area but also due to technology. As a result, the food grains production has increased from 50.82 million tonnes in 1950-51 to 283.37 million tonnes in 2018-19 (GOI, 2019). The phenomenal growth in agricultural production has been triggered by higher input use, particularly purchased inputs as well as technology induced productivity enhancement, massive extension efforts, improved farm practices and, above all, ingenuity and hard work of Indian farmers since the Green Revolution Period in late 1960s. The introduction of High-Yielding-Varieties of seed (HYVs), and the increased use of chemical fertilizers and irrigation were the major features of the Green Revolution, which resulted in increase in production needed to make India self-sufficient in food grains. The Indian farmers widely adopted the technological innovations so as to raise the farm productivity and profits. The increased technological adoption further raised the demand for various agricultural inputs such as farm machinery and equipment, credit and skilled and trained labour, among others. Thus, the key inputs which changed the scenario of agriculture since Green Revolution Period were adoption of HYV seeds, chemical fertilizers, irrigation, pesticides, farm machinery and equipment, credit and skilled labour.

Table 1.1: Growth in Production of Major Crops/Crop groups in India

Period	Cereals (million tonnes- mt)				Pulses (mt)	Food-grains (mt)	Oilseeds (mt)	Cotton (mt)	Sugarcane (mt)
	Rice	Wheat	Coarse	Total					
1950-51	20.58	6.46	15.38	42.42	8.41	50.82	5.16	3.04	57.05
TE 1952-53	21.59	6.71	17.03	45.33	8.67	54.00	4.97	3.22	56.56
TE 1962-63	34.48	11.28	23.86	69.63	12	81.63	7.22	5.33	101.96
TE 1972-73	41.51	24.99	26.1	92.6	10.94	103.54	8.62	5.82	121.60
TE 1982-83	51.33	38.85	29.29	119.47	11.33	130.8	10.48	7.47	176.71
TE 1992-93	73.94	56.01	31.76	161.72	13.03	174.75	19.11	10.32	241.03
TE 2002-03	83.38	69.4	30.18	182.96	11.86	194.81	17.98	9.38	293.52
TE 2012-13	102.17	91.75	41.82	235.74	17.89	253.64	31.07	34.17	348.21
2014-15	104.8	88.94	41.75	235.49	17.2	252.68	27.51	34.80	362.33
2015-16	103.61	93.82	38.4	235.83	17.33	253.16	25.25	30.01	38.45
2016-17	108.86	96.64	44.34	249.84	22.14	271.98	31.28	32.58	306.07
2017-18 (P)	112.91	99.70	46.99	259.6	25.23	284.83	31.31	34.89	376.90
2018-19 (P)	116.42	102.19	42.94	261.55	23.40	284.95	32.26	28.71	400.16

Note: P - Provisional
Sources: GOI (2019) & https://pib.gov.in/newsite/PrintRelease.aspx?relid=192713.

1.2 Agricultural Inputs

Farm inputs determine the fate of farmers even in a normal monsoon year. These inputs, including seeds, fertilizers, pesticides, machines and appliances, availability of credit, etc., in turn depend on the business and industry dealing with the production and sales of these products and related services. The quality, quantity and prices related information about these inputs determine the costs of production of the agricultural produce. The challenging task before the farmer is to get the best seeds at the lowest prices with the guarantee of quality, quantity and prices being true to the claim. The same is true of other inputs as well. In order to increase productivity and profitability of agriculture, Government has implemented various schemes like providing subsidies on agricultural inputs, farm implements and machinery. However, despite the best possible development schemes to ensure their availability at subsidised rates and at the right time, farmers often fail to get quality farm inputs at affordable prices (GOI, 2018).

Table 1.2: Production and Use of Agricultural Inputs in India

Sr. No.	Programme	2000-01	2001-02	2005-06	2010-11	2015-16	2016-17	2017-18
1	Seeds –Production of							
	(i) Breeder Seeds Thousand Qtls.	42.69	45.54	68.64	118.85	90.37	110.71	105.08
	(ii) Foundation Seeds Lakh Qtls.	5.91	5.44	7.4	18.06	14.95	22.09	19.54
	(iii) Distribution of Certified/Quality seed Lakh Qtls.	86.27	91.8	126.75	277.34	304.04	348.58	352.01
2	Fertilisers							
	Nitrogenous (N) Thousand Tonnes	10920	11310	12723	16558	17372	16735	16958
	Phosphatic (P) Thousand Tonnes	4215	4382	5204	8050	6979	6705	6854
	Potassic (K) Thousand Tonnes	1567	1667	2413	3514	2402	2508	2779
	Total (N+P+K) Thousand Tonnes	167.02	17360	20340	28122	26753	25949	26591
	Per Hectare (Kgs /ha)	89.63	92.33	105.53	142.52	130.66	123.41	128.02
3	Irrigation Equipments coverage (Micro irrigation)							
	Drip (area in lakh ha)							47.79
	Sprinkler (area in lakh ha)							54.75
4	Consumption of Pesticides (Technical Grade Material) Thousand Tonnes	43.58	47.02	39.77	55.54	54.12	52.75	58.16
5	Farm machinery							
	Tractors (Thousand)	252	217	296	545	571	662	797
	Power Tiller (Thousand)	16	14	22	55	46	45	52

Source: GOI (2019).

1.2.1 Seed

Among the inputs, seed is a critical and basic input for enhancing agricultural production and productivity in different agro-climatic regions. Seed is considered to be a catalyst of change in agriculture. Most of the breakthrough in agricultural research is packed in the form of seed delivered to the farmers. In fact, efficacy of other agricultural inputs such as fertilizers, pesticides and irrigation is largely

determined by the quality of seed. The Green Revolution in India during the late sixties and seventies bears witness to this truth. During the decade of 2000s, Bt cotton seeds, single cross corn hybrids and hybrid vegetables have shown spectacular results in terms of yield (GOI, 2014). The technological intervention in terms of adoption of more HYV crops has undoubtedly increased the yield levels. Seed quality is estimated to account for 20-25 percent of productivity. It is, therefore, important that quality seeds are made available to the farmers. The Indian seed industry is now occupying a pivotal place in Indian agriculture and is well poised for continued growth in the years to come. The release of newly evolved varieties of seeds assumes significant importance according to suitability of seeds based on different agro-climatic regions. The rapid adoption of HYV crops was mainly facilitated by increase in irrigation coverage and more fertilizer application.

1.2.2 Chemical Fertilizers

Role of fertilizers in increasing agricultural productivity and production during the last five and half decades has been well documented (Chand and Pandey, 2008). A very close association is observed between growth of fertilizers and crop productivity in almost all the states of the country. No input in agriculture has seen as much growth as witnessed in the use of fertilizers in the recent history of agriculture. On per hectare basis, fertilizer consumption in India increased from 0.5 kg in early 1950s to 7 kg at the time of onset of green revolution in 1966-67 to 128.02 kg/ha in 2017-18. New strains of wheat and paddy developed around mid-1960s were highly responsive to the use of chemical fertilizers and offered much higher yield potential as compared to the traditional varieties. Fertilizers are simply plant nutrients applied to agricultural fields to supplement required elements found naturally in the soil. Chemical fertilizers act as the immediate source of nutrients, lacking in soil. It provides a vital input for the growth of agriculture and is an inevitable factor that has to be reckoned with the attainment of self-sufficiency goal in production of food grains. The Government of India implemented the Nutrient Based Subsidy Policy since 1st April, 2010. Under the policy, a fixed amount of subsidy, decided on annual basis, is provided on subsidized P and K fertilizers depending on their nutrient content. Under this Policy, MRP is fixed by fertilizer companies as per market dynamics. The Government has decided to introduce Direct Benefit Transfer (DBT) system for fertilizer subsidy payments. Under

the system, subsidy on various fertilizer grades is being released to the manufacturers and importers on the basis of actual sales made by the retailer to the beneficiaries.

1.2.3 Water Lifting and Distribution Systems

It has been well documented that water is an essential input influencing the scale and pattern of agricultural growth (FAO, 2004 & 2017; IWMI, 2007; Dhavan, 2017). Irrigation is the most important element in the steady growth of the agricultural sector which not only increases agricultural production but also minimizes the uncertainty due to unpredictable rainfall. Considering the predominant nature of rain-fed cultivation and wide variation in the rate of rainfall across regions, significant emphasis has been given for the development of irrigation in the state by the policy makers since independence. Despite huge spending on the irrigation projects, the proportion of gross area irrigated to gross cropped area in the state, that was around 17.20 percent in 1950-51 increased to about 48.63 percent at the national level during the year 2014-15. Increasing population, growing urbanization, and rapid industrialization combined with the need for raising agricultural production generates competing claims for water. India is currently facing a daunting set of water-related challenges. Therefore, efficient technologies like drip irrigation and sprinklers have been promoted to use in order to reduce the usage of water, thereby conserving energy and water simultaneously. Lesser usage of water, has further instilled the faith of the farmers who were initially hesitant about growing certain crops due to non-availability of water. Besides being a sustainable irrigation system, it also reduces the labor cost on the farm. Government has been providing support towards adoption of Micro Irrigation System technologies. The use of MIS (drip and sprinkler system of irrigations) increased significantly and area covered has increased from 3.87 million ha in 2010 to 10.25 million ha in 2018. The top five states having highest area coverage under MIS in ascending order are Rajasthan, Andhra Pradesh, Maharashtra, Karnataka and Gujarat. These states together accounted for around 74 per cent of total area in 2018.

1.2.4 Pesticides

Chemical control of pests is a common practise in agriculture (Subhash et al., 2017). There are more than a thousand pesticides of both chemical and biological nature used around the world to minimize crop losses. Agriculture in developing countries suffer most because of high incidence of various pests. In India, estimated

annual production losses due to pests were observed to be as high as US$ 42.66 million per annum (Sushil, 2016). Pesticides can be categorized into insecticides, fungicides, herbicides (weedicides) and plant-growth-regulators based on their activity and target groups. However, insecticides comprise of the highest share in total pesticide use in India. Both total as well as per hectare consumption of pesticides in India show significant increase over the year 2004-05. In the year 2014-15, pesticide consumption was 0.29 kg/ha (GCA), which is roughly 50 per cent higher than the use in 2004-05 (0.20 kg/ha). The recent increase in pesticide use is because of higher use of herbicides. It is believed to be the result of rise in cost of manual weed control due to increase in agricultural wages (FICCI, 2015). However, per hectare use of pesticide in India is much lower as compared to other countries like China (13.06 kg/ha), Japan (11.85 kg/ha), Brazil (4.57kg/ha) and other Latin American countries (FAOSTAT, 2017). Pesticides are available in both granular/dust and liquid form.

1.2.5 Farm Machinery and Equipment (Sprayers, Dusters, etc.)

The increase in the use of inputs purchased in agriculture, necessitated their use efficiencies through mechanizations. Noting the positive co-relationship between improvement in cropping intensity and farm produce on the one hand and growth of farm power on the other during the last five decades, the adoption and application of package of farm machinery and technology for agricultural mechanization assumes significant importance. Farm mechanization has significantly improved land and labor productivity through well-timed farm operations and thereby increase work output per unit of time. Besides, its paramount contribution to the multiple cropping and diversification of agriculture, mechanization also enables efficient utilization of inputs such as seed, fertilizers, irrigation and other inputs. Mechanization also reduces the post-harvest losses. Therefore, strong support is being provided by the Government for mechanization of agricultural operations despite huge labor force available in the rural areas. The number of plant protection equipment such as sprayer and dusters increased from 0.46 lakh in 1972 to 7.59 lakh in 2003, almost a 17 times rise in thirty years. This increase might have resulted from high incidence of pests and disease attack on major crops, such as cotton, sugarcane, and grape during 1990s. The use of four wheel tractors in agriculture has increased. Number of tractors increased from just 0.01 lakh in 1961 to 8.80 lakh in 2018-19, while use of power tillers increased from 0.16 lakh in 2000-01 to 0.52 lakh in 2017-18 (IASRI, 2019). There has

been significant increase in the number of different types of other machinery in agriculture like tillage equipment, seeders, planters, rotavators, etc.

1.2.6 Solar Power

Energy is a primary driver of economic growth and welfare. A complex set of factors including global warming, competitive land use and lack of basic infrastructure is creating new challenges for India's vast agrarian population. The ever increasing mismatch between the demand and supply of energy in general and electricity in particular, is posing challenges to farmers located in remote areas and makes them vulnerable to risks, especially the small and marginal farmers. India has 26 million groundwater pump sets, which run mainly on electricity that is primarily generated in coal-fired power plants, or run by diesel generators. Irrigation pumps used in agriculture account for about 25 per cent of India's total electricity use, consuming 85 million tons of coal annually, and more than 4 billion liters of diesel, being 12 per cent of India's total diesel consumption (Upadhyay 2014; SSEF, 2014). Scarcity of electricity coupled with the increasing unreliability of monsoon forces the reliance on costly diesel-based pumping systems for irrigation. Hence, the farmers look for alternative fuels such as diesel for running irrigation pump sets. Solar power could be an answer to India's energy woes in irrigated agriculture. The Ministry of New & Renewable Energy (MNRE) has been promoting the Solar-Off Grid Programme since two decades. The programme size has increased many folds with the advent of Solar Mission. It has given a lot of impetus to various components of the programme, solar pumping being one of the major component of the same.

India currently has about 15 million electrified irrigation tube wells, with estimated power subsidies on irrigation of about 70,000 crores (Shah et al., 2016). They are responsible for the financial mess in our DISCOMs (Electricity Distribution Companies) (Shah, et al., 2016). State governments hesitate to cut these subsidies owing to their political compulsions. Besides, the existing electricity supply is far from being sufficient, reliable, timely, is inferior and suffers from major fluctuations in voltage. Besides its availability is at inconvenient hours like late nights or very early morning hours. New electricity connections are hard to get, with a waiting list running into lakhs. In Eastern India, in spite of the abundance of ground water, irrigation can barely be harnessed due to the shortage of electricity supply. As a result, a large proportion of irrigation is done through diesel-run pumps. About 9 million

diesel pumps were being used for irrigation in India (Chawla and Agrawal, 2016). This burdens the exchequer with huge subsidies given on diesel; and also generates environmental pollution. In this scenario, solar power could be an answer to India's energy woes for irrigated agriculture. Solar power generation through installation of solar PV (photovoltaic) panels on the farm itself; and using it to extract groundwater could be an overarching solution for all of the above concerns. Solar pumps come with a user-friendly technology and are economically viable. They are easy to use, require little or no maintenance, and run on near-zero marginal cost. Solar power is more reliable, devoid of voltage fluctuations and is available during the convenient day-time. India is blessed with more than 300 sunny days in the year, which is ideal for solar energy generation. Besides it is aptly supported by promotional policies of the Government of India (Chawla and Agarwal, 2016).

1.2.7 Green/Poly houses and Mulching Films

A greenhouse or poly-house can be defined as a house or a structure made of transparent material like glass or polyethylene wherein plants are grown under well-controlled climatic conditions. Poly-house is a type of green house where polyethylene is used as the cover. Poly-house farming is slowly gaining popularity in India. From the point of view of earning more profit, farmers are attempting to grow off-season crops under Poly-houses (under controlled conditions) which are being sold at higher prices in the market. The poly-houses are constructed with the help of ultraviolet plastic sheets, so that they may last for more than 5 years. The structure is covered with 1501 m thick plastic sheet.

Mulching is the process or practice of covering the soil/ground with a polythene sheet of high quality to make more favorable conditions for plant growth, development and efficient crop production. Technical term 'mulching' means 'covering of soil'. While natural mulches such as leaf, straw, dead leaves and compost have been used for centuries, during the last 60 years, the advent of synthetic materials has altered the methods and benefits of mulching. When compared to other mulches plastic mulches are completely impermeable to water; it therefore prevents direct evaporation of moisture from the soil and thus limits the water losses and soil erosion over the surface. In this manner it plays a positive role in water conservation. The suppression of evaporation also has a supplementary effect; it prevents the rise of water containing salt, which is important in countries with water resources having

high salt content. Plastic film with its moisture barrier properties does not allow the soil moisture to escape. Water that evaporates from the soil surface under mulch film, condenses on the lower surface of the film and falls back as droplets. The demand for same has been increasing day by day.

1.3 Need for the Study

Agricultural production is a function of inputs, and is influenced by physical and policy environment among others. Hence, a change in any of these has repercussions for the whole agricultural production system. Until 2017, the country was under the excise and variable VAT regime of indirect taxation with differential tax rates on commodities across states. In this context, GST has some influence on the costs of agricultural inputs and services as well as on the policy environment in which the inputs, services and output of the agricultural system are being transacted. A policy dilemma was observed recently whereby on one hand various central and state government schemes attempted to increase use of various agricultural inputs, installation of micro irrigation schemes (drip and sprinklers), as well as incentivize the mechanization of agriculture and on the other hand Goods and Service Tax (GST) was levied on such equipment. Prior to GST drip irrigation and sprinklers attracted 5 per cent VAT. With the introduction of GST, the rate levied increased up to 18 per cent. However, due to a revision in GST rates after the GST council meet on 9.9.2017 the revised rates reduced from 18 per cent to 12 per cent on sprinklers and nozzles for drip irrigation equipment. Nevertheless, these rates are still high compared to the pre-GST regime. With the rise in the production cost of agriculture products, an immediate rise in inflation, special food inflation can be triggered. Therefore, a need was felt to assess the impact of GST on various inputs and materials used in agriculture and allied sectors.

The outcomes of the study would prove beneficial for the policy makers in terms of making more informed decisions regarding the levying of GST on agricultural inputs and irrigation tools related to micro-irrigation. It would provide policy directives for implications of imposing GST on their sales. Micro-irrigation technologies have both private and social returns. It benefits farmers by reducing cost of irrigation in terms of labor cost, energy and water consumption costs. Besides, social benefits like improvement in water reservoirs and enhanced replenishment of ground water can be better assured through micro irrigation. Hence, on these grounds

studies like this can assist in assessing the demand for such products by farmers given the rise in cost due to GST. Since the impact of GST is observed across supply chain, study attempts to capture the behavior and reaction of traders and producers of agricultural inputs, since they are involved in shifting the burden of GST. Similar studies for other states can further provide a comparative perspective regarding the levying of GST on agricultural inputs.

1.4 Scope of the Study

The study was conducted in the state of Gujarat. The time period for analysis includes the data collection covering before and after GST period to compare its impact in the state of Gujarat. To understand the end-to-end impact of GST on agricultural inputs, producers, trader, and farmers (end user) involved with agricultural inputs were researched. Impact of GST on selected agricultural inputs including seeds, fertilizers, irrigation tools, tractors, and agricultural implements was attempted to be captured.

1.5 Research Questions

Various questions evolve regarding the implementation of GST on agricultural inputs and micro-irrigation techniques and its implications. Like, is the levy of such tax justifiable on agricultural inputs and irrigation tools? With levy of such a tax, what is the farmer's reaction towards it? Accordingly, what is the impact on the use of agricultural inputs and adoption of irrigation tools? How has it affected the profitability of the farmer? Therefore, the current study is an inquiry into the impact assessment of Goods and Service Tax (GST) on the use of selected inputs and adoption of Micro-Irrigation tools in selected districts of Gujarat, with following specific objectives.

1.6 Objectives:

i) To inquire regarding the clarity of GST rates to be charged for the agricultural inputs and irrigation tools.
ii) To observe the changes in the rates of agricultural inputs and irrigation tools in selected districts of Gujarat.
iii) To analyze the impact on the use of agricultural inputs and adoption of irrigation tools before and after the implementation of GST.

1.7 Data and Methodology

1.7.1 Data Sources

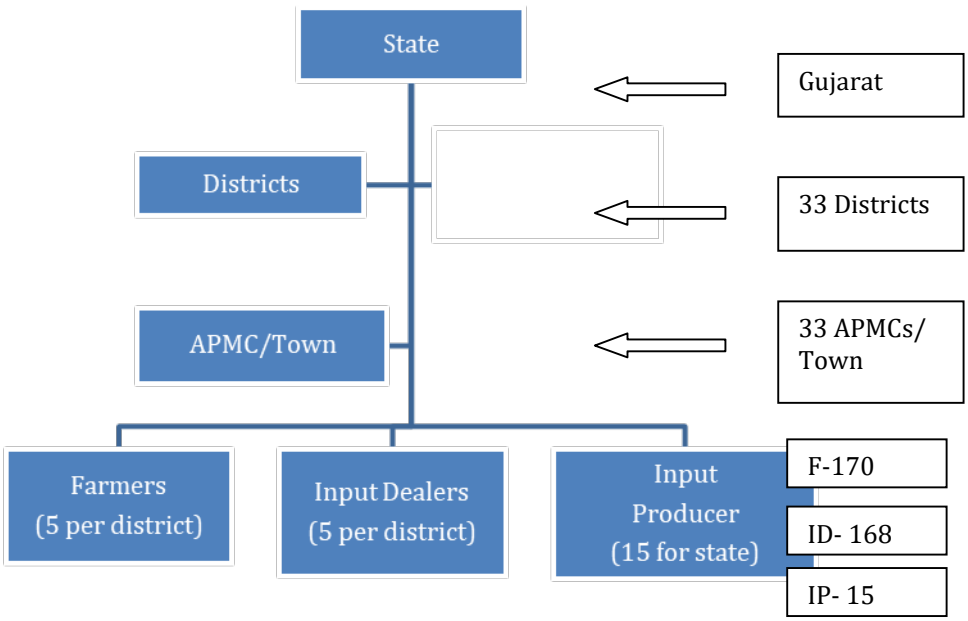
The study is based on both primary and secondary level data. The secondary data was collected from various published sources, minutes of the meetings of GST Council, the government publications and research papers amongst others. Primary data was collected by using a pilot-tested structured interview schedule exercised in 2019 over sample farmers, input dealers, irrigation tool suppliers, and other stakeholders covering the agriculture year 2018-19.

1.7.2 Study Area and Time period

The study is confined to the State of Gujarat and covers all the districts of the state. The time period for analysis include the data collection covering before and after GST period to compare its impact on sale and purchase of agricultural inputs in the state of Gujarat. For collection of data for the period before GST from the stakeholders, recall method is used.

1.7.3 Sampling Framework

Fig. 1.1: Sampling Framework



1.7.4 Development of Survey Schedules

The survey schedules were developed for the collection of primary data. Three types of survey schedules were developed and canvassed in the study area:

- **Farmers 1.0:** for collecting detailed information about awareness regarding GST, changes in inputs prices, purchase procedure (before & after the levy of GST) and perception regarding the overall impact on farmers due to the implementation of GST on agricultural inputs.
- **Input Dealers 2.0:** for collecting detailed information about products sold, details of Tax / GST paid by the dealers on purchase of product (agri-inputs), details of Tax / GST charged on product (agri-inputs) sold, impact on sales of product after implementation of GST, impact on trader, etc. Besides suggestions from input dealers regarding GST were also invited.
- **Input Producer 3.0:** semi-structured schedule to discuss the overall implementation of the GST, details of products produced and sold, details of GST paid on various raw-materials used by producer in producing agri-inputs (like raw material and machinery), details of Tax / GST charged on agri-inputs produced/sold by the producer, impact on sales of product after levying GST, overall impact on producer due to the implementation of GST, suggestions from input producers.

1.7.4.1 Pilot Testing and Finalization of Schedules

All three schedules were pretested in selected input markets in Dholka (Ahmedabad), Patan, Unjha, Anand, Kutch and Gandhinagar districts of Gujarat. After pilot testing, the schedules were revised and finalized. The survey schedules are enclosed at the end of this report[1].

Before starting the field work, training was provided to research staff explaining them about the purpose of the study, about schedules, sample selection and data collection.

[1] See Annexure II to IV.

1.7.5 Selection of Districts/Input Market

All the 33 districts of the State of Gujarat were selected for the study. In order to get response on the topic under study, appropriate input market places were selected and data were collected from the stakeholders. From every district, five farmers and five inputs dealers were contacted. In case of input producers, same were contacted and information was collected wherever they had their business related to the production of agriculture inputs. The information related to input use and GST implications were collected in pre-tested schedules from 170 farmers and 168 Input dealers and 16 input producers.

Table 1.3: Details on Sample Respondents of Gujarat

Sr. No.	Districts	Sample Respondents of Gujarat		
		Farmers	**Input Dealer**	**Input Producer**
1	Ahmedabad	6	5	0
2	Amreli	5	5	0
3	Anand	5	5	0
4	Aravali	5	5	2
5	Banaskantha	5	5	1
6	Bharuch	6	6	1
7	Bhavnagar	5	5	0
8	Bhuj	5	5	0
9	Botad	5	5	0
10	Chotaudepur	4	5	0
11	Dahod	6	5	0
12	Dangs	6	5	0
13	Devbhoomi Dwarka	5	5	0
14	Gandhinagar	5	5	1
15	Gir Somnath	5	5	0
16	Himmatnagar	5	5	0
17	Jamnagar	5	5	0
18	Junagadh	5	5	1
19	Kheda	6	5	0
20	Mahesana	5	5	0
21	Mahisagar	5	5	1
22	Morbi	5	5	1
23	Narmada	5	5	2
24	Navsari	5	6	0
25	Panchamahal	6	5	0
26	Patan	5	5	1
27	Porbandar	5	5	0
28	Rajkot	5	5	0
29	Surat	5	6	2
30	Surendranagar	5	5	1
31	Tapi	6	6	1
32	Vadodara	4	5	1
33	Valsad	5	4	0
	Gujarat	**170**	**168**	**16**

Simple tabular analytical tools were used for proper interpretation of data.

1.8 Limitations and Scope for further Research

The current study is restricted only to the State of Gujarat. Similar study can be replicated in other states for developing a comparative perspective to assess the impact of GST on agricultural inputs. The study is restricted to the impact of GST on agricultural inputs. A study on the impact of GST on various other agriculture associated trades like agricultural services, agricultural produce may be further conceptualized. The time frame of this study coincides with the early phase of GST and hence it is an attempt to capture the reactions and behavior of the stakeholders while GST was still in the phase of settlement of conceptual and operational issues. If the study is repeated after about two years, the comparative outcome may be of interest for policy makers to understand the behavior of the stakeholders after the GST implementation is largely smoothened.

1.9 Organization of the report

The report is divided into seven chapters. Chapter I present the fundamental information regarding agriculture sector and use of major inputs use, need of the study, scope and objectives, data and methodology of the study. Chapter II presents the status of agriculture in Gujarat covering the growth in use of important inputs and crop production. Chapter III highlights indirect Tax and GST and its implementation, the brief review of literature, pre-GST and post-GST scenario in India and the GST related aspects associated with agricultural inputs. Chapter IV presents the findings and analysis from the primary data collection from sample farmers, while Chapters V and VI respectively provide the data results related to dealers and producers. Thus, Chapter IV to VI provides the details regarding the end-to-end stakeholders involved at various stages of the payment of GST in agriculture. Finally, last chapter, chapter VII provides the recommendations and conclusion of the report.

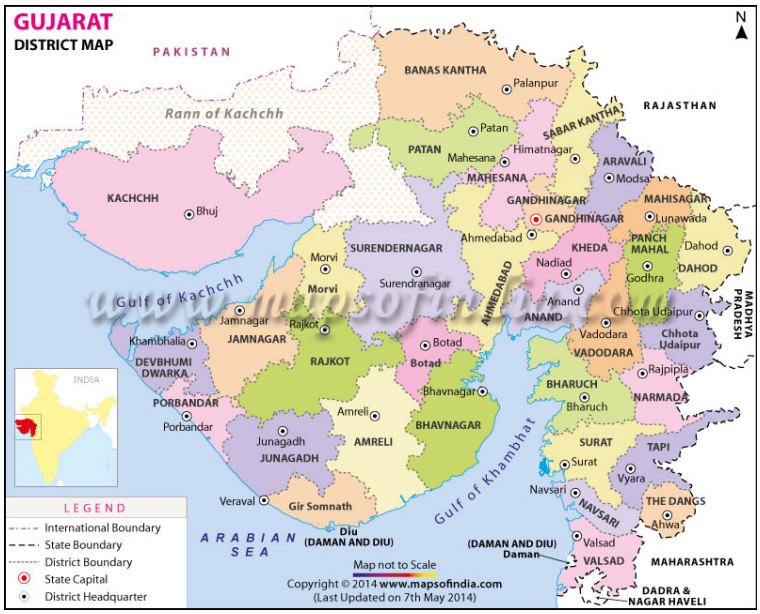
Chapter II

Status of Input Use in Gujarat Agriculture

2.1 Introduction:

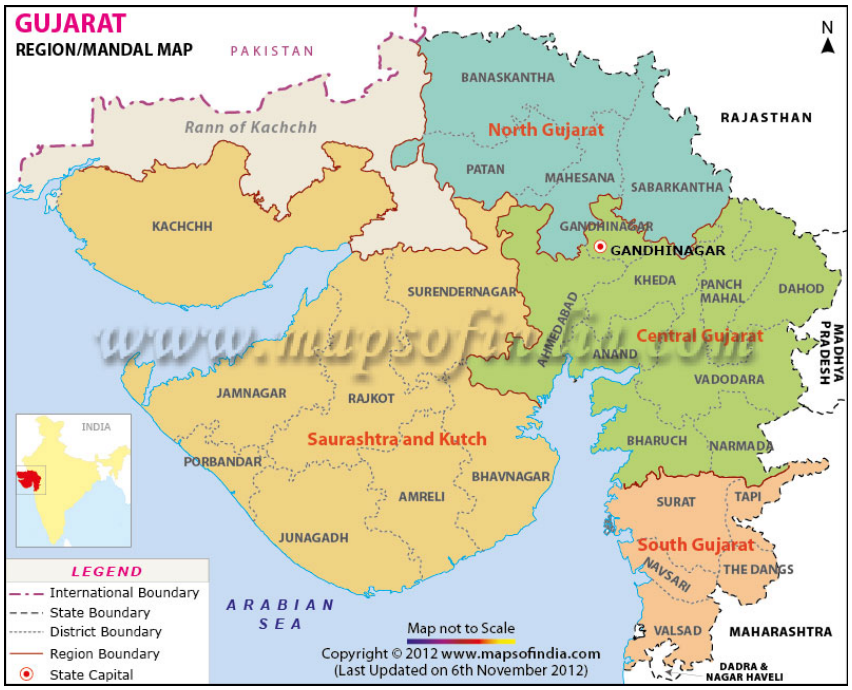
The State of Gujarat is situated on the Western side of India covering an area of 196,024 sq. km. It accounts for about 6.2 per cent of total geographical area, 4.99 per cent of total population of India. The population of Gujarat State was 603.84 lakh (2011). The population density is 308 km^{-2} (797.6/sq mi), lower than other Indian states. Gujarat accounts for about 2.6 per cent of the total fresh water resources in the country. Almost one third of the coastline of the Indian sub-continent belongs to Gujarat. The state is divided into 33 districts (see Map 2.1). Major cities of Gujarat include Ahmedabad, Surat, Vadodara, Rajkot, Jamnagar, Bhavnagar, Vapi and Junagadh. Sabarmati is the biggest river of Gujarat followed by Tapi, although Narmada covers the longest area in the state. The Sardar Sarovar Project is built on the Narmada river. Narmada is one of the major rivers of peninsular India with a length of around 1312 km across states. It is one of the only three rivers in peninsular India that runs from east to west, the others being the Tapi River and the Mahi river. Gujarat has a history of suffering various natural calamities including, cyclone, earthquake, droughts and floods. However, the resilience inhibited in the people of the state by the virtue of its rich cultural and traditional heritage, the citizens of the state have learned to survive through all odds.

Map 2.1: District Map of Gujarat



Gujarat state has earned the distinction in India for its novel pattern of growth. It is one of those states of India where economy has always performed better than the national average. The economic performance of the state may be considered as even more remarkable in view of the fact that the state has limited natural resources. It has limited mineral base and its water resources are scarce with most of the rivers flowing through the state having reasonable water during rainy season only. The state can be broadly divided into South, North, Saurashtra and Kachchh regions (see Map 2.2). The vast areas of the state, mainly in the central and northern Gujarat, are plain low lands.

Map 2.2: Region-wise Map of Gujarat



Gujarat is the one of the fastest growing states of India. Agriculture and allied sector plays an important role in the state economy. Agriculture continues to be the primary occupation for the majority of rural people in the state. About 70.5 per cent of total workers in the state are based in rural areas. Gujarat ranked 5th among all the states of India in context of the Gross State Value Added (GSVA) from agriculture and allied sector at constant (2011-12) prices with Rs. 117,81,719 lakhs in 2016-17 (GOI, 2018). However, the percentage share of agriculture (including crop and livestock sector) in total GSVA at constant prices (2011-12) in 2016-17 was 12.36 percent, about half the percentage of the state with highest percentage share of 32.55 percent for Madhya Pradesh (GOI, 2018). Though the contribution of agriculture in

NSDP has gradually declined from around 50 per cent during 1970s to around 21.6 per cent (*at current prices*) and 15 per cent (*at constant 2004-05 prices*) in 2010-11, yet it forms the backbone of development. More than half of the working population in Gujarat is still dependent on agricultural activities for their livelihood. About 51.8 per cent of total workers are cultivators and agricultural laborers. Moreover, agriculture provides indirect employment to large portion of population in agro-based occupations. Thus, a higher priority to agriculture will achieve the goals of reducing poverty and malnutrition as well as of inclusive growth. The salient features of four regions classified by Jain (2012) are presented in Table 2.1.

Table 2.1: Salient Features of the Four Regions of Gujarat

Regions	Districts	Features
North Gujarat	Ahmedabad, Gandhinagar, Patan, Mehsana, Dahod, Banaskantha, Panchmahals and Sabarkantha.	Arid to semi-arid climate; groundwater is the main source of irrigation; deep, alluvial aquifer system that is over-exploited; enterprising farmers; highly developed dairying and dairy co-operatives.
South Gujarat	Anand, Kheda, Vadodara, Bharuch, Surat, Narmada, Navsari, Valsad and Dangs.	Humid and water-abundant part of Gujarat; large areas under canal irrigation systems such as Mahi, Ukai-Kakarapar, Karjan, Damanganga and Sardar Sarovar; conjunctive use of groundwater and canal surface water though farmer initiative; enterprising farmers; strong Dairy cooperatives.
Saurashtra	Amreli, Bhavnagar, Junagadh, Jamnagar, Porbandar, Rajkot and Surendranagar.	Arid to semi-arid climate; groundwater the main source of irrigation; hard rock aquifers have poor storage capacity; open dug wells are the main source of irrigation; Agriculture dependent mostly on monsoon; early withdrawal of monsoon is a curse for kharif crop.
Kachchh	Kachchh	Arid to semi-arid climate; groundwater the main source of irrigation; limited area with tube wells in productive aquifers having poor storage capacity with open dug wells are the main source of irrigation; agriculture dependent mostly on monsoon; early withdrawal of monsoon the curse of kharif crop.

Source: Jain (2012).

About 47.08 percent of Gujarat was under irrigation in 2015-16 as compared to 98.64 percent of area covered under irrigation in Punjab that had the largest area under irrigation among major states (FAI, 2019). Additionally, it should be noted that Gujarat is referred to as a chronically drought prone area and has one of the highest drought probability. Gujarat faced certain years of drought or famine since independence, like 1968-69, 1985-87 and 1999-2000. Particularly Saurashtra & Kachchh region recorded the second highest frequency of moderate and severe drought (after West Rajasthan) during the period from 1875 to 2004. Availability of water and irrigation facilities are detrimental for agricultural growth (Kumar et al,

2010). Besides the 'post-reform period from 1995-96 to 2004-05' in agriculture, coincided with the 2001 Bhuj earthquake, thereby affecting the socio-economic output of the state including agriculture (Ahir, et al., 2018).

About 3.47 crore people of the state live in rural areas forming about 57.4 per cent of its total population (GOI, 2011). Thus, the agriculture in the state has been a major source of labour absorption. The major crops grown in different parts of Gujarat are bajra, wheat, jowar, maize, cotton, groundnut, castor, rapeseed and mustard, fodder and horticultural crops (see Map 3.2). As per the cropping pattern of the state in the year 2018-19, area under crop groups such as total cereals, pulses, oilseeds, cotton, horticultural crops and fodder crops accounted for about 19.5 per cent, 5.1 per cent, 19.8 per cent, 20.6 per cent 5.1 per cent and 4.4 per cent of gross cropped area (GCA), respectively (Table 1.1). Cotton and oilseed crops are usually seen as the major cash crops grown in Gujarat. The state accounts for significant share in the production of major crops to national basket. The state ranked first in production of cotton (36.22 percent), groundnut (42.88 percent) and castor (85.06 per cent) in the country during the production year 2017-18 (GOI, 2019, www.indiastat.com)-11.

Map 2.3: Agriculture Map of Gujarat

Source: www.mapsof india.com

Table 2.2: Changes in Cropping Pattern in the State of Gujarat

Major crops	1990-91		2000-01		2010-11		2018-19 (P)	
	Area ('000' ha)	% of GCA	Area ('000' ha)	% of GCA	Area ('000' ha)	% of GCA	Area ('000' ha)	% of GCA
Rice	623	5.9	583.5	5.6	839.8	6.6	839.0	6.5
Bajra	1394.3	13.1	989.2	9.4	924.3	7.3	391.6	3.0
Wheat	608.7	5.7	286.1	2.7	1611.4	12.7	797.2	6.2
Maize	366.2	3.4	382.9	3.6	515.9	4.1	409.2	3.2
Total Cereals	3799.8	35.7	2435.6	23.2	4149	32.7	2525.7	19.5
Tur	428.9	4.0	317.9	3.0	283	2.2	254.4	2.0
Total Pulses	948.7	8.9	634.6	6.0	919.2	7.2	661.9	5.1
Total Foodgrains	4748.5	44.7	3070.2	29.2	5068.5	40.0	3187.6	24.6
Sesamum	237	2.2	356.9	3.4	282.2	2.2	97.7	0.8
Groundnut	1826.1	17.2	1744.8	16.6	1926.6	15.2	1594.2	12.3
Rape and Mustard	348.6	3.3	186.6	1.8	253.5	2.0	195.4	1.5
Caster	384.9	3.6	458.6	4.4	498.5	3.9	97.2	0.8
Total Oilseeds	2818	26.5	2746.9	26.2	305.9	2.4	2560.4	19.8
Cotton	1041.6	9.8	1615.4	15.4	2662	21.0	2660.1	20.6
Tobacco	141.6	1.3	87.8	0.8	88.6	0.7	177.4	1.4
Horticultural crops	337.4	3.2	593.34	5.7	536.7	4.2	662.0	5.1
Fodder crops	1325.1	12.5	1371.1	13.1	458.9	3.6	575.0	4.4
All Crops	222.6	2.1	1012.3	9.6	3564.0	28.1	3116.5	24.1

Notes: P- Provisional
Sources: Swain et al., 2012 & https://dag.gujarat.gov.in/scr-info.htm

Given the competing demands on agricultural land from various crops as well availability of land for crop production, the agricultural production can be increased only if productivity is improved significantly and farmers get remunerative and attractive prices for crop produce in the state. Seed is the critical determinant of agricultural production on which depends the performance and efficacy of other inputs. Quality seeds appropriate to different agro-climatic conditions and in sufficient quantity at affordable prices are required to raise productivity. On the other hand, the constraints such as unavailability of good quality seeds in time and at reasonable prices considerably affect the yield potential of crops.

According to the Commission for Agricultural Costs and Prices (CACP) that sets the Minimum Support Prices (MSP) for various agricultural output, cost of production is an important, but not the only, determinant used to determine MSP. Cost of production of agriculture includes all paid costs (labor by humans / bullocks/ machines, and various input costs like those on seeds, insecticides, pesticides, weedicides, natural and chemical fertilizers, irrigation equipment, fuel charges, etc.) imputed costs (wages of family labor and rent on land with self-ownership) and depreciation costs (like those on fixed assets like, tractors, and other farm machinery, transport, insurance charges, etc.) (Jose, 2016). Therefore, it is very important to note the utilization of inputs in agriculture in Gujarat and the associated costs thereby.

2.2 Use of Agricultural Inputs in Gujarat

Among various states, Gujarat has been leading in technology led growth in agriculture. Technology development and diffusion is a key driver of agricultural growth, fueling agricultural production other farm output and raising the farmers' income substantially. Due to technology intervention, the share of cash crops like cotton and horticultural crops has increased substantially during the last two decades. During 2000s, Bt cotton seeds and hybrid maize seeds have shown spectacular results in the state. The growth in the volume has come through increased Seed Replacement Rate of major crops like cotton, groundnut and other crops in the state. To complement with good agricultural growth in the state, the availability of quality/certified seeds has been made available as required in various parts of Gujarat (Swain et al, 2012).

2.2.1 Growth in Area and Production of HYV Crops in Gujarat

During the initial phase of green revolution, the cereal crops were given priority for technological interventions. The total area under HYV cereals tremendously increased during the first decade of technological intervention. The total area under HYV cereals increased from 33.4 thousand ha in 1966-67 to 2170.9 thousand ha in 1980-81, an increase of around 65 times (Table 2.2). During last five decades, the total area under HYV cereals increased at a CAGR of 11.03 per cent, an increase from 33.4 thousand ha in 1966-67 to 2999 thousand ha in 2009-10. Among the HYV cereals, the share of area under HYV bajra in total area under the HYV cereals declined, whereas the share of paddy and wheat increased over last four decades. The share of area under HYV bajra declined from 86.2 per cent in 1966-67 to about 25.9 per cent in 2009-10, whereas the share of paddy and wheat increased from 1.2 per cent and 2.1 per cent in 1966-67 to 24.0 per cent and 34.2 per cent in 2009-10, respectively. The rate of growth for area under HYV of bajra was negative (-3.42%) during 2000s, whereas the rate of growth for area under HYV for paddy and wheat registered a significant growth rate of 7.15 per cent and 7.43 per cent respectively during the corresponding period.

On the other hand, the total area under HYV cereals as a share of total area under the cereals in the state increased considerably during the last four decades. The percentage share of the total area under HYV cereals as a share of total area under the

cereals increased from 0.72 per cent in 1966-67 to 82.76 per cent in 2009-10. It is well discernible that the larger share of jowar crop (about 59.6 %) has not been grown with HYV seeds unlike other cereal crops.

Table 2.3: Growth of Area under HYV Cereal Crops in Gujarat (1966-67 to 2009-10)

(Area in 00' ha)

Year	Paddy	Wheat	Jowar	Bajra	Maize	Total Area under Cereals
1966-67	4	7	4	288	31	334
	(1.2)	(2.1)	(1.2)	(86.2)	(9.3)	(100.0)
1970-71	491	1743	48	5573	46	7901
	(6.2)	(22.1)	(0.6)	(70.5)	(0.6)	(100.0)
1980-81	3051	4750	841	11959	1105	21706
	(14.1)	(21.9)	(3.9)	(55.1)	(5.1)	(100.0)
1990-91	5051	5204	2498	10886	2103	25742
	(19.6)	(20.2)	(9.7)	(42.3)	(8.2)	(100.0)
2000-01	4240	2600	480	9720	2270	19310
	(22.0)	(13.5)	(2.5)	(50.3)	(11.8)	(100.0)
2009-10	5980	8540	660	6460	3300	24940
	(24.0)	(34.2)	(2.6)	(25.9)	(13.2)	(100.0)
2011-12	5830	12340	540	8100	2820	29630
	(19.7)	(41.6)	(1.8)	(27.3)	(9.5)	(100.0)

Note: Figures in parentheses are the percentages of total area under cereals
Sources: FAI (various issues, 1992); www.indiastat.com (Swain et al., 2012) & https://dag.gujarat.gov.in/scr-info.htm

Table 2.4: Share of HYV Cereals Crops in their respective Total Area in Gujarat

Year	Paddy	Wheat	Jowar	Bajra	Maize	Total Cereals
1966-67	0.08	0.16	0.03	1.62	1.19	0.72
1970-71	9.61	26.93	0.37	26.40	1.74	15.53
1980-81	53.07	77.05	7.70	79.64	35.27	50.20
1990-91	81.08	85.49	35.83	78.08	57.43	67.75
2000-01	61.51	72.73	19.96	83.68	49.13	64.91
2009-10	88.01	97.27	40.39	95.99	80.16	87.18
2011-12*	69.78	91.37	43.55	93.50	54.66	78.43

Sources: FAI (various issues, 1992); *www.indiastat.com (Swain et al., 2012) & https://dag.gujarat.gov.in/scr-info.htm

To complement with good agricultural growth in the state, the availability of quality/certified seeds has been made available as per the requirement in various part of Gujarat. As stated in Table 2.5, there was significant surplus in availability of quality/certified seeds in Gujarat during both the kharif and rabi seasons of 2008-09 and 2011-12. Such an abundant availability of quality/certified seeds helped in enhancing agricultural production and productivity. However, the Seed Replacement Rate (SRR) for majority of crops has been quite low. Even in case of cotton and

groundnut which comprise of substantial agricultural output of Gujarat, SRR has been as low as 25.5 per cent and 24.9 per cent respectively (Table 2.5). Besides mustard and bajra, the SRR needs further improvement in case of other crops.

Table 2.5: Seeds Requirement and Availability

Crops	2008-09			2011-12		
	Requirement (In Qtls.)	Availability (In Qtls.)	Surplus(+)/ Deficit(-)	Requirement (In Qtls.)	Availability (In Qtls.)	Surplus(+)/ Deficit(-)
Kharif crops						
Paddy	56500	84845	28345	85500	86000	500
Bajara	28206	34354	6148	26250	27006	756
Moong	12750	14883	2133	15000	15300	300
Arhar	15500	15965	465	20000	20100	100
Groundnut	98500	99535	1035	517621	517621	0
Castor	22150	30848	8698	2500	36864	34364
Cotton	70942	102573	31631	74508	74990	482
Total	304548	383003	78455	741379	777881	36502
Rabi crops						
Wheat	322500	572092	249592	425000	432500	7500
Bajara	7500	17868	10368	15000	17762	2762
Moong	9600	22341	12741	12000	22100	10100
Gram	18000	21003	3003	26500	27004	504
Groundnut	30350	31050	700	36500	38700	2200
Mustard	7500	7765	265	5500	5610	110
Total	395450	672119	276669	520500	543676	23176

Source: Swain et al., 2012.

2.2.2 Growth in Fertilizer Consumption in Gujarat

Fertilizer is another important input for crop growth and increasing productivity. It may be noted from Table 2.6 that the overall consumption of NPK has increased from 16.23 lakh tonnes in 2007-08 to 19.39 lakh tonnes in 2010-11 and then declined to 18.41 mt in 2017-18. While, NPK consumption per hectare of GCA has also increased from 134 kg in 2007-08 to 156 kg in 2009-10 and then slightly declined to 144.73 kg/ha in 2017-18.

Table 2.6: Consumption of Fertilizers in Gujarat

Nutrient	Consumption of Fertilizers in Gujarat (In lakh M.T.)				
N/P/K	2007-08	2008-09	2009-10	2010-11	2017-18
N	10.53	10.69	10.69	12.41	12.89
P	4.25	4.65	4.83	5.18	4.16
K	1.46	1.82	1.87	1.80	1.36
Total	16.23	17.17	17.39	19.39	18.41
NPK Use in kg/ha of GCA	134.02	148.39	156.13	NA	144.73

Source: FAI (2019)

2.2.3 Water Lifting and Distribution Devices

Out of 129.399 lakh ha of cultivated land in Gujarat, about 71.96 lakh ha area was irrigated during the year 2016-17 (Table 18). Thus, about 55.62 per cent of gross cropped area in the state was under irrigation. The cropping intensity and irrigation intensity at the state level which was declined marginally in 2009-10 as compared to 2007-08 again increased in 2016-17. Net irrigated area in the state was 48.02 lakh ha during 2016-17 (https://dag.gujarat.gov.in/scr-info.htm). Gujarat farmers rely on different sources of irrigation that include canals, tube wells, open wells and tanks. It may be noted that the share of canal irrigated area which was unchanged at the level of 19 per cent during the year 1990-91 and 2000-01 has increased to 23.44 per cent in 2016-17. The combined irrigated area through tube wells and open wells has slightly declined from 79 per cent in 1990-91 to 61.99 per cent in 2016-17. However, the tube wells and open wells have been the major sources of irrigation in the state. Thus, the pressure on groundwater exploitation has considerably increased in Gujarat. In fact, ground water has been over utilized in the state.

Table 2.7: Irrigated Area in Gujarat during 2007-08 to 2016-17

(Area in '000 ha.)

Sl. No.	Year	Gross irrigated area (GIA)	Net irrigated area (NIA)	Gross cropped area (GCA)	Net sown area (NSA)	GIA as % to GCA	NIA as % to NSA	Cropping intensity	Irrigation intensity
1	2007-08	5684	4336	12110	9801	46.9	44.2	123.6	131.1
2	2008-09	5278	4336	11571	9801	45.6	44.2	118.1	121.7
3	2009-10	4935	4336	11138	10302	44.3	42.1	120.5	113.8
4	2016-17	7196	4802	12940	9881	55.6	48.6	130.9	149.87

Sources: Swain et al., 2012 & https://dag.gujarat.gov.in/scr-info.htm

The Government has taken various initiatives for regulating water use for agriculture by promoting the use of micro irrigation technology. Gujarat has created Gujarat Green Revolution Company (GGRC) in 2005, a specially enshrined with the mission to expedite the promotion of drip irrigation among farmers. GGRCL offers attractive subsidy loan to adopters, but more importantly has fast track and simplified administrative procedures for accessing these. As a result, the spread of micro-irrigation technologies was more rapid in Gujarat than other states during recent years (Gulati et al, 2009; Shah et al., 2009). Gujarat ranked fourth amongst major states in

terms of area covered under micro-irrigation as on 31.3.2017 with a total of 11,38,002 hectares after Rajasthan (1788545), Maharashtra (1412540) and Andhra Pradesh (1323205.1). Of the total 11,38,002 hectares of area under micro irrigation in Gujarat, 5,57,606 hectares were under drip irrigation and 5,80,396 hectares were under sprinklers (GOI 2019). Any farmer can get subsidy of Rs. 60,000/- per hectare or 50 per cent of the MIS cost (derived based on crop spacing) whichever is less for any area and any crop. Tribal Farmer of tribal area can get additional 25 per cent subsidy from Tribal Department of GOG. The GGRC was instrumental in spreading micro irrigation over 70,000 hectares of land during the year 2009-10 (GOG, 2011). State Government has decided to bring all State run tube-wells in Northern Gujarat under micro irrigation so as to save ground water. As a result of this, about 245 tube-wells are connected to micro irrigation system; work is in progress on another 600 tube-wells (http://guj-nwrws.gujarat.gov.in). Many villages in Gujarat have adopted 100 per cent drip and sprinkler irrigation systems to water crops.

2.2.4 Farm Mechanization

There is a strong correlation between farm mechanization and agricultural productivity. States with a greater availability of farm power show higher productivity as compared to others (GOI, 2011a). Among various types of farm machinery, tractors, power tillers, diesel engines and electric motors are the major ones. The sale of tractors and power tillers has increased from 296.1 thousands and 22.3 thousands, in 2005-06 to 545.1 thousands and 55 thousands in 2010-11 respectively in India. Out of the total sale of tractors, states of Madhya Pradesh and Gujarat account for 21 per cent. Similarly, the use of ploughs and carts has been reduced by 2.68 per cent and 6.25 per cent respectively between 1997 and 2003 in Gujarat. The electric power consumption is one of the major aspects of the farm mechanization. Compared to 20.91 per cent of total power consumption in agriculture in India during 2016-17, Gujarat consumes about 19.59 per cent of its total electricity for agriculture alone (GOI, 2019) (Table 2.8). On the other hand, the use of tractors, oil engines with pump sets and electric pump sets for agriculture purpose has increased considerably by 20.88 per cent, 18.93 percent and 15.0 per cent respectively during 1997 and 2003.

Table 2.8: Use of Agricultural Implements in Gujarat

(Figures in '00')

Details	Year 1997		2003		2007		% Change in 2003 over 1997
Ploughs	17673	(15.8)	17199	(14.6)	17835	(14.7)	-2.68
Carts	5711	(5.1)	5354	(4.5)	4527	(3.7)	-6.25
Oil Engines with Pump sets (used for Irrigation)	3672	(3.3)	4367	(3.7)	NA		18.93
Electric Pump/Sub-mersible pump set used for Irrigation	4072	(3.6)	4683	(4.0)	NA		15.00
Tractors (used for agricultural purpose)	1221	(1.1)	1476	(1.3)	NA		20.88

Notes: Figures in parentheses is the number per ha of GCA in respective years; NA- Not Available.
Source :GoG (2011a).

2.2.5 Marketing and Warehouse Facilities

The adequate returns on agricultural output is one of the driving forces for better agricultural growth. Better marketing channels and warehouse facilities are essential for ensuring adequate returns on agricultural output of famers. The State of Gujarat had a storage capacity of 8.82 lakh MT during March 2017. The total storage capacity of entire West zone was 184.09 lakh MT and that for entire India was 775.38 lakh MT (GOI, 2018, p. 301). Gujarat ranked second in India, after Uttar Pradesh in terms of number of projects of cold storage as on 31.3.2017 with 753 such projects. However, in terms of capacity of cold storage, Gujarat ranked third after Uttar Pradesh and West Bengal with a cold storage capacity of 28,75,713 MT (GOI, 2018, p. 302). It may be seen from Table 2.9 that the total warehousing capacity under Gujarat State Warehousing Corporation (GSWC) has come down from 2.1 lakh tonnes in 2006-07 to 1.5 lakh tonnes in 2012-13. It is astonishing to find that the level of utilization of the existing warehousing capacity has been very low. The utilization has also come down from 66.9 per cent in 2006-07 to 49.6 per cent during 2010-11, and has increased thereafter to 63.9 per cent in 2012-13. It may also be noted that during the period of last seven years, the Corporation has recorded loss during three years. This may be due to under-utilization of the storage capacity.

The Gujarat State Warehousing Corporation (GSWC), whose main activity is to build godowns and warehouses in the state (for scientific storage of agricultural

produces, manures, fertilizers, agricultural implements and other notified commodities of the farmers, co-operative societies, traders, government and other institutions) is operating 201 godowns across 22 districts of the state. There are 205 market committees in 26 districts of the state, which includes 199 main yards and 201 sub-market wards (Swain et al 2012).

Table 2.9: Warehousing Capacity under Gujarat State Warehousing Corporation

Year	Owned capacity (MT)	Hired capacity (MT)	Total capacity (MT)	% of utilization	Profit (+)	Loss (-)
2006-07	129373	81,011	2,10,384	66.9	(+)077.00	-
2007-08	1,29,373	10,557	1,39,930	45.9	-	(-)023.17
2008-09	1,29,373	29,523	1,58,896	68.7	(+) 066.54	-
2009-10	1,35,908	39,396	1,75,304	59.7	(+) 027.10	-
2010-11	1,45,056	45,013	1,90,069	49.6	-	(-) 65.46
2011-12	1,45,056	3,100	1,48,156	61.4	-	(-) NA
2012-13	1,45,056	3,100	1,48,156	63.9	(+) 200.40	-

Source: http://gswc.gujarat.gov.in/go-down-information.htm

2.3 Chapter Summary

Gujarat has been leading in technology led growth in agriculture. Technology development and diffusion is a key driver of agricultural growth, fueling agricultural production other farm output and raising the farmers' income substantially. Due to technology intervention, the share of cash crops like cotton and horticultural crops has increased substantially during the last two decades. The growth in the area under HYV seeds has come through increased Seed Replacement Rate of major crops like cotton, groundnut and other crops in the state. The NPK consumption per hectare of GCA has also increased from 134 kg in 2007-08 to 144.73 kg/ha in 2017-18. About 55.62 per cent of gross cropped area in the state was under irrigation and tube wells and open wells have been the major sources of irrigation in the state. Out of the total sale of tractors, states of Madhya Pradesh and Gujarat account for 21 per cent. Similarly, the use of ploughs and carts has been reduced by 2.68 per cent and 6.25 per cent respectively between 1997 and 2003 in Gujarat. Gujarat consumes about 36.75 per cent of its total electricity for agriculture alone.

The next chapter presents the indirect taxes and GST.

Chapter III

Indirect Taxes and GST

3.1 Introduction:

There have been major changes in tax systems of several countries with a wide variety of economic systems and levels of development during the past few decades. The motivation for these reforms has varied from one country to another and the thrust of reforms has differed from time to time depending on the development strategy and philosophy of the times. In many developing countries, the immediate reason for tax reforms has been the need to enhance revenues to meet impending fiscal crises (Rao, 2000). One of the most important reasons for tax reforms in many developing and transitional economies has been to evolve a tax system to meet the requirements of international competition. Thus, the tax system has to adjust to the requirements of a market economy to ensure international competitiveness.

India offers a well-structured tax system for its population. In the Indian federal polity[1], both central and state governments exercise revenue powers. There have been a number of attempts at improving the tax system since independence. The principal objective of these attempts has been to enhance revenue productivity to finance large development plans. Taxes are the largest source of income for the government. This money is deployed for various purposes and projects for the development of the nation. Taxes are determined by the Central and State Governments along with local authorities like municipal corporations. The entire system is clearly demarcated with specific roles for the central and state government. The Central Government of India levies taxes such as customs duty, income tax, service tax, and central excise duty. The taxation system in India empowers the state governments to levy income tax on agricultural income, professional tax, Value Added Tax (VAT), state excise duty, land revenue and stamp duty. The local bodies are allowed to collect property tax, and other taxes on various services like drainage and water supply.

[1] The Seventh Schedule to the Constitution specifies revenue sources of the centre and the states respectively in the union and state lists. There is a concurrent list in the schedule as well. However, the tax powers are not assigned in the concurrent list as the Constitution follows the principle of separation.

A) Direct taxes

Direct taxes are levied on individuals and corporate entities and cannot be transferred to others. These include income tax, wealth tax, and gift tax.

B) Indirect taxes

Indirect taxes are not directly paid by the assessee to the government authorities. These are levied on goods and services and collected by intermediaries (those who sell goods or offer services). Here are the most common indirect taxes in India:

- Value Added Tax (VAT): This is levied by the state government and was not imposed by all states when first implemented. Later, all states levied such tax. It is imposed on goods sold in the state and the rate is decided by the state governments.
- Customs duty: Imported goods brought into the country are charged with customs duty which is levied by the Central Government.
- Octroi: Goods that move from one state to another are liable to octroi duty. This tax is levied by the respective state governments.
- Excise duty: All goods produced domestically are charged with excise duty. Also known as Central Value Added Tax (CENVAT), this is paid by the manufacturers.
- Service Tax: All services provided domestically are charged with service tax. The tax is paid by all service providers unless specifically exempted.

Taxation is an important fiscal tool for the government to contain macroeconomic imbalances and improve economic performance. The preference of direct over indirect taxation is axiomatic to the optimal design of the tax structures since these may influence differently the policy goals of efficiency, equity and sustainability.

C) Goods and Service Tax (GST)

As a significant step towards the reform of indirect taxation in India, the Central Government introduced the Goods and Service Tax (GST). GST is a comprehensive indirect tax on manufacture, sale and consumption of goods and services throughout India and has subsumed many indirect taxes levied by the Central and State Governments. GST is implemented through Central GST (CGST), Integrated GST (IGST) and State GST (SGST). Four laws (IGST, CGST, UTGST & GST (Compensation to the States), Act) received approval of the President.

3.2 Recent Reforms in Taxation System

In India, with the evolution of indirect taxation system, the tax base of excise duty has widened and the rate of taxation has declined over time. Yet, the tax rates remained high enough to make Indian products less competitive in the global market. But, since the economic reforms were initiated in 1991 the tax structure has been rationalized in terms of exemptions, reduction in number of rates and widening of the tax base (Rustagi 1998). Despite a fairly successful harmonization of the tariff, the excise duty structure continued to be complicated. Chelliah committee suggested adoption of value added tax (VAT), and it was adopted by the state governments in 2005. With VAT, the revenue and state autonomy in determination of VAT rates continued to increase. These led to differential tax rates for the same commodity, multiplicity of taxes, lack of compliance and conflicts between state governments and central endorsement of GST. Exclusion of services from VAT was also a major weakness (Bagchi 1997).

To address the challenges/problems of VAT system, in 2017 India switched to a new indirect tax regime - GST; a destination based tax on consumption of goods and services. It is levied at all stages, right from manufacturing to final consumption with provision of tax credit at previous stage as a set-off. In nutshell, only value addition is taxed, and the burden is borne by the final consumers. It is considered to be a transparent and effective tax system enhancing tax compliance and reducing the cascading effect of taxation.

Goods and Services Tax or GST is an important fiscal instrument to ensure efficient, equitable and sustainable economic growth. India switched over to GST in 2017, bringing all economic activities, including those related to agricultural sector, under its ambit. In the present parlance, the taxation of agricultural income is a matter of political and academic importance, yet not operational. However, indirect taxation on many agricultural inputs as well as outputs via goods and services tax (GST) is the current reality (Singh, et al., 2018). With the rise in the production cost of agriculture products, an immediate rise in inflation, special food inflation can be triggered. Therefore, a need was felt to assess the impact of GST on various inputs and materials used in agriculture and allied sectors.

3.3 Review of Literature[2]:

With GST implementation, several *ex-ante* assessments of its impacts on different sectors of the economy have been made. Despite that, the policymakers, academicians, economic agents as well as common man remain skeptic about its real implications. In India, about 50 per cent of the population depends on agriculture for livelihood. The change in tax regime is expected to influence welfare of agricultural population. There are conjectures about the potential impacts of GST on input demand and prices of different agricultural commodities (Kelkar 2013; Gulati & Husain 2017; Gandhi 2016). With GST, the prices of fresh agricultural produce were expected to decline, while that of processed food products including animal products were indicated to rise. However, there is no empirical analysis of the effects of GST on prices of agricultural commodities. GST influences farm profits through changes in input costs and also output prices.

The mixed picture of the global experience on GST has been recorded (Singh, et al 2018). The consumption taxes, such as the VAT or the GST based on value addition was adopted by the several Southeast Asian countries (e.g., Malaysia, Philippines, Singapore, Australia and Thailand) in the 1980s and 1990s. After the implementation of GST in 1994, a sharp rise in inflation soon after was recorded in Singapore. Although the prices of some commodities remained largely unchanged or even declined, the prices of many goods and services increased as a result of the indirect tax reforms after implementation of GST in 2000 by Australia (Valadkhani and Layton, 2004). As the embedded cost of previous indirect taxes on business inputs was removed, the prices of most investment goods and services fell. As reported in Singapore, inflation was rose and cost of living was negatively impacted in Malaysia after implement ion of GST in April 2015. Though they had experienced a sharp spurt in tax collections, Malaysia abolished GST in May, 2018 (Anonymous, 2018). After implementation of GST, a reduction in Gross Domestic Product (GDP) was experienced by the countries like Philippines and Thailand (Venkadasalam, 2014). Also experienced same result of sharp rise in inflation was reported after GST implementation in 1986 and 1991 respectively by New Zealand and Canada. While some of the countries have reported positive picture of same as inflationary impact faded away soon. The conflict between provincial governments and federal

[2] Heavily based on Singh et al., 2018.

government increased after its implementation in Canada and later the states were allowed to administer their own VAT alongside the federal GST (Singhal, 2016). Owing to multiple rates and weak tax administration/coordination at central and state levels, Brazil had a mixed experience (Singh 2016). According to a Crisil report, the GST caused a sudden spike in inflation lasting for about a year when implemented in many countries, (The Hindu, 2014). However, duration of the impact on retail sales varied, with consumers' spending growth normalizing within three months in Japan, Australia and China, and twelve months in Singapore.

While argument was made that implementation of a comprehensive GST in India would lead to efficient allocation of factors of production resulting in gains in GDP and exports (Chadha, 2009). Mrityunjay (2010) noted that the previous multiple tax structure was not conducive to accelerated economic development, and discouraged investment by multinational as well as domestic players. Therefore, he argues that GST with minimum tax laws ensures efficiency, equity, simplicity in tax structure, and can attract significant private investment. While focusing on the cascading effect of taxes, Mukharjee (2015) argued that GST would remove the same and would provide a common nation-wide market for goods and services. Parthasarathi (2015) was of the opinion that it removes distortions in business production decisions by effectively taxing only the consumption as well as tax administration, transparent and revenue, productive. While Kelkar (2016) argues it as important reform for next rapid phase of economic growth after introduction of GST, which was supported by Leemput and Wiencek (2017) stating that expansion of trade after GST would raise overall welfare as well as enchantment in real GDP. The positive impact on GDP was also opined by Vasanthagopal (2011) and Poddar & Ahmad (2009).

It is expected that recent indirect tax policy reform would eliminate the evils of excise and Value Added Tax (VAT) system of taxation. Thus, though is no against it, there are two ideologies in terms of adoption of GST viz. proponent (Kelkar, 2013; Gulati and Husain, 2017; Gandhi, 2016) and opponent (Valadkhani and Layton, 2004, Venkadasalam, 2014).

Bhattacharjee and Bhattacharya (2018) indicated the slowdown of growth in selected indicators between March 2016 and June 2017[3]. Singh et al (2018) attempted

[3] See, Annexure IV.

to provide a preliminary assessment of the impact of GST on agricultural sector. They noted that most agricultural services remain exempted from GST, and tax rates on several inputs and commodities have been reduced. Tax rates on machines and equipment used in dairy industry have been marginally reduced, while dairy products have been brought under tax net. Tax incidence on machines and equipment used in agro-processing has increased. These changes in tax rates are likely to influence prices of inputs and their usage; adoption of technologies and prices of agricultural commodities and thereby farm profits.

Implementation of GST has also led to prognosis of its effect on different sectors. However, very few studies (Singh et al., 2018) are available on the implications of GST on the agricultural sector and its effect on farm business operation in India. Particularly state specific comprehensive studies could not be traced. In order to understand the implications of GST on agricultural sector (more specifically the agricultural production system) of the economy, it is necessary to have a comparison of the tax rates on different agricultural inputs and services of agricultural sector pre-and post-GST implementation.

3.4 Evolution of GST

As mentioned earlier, India being a federal government, the three levels of government namely, Central government, State governments, and local governments levy and collect various taxes since independence. Fiscal federalism conferred different powers to levy and collect separate taxes on both Central government, the state government, as defined in the Union list, and the State list in the constitution. Central government levied taxes on manufacturing of goods (Central Excise duties) and additional duties of excise, services tax (on sale of services) and interstate sale of goods, surcharges and cess (CST – levied by Centre but collected and appropriated by the State). Whereas, states levied taxes on sales of goods (VAT), and collected and retained the central sales tax on inter-state sales entering the states (Entry tax), luxury tax, purchase tax, entertainment tax, etc. (Goyal, 2017; Gupta, 2017). Thus the number of taxes was high, with cascading effects, high levels of complexity, confusion and cumbersome regulations, with challenges posed in 'ease-to-do-business' for both national and international players (Gupta, 2017).

After about a decade of efforts involving innumerable manpower, constitutional amendments, and approval of five laws, on the first day of July, 2017,

the Government of India implemented the GST (Goods and Services Tax). Through a long history of efforts[4] put by various political and bureaucratic experts, GST was implemented through the 101st Amendment of the Constitution Act 2016. Parliament cleared following bills:

(1) Central GST Act, 2017, (aka CGST)
(2) State GST Act, 2017, as notified by respective states (aka SGST)
(3) Union Territory GST Act, 2017 (aka UTGST)
(4) Integrated GST Bill, 2017, (IGST)
(5) GST (Compensation to States) Bill, 2017. (aka CESS)
(6) Rules, Notifications, Amendments, and Circulars issued under the respective Acts (GST Law, 2019).

Consecutively GST subsumed 17 central and state taxes and 22 types of cess. With the introduction of GST, only twelve forms and one challan for the same tax rate for all goods and services for the entire country came into force. It replaced 34 state VATs with 97 different types of returns to be supported with 317 annexures and 28 declarations, besides central excise that had 13 return forms supported by one declaration with twelve types of challans (Kumar, 2017). Hence, it reduced the compliance cost and efforts manifold. India adopted a 'dual model' of GST, whereby both Centre and the State governments were collectively responsible to take decision regarding GST laws, rules and rates. Hence, Central GST (CGST), State GST (SGST) and Union Territory GST (UTGST) was introduced (Goyal, 2017). An Integrated GST (IGST) was introduced for inter-state supply of goods and services that would be levied and collected by Centre. GST is a consumption based tax and so are paid in the state where consumption takes place, not production (Ashok, 2017; Gupta, 2017). Tax payments are verified by matching of invoices between buyers and sellers. Taxes can be paid through debit / credit cards / Internet banking / NEFT / RTGS.

The honorable Prime Minister Shri Narendra Modi described GST as 'Good and Simple Tax' suggesting that it is simple, transparent, technology driven (with minimum human interface) and that it will help in reducing corrupt practices. He suggested that GST is based on the theme 'one nation – one tax – one market' and would result in economic integration of the country (Kachhal, 2017).

[4] For further details regarding the historical evolution of GST and various other aspects associated with GST, refer to GST council link: http://gstcouncil.gov.in/sites/default/files/GST-Concept%20and%20Status 01072019n.pdf and various articles published in Yojana, August 2017, ISSN 0971-8400.

3.4.1 Advantages

Since GST is a single tax, it is easier to implement and thereby easier to administer as well. Therefore, it is expected to increase the tax base and thereby the tax collection along with inducing transparency in the tax collection system (Kachhal, 2017). Since it is simple and is an IT enabled end-to-end system, the cost of collection of tax is expected to reduce (Goyal, 2017). It is expected to result into unified markets by eliminating the inter-state disparity. It is thus at par with international standards of taxation followed in many countries thereby providing Indian markets a global competitive strength (Ashok, 2017). Due to the removal of variety of taxes to be replaced by a single tax - GST, multiple record keeping and the resultant compliance cost and efforts is expected to be reduced, thereby making it easy and cheaper to do business. Such simplification also keeps customers better informed regarding the tax rates, so that they are not cheated. GST has also removed the cascading effect, by eliminating tax on tax, thereby reducing the cost of goods. Thus a control over rising inflation can be expected (clear tax, 2019; GST council, 2019). Since the entire system is operating through a common GSTN portal assembling various stakeholders at one point, it further involves least one-to-one public interface with the tax authorities (Gupta, 2017). Poor states are expected to gain. Zero rate exports, IGST, is expected to provide protection to domestic industry thereby giving an impetus to 'Make in India'. Since it is a self-regulating non-intrusive tax system, transactions involving black money is expected to be controlled (GST council, 2019)

3.4.2 Disadvantages

Implementation of GST requires a strong IT infrastructure (Kachhar, 2017). While many rural areas and suburban peripheries struggle to receive uninterrupted power supply, lack of uninterrupted supply of power and internet connection pose a challenge in the implementation of GST. Luxury goods with a tax rate of 28 percent, is levied with the highest tax rate in the world (compared to a maximum of 17 percent GST in countries like UK and US) and make them costlier (Ashok, 2017). While it being the initial phase yet for the implementation of GST, widespread lack of clarity and confusion persists among various stakeholders. However, as is the case with most of the changes introduced, after the transition phase GST would only be less burdensome as compared to the previous multiple tax system. Besides, alternate

systems like mobile app named 'GST rates finder' would make it easier for the stakeholders to comply with GST norms without confusion and fear of being cheated.

3.5 GST Peculiarities

3.5.1 GST Council

The constitutional amendment to initiate GST introduced an all-empowering 'GST council' comprising of 2/3rd weightage of the states and 1/3rd that of the Centre with Union Finance Minister as its Chairperson. A decision required 75 percent of the majority in a quorum comprising of 50 per cent of total members. Thus, GST council was appreciated as a model of cooperative federalism (Kachhal, 2017, Goyal, 2017).

The GST council was constituted to make all the decisions related to GST. The council comprised of the Union Finance Minister as the Chairperson, the Union Minister of State (in charge of Revenue or Finance) and Ministers in charge of finance / taxation or any other minister nominated by each State Government as members, out of whom one minister of the state government was to be chosen as the vice-chairperson. Decisions regarding GST are to be taken through consensus and in case of lack of consensus between Centre and the State governments, voting can be initiated to take the decision with 2/3 weightage of all states taken together and 1/3 weightage of the Centre. No decision can be taken without 3/4th of the votes of present voting members and the quorum should be of at least 50 percent members (Ashok, 2017; Goyal, 2017; GST council, 2019, Gupta, 2017; Kachhal, 2017).

As on 18.8.2019, 33 members comprised of GST council, headed by the Finance Minister Smt. Nirmala Sitharaman. The council had met 36 times till August 2019.

3.5.2 GST Revenue details

Four tax slabs were introduced each at 5 per cent, 12 per cent, 18 per cent and 28 per cent. Besides an exempt category and special rate of 0.25 percent on rough unworked diamonds, precious and semi-precious stones and 3 percent on gold was levied (Ashok, 2017; Gupta, 2017, GST council, 2019). A cess on luxury and sin goods over the peak rate of 28 per cent is levied on goods like tobacco, pan masala, aerated water, motor vehicles, to compensate states for any revenue loss. Sale and

purchase of securities continue to be governed by Securities Transaction Tax (STT) and so it is out of the purview of GST.

Referred to as Composition Scheme, small businessmen need to pay a tax of 1 percent for goods supplied and 3 percent for restaurant services supplied. Taxpayers having turnover of above 1.5 crores are administratively controlled equally by the Centre and the State tax administration whereas those below 1.5 crores are administered 90 per cent by the Centre and 10 per cent by the state governments.

Threshold limit for exemption from GST for services is Rs 20 lakh and Rs. 10 lakh for special category states (Manipur, Mizoram, Nagaland and Tripura). Threshold limit for exemption from GST for goods is Rs 40 lakh and Rs. 20 lakh for selected states (States of Arunachal Pradesh, Manipur, Meghalay, Mizoram, Nagaland, Puducherry, Sikkim, Telangana, Tripura and Uttarakhand) from 1.4.2019 (GST council, 2019, http://gstcouncil.gov.in/sites/default/files/GST-an_update_010719n.pdf).

GST is not levied on alcoholic liquor for human consumption, tobacco, five petroleum products (petrol crude, petrol, high speed diesel, natural gas and aviation turbine fuel), and taxes imposed by local bodies. So for these cases the tax regime continues as before GST (Jaiswal, 2017, cleartax 2019). CGST and SGCT are equally charged, and reflected in the bill (Ashok, 2017). All transactions and processes had to be done through non-intrusive electronic mode through PAN based registration.

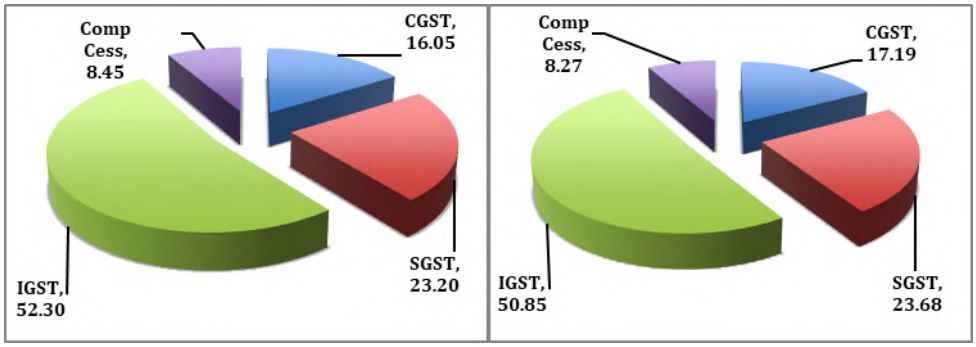
On completion of two years of implementation of GST in June 2019, GST Network released statistical details related to the effect of implementation of GST from July 2017 (date of implementation of GST) to June 2019. Some of the highlights are discussed below.

- The number of registered taxpayers in the month ending June 2017 (before implementation of GST) were 38,51,211, which increased to 1,12,45,715 number of registered taxpayers (including migrated and new registrations) – an increase of about 66 percent. The registrations further increased to 1,22,90,658, an increase of about 69 percent compared to June 2017. In June 2019, new registrations comprised of more than 50 percent of the total 1,22,90,658 registrations (GSTN, 2019).
- The total returns filed before August 2017 was about 1 crore, that increased to about 29 crores in June 2019. During this period highest returns filed in a day

was 21.3 lakhs (GSTN, 2019). The detailed bifurcation of the payments received by the government under GST during July 2017 to March 2018 and April 2018 to March 2019 is as depicted in figure 3.1:

Figure 3.1: Payments received under GST during 2017-2019

July 2017 to March 2018 | April 2018 to March 2019



* Comp cess: Composition cess

- It can be observed that while there has not been much variation in the share of the sources from which the payment is generated, IGST contributed maximum in the payments under GST with about 50 percent share. Total of Rs. 102268.36 crores was the amount of data transmission to customs for IGST refunds for the month ending June 2019. 55,77,78,921 e-way bills were generated from April 2018 to March 2019 (44.6 percent interstate and 55.4 percent intrastate) to which further 15,65,44,847 e-way bills were added from April 2019 to June 2019 (41.3 percent interstate and 58.7 percent intrastate).
- Total 30,36,658 tax payers were registered with e-way bill system and 43,217 transporters were registered with e-way bill system. The e-way bill generated comprised of 63.47 percent by website, 22.47 percent by excel tool and 14.09 percent by mobile, SMS and Application Programming Interface (API). 99.3 percent goods were transported by road, 0.45 percent by rail, 0.21 percent by air and 0.03 percent by ship (GSTN, 2019).[5]

3.6 Impact of GST on Agriculture

GST has impacted agricultural income and inputs, including goods and services. One of the biggest impact is expected on National Agricultural Market. With e-NAM government can very well integrate, one-nation-one-market, now with one-

[5] More details regarding GST rules can be accessed from http://gstcouncil.gov.in/sites/default/files/GST-an_update_010719n.pdf

tax regime as well, to ensure an ease in the expansion of markets to ultimately benefit the farmer. Dairy farming, poultry farming and stock breeding are not included in the definition of 'agriculture' and hence are considered taxable under GST. All unprocessed agricultural goods are further exempted under GST, however, processed goods are subjected to GST. Food processing organizations have also been demanding a reduction in the GST rates on processed foods justifying it on the grounds that food processing units in India are largely Micro, Small, And Medium Enterprises – MSMEs (Financial Express, 2018). Even before the implementation of GST when ICFA (2017) conducted a survey on probable impact of GST on agricultural inputs, the survey results concluded an expected rise in input costs, rise in retail price of agri-inputs, still a rise in agricultural growth, improvement in farmers' profitability, rise in export market for agri-inputs, no change in the imports of agri inputs, among others. Most of the respondents (60-70 percent) were expecting a levy of 0-5 percent GST on most of the agricultural inputs like seeds, fertilizers, bio-products, pesticides, farm-machinery, irrigation equipment, etc. (ICFA, 2017). Clients of the warehouses with an annual rent income of above Rs. 20 lakhs will have to pay 18 percent GST. However, since 90 percent of the warehouses are small in size with barely 10,000 square feet, they are less likely to be affected. Since agricultural income is tax exempted the tax amount is to be incurred by service user as no input tax credit is available (Jha, 2019; Ravichandran, 2018).

Table 3.1: Changes in Tax Rate on Agricultural Commodities and Inputs

Sr. No.	Category	Earlier Tax Rate	Tax rate after GST
1	Fertilizers	0-8%	5%
2	Pesticides	12% excise and 4-5% VAT in some states	12% (initially placed under 18% slab)
3	Drip and Sprinkler irrigation equipment	5%	18%
4	Packaged food preserved vegetables, Jams, jelles, sauce, etc	5%	12%
5	Tractors (except road tractors)	18.5%	12%
6	Butter, Ghee Cheese	6%	12%
7	Dried nuts like almonds, hazeknuts	6%	12%

Source: GOI, 2018.

3.6.1 Taxation on Agricultural Inputs, before and after GST

Goods and Services Tax (GST) came into effect from July 1, 2017. GST subsumed various previously existing indirect taxes including, various central indirect taxes - like excise duty, countervailing duty and service tax and state taxes – like VAT,

luxury tax, entry tax and octroi. Thus, it was a complex structure prior to GST with rates differing across states, commodities, and time. Consequently, it created various operational difficulties while trading and transporting goods across states.

GST is a uniform tax base subsuming the multiple and varied taxes among states. Hence it is expected to assure free flow of goods and services without any delay on checkpoints on state borders. It was therefore seen as an important policy tool to complement initiatives to introduce national markets. Impact of GST is assumed to be positive with regards to the implementation of electronic National Agricultural Market (eNAM). Prior to GST, the agricultural items were subjected to a lot of licensing and different types of taxes like VAT, excise duty, service tax, CST, octroi, purchase tax, etc. With the introduction of GST many indirect taxes were to subsume in GST, thereby assuring an interstate hassle-free movement of agricultural goods across India. Hence, the national market for agriculture would require a common platform like GST. It would also assure prompt transportation movements of perishable agriculture commodities, thereby incentivizing the farmers to fetch better price anywhere in the country. In the process the entire supply chain is expected to become more efficient. Input tax credit could also be claimed by those who would have paid GST, under the new regime.

Since independence, agriculture is seen as a crucial sector that assures self-dependence in terms of assuring food security for more than one billion population of India, besides providing numerous manufacturing inputs. The agricultural output serves a basic necessity of satiating hunger and thus affects masses of the population. Therefore, both its production and consumption have received empathy from policy makers in the form of tax concessions and granting subsidies. Tax concessions have come in the form of nil tax on agricultural income, concessions on purchase of agricultural land, input tax credits on purchases of fixed assets like land, tractors, etc. Along with tax sops subsidies like those on electricity, fertilizers, solar panels, irrigation systems have also been bestowed upon agriculture. Prior to the implementation of GST, VAT and various other indirect taxes were levied on agricultural inputs and output.

GST on agricultural inputs affected the farmers (buyers), manufacturers and traders (suppliers), importers and exporters related to agri-inputs and thereby the entire economy. Since GST is an indirect tax levied and collected on the sale and

purchase of various commodities, it inherently affected agricultural economic activities. GST is levied on agricultural inputs as well as output.

Prior to the implementation of GST, there was no tax on farm implements, fertilizers and pesticides in Punjab, that accounts for 25 percent of manufacturing of farm implements and tractors of the country. Chaba (2017) observed that many producers of farm implements owning micro units survived on a meager 8 to 9 percent of profit margins. With the implementation of GST these profit margins would not remain and thus would pose a great challenge to 5000 micro units out of a total of 6100 farm-implement manufacturers in the state of Punjab. She cited a big manufacturer who sold about 55,000 types of spare parts of different implements and he was of the opinion that the state of Punjab sold 85 to 90 percent of farm implements manufactured within the state, to other states. Chaba (2017) quoted manufacturers who were of the opinion that farm implements industry would observe a stagnant or negative growth of farm implements manufacturing because of rise in contracting out and hiring implements instead of owning one, in contrast to the government policy to increase technological intervention in agriculture. With GST and rising cost of production the farmers would find it expensive to undertake technology induced farming thereby affecting the manufacturing of farm implements. The traders opined that it would hurt the farmers who find it expensive to do farming despite subsidies, and still rely on getting fertilizers on credit, while the GST implementation and thus charging taxes on subsidized goods was perceived to be a contradictory policy. Introduction of GST on fertilizers and pesticides was also expected to negatively affect 13,000 dealers in Punjab, whereby the state consumes about Rs. 3,800 to 4000 crore worth fertilizers and pesticides annually.

Later the government reduced GST on fertilizer from 12 percent to 5 percent. Hence in most of the states it would result in a fall in the price where before GST, VAT and excise was about 6 percent and in contrast states like Haryana, Punjab and Andhra Pradesh with VAT exemption on fertilizers and only 1 percent excise on fertilizers would observe a hike in prices of about 4 percent. For DAP & NPK manufacturers there is no relief as the tax on the key raw materials, that is phosphoric acid and ammonia, has been retained at 18 per cent, giving rise to an inverted duty structure, where the final output (DAP or NPK) fertilisers are taxed at 5 per cent, while raw material is taxed at 18 per cent, he said. As a result, Ravichandran (2018)

notes that, the competitiveness of domestic manufacturers against importers will erode. "A timely refund of excess input tax credit by the government will be the key to the liquidity position of both domestic manufacturers and importers of P&K fertilizers," he added[6]. Item-wise GST rates for agricultural inputs at the time of implementation 2017 and the latest figures (October 2019) are presented in Table 3.2.

Table 3.2: Item-wise GST rates for Agricultural Inputs (2017 & 2019)

Sr. No.	HSN code number	Items in HSN code	July, 2017	October, 2019
A		**NIL TAX SLAB**		
		SEEDS		
	12	All goods of seed quality	NIL	NIL
80	1201	Soya beans, whether or not broken, of seed quality.	NIL	NIL
81	1202	Ground-nuts, not roasted or otherwise cooked, whether or not shelled or bro- ken, of seed quality.	NIL	NIL
	1204	Linseed, whether or not broken, of seed quality.	NIL	NIL
79	1205	Rape or colza seeds, whether or not broken, of seed quality.	NIL	NIL
84	1206	Sunflower seeds, whether or not broken, of seed quality	NIL	NIL
85	1207	Other oil seeds and oleaginous fruits (i.e. Palm nuts and kernels, cotton seeds, Castor oil seeds, Sesamum seeds, Mustard seeds, Saffower (Carthamus tinctorius) seeds, Melon seeds, Poppy seeds, Ajams, Mango kernel, Niger seed, Kokam) whether or not bro- ken, of seed quality.	NIL	NIL
86	1209	Seeds, fruit and spores, of a kind used for sowing.	NIL	NIL
87	1210	Hop cones, fresh.	NIL	NIL
88	1211	Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purpose, fresh or chilled.	NIL	NIL
		WATER		
99	2201 9090	Water [other than aerated, mineral, purified, distilled, medicinal, ionic, battery, de-mineralized and water sold in sealed container]	NIL	NIL
		ELECTRICITY		
104	2716 00 00	Electrical energy	NIL	NIL
		AGRICULTURAL EQUIPMENTS AND TOOLS		
137	8201	Agricultural implements manually operated or animal driven i.e. Hand tools, such as spades, shovels, mattocks, picks, hoes, forks and rakes; axes, bill hooks and similar hewing tools; secateurs and pruners of any kind; scythes, sickles, hay knives, hedge shears, timber wedges and other tools of a kind used in agriculture, horticulture or forestry.	NIL	NIL
B		**5 % TAX SLAB**		
		SEEDS		
43	909	Seeds of anise, badian, fennel, coriander, cumin or caraway; juniper berries [other than of seed quality]	5%	5%
77	1401	Vegetable materials of a kind used primarily for planting (for example, bamboos, rattans, reeds, rushes, osier, raffia, cleaned, bleached or dyed cereal straw, and lime bark)	5%	5%
84	1512	Sunflower-seed, safflower or cot- ton-seed oil and fractions thereof, whether or not refined, but not chemically modified.	5%	5%

[6] https://www.financialexpress.com/economy/gst-impact-fertiliser-retail-prices-may-be-lower-says-icra/748883/.

		FERTILISERS		
182	3101	All goods i.e. animal or vegetable fertilisers or organic fertilisers put up in unit containers and bearing a brand name	5%	0%
		HAND PUMPS		
231	8413	Hand pumps and parts thereof	5%	5%
		MACHINES		
233	8437	Machines for cleaning, sorting or grading, seed, grain or dried leguminous vegetables; machinery used in milling industry or for the working of cereals or dried leguminous vegetables other than farm type machinery and parts thereof	5%	5%
		POWER SOURCES		
234	84 or 85	Following renewable energy devices & parts for their manufacture (a) Bio-gas plant (b) Solar power based devices (c) Solar power generating system (d) Wind mills, Wind Operated Electricity Generator (WOEG) (e) Waste to energy plants/devices (f) Solar lantern/solar lamp (g) Ocean waves/tidal waves energy devices/plants	5%	5%
C		**12 % TAX SLAB**		
		MACHINES AND EQUIPMENTS		
196	8432	Agricultural, horticultural or forestry machinery for soil preparation or cultivation; lawn or sports-ground rollers	12%	12%
197	8433	Harvesting or threshing machinery, including straw or fodder balers; grass or hay mowers; machines for cleaning, sorting or grading eggs, fruit or other agricultural produce, other than machinery of heading 8437	12%	12%
199	8436	Other agricultural, horticultural, forestry, poultry-keeping or bee- keeping machinery, including germination plant fitted with mechanical or thermal equipment; poultry incubators and brooders	12%	12%
201	8479	Composting Machines	12%	12%
207	8701 20 10	Tractors (except road tractors for semi-trailers of engine capacity more than 1800 cc)	12%	12%
210	8716 20 00	Self-loading or self-unloading trailers for agricultural purposes	12%	12%
D		**18 % TAX SLAB**		
		MEDICINES AND MICRO-ORGANISMS		
87	3808	Insecticides, rodenticides, fungicides, herbicides, anti-sprouting products and plant-growth regulators, disinfectants and similar products	18%	18%
95	3821	Prepared culture media for the development or maintenance of micro-organisms (including viruses and the like) or of plant, human or animal cells	18%	18%
		IRRIGATION TOOLS		
217	7303	Tubes, pipes and hollow profiles, of cast iron	18%	18%
218	7304	Tubes, pipes and hollow profiles, seam- less, of iron (other than cast iron) or steel	18%	18%
219	7305	Other tubes and pipes (for example, welded, riveted or similarly closed), having circular cross-sections, the external diameter of which exceeds 406.4 mm, of iron or steel	18%	18%
220	7306	Other tubes, pipes and hollow profiles (for example, open seam or welded, riveted or similarly closed), of iron or steel	18%	18%
221	7307	Tube or pipe fittings (for example, couplings, elbows, sleeves), of iron or steel	18%	18%

222	7308	Structures (excluding prefabricated buildings of heading 94.06) and parts of structures (for example, bridges and bridge-sections, lock-gates, towers, lat- tice masts, roofs, roofing frame-works, doors and windows and their frames and thresholds for doors, and shutters, balustrades, pillars, and columns), of iron or steel; plates, rods, angles, shapes, section, tubes and the like, prepared for using structures, of iron or steel [other than transmission towers]	18%	18%
		TANKS		
223	7309	Reservoirs, tanks, vats and similar containers for any material (other than compressed or liquefied gas), of iron or steel, of a capacity exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment	18%	18%
224	7310	Tanks, casks, drums, cans, boxes and similar containers, for any material (other than compressed or liquefied gas), of iron or steel, of a capacity not exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment	18%	18%
		METAL EQUIPMENTS AND TOOLS		
249	7411	Copper tubes and pipes	18%	18%
250	7412	Copper tube or pipe fittings (for example, couplings, elbows, sleeves)	18%	18%
268	7607	Aluminium foil (whether or not printed or backed with paper, paperboard, plastics or similar backing materials) of a thickness (excluding any backing) not exceeding 0.2 mm	18%	18%
269	7608	Aluminium tubes and pipes	18%	18%
270	7609	Aluminium tube or pipe fittings (for example, couplings, elbows, sleeves)	18%	18%
271	7610 [Except 7610 10 00]	Aluminium structures (excluding prefabricated buildings of heading 94.06 and doors, windows and their frames and thresholds for doors under 7610 10 00) and parts of structures (for example, bridges and bridge-sections, towers, lattice masts, roofs, roofing frameworks, balustrades, pillars and columns); aluminium plates. rods, profiles, tubes and the like, prepared for use in structures	18%	18%
272	7611	Aluminium reservoirs, tanks, vats and similar containers, for any material (other than compressed or liquefied gas), of a capacity exceeding 300 l, whether or not lined or heat-insulated, but not fitted with mechanical or thermal equipment	18%	18%
273	7612	Aluminium casks, drums, cans, boxes, etc.	18%	18%
296	8205	Hand tools (including glaziers' diamonds), not elsewhere specified or included; blow lamps; vices, clamps and the like, other than accessories for and parts of, machine-tools or water-jet cutting machines; anvils; portable forges; hand or pedal-operated grinding wheels with frameworks	18%	18%
297	8206	Tools of two or more of the headings 8202 to 8205, put up in sets for retail sales	18%	18%
298	8207	Interchangeable tools for hand tools, whether or not power-operated, or for machine-tools (for example, for pressing, stamping, punching, tapping, threading, drilling, boring, broaching, milling, turning or screw driving), including dies for drawing or extruding metal, and rock drilling or earth boring tools	18%	18%
		WEIGHING MACHINES		

324	8423	Weighing machinery (excluding balances of a sensitivity of 5 centigrams or better), including weight operated counting or checking machines; weighing machine weights of all kinds [other than electric or electronic weighing machinery]	18%	18%
		SPRAYING MACHINES		
325	8424	Mechanical appliances (whether or not hand-operated) for projecting, dispersing or spraying liquids or powders; spray guns and similar appliances; steam or sand blasting machines and similar jet projecting machines [other than fire extinguishers, whether or not charged]	18%	18%
		ELECTRIC MOTORS AND TRACTOR SPARE PARTS		
372	8501	Electric motors and generators (excluding generating sets)	18%	18%
373	8502	Electric generating sets and rotary converters	18%	18%
402	8708	Following parts of tractors namely: a. Rear Tractor wheel rim, b. tractor centre housing, c. tractor housing transmission, d. tractor support front axle	18%	18%
		IRRIGATION PRODUCTS		
451	9801	All items of machinery including prime movers, instruments, apparatus and appliances, control gear and transmission equipment, auxiliary equipment (including those required for research and development purposes, testing and quality control), as well as all components (whether finished or not) or raw materials for the manufacture of the aforesaid items and their components, required for the initial setting up of a unit, or the substantial expansion of an existing unit, of a specified: (1) industrial plant, (2) irrigation project, (3) power project, (4) mining project, (5) project for the exploration for oil or other minerals, and (6) such other projects as the Central Government may, having regard to the economic development of the country notify in the Official Gazette in this behalf; and spare parts, other raw materials (including semi-finished materials of consumable stores) not exceeding 10% of the value of the goods specified above, provided that such spare parts, raw materials or consumable stores are essential for the maintenance of the plant or project mentioned in (1) to (6) above.	18%	18%
E		**28 % TAX SLAB**		
		TISSUE CULTURE CHAMBERS		
121	8419	Storage water heaters, non-electric [8419 19] (other than solar water heater and system), Pressure vessels, reactors, columns or towers or chemical storage tanks [8419 89 10], Glass lined equipment [8419 8920], Auto claves other than for cooking or heating food, not elsewhere specified or included [8419 89 30], Cooling towers and similar plants for direct cooling (without a separating wall) by means of re-circulated water [8419 8940], Plant growth chambers and rooms and tissue culture chambers and rooms having temperature, humidity or light control [8419 89 60], Apparatus for rapid heating of semi-conductor devices , apparatus for chemical or physical vapour deposition on semiconductor wafers; apparatus for chemical vapour deposition on LCD sub-stratus [8419 8970]; parts [8419 90]	28%	18%

		ELECTRIC APPARATUS		
158	8536	Electrical apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits (for example, switches, relays, fuses, surge suppressors, plugs, sockets, lamp-holders, and other connectors, junction boxes), for a voltage not exceeding 1,000 volts : connectors for optical fibres optical fibres, bundles or cables	28%	18%
159	8537	Boards, panels, consoles, desks, cabinets and other bases, equipped with two or more apparatus of heading 8535 or 8536, for electric control or the distribution of electricity, including those incorporating instruments or apparatus of chapter 90, and numerical control apparatus, other than switching apparatus of heading 8517	28%	18%
163	8547	Insulating fittings for electrical machines, appliances or equipment, being fittings wholly of insulating material apart from any minor components of metal (for example, threaded sockets) incorporated during moulding solely for the purposes of assembly, other than insulators of heading 8546; electrical conduit tubing and joints therefore, of base metal lined with insulating material	28%	18%
		SHORT DISTANCE PULLING TRUCKS		
171	8709	Works trucks, self-propelled, not fitted with lifting or handling equipment, of the type used in factories, warehouses, dock areas or airports for short distance transport of goods; tractors of the type used on railway station platforms; parts of the foregoing vehicles	28%	18%

Source: Jain (2019).

The table 3.2 depicts the GST rates at two points in time. The first point considered is taken as July 2017, when the GST was launched. Second point is taken as October 2019, the latest available at Jain (2019). Agricultural inputs that have been cited in GST tax slabs have been mentioned along-with their respective HSN codes. GST rates were cited by categories of GST rates as mentioned in July 2017, as Nil, 5 percent, 12 percent, 18, percent, 28 percent. For each of agricultural inputs cited, the GST rates have also been cited for October, 2019, to assess any change in the rates. As suggested in the table, for none of the agricultural inputs, GST rates changed over the cited period, except for the last slab of 28%. GST rates for all agricultural inputs that were under the tax slab of 28 percent were reduced to 18 percent. Much of this reduction occurred in the major cutting of GST rates in the 23rd meeting held on November 10, 2017[7].

However, if we are to achieve increased farmer's income (or doubling farmer's income), the input cost reduction can play a vital role. While efforts are being put to increase the income for farmers, if the input costs remain high, the efforts to increase

[7] https://economictimes.indiatimes.com/news/economy/policy/a-quick-guide-to-india-gst-rates-in-2017/articleshow/58743715.cms

income would not produce expected outcome. Particularly it can be observed that most of the agricultural inputs are in the tax slab of 5 percent or 28 percent. Vital inputs like seeds, fertilizers, hand-pumps, various types of machines used in agriculture and power sources are taxed at 5 percent of inputs. Small and marginal farmers amidst others are compelled to buy such basic inputs as seeds and fertilizers that are taxed at 5 percent, thereby increasing the cost of agricultural production. Further vital inputs like agricultural medicines, micro-organisms, irrigation tools, tanks, weighing and spraying machines, electric motors, tractor spare-parts, irrigation products, among others. Agricultural inputs that were initially taxed at 28 percent and later reduced to 18 percent include, tissue culture, short-distance pulling trucks.

If the nation is to really achieve 'doubling farmer's income', and reduce farmer distress, agricultural inputs should not be taxed at all. If the cost of production would reduce there are better prospects that the farmer will remain motivated to continue doing agriculture. Besides, even for sustainable agriculture, it is important to incentivize farmers to use water and energy efficient tools like efficient irrigation tools and renewable energy efficient resources. Any amount of tax on such equipment would only make the task of those involved in motivating the use of such equipment more difficult. Even if a progressive farmer is willing to use such equipment that are beneficial for ecology and environmental protection, GST rates can act as a deterrent. GST rates on various machines like threshers, cultivators, etc. and vehicles used in agriculture like tractors, would result in dis-incentivising farmers towards mechanization of agriculture. Hence it is strongly recommended to remove the GST rates on agricultural inputs.

In context of services the serial number 57 largely includes various services related to agriculture. Since it is out of the purview of the scope of the current study, no details regarding the services associated with agriculture have been mentioned further.

3.7 Chapter Summary:

The information about indirect Tax and GST and its implementation, the brief review of literature, pre-GST and post-GST scenario in India and the GST related aspects associated with agricultural inputs is presented in this chapter.

The next chapter presents the field survey results relating to impact of GST on farmers.

Chapter IV

Impact of GST on Farmers

4.1 Introduction:

GST is a consumption-based tax, meaning thereby that the end user bears the final tax burden. In case of agricultural inputs, the farmer being the end user, bears the tax burden. As our Hon Prime Minister has given a nation call to double farmers' income, and for it to be achieved, the obvious way is to reduce cost incurred in the agricultural process and increase in income from the sale of agricultural produce. Since GST, like any other indirect tax, is directly associated with the cost of production, GST on agricultural inputs should be the least possible to maximize the profits or gains from agricultural production. While the farmers fail to realize the rise in the prices of agricultural inputs due to ignorance and illiteracy, there are hardly any efforts by the farmers to raise their concerns with the rise in the input cost. Accordingly, this chapter is an attempt to comprehend the reaction of farmers towards the introduction of GST and thereby the impact on the input costs, whether the farmers could recognize the rise, what reasons did they perceive for the rise in prices, whether the rise in the prices affected their purchases of inputs, did it have any impact on the agricultural output, among others. The chapter first provides the findings from the data assembled through the structured questionnaire, and then narrations from the detailed interviews conducted by the researchers with the farmers are included.

4.2 Demographic Characteristics of the Selected Farmer Respondents

The profile of the selected sample farmers is presented in Table 4.1. A total of 170 farmers responded to the survey during July 2018. All the respondent farmers were males with average age of 46.58 years having education about 9.76 years. The average experience of all the farmers was 22.62 years. Of the total farmers, 96 per cent of households belonged to Hindu religion, 3.5 per cent households were from Islam religion and rests were from Christian religion. As per the social category classification, around 55 per cent households were from General category, followed by 33 percent from 'Other Backward Classes', 9 per cent farmers belonged to 'ST' category (9%) and rest were from 'SC category (4%). It was very pleasant to note that around 61 per cent of farmer households possessed Kisan Credit Card. Out of the

total selected households, majority of households (i.e. 78 per cent) belonged to 'APL' and remaining households were from 'BPL' category (22%). Around two third of the total selected households did not maintain farm records, 61 farmers (36%) maintained farm records. While the average family size of the selected households was estimated to be 6.4 members, out of which 3.0 members were working in agriculture 2.1 members were working in dairy. Agriculture was the main occupation for more than 97 per cent of households while dairy was subsidiary occupation for around 42 per cent of households. Out of total sample households, about 68 per cent had pucca house, 22 per cent had semi pucca house while remaining had kucha house.

Table 4.1: Profile of the Selected Farmers

Sr.No.	Particulars (n=170)	Responses
1	Gender of the respondents- Male (%)	100.0
2	Av Age of the respondents	46.58
3	Av. years of Education	9.76
4	Av. years of Farming Experience	22.2
5	Religion (%)	
	Hindu	95.88
	Islam	3.59
	Christen	0.59
6	Social Category (%)	
	ST	9.41
	SC	4.11
	OBC	31.76
	General	54.71
7	Income Group (%)	
	BPL	33.35
	APL	77.65
8	Possess Kisan Credit Card (%) yes	61.00
9	Do you maintain farm financial record (Yes)	64.00
10	House structure	
	Pucca	68.0
	Semi Pucca	22.0
	Kuccha	10.0
11	Av. Household Size (Nos.)	6.4
12	Family members works in agri (Nos)	3.2
13	Family members works in dairy (Nos)	2.1
14	Agriculture as a main occupation (%)	97.06
15	Dairy as a subsidiary occupation	41.76

Source: Field Survey data.

4.3 Ownership of Agriculture Land and Productive Assets

The details regarding occupation and land holdings size of selected households are presented in Table 4.2. On an average, every farmer household had about 4.66 ha of land of which more than 97 per cent land was irrigated. Most of the respondents had tube-well, few had open wells, some had both sources of irrigation, while very few (about 4 farmers) had an access to canal irrigation. The details regarding productive assets with selected households are presented in Table 4.3. Out of total, 110 farmers owned manual spray pumps, 70 tractors, 67 submersible pump sets, 63 tractor trollies, 57 power spray pumps, 50 harrows besides, tillers, storage bins, sprinkler sets, bullock carts, planks, threshing machines and milk cans among others.

Table 4.2: Details regarding Occupation and Land Holdings Size of Selected Households

Sr.No.	Particulars	Responses
1	Land Holdings (ha)	
	Unmitigated	0.52
	Irrigated	4.14
	Total	4.66
2	Sources of Irrigation (%)	
	Tubewell & Well	78.0
	Canal	3.9
	Others	0.6
	Multiple sources (Tube well, Canal)	24.5

Source: Field survey data

Table 4.3: Details regarding Productive Assets with Selected Households

Sr. No.	Asset	Per hh (Av.)	Sr. No.	Asset	Per hh (Av.)
1	Tractor	0.41	17	Fodder Chaffer Power	0.01
2	Tractor Trolly	0.37	18	Seed Drill	0.03
3	Harrow	0.29	19	Seed Grading	0.00
4	Tiller	0.15	20	Seed Cleaner	0.00
5	Plank	0.09	21	Seed Bin	0.02
6	Threshing machine	0.09	22	Seed Thresher	0.01
7	Combine harvester	0.02	23	Storage Bin	0.14
8	Pumpset diesel	0.21	24	Grass Cutter	0.02
9	Pumpset -submersible	0.39	25	Milking Machine	0.01
10	Pumpset Non-submersible	0.11	26	Milk cans	0.08
11	Sprinkler set	0.12	27	Grass Chopper	0.00
12	Bullock cart	0.12	28	Feed Mixer	0.00
13	Spray Pump- Manual	0.65	29	Fodder Harvester/mowers	0.00
14	Spray Pump- Power	0.34	30	diesel engine	0.01
15	Land leveller	0.02	31	Rotavator	0.01
16	Fodder Chaffer-Manual	0.02			

Source: Field survey data

4.4 Awareness about GST

Barring 24.12 per cent of total farmers, all other farmers were aware about the GST and had heard about GST while purchasing some inputs. Out of total, same number of farmers reported that their suppliers were charging GST while 17.06 per cent mentioned that suppliers did not charge the same, while remaining were unaware about charging GST or not.

Table 4.4: Awareness about GST of Selected Households

Sr. No.	Particulars	Responses
1	Awareness about GST	
	Yes (%)	77.88
2	If yes, in what context	
	Input purchase	100.0
	Output sales	0.00
3	Supplier charging GST	
	Yes (%)	77.88

Source: Field survey data

4.5 Impact of GST

Almost every asset owner mentioned a rise in the prices of equipment post-GST as compared to pre-GST rates, that may have resulted from levying of GST or due to other factors. While there is no GST on seeds, more than 17.6 percent farmers reported a rise in the prices of GST that could have been due to various reasons other than GST, since GST is not levied on seeds. In certain cases, when farmer would have procured seeds from sources other than shops, prices of seed could have been observed to be increased or reduced. A rise in the prices of insecticides, pesticides and weedicides was observed after imposition of GST.

In contrast the price of sticker was observed to have reduced after GST. As was observed during the interview with dealers also, the prices of stickers reduced after the imposition of GST since before GST, the other taxes charged were higher than the GST rates. In case of fertilizers, some farmers observed rise while some other observed a fall. Fertilizers available in solid or liquid form were observed to be differently taxed under GST, and this could have been the reason for such observation. Use of micro-nutrients observed a rise in the price after the imposition of GST. Lubricants used in tractors observed a sharp rise in the prices after GST.

Farmers suggested that on an average a rise of about Rs. 3,000 per annum was observed after the imposition of GST, in terms of input cost. About 84.71 per cent farmers did not observe any change in the procedure while procuring the inputs after the imposition of GST. However, out of the 15.29 per cent farmers who observed certain changes in the procedure further elaborated, that following procedural changes were observed after the imposition of GST:

1. Aadhar card was demanded
2. Dealer wrote the value of GST in the bill, which was time consuming in terms of calculation and finalizing the amount to be paid, causing delay
3. Biometric identification was required during the purchase of fertilizers. It was difficult due to troubles in matching of thumb impression since the farmers' thumbs were rough and could not neatly identify with the thumb impression
4. Server connectivity issues were faced while capturing thumb impression causing huge queues waiting for their turns to buy fertilizers.
5. Prices could no longer be negotiated with the dealer as he was not compromising
6. Bill was given by the sellers which was not necessarily the case prior to GST

Following impact was observed by the farmers who responded, while purchasing an asset or input after the levy of GST:

1. Out of the total respondents, around 47.67 per cent respondent farmers suggested that the time taken to prepare the bill 'had increased'. It was observed during the survey that the traders having software to prepare the bill were able to promptly prepare the bill. Whereas the traders preparing the bill manually had a very difficult time identifying the product code (different for solid and liquid variants, different for same product but different brands, etc), finalizing the GST rate (that kept on changing during initial period of levying of GST), calculating CGST and SGST and thereby the final amount through reverse calculation, etc. took a lot of time and till then the farmer had to wait.
2. Most of the farmers (about 70 percent) suggested that the traders had stopped giving discounts on the purchases they made since the GST was imposed.
3. Almost all the farmers agreed that the traders had stopped giving the credit.

4. One-third of the total farmers suggested that traders involved in malpractices and selling spurious inputs had stopped their businesses, whereas two-third farmers felt that the traders selling spurious things till continued their business.
5. More than 75 percent of the respondents suggested that the traders had stopped accepting back the unused product if the farmer was dissatisfied. Earlier if the farmer returned the product for being unsatisfied with the performance of the input, the dealers used to take back the inputs. But after the imposition of GST, dealers refused to take back the returned unused goods if the farmer was unsatisfied. This was affecting the customer trader relationship.
6. Few farmers (about one-third) suggested that procuring GST bills and showing it for further use assisted in purchase of certain other inputs like fertilizers.
7. In few cases, farmers reported that dealers refused to give bills and if demanded, dealer said that the amount to be paid would increase.
8. Some farmers also reported that few dealers were scaring them in the name of GST by suggesting that if you will demand GST bill you need to pay more, give Aadhar Card and that will be linked with your bank account and might charge income tax from you, since everything is linked with aadhar card.
9. A rise of about one-fifth was observed in the rented values of tractors, cultivators, plough, plough rings, thrasher, opener, rotary, combine harvester. Even the labor charges were observed to have increased by about Rs. 100 each per day. However, some respondents suggested that such hike was not entirely due to GST but other reasons as well like rise in fuel charges for tractors, peak season for the use of inputs, and increase in living expenditures for labor.

Certain changes were also observed with regards to output sales and procedures as discussed below:

1. About 43 percent respondent farmers suggested that their buyers or agents now mentioned about GST whereas about 57 percent farmers mentioned that the buyer or agents did not mention about GST while buying
2. About 28 percent of the farmers suggested that the buyers / agents mentioned GST while negotiating and bargaining with the farmer whereas 72 percent farmers suggested that the buyers / agents did not use GST while bargaining or negotiating with the farmers.

3. About 44 percent of the respondent farmers suggested that they were asked to submit additional documents like aadhar card or farm survey number while dealing with their buyers / agents, whereas 56 percent farmers suggested no such demands were made.
4. Farmers observed that the buyers were mandatorily preparing the bills, and the process was time consuming, rise in prices was observed, and bills were given. Farmers mentioned that the bills had details related to GST rates as well as amount of GST. Some farmers also observed that two bill books were being prepared. However, no elaborate details were provided regarding the purpose of two such bill books nor were they aware if different amounts were filled in the two separate bill books.

4.6 Chapter Summary

It was observed that around 76 per cent farmers were aware about the GST and had heard about GST while purchasing some inputs. Out of the total respondents, around 47.67 per cent respondent farmers suggested that the time taken to prepare the bill 'had increased'. Most of the farmers (about 70 percent) suggested that the traders had stopped giving discounts on the purchases they made since the GST was imposed. Almost all the farmers agreed that the traders had stopped giving the credit. One-third of the total farmers suggested that traders involved in malpractices and selling spurious inputs had stopped their businesses, whereas two-third farmers felt that the traders selling spurious things till continued their business. More than 75 percent of the respondents suggested that the traders had stopped accepting back the unused product if the farmer was dissatisfied. Earlier if the farmer returned the product for being unsatisfied with the performance of the input, the dealers used to take back the inputs. But after the imposition of GST, dealers refused to take back the returned unused goods if the farmer was unsatisfied. This was affecting the customer trader relationship. Few farmers (about one-third) suggested that procuring GST bills and showing it for further use assisted in purchase of certain other inputs like fertilizers. In few cases, farmers reported that dealers refused to give bills and if demanded, dealer said that the amount to be paid would increase. Some farmers also reported that few dealers were scaring them in the name of GST by suggesting that if you will demand GST bill you need to pay more, give Aadhar Card and that will be

linked with your bank account and might charge income tax from you, since everything is linked with aadhar card. A rise of about one-fifth was observed in the rented values of tractors, cultivators, plough, plough rings, thrasher, opener, rotary, combine harvester. Even the labor charges were observed to have increased by about Rs. 100 each per day. However, some respondents suggested that such hike was not entirely due to GST but other reasons as well like rise in fuel charges for tractors, peak season for the use of inputs, and increase in living expenditures for labor.

The next chapter presents the impact of GST on dealers / traders

Chapter V

Impact of GST on Dealers / Traders

5.1 Introduction:

In the agricultural market, dealer/trader is the mediator between the producer of the agricultural inputs from where the GST would initiate, and the consumers. A trader is the ultimate stakeholder who bears the burden. As mentioned in chapter one, one of the peculiar characteristic of GST is the concept of input tax credit, that requires the claim towards GST be made from one point to the other alongwith the exchange of the goods. Hence, in this regard the trader of agricultural inputs serves as an important link between producer and consumer farmers in context of GST. Besides in a simple social rural economy, the suggestions by the traders are pivotal in the decision making processes by the farmers. Farmers largely seek the suggestion of the traders with regards to purchase of inputs like the variety and brand of the seeds, fertilizers, pesticides, equipment, etc. that would be appropriate for him to buy. Since the social relation is long established, farmers rely on the suggestions by traders and act accordingly. Therefore, the opinions of traders regarding GST reflect their observations by farmers and traders, both of whom are indulged in the process of GST and is positioned to reflect their opinions too. The chapter first provides the findings from the data assembled by canvassing the schedule on the traders, and then narrations from the detailed interviews conducted by the researchers with the traders are included.

5.2 Demographic characteristics of the Selected Dealers

A total of 168 traders responded to the survey during July 2018. All the respondent traders were males with average age of 42.68 years having average education of 13.46 years. The traders had on an average, experience as dealers for about 15.47 years. Of the total traders 56 traders had rented shops while 112tradershad their own shops. The rent paid by the owners for the shop, averaged at more than Rs. 5000 per month, but ranged between Rs. 700 to Rs. 25000. The traders face a stiff competition with on an average more than 30 traders in a radius of 5 kilometers, with lowest as zero competitors to as many as 350 competitors. Especially in locations like Rajkot, Deesa, Himmatnagar, and Surendranagar, a lot of traders are

involved in the agri-input businesses and are densely located in some cases with more than 100 competitors. Average monthly sales across all seasons were reported to be more than 14 lakhs with lowest at about Rs. 40,000/- and highest about Rs. 4 crores. About 40 percent of the traders had 'Tally software' while the other traders did not have Tally or similar accountancy software. While some of them had the accountancy software since 1990s as well, however about 10 of them installed the same since 2017.

Table 5.1: Profile of the Selected Dealers

Sr. No.	Particulars (n=168)	Responses	
1	No. of respondents	168	
2	Av Age of the respondents (years)	42.68	
3	Av. years of Education	13.46	
4	Av. years of Trading Experience	15.47	
5	Shop holdings (%)	Rented	Owned
		33.33	66.67

5.3 Details of Products sold by the Traders

Various types of agricultural inputs are sold by different traders (Table 5.2). Sophisticated irrigation equipment and tractors being expensive, were sold by relatively lesser traders. Besides the above mentioned agricultural equipment, certain traders also sold fibre nets, gloves, spray spare parts, plastic sheets / talpatri. Further each of these products were sold in a range of varieties and by a lot of brands ranging from 5 to 30 varieties, whereas in case of pesticides, same ranged about 100.

Table 5.2: Details of Traders selling the Agricultural Inputs

Sr. No.	Products Sold	Number of Traders (%)
1	Seeds	92.26
2	Insecticides	71.43
3	Pesticides	92.86
4	Weedicides	86.31
5	Sticker	79.17
6	Micronutrients	80.95
7	Implements	61.31
8	Wetting agents	59.52
9	Plant growth regulators	91.07
10	Fertilizer	80.95
11	Sprinklers	53.57
12	Drip irrigation	51.19
13	Pumps	82.74
14	Other Irrigation inputs	55.36
15	Tractor	56.55
16	Tractor spare parts	59.52
17	Lubricant for tractors	63.10
18	Green house sheet	54.17

5.4 GST on Various Agricultural Inputs

On being asked about the GST charged on various agricultural inputs, traders reported that

- No GST was charged on seeds.
- While almost all traders reported a charge of eighteen (18) percent GST on insecticides, pesticides and weedicides, about two traders also reported a GST of twelve (12) percent being charged. Hence they were ambiguous about the rates.
- Similarly, almost all traders reported a GST of eighteen (18) percent on the sticker, whereas some also reported zero (0) percent or twenty-eight (28) percent of GST on stickers.
- Implements can be varied and so can be the GST charged on the same. Hence GST on implements ranged from five (5) percent to twelve (12) percent, eighteen (18) percent and up to twenty-eight (28) percent for different types of implements.
- Traders charged a GST of twelve (12) percent on sprinklers, whereas on drip irrigation twelve (12) percent,eighteen (18) percent or twenty-eight (28) percent GST was charged.
- Irrigation inputs were charged eighteen (18) percent or twenty-eight (28) percent GST.
- It was observed that some fertilizers in liquid form were charged higher GST.
- GST of twelve (12) percent was charged on tractors.
- Tractor spare parts can be of hundreds of varieties ranging from very small to large parts. Accordingly, GST on tractor spare parts were charged at the rate of (12) percent, eighteen (18) percent or twenty-eight (28) percent.
- Water pumps were charged twelve (12) percent or eighteen (18) percent GST.
- Micro nutrients were also available in a range of varieties and hence were charged five (5) percent, (12) percent,eighteen (18) percent or twenty-eight (28) percent.
- GST on wetting agents and plant growth regulators also ranged from five (5) percent, to twelve (12) percent,eighteen (18) percent or twenty-eight (28).
- GST of 18 percent was charged on lubricants used for tractors.

- Barring two exceptions, most of the traders reported that GST charged on the same product by two different brands was same and also the GST charged for solid and liquid form of the same product was same.

Initial GST rates charged for agricultural inputs being high for certain products, due to a lot of hue and cry, the GST on certain agricultural inputs was observed subsequently. When the traders were asked about the same, they reported a fall of GST on agricultural inputs like tractor spare parts, and stickers observed a fall from initial twenty-eight percent to eighteen percent whereas drip irrigation observed a fall from eighteen percent to twelve percent.

5.5 Impact of GST

With the introduction of GST almost all the agricultural inputs observed a fall in sales except insecticides and weedicides between the sales for six months ending on 30th June 2017 (just before the introduction of GST), 31st December 2017 (six months after the implementation of GST) and sales since 1st January 2018 till the date of survey. Hence Impact of GST was observed on the business of the traders as measured by the reduction in sales. Besides a lot of operational issues were faced by the traders. Most of the traders prepared the bill manually, a few traders mentioned that they faced difficulty in preparation of the bills after the implementation of the GST. Following were the specific difficulties faced by few traders as mentioned in table 3.2.

Table 5.3: Difficulties faced by Traders in the preparation of bills after the implementation of GST

Sr. No.	Nature of Difficulty	No. of traders (%)
1	Have to employ additional manpower to prepare bills	16.67
2	Cannot remember the tax rates on each product	18.45
3	Difficulty in calculating the amount of tax for each product	22.02
4	Difficulty in deciding the amount of discount that you wish to extend to customers	10.12
5	It is time consuming to prepare bill	13.69
6	Customers get irritated waiting for the bill	8.33

While those who used accounting software, used a lot of different variety of software like Tally, Miracle, Kuber, SAP, Profit NX, Subh-Labh, RR info soft, Busywin, marg counter, munim, Wefast, Tera, among others. Hence, it can be

deduced that introduction of GST also provided a market for a lot of indigenous software manufacturers to prepare their own software to assist the businessmen. Some traders who were holding the franchise of tractors had to use the company installed software itself. Companies like Mahindra, Escorts, Eicher, Massy installed their own software with inbuilt provision of GST and provided the traders. Some businessmen had developed their own software. Some also used excel to assess GST for the preparation of the bills. However, the most common software used for GST assessment were found to be Tally ERP, Kuber, and Miracle software. All the users of software opined that the software was easy to use. Installation charges for installing the software ranged up to Rs. 30,000/- with an additional monthly charges up to Rs. 200/-. While most of the software did not update automatically with the changes in the rate of GST, it had to be updated and the cost to update the same could range from Rs. 100/- to Rs. 15,000/-.

A trader acts as a middleman between a manufacturer and the customer. Hence on being asked if the purchases had become expensive for them due to the implementation of GST, most of the traders agreed. Most of the suppliers reported that GST was not used during negotiation with the suppliers during the purchase by the suppliers. While some traders did not seek credit from their suppliers, few traders mentioned that they faced difficulty in seeking credit facilities from their suppliers after the implementation of GST. Most of the traders reported that suppliers seek more information of the traders since the implementation of GST. There were a few instances although very rare where the traders' suppliers or competitors were reported to have closed the business after the implementation of GST.

When the opinion of the traders was sought regarding the impact of GST on the business most of them suggested a negative impact ranging from five (5) percent to as high as above fifty (50) percent. Most of the traders reported that the total amount of tax paid in absolute terms after the implementation of GST increased anywhere between five (5) percent to ten (10) percent. Similarly, when asked regarding the change in the percentage of tax paid by them before and after the implementation of GST, it was reported to have ranged from about five (5) percent to twenty (20) percent. Almost an equal number of traders mentioned that there was or wasn't any difficulty in taking back the product returned by the customers after the implementation of GST and those who faced difficulty did not report about it to the

GST grievance redressal help centers. Those who reported to GST officials, did not find any relief in the form of any solution. Some also resorted to suggesting farmers to mutually exchange among themselves the sold product. Many traders also reported that their software permitted to enter the repurchase returned from the customers as also its sales with GST bills to the other customers. A mixed response was received on being asked if they found it difficult to extend credit to the customers after the implementation of GST. Most of the traders suggested that they faced difficulties in furnishing their data on GST portal. Table 5.4 depicts the kind of difficulties faced in feeding the data on GST portal.

Table 5.4: Number of Traders facing difficulty while feeding the data on GST portal

Sr. No.	Nature of difficulty	No. of traders
1	GST servers are down	25.60
2	Power failure in your shop	13.10
3	Internet connectivity make it difficult to upload your information on GST portal	25.60
4	You find GST portal confusing	21.43

Other difficulties reported included a rise in the legal tax consultant fees, and penalty to be paid due to delay. A trader also specifically mentioned that while uploading the IGST bill in particular, SGST was not immediately credited. Many of the traders did not prefer monthly reporting of the bills. Instead many of the traders suggested quarterly reporting of the bills (68) or half-yearly reporting (35) or yearly reporting of the bills (17).

Amongst the prominent negative impact included, monthly filing cumbersome, for convenience of the farmers first a raw estimated bill is given to the farmers and later by evening all bills converted to final calculation is given to farmers causing delays, difficulties in managing GST software, return of sold products, difficult to estimate the prospects of offering discounts, too much hike in certain agri-inputs making its use expensive and difficult, frequent changes in tax rates and non-communication in time of the same caused inconvenience, penalty amount should be reduced since some-times due to genuine reasons delay is caused for no fault of the trader, confusion regarding prevailing rates of various products, its varieties and its brands, difficulties faced in input tax credit claims, harassment by account/software managers, legal consultants and advocates since implementation of GST, extreme negative impact on technology oriented sophisticated tools like micro-irrigation tools,

greenhouse equipment, which are vital for technological enhancement of agriculture as much as its benefits to the society and environment at large, RTO cost of tractors have been impacted and its payment modes, among others.At the same time rise in the cost of cultivation, postponement of implements purchase, and products getting more expensive like, Sulphur, pesticides, sticker, tractor, implements, spare-parts, submersibles, electric motors, diesel engines, micronutrients, micro-irrigation inputs, etc. were the prominent negative impact due to the implementation of GST.

The positive impact due to the implementation of GST as reported by the traders was on the purchase of seeds (due to less GST on the same), and lesser use of insecticides and pesticides (due to high GST rates on the same). Even though, farmers had certain negative opinions, traders largely believed that GST was better than the previous system of taxation. Most of the positive opinions for GST included, more legally appropriate business, single tax system making it easy to sell, greater transparency has induced illegal traders to face more problems benefitting genuine traders, proper and timely/routine maintenance of record, trade with other states became easier, one-point tax collection since implementation of GST instead of many different taxes levied before implementation of GST, more practice of organic farming by farmers, transparent and fully online system, greater awareness among farmers regarding GST rates, hustle-free online convenient system, GST would have compelled many to leave illegal businessmen. Some traders also reported reduction in tax burden and a rise in government revenue.

5.6 Chapter Summary

Trader of agricultural inputs serves as an important link between producer and consumer farmers in context of GST. About 40 percent of the traders had 'Tally software' while the other traders did not have Tally or similar accountancy software. Various types of agricultural inputs are sold by different traders. Sophisticated irrigation equipment and tractors being expensive, were sold by relatively lesser traders. Besides the above mentioned agricultural equipment, certain traders also sold fibre nets, gloves, spray spare parts, plastic sheets / talpatri. Further each of these products were sold in a range of varieties and by a lot of brands ranging from 5 to 30 varieties, whereas in case of pesticides, same ranged about 100. Initial GST rates charged for agricultural inputs being high for certain products, due to a lot of hue and

cry, the GST on certain agricultural inputs was observed subsequently. When the traders were asked about the same, they reported a fall of GST on agricultural inputs like tractor spare parts, and stickers observed a fall from initial twenty-eight percent to eighteen percent whereas drip irrigation observed a fall from eighteen percent to twelve percent.

The impact of GST was observed on the business of the traders as measured by the reduction in sales. Besides a lot of operational issues were faced by the traders. Other difficulties reported included a rise in the legal tax consultant fees, and penalty to be paid due to delay. Amongst the prominent negative impact included, monthly filing cumbersome, for convenience of the farmers first a raw estimated bill is given to the farmers and later by evening all bills converted to final calculation is given to farmers causing delays, difficulties in managing GST software, return of sold products, difficult to estimate the prospects of offering discounts, too much hike in certain agri-inputs making its use expensive and difficult and frequent changes in tax rates. At the same time rise in the cost of cultivation, postponement of implements purchase, and products getting more expensive like, Sulphur, pesticides, sticker, tractor, implements, spare-parts, submersibles, electric motors, diesel engines, micronutrients, micro-irrigation inputs, etc. were the prominent negative impact due to the implementation of GST. The positive impact due to the implementation of GST as reported by the traders was on the purchase of seeds (due to less GST on the same), and lesser use of insecticides and pesticides (due to high GST rates on the same). Even though, farmers had certain negative opinions, traders largely believed that GST was better than the previous system of taxation. Some traders also reported reduction in tax burden and a rise in government revenue.

The next chapter presents impact of GST on producers.

Chapter VI

Impact of GST on Producers

6.1 Introduction:

GST originates with the production of goods and services produced by the producer and same is further passed on to the dealer and then the end consumer. While the impact of GST on the end user, farmers and the intermediary traders have been enumerated in the previous two chapters, the current chapter analyses the observations of the impact of GST from the producers of selected agricultural inputs in the state of Gujarat. The producers are both the cause and effect of impact of GST on agri-inputs. They decide to produce agricultural goods and thereby originate the raising of GST as first stakeholder to do so. At the same time they are also the stakeholders to bear the brunt of impact of GST, since for production, producer to pays GST on his inputs. However, a producers' task is all the more complex due to the gestation period involved in the process of production from procuring the inputs to supplying the output to the middlemen. If the farmers react positively or negatively towards certain products, it involves time-lag before the producer can acknowledge the same through the trader. Further on the basis of these signals the producer has to make decision regarding the quantity of the production to be produced and accordingly proceed with procuring the necessary inputs. Also, it is noteworthy that gestation period also affects the financial management since the money gets blocked while investing in the inputs much before what would be recovered with the sales of the agri-inputs, which entirely depends upon the decisions of the farmers to invest in the same. A lot of risk and uncertainty is involved in the process. Producer takes the risk and thus is an important stakeholder affected by the implication of GST. Hence, the chapter first provides the findings from the data assembled through the structured questionnaire, and then narrations from the detailed interviews conducted by the researchers with selected producers are included.

6.2 Demographic characteristics of the Selected Producers

About fifteen (15) producers of varied agri-inputs were interviewed during July 2018 from across fifteen (15) districts of Gujarat. All the respondents were males. Their average age was about 37.5 years and had an average education of about

12.6 years. On an average they had been engaged in the production of agri-inputs for more than nineteen (19) years. Almost equal number of producers operated from their own production unit or hired unit. Most of the producers reported the presence of generally less than five (5) competitors within a radius of 5 kms, while Deesa and Halvad villages in respective talukas reported eleven (11) and eight (8) competitors. Their monthly sales ranged from Rs. 20,000 to Rs. 70,00,000 with the average sales at about more than Rs. 93,000. Only two of the fifteen producers used accounting software like Tally. One used it since 2002 while the other installed the same in 2017, the year of implementation of GST.

6.3 Details of products produced by the producer and percentage of GST

Various types of agricultural inputs were produced by different producers. A producer from Tapi district was producing as many as ten products while few were specializing in the production of only one or two products. Products produced included trailer tractor, hydraulic and bullock plough, seeds, fertilizers, cultivators, plant growth regulator, water tanker, land levelers, seed drill, potato planter and digger, thrasher, stump-cutter, among others. Table 6.1 shows the details of the tax rates before and after the implementation of GST on 1st July, 2017 as was reported in the field survey.

It can be seen that barring about five commodities, for almost all the commodities the respondents reported a rise in the GST rates charged on the products produced by them. Tax rates ranged fromfrom five (5) percent to twelve (12), eighteen (18) and in some cases even as high as twenty-eight (28) percent. Such a rise in the GST had also resulted in the rise in the net prices of these products. Accordingly, most of the producers registered higher amount of tax paid on various products after the implementation of GST. Producers who responded at least noted no differences in the GST charged for solid or liquid versions of the same product.

Table 6.1: Comparison of tax rates before and after the implementation of GST on 1st July, 2017 for selected commodities

Sr. No.	Name of the Agri-input	Tax rate before GST (before 1.7.17) %	GST rate after 1.7.17 %=
1	Dics/Hydralic Plough	8	18
2	Trailer Tractor	5	18
3	Seed cum fertilizer	5	18
4	Trailer Tractor	5	18
5	Cultivator	5	18
6	MS Steel (Per Kg)	5	18
7	Bio-compost (Per tonne)	5	0
8	Trycoderma	12	12
9	Water Tanker	5	18
10	Potato Digger	5	18
11	Bullock Plough	5	18
12	Seed Drill	5	18
13	Bolts	5	18,28
14	Tobacco (Per Tonnes)	5	28
15	Potato Planter	5	18
16	Tyre (Per Pair)	5	28
17	Apollo Part Blade (Per Nos)	5	12
18	Tyre (Per Pair)	5	28
19	Carbon (Per kg)	5	18
20	Castor Cake (Per 50 Kg)	5	5
21	Thrasher	5	18
22	Disc Harrow	5	18
23	Welding Rod (Per Packet)	5	18
24	Paints (Per Litre)	5	28
25	Neem Cake (Per 50 kg)	5	5
26	Favada	5	18
27	Gypsum (Per Tonne)	5	5
28	Potash (Per Tonne)	5	5

Source: Field survey

6.4 Impact of GST on Producers routed from Suppliers

While seeking the opinion of producers regarding the impact of GST on them, they reporteda rise in the cost of production due to increased rates of GST on the inputs by their suppliers. The rise in the cost of production due to the implementation of GST was reported to be ranging between five (5) percent to forty (40) percent. Most of the producers (11 out of 15) reported a rise in production cost due to rise in the prices of machinery purchased for production. Rise in cost of production due to rise in price of machinery was on an average reported at five (5) percent to fifteen (15) percent. Producers also reported that GST was mentioned by their suppliers during negotiations (by 10 out of 15 producers). An equal number of producers mentioned difficulty and no difficulty in seeking credit since the implementation of GST. Almost all producers reported that their own suppliers now sought additional information from the producers regarding producer's GST number. It is understandable because if the supplier will not seek such information from its supplier, the supplier will also not be able to seek tax credit and not be able to present his claims for GST refund. The suppliers of the producers have mostly survived through the GST regime since all producers suggested that their suppliers have not closed their businesses. Most of the producers reported a loss in their revenues due to the implementation of GST and the percentage ranged between five (5) percent to fifty (50) percent.

6.5 Impact of GST on producers routed from their Traders

Subsequently the producers were asked about the impact of GST in their dealing with traders. Almost an equal number of producers reported that the traders used and did not use, implementation of GST as an excuse in their dealings with producers. Most of the producers suggested that they faced difficulties in extending credit to their traders after the implementation of GST. Like their suppliers, producers also sought the information from the traders regarding their GST number, since they also had to assure that they get tax credit by selling only to GST registered traders. Producers also found that most of their traders continued in their businesses after the implementation of GST, thus indicating that they were genuine traders.

6.6 Overall impact of GST on Producers

With the introduction of GST almost all the agricultural inputs observed a fall in sales between the sales for six months ending on 30th June 2017 (just before the introduction of GST), 31st December 2017 (six months after the implementation of GST) and sales since 1st January 2018 till the date of survey. However as suggested previously, production involves a time-lag and the impact of implementation of GST on sales by producers was seen more empathetically for the period after 1.1.18 than between 1.7.17 and 31.12.17. Hence the impact of GST on producers could be seen after a time-lag. However, the producer may or often may not bear the additional burden of tax, but is more likely to pass it on further to be absorbed by traders or end-user, in this case farmers.

- Barring four producers out of fifteen, all producers suggested that they did not face any difficulty in uploading their data every month. The ones who faced difficulties mentioned that they faced difficulties like GST server was down, power failure in their own factory, slow internet connectivity and so difficult to upload data, and some found GST portal confusing.
- Producers were equally divided in their opinion on the appropriateness of monthly uploading the data. Those who opined otherwise mostly preferred quarterly updating of data.
- Producers felt that the GST had created an impact on farmers. Almost all producers believed that with the introduction of GST more transparency is infused in the tax payment system in the entire logistic supply chain.
- GST on tractor and tractor spare parts were believed to have created the maximum impact on farmers in the opinion of producers.
- Most of the producers agreed that GST was a better tax regime than its predecessor.

Transparency, regularity and simplicity in the payment of taxes were highlighted as the noteworthy virtues of GST. In contrast, the negative impact registered by the producers included a rise in production cost due to increased rates of GST on their purchases of raw-materials, machinery and other inputs, rise in documentation and accounts maintenance cost, among others. Peculiarly the GST that the producers are paying on the inputs is higher and what they can recover for

the finished product was lower, thereby creating a gap to be filled by the producer himself, which was burdensome for them.

6.7 Chapter Summary:

It was observed that various types of agricultural inputs were produced by different producers. Products produced included trailer tractor, hydraulic and bullock plough, seeds, fertilizers, cultivators, plant growth regulator, water tanker, land levelers, seed drill, potato planter and digger, thrasher, stump-cutter, among others. Barring about five commodities, for almost all the commodities the respondents reported a rise in the GST rates charged on the products produced by them. Tax rates ranged from five (5) percent to twelve (12), eighteen (18) and in some cases even as high as twenty-eight (28) percent. Such a rise in the GST had also resulted in the rise in the net prices of these products. Accordingly, most of the producers registered higher amount of tax paid on various products after the implementation of GST. Producers who responded at least noted no differences in the GST charged for solid or liquid versions of the same product. The production involves a time-lag and the impact of implementation of GST on sales by producers was seen more empathetically for the period after 1.1.18 than between 1.7.17 and 31.12.17. Hence the impact of GST on producers could be seen after a time-lag. However, the producer may or often may not bear the additional burden of tax, but is more likely to pass it on further to be absorbed by traders or end-user, in this case farmers

The next chapter presents summary of findings and recommendations.

Chapter VII

Major Findings and Recommendations

7.1 Findings:

- On a positive note, it was reported that many farmers observed a shut-down of the shop by many suppliers that were expectedly dubious. They had an apprehension that those suppliers were involved in to malpractices and sale of spurious inputs and could not sustain in GST regime in continuing with their spurious activities and so they shut down.
- Farmers reported that the buyers of their produce were also preparing bills and insisting upon preparing appropriate invoices and were handed over to the farmers by the buyers of their agricultural produce, more often since the implementation of GST.
- Most of the traders felt that with the introduction of GST, more timely preparation of accounts, increased transparency and ease due to fully online process, ease in preparation of accounts due to single tax that merged multiple tax, - such benefits were deduced. Some traders were also happy with the brunt felt by illegal traders who were compelled to shut down due to increased transparency.
- However, traders also felt that introduction of GST induced increased cost of maintenance of records in the form of software installation and maintenance and costs incurred in hiring trained manpower or outsourcing the same.
- Traders found it difficult to seek from their suppliers and extend to farmers, certain facilities like credit, return of sold out goods, availing / providing / negotiating discounts, etc. which was smoothly handled before the implementation of GST. Such facilities can prove to be vital for success of agriculture, involving mostly small and marginal farmers.
- Dealers' margins have reduced, which can pose threat of sustainability for the business. With increase in GST, while many manufacturers of tractors in particular have absorbed the increased tax burden, but for some agri-inputs whereby manufacturers have not absorbed the rise in the burden, it's the dealers who have to accommodate the rise in the tax by cutting their margin. Innumerate traders provide important support service to the agriculture sector

and are important stakeholders for agricultural businesses. It is important to assure that they continue to provide services in the form of traders to the farmers.

- Most of the producers reported a rise in the cost of production due to increased rates of GST charged by their suppliers of raw-materials, machinery and other inputs.
- Producers reported that the details regarding GST number was sought by their suppliers, and they too in turn sought the same from the traders to whom they supplied the produced goods. It thus suggested that the rule of tax credit to be sought sequentially through-out the supply chain was being implemented. It would thus be difficult for anyone to survive in the market without GST registration, since they would not be able to further claim GST tax credit paid by them to their supplier. So the chain of paying the tax charged to them continues consecutively.
- Impact on producers involved gestation period in production and time-lag to see any kind of impact. Hence if the demand was negatively affected, it cannot be immediately communicated / indicated to the producers or implemented through likewise changes in production. Hence a change in sales as an impact of GST was observed to be after a time-lag of about six months' duration for the producers.
- All producers were on consensus that the GST regime had brought more transparency in the entire logistic supply chain, and thus was a better system than its predecessor.

7.2 Recommendations:

- As was observed, farmers had merely heard about GST, but were largely unaware of the charges, whether it increased or not the prices of inputs and whether the cost of production increased for them or not. To assure a smooth transition and lesser ambiguity among the stakeholders, wide propagation of the strategy of implementation, schedule and method of implementation, before and after rates of GST, rise or stability in prices to be expected post-implementation, etc. and its effective timely communication would have better prepared farmers to be aware as to what to expect from the implementation of

GST. Henceforth, any such policy implementation can take care of such procedural suggestions.

- A big challenge with regards to any data to be procured from farmers is the lack of record-keeping of the expenses incurred in agriculture. Farmers should be acquainted of the benefits that can be derived by proper record keeping and hence be motivated to maintain agriculture associated records in the form of a log book, for all future references and comparison in such situations as implementation of GST. If they had systematically maintained record, a clear comparison of before and after prices, post implementation of GST paid by them could have improved their bargaining power with the suppliers or even policy makers, while identifying any errors / mal-practices committed by traders or suppliers while supplying agricultural inputs. In the absence of records, they at best rely on recall method and loose power to negotiate with either suppliers or policy makers.
- While attempts are being made to 'double farmers' income' and considering the uncertainties associated with agriculture, it is in the best interest for the country to not charge GST on agricultural inputs. Any tax on agricultural inputs increases the cost of production and thereby reduces the net farmers' income. Instead at best, tax can be levied on those inputs, the use of which is intended to be reduced in phased manner to assure sustainable agriculture, like the use of harmful chemicals, among others.
- A 'nil' tax rate on water-saving irrigation facilities (like drip irrigation and sprinklers) would motivate its use and prove to be both economically and ecologically helpful. Similarly, 'nil' tax rates on 'green house structures', agricultural technological tools, etc. would motivate the farmers to use them and thereby contribute in doubling farmer's income by producing sophisticated, expensive, and niche crops at lower cost of production.
- Due to the nature of agriculture and accordingly lack of working capital, farmers need inputs on credit from suppliers. Besides, certain times farmers feel dissatisfied with the use of certain inputs and may require to exchange earlier purchased input with an alternate one. However due to stringent and inflexible GST procedures farmers are largely not given such facilities since its

implementation. Certain such provisions may prove to be helpful to resort such challenges faced by the farmers and traders in facilitating it for farmers.

- Farmers were fearful as well as misguided regarding GST by those who wanted to benefit from the doubts persisting in the minds of the farmers, like vendors or traders. Appropriate communication with the stakeholders particularly with illiterate farmers is important to assure that they are not cheated by miscreants in the name of GST, by charging them for those rates that do not have legal sanctity. Another solution to this issue can be a uniform GST rate on all agri inputs. Consequently, the farmers and all stake holders would be unambiguous regarding the GST rates.
- As for the traders, infrequent changes in the GST rates would facilitate the implementation of procedures. There should be non-ambiguous mass communication of the manner in which the rates are charged under the GST regime. Hence it was recommended that rates of GST should not be changed frequently. While the survey was carried out to cover the initial stages of implementation of GST and so changes were frequent, with the passage of time, more stability in the rates can be expected. Stable infrequent GST rates facilitate timely implementation of procedures.
- Traders dealing with tractor and implement spare parts felt annoyed and irritated due to different rates of GST on different spare parts. Dealers have to deal with hundreds of spare parts every-day and found it difficult to keep abreast with the rate differences. It was suggested that all tractor and agricultural equipment spare partsshould charge the same rate of GST to avoid delay and confusion while preparing bills.
- Many traders suggested that instead of monthly reporting of the accounts, quarterly preparation of the bills would be more convenient. Monthly reporting by dealers need to accommodate the delays either at the end of suppliers or by the farmers and so the request was for a quarterly reporting. However, there was also a group of traders who appreciated monthly payments since in that manner the burden was equally distributed across the year and the financial year end pressures were mitigated. Since it became a monthly routine it was found burdensome after certain time due to the familiarity with the procedure.

- A reduction in the penalty due to delay was suggested, since at times traders faced genuine issues in reporting like internet connectivity issues, power supply, crowding on portal and thus lack of response, etc. Some farmers learnt to cope-up with the passage of time by doing the procedures much before the deadline to avoid delays and face penalties.
- GST council should acknowledge and provide for facilities to extend credit, discounts and scope for prolonged return of goods, since these are vital for fragile agriculture sector. Such provisions would facilitate extending such facilities in a manner similar to that before the implementation of GST.
- The fact that the sales of fertilizers, pesticides, and oil engines was negatively affected and that of solar equipment, organic material was positively affected indicates, that GST can be used as a tool to incentivize and dis-incentivize appropriately the use of different agricultural inputs in accordance to the long term policy for agriculture. For example, if organic production is to be motivated, then the organic inputs should be charge less GST and inorganic should be charged higher GST.
- Some of the traders also voiced concerns that for the sustainability of agriculture sector and to truly achieve 'doubling of farmers' income' GST should be completely abolished on all agri-inputs. It was not found convincing that on one side policy initiatives were trying to assure doubling of farmers' income (presumably income net of costs) while on the other side the costs of agriculture was increasing.
- GST on efficient irrigation systems like sprinklers, and drip irrigation are inevitable to motivate the users to buy more of the same. This would prove ecologically/environmentally beneficial besides being economically promising by saving the water usage on the most water exhausting activity – agriculture. Besides technological upgradation inducing equipment green-house structures and their spare-parts, if charged with lesser GST can result in increased farmers' income with the production of more sophisticated agricultural output produced in such controlled atmosphere. Mechanization of agriculture through tractors, rotavator, etc. can motivate the rise in the production through crop rotation.

- Most of the traders unanimously suggested that all agri-inputs should be charged uniform GST, if at all, and at very low rate, so that no one can cheat farmer, the end user by charging higher in the name of GST. Amidst ambiguity, asymmetric information and confusion few traders may indulge into malpractice of charging higher rates from the farmer. Uniform GST rates across the logistic supply chain will reduce the scope of misdeeds by any of the stakeholders and with increased awareness the stakeholders will also be less vulnerable to such malpractices. At the same time it would also reduce transaction costs, time and efforts during transactions facilitating all stakeholders.
- Producers faced a peculiar dilemma that they paid higher GST rates on the inputs supplied by their suppliers and instead could not charge as much GST on the finished product sold by them with the change in the nature of the product produced. Hence, if a common same percentage is charged in the entire logistic supply chain, such dilemmas could be overcome. For example, producer would face a loss,if the supplier of raw material was charging eighteen (18) percent and if the producer was able to charge only five (5) percent on the finished goods with value addition sold by him. Due to the nature of the finished product, he would have to face losssince the producer will be able to get tax credit for the amount that he is able to charge from his trader to whom he supplies the finished goods. Instead if the supplier of raw material was also charging five (5) percent and if the producer was also charging five (5) percent on the finished goods with value addition sold by him, such a problem would be solved.
- Seed-cum-fertilizer drill, zero till drill, lazer levelers and various farm implements and tools need to be popularized along with bullock drawn implements for small and marginal farmers. Seed dressers, sprayers, weeding implements, and other drudgery reduction implements should be further popularized. Custom hiring system should be promoted and popularized using the concept of Agri-Clinics.

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Glimpses of Field Visits & News on GST


2019

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ખેડૂતોના આત્મહત્યાના વધતા જતા બનાવ છતા....

ટપક સિંચાઈમાં 12 ટકા GST લદાયો

12 ટકા GST નાબૂદ કરવા ખેડૂતોમાં ઉઠતી માગણી: ખર્ચાને નહીં પહોચી વળતા હોવાની રાવ

રાજકોટ તા.૧૦

દેશભરમાં જ્યારે ખેડૂતોની હાલત કફોડી બની રહી છે અને આત્મહત્યાના પ્રમાણમાં વધારો થયો છે. ખેડૂતોને પોતાની જણસના પુરતા ભાવ નહીં મળતા ધરતીપુત્રોમાં સરકાર સામે રોષ જોવા મળી રહ્યો છે અને વર્ષોથી ખેડૂતો સાથે અન્યાય થતો હોવાની પ્રતીતી જગતનો તાત અનુભવી રહ્યો છે ત્યારે ટપક સિંચાઇ પધ્ધતિનો ૧૨ ટકા જીએસટીમાં સમાવેશ કરતા ખેડૂતો ઉપર ભારણ વધ્યું છે. પુરતા ભાવ નહી મળતા અને ખર્ચા વધતા તેને પહોચી નહી વળતા હોવાથી આત્મહત્યાના બનાવો વધશે જેથી ૧૨ ટકા જીએસટી નાબુદ કરવા ખેડૂતોમાં

માંગણી ઉઠવા પામી છે.

જીજીઆરસી પ્રોજેકટ અંતર્ગત ગુજરાતના ખેડૂતોને ટપક સિંચાઇ પધ્ધતિ વસાવવા માટે સરકાર તરફથી સબસીડી સહાય આપવામાં આવે છે. તેમાં આ અગાઉ કોઇ ટેકસ કે વેરો લેવામાં આવતો ન હતો પરંતુ હાલમાં કેન્દ્ર સરકાર દ્વારા વન નેશન વન ટેક્ષનાં સૂત્ર હેઠળ જીએસટી નામનો નવો ટેકસ લગાવવામાં આવેલ છે. તેમાં ટપક સિંચાઇ પધ્ધતિમાં ૧૨ ટકા જીએસટી લગાવવામાં આવી છે. પ્રધાનમંત્રી નરેન્દ્રભાઇ મોદીનો ડ્રીમ પ્રોજેકટ છે અને તેમનો ઉદેશ વધુમાં વધુ ખેડૂતો ટપક સિંચાઇ પધ્ધતિ વસાવે તેવો છે પરંતુ હાલમાં ખેડૂતોને પોષણક્ષમ ભાવ ન મળતા રાસાયણિક દવા ખાતરના વધુ ખર્ચ, મજુરી ખર્ચ વધતા ટપક સિંચાઇ વસાવવા તરફ પ્રેરીત થયેલ છે પરંતુ હાલમાં ટપક સિંચાઇ માટે સરકાર તરફથી ૭૦ ટકા અને ૮૦ ટકાના ધોરણે સબસીડી અપાય છે પરંતુ અત્યારે જીએસટીના ટેકસમાં ટપક સિંચાઇ પધ્ધતિમાં ૧૨ ટકા જેવો ટેકસ નાખતા ખેડૂતોને જે ૧ હેકટરે દીઠ નાના ખેડૂતોને હેકટરે અંદાજીત ૨૦૦૦૦ રૂપિયા ભરવાના થતા હતા

(અનુસંધાન પાના નં. ૮)

Annexure I

A1 Movement of the Growth Rates of Selected Economic Indicators: March 2016-June 2017

Indicators	Growth (Y-O-Y %) for Quarter Ending (At Constant 2011-12 Prices)					
	March-16	June-16	September-16	December-16	March-17	June-17
GDP	9.1	7.9	7.5	7.0	6.1	5.7
GVA[a]	8.7	7.6	6.8	6.7	5.6	5.6
GVA: Agriculture	1.5	2.5	4.1	6.9	5.2	2.3
GVA: Industry	10.3	7.4	5.9	6.2	3.1	1.6
GVA: Services	10.0	9.0	7.8	6.9	7.2	8.7
Private Final Consumption Expenditure (PFCE)[b]	9.3	8.4	7.9	11.1	7.3	6.7
Government Final Consumption Expenditure (GFCE)[c]	4.1	16.6	16.5	21.0	31.9	17.2
Gross Fixed Capital Formation (GFCF)[d]	8.3	7.4	3.0	1.7	-2.1	1.6
Core GVA[e]	10.7	8.4	6.7	5.9	3.8	5.5
Exports	-2.3	2.0	1.5	4.0	10.3	1.2
Imports	-4.3	-0.5	-3.8	2.1	11.9	13.4
Net Exports as % of GDP	0	-0.9	-0.8	-0.7	-0.3	-3.2
Index of Industrial Production %	5.5	8.9	5.7	2.6	2.7	-0.2
CPI Inflation	4.83	5.77	4.39	3.41	3.81	1.54
FDI (US$Billion)	10.6	7.6	14.0	14.2	7.6	10.4
BoP (US$ Billion)	-0.3	-0.4	-3.5	-8.0	-3.4	-14.3
Trade Balance (Crore)	-652	-25,702	-23,572	-22,817	-10,582	-101,668

Sources: National accounts data: Ministry of Statistics and Programme Implementation, 'Quarterly Estimates of GBP at Constant Prices, 2011-12 Series'. Available at; http://mospi.nic.in/data (accessed on 28 November 2017)', FDl data: Department of Industrial Policy and Promotion. Available at; http;//dipp.nic.in (accessed on 28 November 2017), IIP Data: http://www.mospi.gov.in/sites/default/ files/press_release/iip_PR_12mayl7.pdf (accessed on 28 November 2017); External balances data: https://rbi.org.in (accessed on 28 November 2017).

Notes: Quarter ended December 2017 includes the demonetisation period.

[a]GDP is the sum of private consumption, gross investment in the economy, government investment, government spending and net foreign trade (difference between exports and imports), and has traditionally been used to measure the output of an economy. However, economists now prefer to use the concept of GVA as a useful measure of output. It provides the rupee value for the amount of goods and services produced in an economy after deducting the cost of inputs and raw materials that have gone into the production of those goods and services. The two are related by GDP = GVA + Taxes - Subsidies (on those goods and services).

[b]The PFCE is defined as the expenditure incurred on final consumption of goods and services by the resident households and non-profit institutions serving households [NPlSHs).

[c]General GFCE includes all government current expenditures for purchases of non-durable goods and services net of sales and expenditure on compensation of employees as well as consumption of fixed capital [depreciation]. By convention, expenditure on durable goods, which are used for defence, are also treated as part of consumption expenditure of the government.

3 [d]GFCF refers to the net increase in physical assets (investment minus disposals) within the measurement period (usually one year) . It does not account for the consumption (depreciation) of fixed capital, and also does not include land purchases.

[e]Core GVA as defined here is the aggregate of mining, manufacturing, utilities, construction, domestic trade and transport; and finance real estate and related services.

Source: Bhattacharjee and Bhattacharya (2018).

Annexure II

Farmers' Survey Schedule

Date of visit_____

[1] Identification of Sample Farmer Household

1. District	2. Taluka	3. Village	
5. Name of Head of Household		6. Gender Male/ Female	
7. Age (years)	8. Education (years)	9. Farming since(years)	
10. Aadhar /House No.		11. Mobile No.	

[2] Socio-Economic Characteristics

1. Religion (Code) *Hindu-1, Muslim-2, Christian-3, Sikh-4, Other-5;*		7. Occupation- (code) *Cultivator-1, AH & Dairying -2, Agri. Labour-3, Nonfarm Labour –4, Own Non-Farm Establishment -5, Trade - 6, Employee in Service - 7, Other (Specify)*	principal	
2. Social Group (code) *Scheduled Tribe-1, Scheduled Caste-2, Other Backward Class-3, General/Open-4;*			subsidiary	
3. Posses Kisan Credit Card (Y/N)		8.House Structure (*Pucca-1, Semi-Pucca-2, Kucha-3)*		
4. Income Group (BPL/APL/AAY)				
5. Do you maintain farm financial record (Y/N)				
6. Details of Family Members : Total: M: F: C (below 15 years): Work in Agri: M: F: C (below 15 years): Work in Dairy: M: F: C (below 15 years):				

[3] Land related information (2017-18) (Unit= land in ha, Rental Amount in Rs/ha)

Particulars	Total	Un-irrigated	Irrigated	Sources of irrigation*	Rental Value
1. Owned land					Irrigated= Rs.__/ha/ year Unirrigated= Rs.__ /ha/ year
2. Leased-in					
3. Leased-out					
4. Fallow land					
5. Total operational land					

Notes: *Specify the major source of irrigation (Open well =1, Tube well=2, Tank =3, Canal = 4, others=5 specify……..).

[4] Holding of Productive Assets

Sr. No.	Assets	No.	Sr. No.	Assets	No.
1	Tractor		16	Fodder Chaffer-Manual	
2	Tractor Trolly		17	Fodder Chaffer Power	
3	Harrow		18	Seed Drill	
4	Tiller		19	Seed Grading	
5	Plank		20	Seed Cleaner	
6	Threshing machine		21	Seed Bin	
7	Combine harvester		22	Seed Thresher	

8	Pumpset diesel		23	Storage Bin	
9	Pumpset -submersible		24	Grass Cutter	
10	Pumpset Non-submersible		25	Milking Machine	
11	Sprinkler set		26	Milk cans	
12	Bullock cart		27	Grass Chopper	
13	Spray Pump- Manual		28	Feed Mixer	
14	Spray Pump- Power		29	Fodder Harvester/mowers	
15	Land leveller		30		

[5] Changes in inputs prices &purchase procedure (before & after the levy of GST)

1. Have you heard about the GST? Yes / No
2. If yes, then in what context – inputs purchase or output sales?
3. Are your suppliers charging GST? Yes / No
4. What are the changes in prices due to GST for the following Assets / Inputs?

(a) Assets (in Rs/Unit)

Sr. No.	Assets(Rs./Unit)	Prices before GST	Prices after GST	Sr. No.	Assets	Prices before GST	Prices after GST
1	Tractor			21	Seed Drill		
2	Tractor Trolly			22	Seed Grading		
3	Tractor spare parts			23	Seed Cleaner		
4	Harrow			24	Seed Bin		
5	Tiller			25	Seed Thresher		
6	Plank			26	Storage Bin		
7	Threshing machine			27	Grass Cutter		
8	Combine harvester			28	Milking Machine		
9	Pumpset diesel			29	Milk cans		
10	Pumpset -submersible			30	Grass Chopper		
11	Pumpset Non-submersible			31	Feed Mixer		
12	Sprinkler set			32	Fodder Harvester/mowers		
13	Drip Set			33	Green House sheet		
14	Bullock cart			34			
15	Spray Pump- Manual			35			
16	Spray Pump- Power						
17	Land Leveller						
18	Fodder Chaffer-Manual						
19	Fodder Chaffer Power						
20	Mowers						

(b) Inputs

Sr. No.	Inputs	Prices before GST	Prices after GST	Sr. No.	Inputs	Prices before GST	Prices after GST
1	Seeds			7	Micro nutrients		
2	Insecticides			8	Wetting agents		
3	Pesticides			9	Plant growth regulators		
4	Weedicides			10	Lubricant for tractors		
5	Sticker			11	Others		
6	Fertilizer			12			

1. What is the impact on the total input cost? Rs. / person / year_____

2. Have you observed any changes in the procedure, while purchasing your assets or inputs after the levy of GST? Yes / No, If yes, please elaborate_____
3. What kind of impact have you seen while purchasing any asset / input after the levy of GST? (mark tick / cross)
   a. Trader takes more time to prepare the bill
   b. I get a bill for all purchases that helps in maintaining my records of cost
   c. Trader has stopped giving discount
   d. Trader has stopped giving credit
   e. Traders selling spurious things have stopped their businesses
   f. Trader has stopped accepting your unused product if you were not satisfied
   g. Trader asking for your more administrative details (like adhaar card number / land size, etc)
   h. Bills showing GST payment on your purchase have helped in availing other benefits (like accumulating fertilizers)
   i. Any other changes:

      _____

      _____
4. Have you rented any equipment? Yes / No
5. How has the rent changed after the levy of GST? (e.g. tractor, plough, etc.)

Sr. No.	Inputs	Rent before GST	Rent after GST	Sr. No.	Inputs	Rent before GST	Rent after GST
1				4			
2				5			
3				6			

[6] Changes in the output sales and procedure (before and after the levy of GST)

1. Are your buyers / agents mentioning about GST? Yes / No
2. Do they use the concept of GST while bargaining / negotiating with you in terms of buying your produce? Yes / No
3. Are you asked to submit any additional documents now while selling your produce to your buyers?Yes / No
4. What documents are now demanded (adhar card no. / from survey number?

   _____

   _____
5. Have you observed any changes in the procedure or costs during your dealings with your buyers? Yes / No
6. What kind of changes have you observed?

   _____

[7] Farmers' perception regarding the overall impact of GST

1. Any major changes observed after the levy of GST

_____

_____

_____

_____

_____

_____

2. Do you think GST is good for agriculture? Yes / No / No-difference

_____

_____

_____

_____

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_____

_____

3. Suggestions with regards to GST

_____

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Annexure III

Input Dealers' Survey Schedule

Date of Visit: _____

[1] Identification of Sample Input Dealer

1. District	2. Taluka	3. Village/Place of shop:	
5. Name of Input Dealer		6. Gender Male/ Female	
7. Age (years)	8. Education (years)	9. Dealer since (years)	
10. Shop: Rented / owned…. If rented, rent/month: Rs.		11. Mobile No.	
12. Number of competitors in 5 km radius :		13. Monthly sales (av. across seasons) Rs.	
14. Tally / any accountancy software used: Yes / No		(a) If yes, since when:	

[2] Details of Products sold

Product	If you sell, tick (√)	Number of varieties/Brands	Product	If you sell, tick (√)	Number of varieties/Brands
Seeds			Sprinklers		
Insecticides			Drip irrigation		
Pesticides			Pumps		
Weedicides			Other Irrigation inputs		
Sticker			Tractor		
Micronutrients			Tractor spare parts		
Implements			Lubricant for tractors		
Wetting agents			Green house sheet		
Plant growth regulators			Other1		
Fertilizer			Other2		

[3a] Details of Tax / GST paid on purchase of product (agri-inputs)

Sr. No.	Name of the input	GST paid to producer/supplier (Existing rates of GST)	Sr. No.	Name of the input	GST paid to producer/supplier (Existing rates of GST)
1	Seeds		11	Tractor	
2	Insecticides		12	Tractor spare parts	
3	Pesticides		13	Pumps	
4	Weedicides		14	Micro nutrients	

Sr. No.	Name of the input	GST charged to buyer/farmer- (Existing rates of GST)	Sr. No.	Name of the input	GST charged to buyer/farmer- (Existing rates of GST)
5	Sticker		15	Wetting agents	
6	Implements		16	Plant growth regulators	
7	Sprinklers		17	Lubricant for tractors	
8	Drip irrigation		18	Green house sheet	
9	Irrigation inputs		19		
10	Fertilizer		20		

[3b] Details of Tax / GST charged on product (agri-inputs) sold

Sr. No.	Name of the input	GST charged to buyer/farmer- (Existing rates of GST)	Sr. No.	Name of the input	GST charged to buyer/farmer- (Existing rates of GST)
1	Seeds		11	Tractor	
2	Insecticides		12	Tractor spare parts	
3	Pesticides		13	Pumps	
4	Weedicides		14	Micro nutrients	
5	Sticker		15	Wetting agents	
6	Implements		16	Plant growth regulators	
7	Sprinklers		17	Lubricant for tractors	
8	Drip irrigation		18	Green house sheet	
9	Irrigation inputs		19		
10	Fertilizer		20		

3 (b) Are there different rates of GST for the same product from different brands? Yes / No

3 (c) If yes give examples of such differences

Product	Brand 1	Price	Brand 2	Price

3 (d) Are there different rates of GST on solid / liquid ingredients of the same product? Yes / No

3 (e) If yes give examples of such differences

Product	Solid / granules	Price	Liquid	Price

3 (f) Are you aware that there are changes in rates of GST on same product after its implementation i.e. 01.07.2017? Yes / No

3 (g) If yes give the name of product and different GST rates

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

[4] Impact on Sales of product after GST implementation (in Quantity)

Sr. No.	Name of the inputs	Sales for 6 months ending 30.6.17	Sales for 6 months ending 31.12.17	Sales from 1.1.18 till date _____
1	Seeds			
2	Insecticides			
3	Pesticides			
4	Weedicides			
5	Sticker			
6	Implements			
7	Sprinklers			
8	Drip irrigation			
9	Irrigation inputs			
10	Fertilizer			
11	Tractor			
12	Tractor spare parts			
13	Pumps			
14	Micronutrients			
15	Wetting agents			
16	Plant growth regulators			
17	Lubricant for tractors			
18	Green house sheet			
19	Others:			
20				

[5] Impact on Trader

1. Do you prepare bills manually- Yes/No

   (A) IF yes

   (a) If yes, how do you find the process of bill preparation after the implementation of GST?- Easy / Difficult

   (b) What kind of difficulty do you face while preparing bills manually (tick √ for yes) :

   i. Have to employ additional manpower to prepare bills
   ii. Cannot remember the tax rates on each product
   iii. Difficulty in calculating the amount of tax for each product
   iv. Difficulty in deciding the amount of discount that you wish to extend to customers
   v. It is time consuming to prepare bill
   vi. Customers get irritated waiting for the bill
   vii. If any other,

   specify_____

   (B) If no, which software do you use_____

   (i) Software is convenient to use? Yes / No

   (ii) What is the cost of using the software?

   Installation charges (in Rs.)_____Monthly charges (in Rs.)_____

   (iii) Do the software providers update it according to the changes in the rate of GST? Yes / No

   (iv) Do you have to pay extra for updating the software with new rates announced for GST? Yes / No

   If yes, how much do you have to pay? (in Rs.)_____

2. Has your overall cost increased due to the GST levied on the purchases made by you? Yes / No
3. If yes by what percentage _____ %
4. Do your suppliers use the levying of GST during negotiations on purchase? Yes / No
5. Do you find it difficult to seek credit facilities from your suppliers after GST? Yes / No / Do not take credit
6. Do they seek more information about your organization after the levy of GST (like your GST number and other such details)? Yes / No
7. Have some of your suppliers closed their businesses after the GST regime? Yes / No
8. Have some of your competitors closed their businesses after the GST regime? Yes / No
9. Has your overall revenue been affected due to the levy of GST? Yes / No
10. If yes by what percentage _____ % (If effect on revenue positive put '+ plus ' & if negative put '- minus')
11. Percentage change in the total amount of tax paid by you before and after GST? _____
12. Do you feel that after GST, it is difficult to take back the products from dissatisfied customers? Yes / No
13. If yes, have you communicated this issue to any of the GST reporting authorities? Yes/ No, if yes, to whom and what was the response_____

14. Is there any mechanism with which you can feed the intake of such products again in the GST software? Yes / No
15. Do you give the returned products from dissatisfied customers to other customers without preparing bill? Yes / No
16. Do you find it difficult to extend credit facilities to farmers after GST? Yes / No
17. Do you find it difficult to comply and feed your monthly data on GST portal? Yes / No.
18. What kind of difficulties do you face?
    a. GST servers are down
    b. Power failure in your shop
    c. Internet connectivity make it difficult to upload your information on GST portal
    d. You find GST portal confusing
    e. If any other,
       specify_____
       _____
19. Do you feel the monthly reporting of GST is fine? Yes / No
20. What is the ideal duration of reporting GST data? : Monthly / Quarterly/ Half yearly / Yearly
21. Do you think that there is any impact on the farmers due to GST? Yes / No
22. Particularly which products have created maximum positive impact on farmers due to levying of GST?_____
    _____
23. Particularly which products have created maximum negative impact on farmers due to levying of GST?_____
    _____
24. Particularly which products have created no impact on farmers due to levying of GST?_____
    _____
25. Do you think GST is better than the previous system? Yes / No / No-difference
26. What are the positive aspects of GST?

_____
_____
_____
_____

27. What are the negative aspects of GST:

_____
_____
_____

28. Suggestions with regards to GST:

_____
_____
_____

Annexure IV

Input Producers' Survey Schedule

Date of visit_____

[1] Identification of Sample Input Producer

1. District	2. Taluka	3. Village	
5. Name of Producer			6. Gender Male/ Female
7. Age (years)	8. Education (years)		9. Producer since (years)
10. Production Unit: Owned/ hired out			11. Mobile No.
12. Number of competitors in 5 km radius		13. Monthly sales (av. across seasons) Rs.	
14. Tally accountancy software used Yes / No		(b) If yes, since when:	

[2] Details of Products produced and sold

Sr. No.	Name of the product	Name of the brand

[3] Details of GST paid on various <u>agri inputs</u> used by producer (like raw material and machinery) Rs/ Month

Sr. No.	Name of the inputs	Before GST (July 1, 2017)		After GST (July 1, 2017)		Currently	
		Tax (% / unit)	Price (Rs. / unit)	Tax (% / unit)	Price (Rs. / unit)	Tax (% / unit)	Price (Rs. / unit)
1							
2							
3							
4							
5							
	Total **Rs/ Month**						

[3a]Change in the total amount of tax paid by you before and after GST?

Name of the inputs	Before GST (July 1, 2017)	After GST (July 1, 2017)	Currently
	Tax amount	Tax amount	Tax amount
Total **Rs/ Month**			

[4a] Details of Tax / GST charged on agri inputs produced/sold by the producer

Sr. No.	Name of the product	Name of the brand	GST charged to buyer/Dealer- (Existing rates of GST)

4 (b) Are there different rates of GST on solid / liquid ingredients of the same product? Yes / No

4 (c) If yes give examples of such differences

Product	Solid / granules	Price	Liquid	Price

4 (d) Are you aware about the changes in the rates of GST on same product after its implementation i.e. 01.07.2017? Yes / No

4 (e) If yes give the name of product and different GST rates

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

Product	GST rate	Date
	1.	
	2.	
	3.	

[5] Impact on Sales of Product (in total Rs.)

Sr. No.	Name of the Product (with brand & use 'S' for Solid / 'L' for Liquid)	Sales of Product (in total Rs.)		
		Sales for 6 months ending 30.6.17	Sales for 6 months ending 31.12.17	Sales from 1.1.18 till date _____
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

[6] Overall impact on Producer

1. Has your overall cost increased due to the GST levied on the raw material purchased by you? Yes / No
2. If yes by what percentage _____ %
3. Has your overall cost increased due to the GST levied on machinery purchased by you? Yes / No/ not applicable (not purchased new machinery)
4. If yes by what percentage _____ %
5. Do the input sellers use the levying of GST during negotiations on purchase? Yes / No
6. Do you find it difficult to seek credit facilities from your seller after GST? Yes / No / Do not take credit
7. Do they seek more information about your organization after the levy of GST (like your GST number and other such details)? Yes / No
8. Have some of your suppliers closed their businesses after the GST regime? Yes / No
9. Have some of your competitors closed their businesses after the GST regime? Yes / No
10. Has your overall revenue been affected due to the levy of GST? Yes / No
11. If yes by what percentage _____ % (If effect on revenue positive put '+ plus ' & if negative put '- minus')
12. Do the traders use the levying of GST during negotiations on purchase? Yes / No
13. Do you find it difficult to give credit facilities to your buyers/ traders after GST? Yes / No / Do not take credit
14. Do you seek more information about buyer/trader after the levy of GST (like their GST number and other such details)? Yes / No
15. Have some of your buyers / traders closed their businesses after the GST regime? Yes / No
16. Do you find it difficult to comply and feed your monthly data on GST portal? Yes / No

17. What kind of difficulties do you face?
    f. GST servers are down.
    g. Power failure in your shop.
    h. Internet connectivity make it difficult to upload your information on GST portal.
    i. You find GST portal confusing.
    j. If any other,
    specify_____
    _____
18. Do you feel the monthly reporting of GST is fine? Yes / No
19. What is the ideal duration of reporting GST data? Monthly / Quarterly / Half-yearly / Yearly
20. Do you think that there is any impact on the farmers due to GST? Yes / No
21. Do you think it has increased the transparency in the tax payment in the entire logistic chain of which you are a part? Yes / No
22. Particularly which products have created maximum positive impact on farmers due to levying of GST?_____
    _____
23. Particularly which products have created maximum negative impact on farmers due to levying of GST?_____
    _____
24. Particularly which products have created no impact on farmers due to levying of GST?_____
    _____
25. Particularly which products have created maximum impact on farmers due to GST levying?_____
    _____
26. Do you think GST is better than the previous system? Yes / No / No-difference
27. What are the good aspects of GST?
    _____
    _____
    _____
    _____
    _____
    _____
    _____
28. What are the bad aspects of GST
    _____
    _____
    _____
29. Suggestions with regard to GST
    _____
    _____

****