

Is Agriculture A Scapegoat in Indian Political Scenario?

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Abstract

Traditional agriculture systems in India were dynamic but with the chemical inputs-monocrop is a static as they rarely take in to account the on the existing conditions in a given state in specific and in India in general except that they look at how to get political mileage and get elected in the subsequent elections. When change of guard at center or states takes place the main scape goat is agriculture in general and thus farming community in specific? NDA central rulers, in addition, are looking at benefitting business houses in India and multinational companies of the West [MNCs]. In this processes center using arm twisting policy to pressurize states to follow their footsteps. Some states towed their line as they live at the mercy of the Centre government for funds without going into the veracity of such system but execute what they wanted, which is seen in two Telugu states. On 20th September 2020 central government brought out three “Agri Bills” and on 27th September President of India gave his assent. This shows the speed at which important bills that affects crores of farmers and farming community was cleared. Government tries to convince the farmers and farming community by saying that existing system continues. If the existing agriculture system continues then where is the need to have parallel system with the three “Agri Bills”? The states must come up with their own policies based on local conditions that help in improving socio-economic conditions of farming community and food & nutrition security to all. Without this, simply by framing Laws or Acts to help business houses and middlemen or importing untested technologies like Genetically Modified seeds is bad. Now, the scene of entry of Genetically Modified food is looming dangerously in India which effect Indian economy in several ways in which export sector will be the major casualty. With these the roles of middlemen increase multi-fold effecting small and marginal farmers. However, the new Agri Bills of 2020 fit in to NDA national policy of “privatization and corporatization” of India wherein poor have no right to live.

GM Cotton Seed companies monopolized cotton seed sale and blocked the non-GM cotton seed in the market and yet states and central governments were silent. With the centre's clearance for growing GM food crops, India becomes a dumping ground for GM food and thus severely affects food & other commodities exports from India that affect farmers as well as employment in agriculture sector. It creates negative impacts on food and nutrient security to all against UN slogans. Even worse are state governments making farmers to grow crops as per their dictums that lead disastrous outcomes. This is clearly evident in the state of Telangana during 2020-21 crop years with the rice. Governments must search their soles, on how their policies are going to impact agriculture sector and sectors depending upon agriculture.

Keywords: *Agri bills; MSP; Farmers; Climate; Soil; GM crops*

1. Introduction

On September 27, 2020, the president of India Mr. Ram Nath Kovind gave his assent to the three-farm reform (?) bills that were passed in the dark in Rajya Sabha. They are:

- The Farmers' Produce, Trade and Commerce (Promotion and Facilitation) Bill, 2020
- The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Bill, 2020
- The Essential Commodities (Amendment) Bill, 2020

Farmers started protests against these bills in severe winter cold and continued still to date that enters another winter. Unequivocally the farmers groups said they won't stop their protests until they achieved the twin goals: "Scrapping of the three Agri Bills and getting the legal status to Minimum Support Price [MSP]". To counter this, Prime Minister of India brought out a book "Putting Farmers First" of 106 pages and several ministers and spokes persons of BJP started high pitch propaganda in support of them using the media.



Deccan Chronicle

Central Minister Ajay Kumar Mishra's Son drove through the protesting farmers on three Agri Bills and killed four farmers and injuring several others in Uttar Pradesh [3rd October 2021]. Chief Justice of India of Supreme Court says

“When court gave stay order why farmers are protesting forgetting the fact that neither the Central Government Withdrew them nor the court has cancelled them!!!”

2. Some Basic Facts About India

India's total geographical area is 329 million hectares (MHA) of which 195 MHA is gross cropped area and 141 MHA is net cropped area. That means, only 54 MHA more than once crops are cultivated in a crop year on the same piece of land. In the net cropped area the net irrigated area is only 65.3 MHA and the rest of the cropped area [75.7 MHA] is at the mercy of "Rain God". In India small and marginal farmers with less than 2.0 ha [5 acres] of land account for 82.6% [126 million farmers] of all farmers but just own 47.3% [74.4 MHA] of the crop area in 2015-16; just 13.2% of farmers with 2.0 to 10.0 ha constituted 43.6% of the crop area. Average size of operational holdings varied from 2.28 ha in 1970-71 to 1.55 ha in 1990-91 to 1.08 ha in 2015-16. That shows a steady decline in the average operational holding size with increasing population. Thus, this may come down with the time. At the same time the population change from 1950 to 2014 in China and India respectively was 543 million to 1.39 billion and 376 million to 1.27 billion. In 2017 urban population in China and India respectively were 57.9% and 33.5%. A total of 42.6 million people were living in 8.3 million households of 640 slums in cities/towns across 26 states & union territories in India. That means less than 66.5% population lived in rural India, while this is less than 42.1% in China. Though in terms of geographical area China is around three times to India but population and area under irrigation are more or less the same. Area under agriculture in China and India respectively are 54.7% and 60.5%. At global level, Indian population constituted around 18% of global population occupying 2.7% of the land area and uses only 4% of world's fresh water but uses 25% of global groundwater.

India had 36 million agricultural landholdings in 1971. It increased to over 100 million in 2016. In 2016 agriculture and allied sectors like animal husbandry, forestry & fisheries accounted 15.4% of gross domestic product (GDP) with about 41.4% of the workforce in 2020. Any change in Agri sector severely affects workforce in this sector. India ranks first in the world with highest net cropped area followed by US & China. Thus, agriculture sector is playing significant role in the overall socio-economic fabrics of India. In the past decade, India has emerged as a major agricultural exporter, with exports climbing from just over \$5 billion in 2003 to a record of more than \$39.3 billion in 2013. India became the world's seventh-largest exporter of agricultural products in 2013. India has become a very important player on the global market, especially for rice (\$7.1 billion), cotton (\$3.8 billion), sugar, and beef (buffalo). In addition to these products, India has also become a sizeable exporter of soybean meal, guar gum, corn, and wheat, as well as a diverse range of other products (\$17.1 billion). Any change in Agri sector must not disturb this basic structure on the one hand and evolve a system that put a stop on further operational holding of land further disintegration with population growth on the other hand – this is a must.

3. PM's Book "Putting Farmers First"

3.1 Introduction

Prime Minister of India, Narendra Modi, circulated his book titled "Putting Farmers First" of 106 pages. It appears the entire foundation to this book is the text presented in page 10 under "Gujarat's Agrarian Miracle Catapults Modi to National Stage". All those items present "MYTH". Why I said "myth" can be seen from the below presented discussion on few major issues presented in Page 10 of the book. I discussed some of these issues in my books starting from 2000 [1-4]. PM's book tells us that the three Agri Bills will help in doubling of farmer's income by 2022.

Animal Husbandry played vital role in farmers' economic security and household food & nutrient security in rural India under traditional agriculture with no government subsidies. The Green Revolution Technology [GRT] was introduced around 1960

at huge inputs costs. The traditional system was disturbed with GRT with the curtesy of Dr. M. S. Swaminathan and introduced severe air & water pollution, polluted food & health hazards as the seeds are tailored to chemical fertilizers. FIG. 1 presents the Indian Agriculture - inputs & outputs [3]. The yield increases after 1983-84 were not consummate with increase in area under irrigation and chemical fertilizers increase. At all-India level the high yielding rice varieties (HYV) followed the irrigation trend during 1970-71 to 1990-91 to 1996-97 wherein the irrigated area changed from 380 to 708 to 807 Lha and the area under HYV changed from 154 to 650 to 764 Lha; the chemical fertilizer use was changed from 22 to 125 to 143 Lt. During the same period the growth in rice yields is around 1391 kg (1359 to 2750 kg). The yields presented high weather-related fluctuations in the case of cotton, groundnuts and sorghum while yield increase in rice is mainly associated with chemical fertilizer use as this crop mainly grown under irrigation. Technology works under high input costs only.

Reddy [5] presented rice production scenario in Andhra Pradesh (AP) -- more than 90% of the rice area is under irrigation; the use of high yielding rice varieties (HYV) have gone up from 14.5% to 67.9% in about four years with little change in fertilizer (N+P+K) use, increased the yield level only by about 245 kg/ha (1359 to 1604 kg/ha) – that is increase under HYV by one percent increased the yield by about 5 kg/ha and thus by raising 100% under HYV will increase the yield by 500 kg/ha. During 1974-75 to 1978-79 with no change in %HYV use and an increase in fertilizer use by about 3.258 lakh tons (Lt) showed an increase in yield by about 303 kg/ha (1604 to 1907 kg/ha) – that is an increase in fertilizer by one lac ton [Lt) increased the yield by about 100 kg - by increasing the chemical fertilizers use by 20 Lt will increase the yield by 2000 kg/ha. Under the traditional the average yield is about 1300 kg/ha. By adding to this the HYV and Chemical fertilizer components the yield will be 3800 kg/ha.

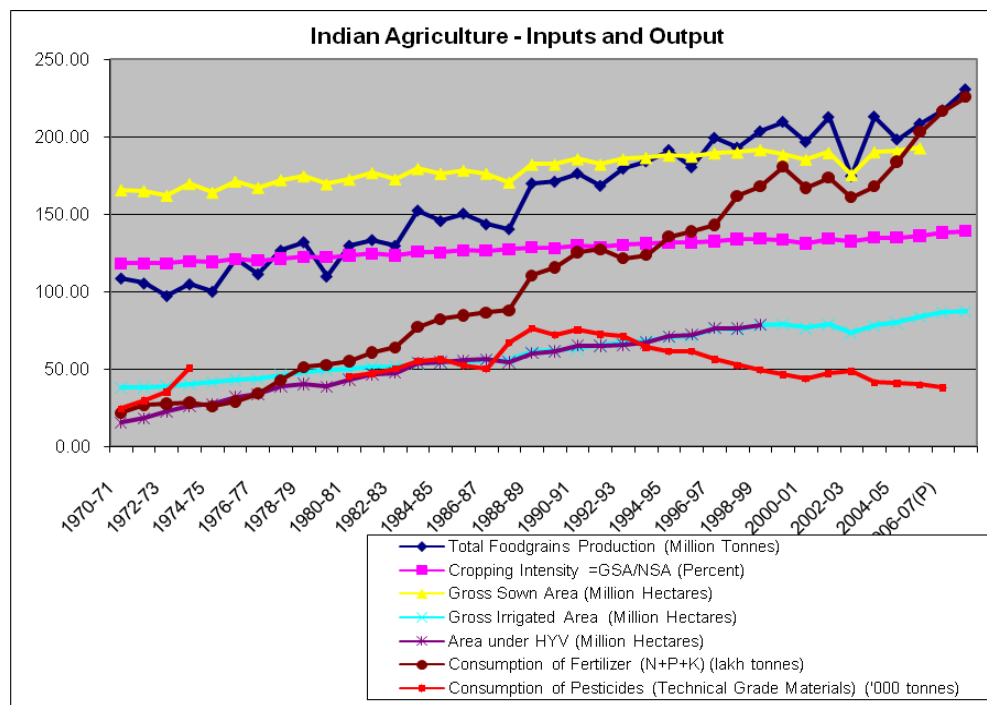


FIG. 1. Indian Agriculture - Inputs and output.

3.2 According to Pm’s book factors contributing for the success

PM argued that several factors have contributed to its success; from technological success of Bt-cotton to check dams recharging groundwater, to Narmada. However, it is a false claim. FIG. 2 presents time series of cotton productivity for different countries. India presents dismally low yields.

(A) Bt-Cotton [3]: Gujarat is notorious in growing seeds illegally brought into India. Such seeds of groundnut were cultivated but developed severe dangerous virus. After getting the information, government officials burnt the entire crop. This seed reached Anantapur, a groundnut zone, in AP was also burnt. Here the profit is the motive with no respect for environment or human beings or food security. In the case of Bt-cotton the seed entered India illegally and produced seeds illegally, cultivated illegally. We filed a PIL in AP High Court in 2002/03 on this. In the middle of the case our Advocate shifted his loyalty to seed companies. However, this seed has poor stability. Genetically modified seed technology works under GRT inputs, but it also suffered similar to GRT by reaching plateau in production within 7 years [TABLE 1]. The seeds were modified three times in around 7 years unlike traditional seeds. With this now brought in BG-II & BG-III, internationally prohibited seed including UN, illegally and cultivated in India illegally - known as terminator technology. In fact, Indian private seed companies developed excellent varieties but under the Monsanto monopolizing cotton seed, all those were converted into GM seeds and minting money by raising the cost of seeds. GM technology has no capacity in increasing the yield over the non-GM parents. Though they say it protects from pests/diseases but unfortunately, they introduced new pests/diseases [like pink bollworms] that are affecting even neighbouring farmers crop lands. The yields of non-GM are better than GM - however, GM seed cartels banned the non-GM seeds sale in the market. Adulterated seeds have been flourishing. The farmer’s suicides increased in the five states where it is grown. Both states and central governments closed their eyes on such large-scale violations. [TABLE 2] Presents for Gujarat state the average cotton of three years [2007-08 to 2009-10] of area, production & yield under irrigation, under rain-fed; and yield for three years.

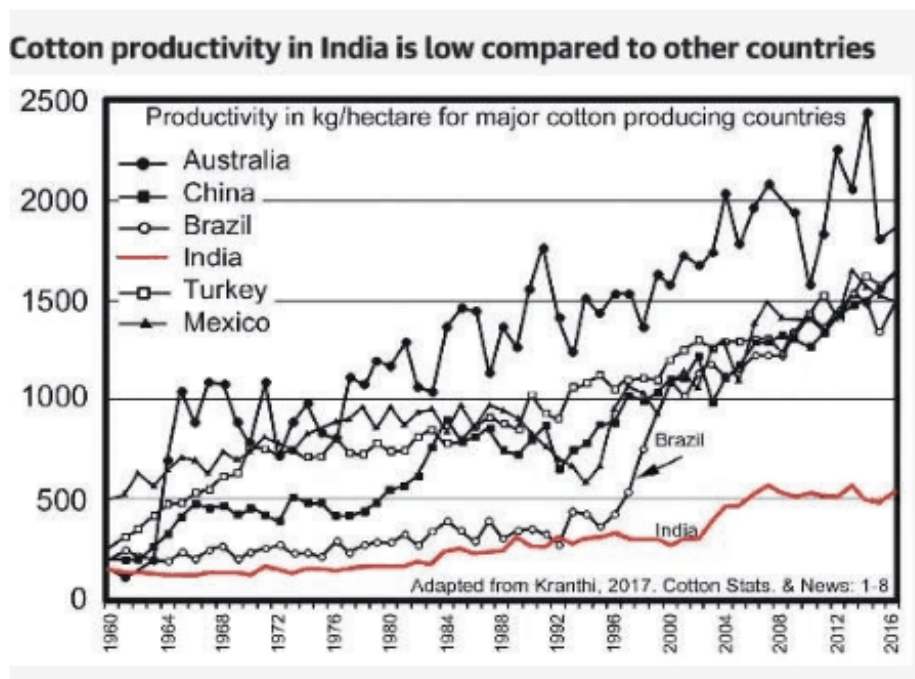


FIG. 2. Cotton productivity in in different countries [kg/ha].

TABLE 1. Cotton Area and Production in AP & India.

Year	Cotton area and production		India Area (Mha)	Prod. (Mb)	Yield (kg/ha)	Pesticide (crore)
	Andhra Pradesh Yield (kg/ha)/Area (Lha)					
	Bt	non-Bt				
2002-03	212.5/00.04	229.1/08.03	7.667	13.6	302	2622
2003-04	408.0/00.05	383.9/08.32	7.63	17.9	399	3147
2004-05	318.7/00.40	315.8/11.34	8.786	24.3	470	3581
2005-06	347.3/03.24	346.7/07.09	8.677	24.4	478	2439
2006-07	381.1/06.57	380.5/03.15	9.144	28	521	3396
2007-08	525.0/10.33	525.0/01.01	9.414	30.7	554	4697
2008-09	434.0/11.43	434.0/02.55	9.406	29	524	5293
2009-10	376.5/14.30	213.8/00.66	10.31	29.5	486	6999
2010-11	545.7/17.95	919.5/00.22	11.16	31.2	475	7683

Lha = lakh hectares, MHA = million hectares, Mb = million bales, kg/ha = kilograms per hectare

TABLE 2. Area, Production, and Yield in Gujarat State for Cotton.

Type	Area (Lha)	Prod. (Lmt)	Yield Kg/ha Ave.	1	2	3*
Irrigated	15.616	63.269	689	770	663	627
Rainfed	8.517	12.367	247	282	247	198
Total	24.133	76.636	533	581	506	506

*1=2007-08, 2=2008-09, 3=2009-10

(b) Gm Food Crops: Seeds of GM food crops entered into Indian agriculture illegally and now the government made it legal. Internationally several countries banned GM food entry into their countries. As a result, India loses the opportunity to export food as it comes under food contaminated with GM. So, our exports loss is gain to GM food imports. That means with lopsided policies seed industry is expected to go into the hands of multinational seed giants and exports and food processing will be affected severely and thus employment to youth and other small scale business houses, etc. also will be affected. Also, India becomes dumping ground for GM food as no controls like GM Food Label - internationally Fighting on this -- and Indian people will be used as Guinea Pigs. It is important to note that excellent AP seed Corporation that used to supply seeds even to other states was killed by BJP-TDP regime prior to 2004 and encouraged private seed companies. Also, extension services were weakened. AP state Agri minister was side-lined for getting a report on Bt-Cotton; and Central Health Minister made observations against GM food in Hyderabad and by the time he reached Delhi, he lost his job.

(C) Check-Damps-Narmada Dam: A national TV channel telecasted discussion on watersheds versus Narmada Dam. Minister from Gujarat challenged NBA representative to show where the watershed technology was successful in Gujarat. Narmada Dam was not Gujarat or BJP Dam!!! In my first referred book I presented data on watersheds/check-dams in AP as back as 2000 [1]. In the case of Yerracherivu watershed near Anantapur, the groundnut yields varied between 3.23 q/ha during 1989-90 and 18.40 q/ha during 1986-87 with base yields of 8.90 q/ha during 1983-84. The life of the Check-dams was short - - around three years. However, the watersheds programme helped politicians mint money and the watersheds disappeared in no time.

3.3 False Propaganda on Subsidized Fertilizers

PM tried to tell us that UPA government routed subsidized fertilizer in to black market. This is false statement but on the contrarily UPA government introduced payment of subsidy to beneficiaries [farmers] directly - my proposal to central UPA government --, let us see the facts:

Two IIM Professors from Ahmadabad in Gujarat brought out a report “Fertilizer Subsidy in India: Who are the beneficiaries?” in 2009; and the same was submitted to Prime Minister of India Dr. Manmohan Singh [W.P. No. 2009-07-01]. Though it is a good report but used it to argue that the subsidies must be given to industry only. On this I sent my response [2010] with a copy to PM wherein I proposed that the subsidies must be given to farmers directly. In fact, this was part of my submissions to “Approach Paper to the 12th 5-year Plan” – to the Director, Plan Coordination Division of Planning Commission with copies to Hon’ble Prime Minister & UPA Chairperson. I said that “Nearly 25% to 30% of fertilizers supposed to be distributed to farmers’ changing hands illegally through official-political-industry channels, etc., etc.” I also presented this in my talk on All-India Radio [from Delhi].

Later the Union Finance Minister in his budget presentation on February 28, 2011, proposed that “A task force has been set up to work out the modalities for the proposed system of direct transfer of subsidy for kerosene, LPG and fertilizers.” After this, political groups submitted a memorandum to PM asking him to give cash transfer directly to retailers. On this I sent again a mail to PM saying that fertilizer subsidy must be given to farmers only and not to either industry or retailers. On this I received a letter from the Ministry of Chemicals and Fertilizers, Department of Fertilizers dated 28-12-2011 with reference to my mail to PM dated 23-05-2011 confirmed direct subsidy transfer to beneficiaries only and not to retailers or industry.

I saw a report in “The Hindu” dated 8th February 2017 with heading “PM Saved Rs. 49,500 crores going to middlemen.” I watched PM address to parliament on 7th February 2017. However, this scheme has not extended to entire country so far. Why??? Unfortunately to date farmers are not getting their quota and sometimes sold adulterated.

From the IIM professors report it is clear that there was a large gap between production and consumption during 2003-04 to 2007-08. The report also presents a steep rise in fertilizer subsidy component after 2007-08 while the fertilizer as percent of total subsidies falls steeply during 2000 to 2003 as imports were bottom low though prices were low; and there onwards started steep increase.

4. Weather & Climate

4.1 Introduction

Earth’s climate is dynamic, and it is always changing through the natural cycles. What we are experiencing now is part of this system only. It is beyond human control. We need to adapt to them. As part of the natural cycles in rainfall, droughts and floods are common to India. The water availability in rivers follows this cycle. They play crucial role on agriculture productivity [2,4].

4.2 Rainfall

All-India annual rainfall presents a 60-year cycle [FIG. 3a]. FIG. 3b presents annual march of river Godavari water flow & TABLE 3 presents the frequency of high magnitude floods in NW Indian Rivers. Recent study of tree rings in Brahmaputra River basin for 1309-2004 [7 centuries] followed the FIG. 3a pattern two 30-year dry periods of 1956/57 to 1987/88 and 1836/37 to 1867/68. This in fact follows the Indian and Chinese Astrological cycle. According to Telugu Calendar, current cycle started in 1987/88 (PRABHAVA) starting with above the average 30-year part. Our forefathers followed the calendar in agriculture and defined certain characteristics for seasons. In FIG. 3a the data of 1985-86 to 2014-15 was used by CWC for the computation of river water availability – used high rainfall period of 30-years and thus present overestimates. The data in FIG. 3b was used by Bachawat Tribunal for the distribution of Godavari River water (observed data) among the riparian states. The data presented in TABLE 3 was taken from the “State of Environment Report, India - 2009, MoEF/GoI”.

However, in the case of undivided Andhra Pradesh, rainfall followed different patterns as they receive rainfall during northeast and southwest monsoon and pre-monsoon & post-monsoon cyclonic activity. FIG. 4 presents the (a) annual rainfall of Andhra Pradesh and (b) Krishna River annual water flows. They followed 132-year cycle. The current dry period part of 66 years started from 2002. Earlier such period prior 1935 - 24 years received deficit rainfall and 12 years received surplus rainfall and the rest received normal rainfall. The water flows in Krishna River followed the 132-year cyclic pattern seen in rainfall - the data was taken from the Bachawat & Brijesh Kumar Tribunals Award. However, CWC estimated data series presented overestimates by around 30% due to poor quality model.

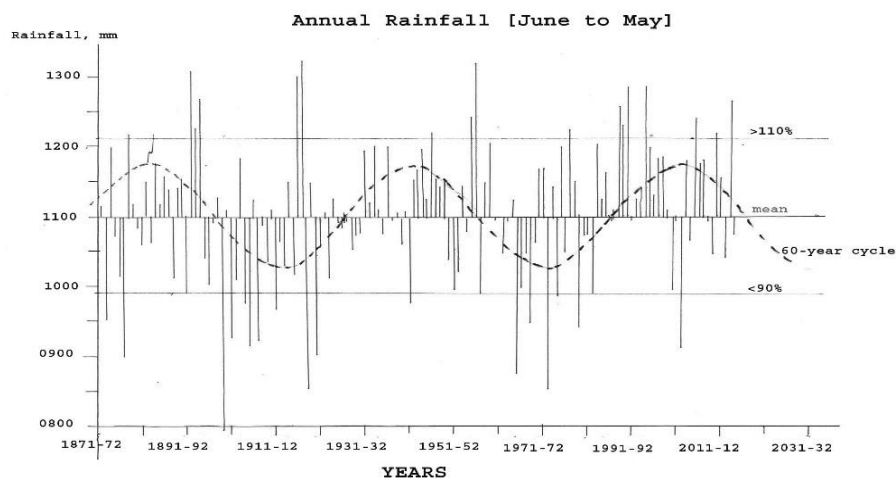


FIG. 3a. Annual march of all-India annual rainfall [60-year cycle].
[the data of 1985-86 to 2014-15 CWC used for the estimation of river availability]

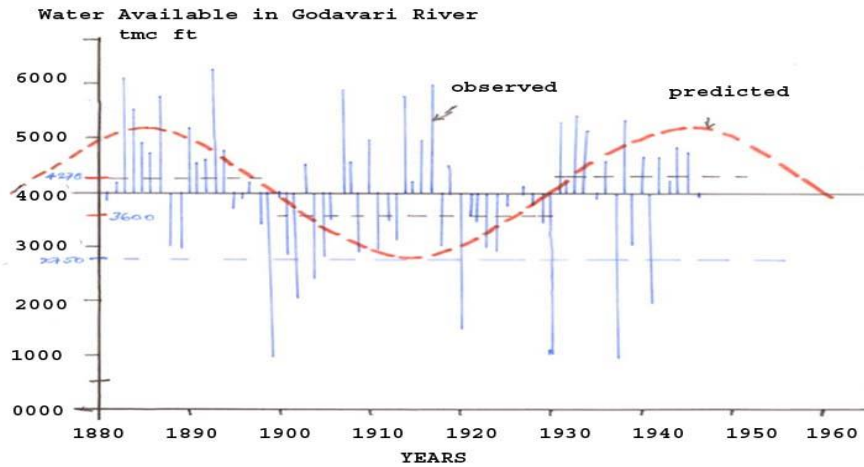


FIG. 3b. Annual March of Godavari River Water Flows [60-year cycle].

[water used by Bachawat Tribunal for distribution of Godavari River water among riparian states]

TABLE 3. Frequency of High Magnitude Floods.

River	Period	Frequency	Climatic cycle
Chenab	1962-1990	1 in 9 years	(a) below the average
	1990-1998	1 in 3 years	(b) above the average
Ravi	1963-1990	1 in 14 years	(a)
	1990-1998	1 in 3 years	(b)
Beas	1941-1990	1 in 8 years	(a)
	1990-1995	1 in 2 years	(b)

around 1 in 3 years in (b) and 1 in 10 years in (a)

*State of Environment Report, India – 2009, MoEF/GoI

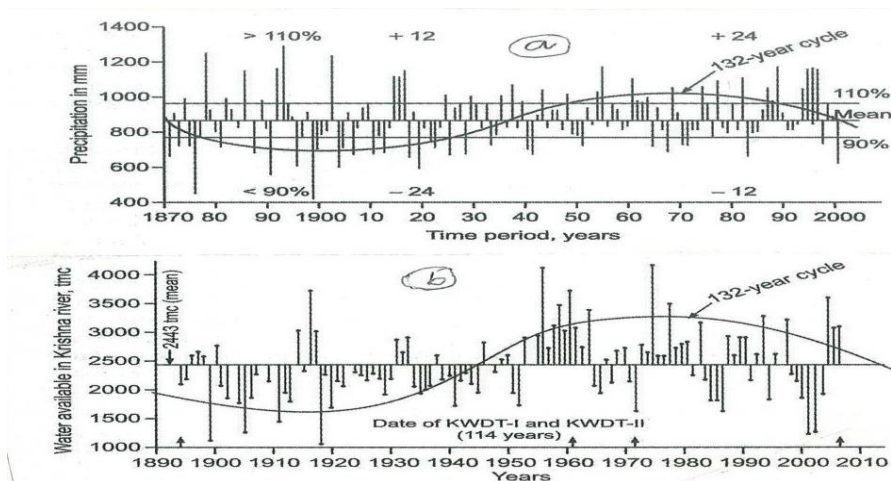


FIG. 4. Annual march of (a) Andhra Pradesh annual rainfall & (b) Water availability in Krishna River.

FIG. 5. presents the Coastal Andhra Met Sub-division rainfall during the southwest monsoon [June to September] and northeast monsoon [October to December]. Solid lines present the 10-year moving averages and dotted lines present the joining of 28 year mean. The southwest monsoon pattern presents in opposition to northeast monsoon, but both followed 56-year cycle unlike annual rainfall [132-year cycle] - dotted lines. However, as we moved from the coast to inland ward, Rayalaseema and Telangana met subdivisions, the share of % rainfall during the southwest monsoon increased and during the northeast monsoon decreased [TABLE 4] as the impact of cyclonic activity reduced from the coast to the inland. Number of cyclones occurred in Bay of Bengal during May to November followed the Coastal Andhra southwest monsoon 56-year cycle.

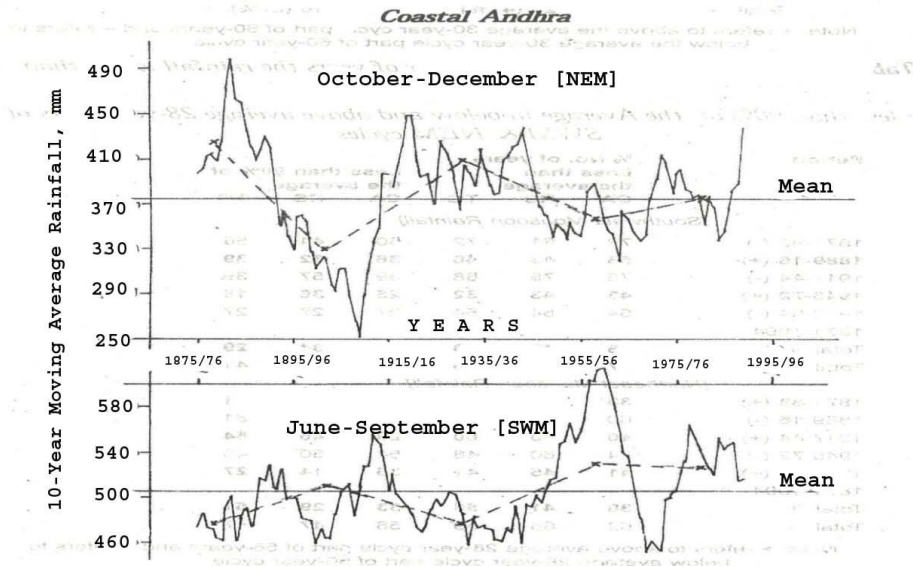


FIG. 5. Coastal Andhra met sub-division (a) southwest monsoon & (b) northeast monsoon rainfall.

TABLE. 4. In SWM and NEM rainfalls the % share to annual & C.V. for CA, RS & TS.

Met subdivision	Rainfall		C.V. in %	
	% Share to annual			
	SWM	NEM	SWM	NEM
CA	42	39	22.2	38.8
RS	60	29	28.8	41.9
TS	80	12	23.5	60.3

CA = Coastal Andhra, RS = Rayalaseema & TS = Telangana

SWM = Southwest Monsoon & NEM = Northeast Monsoon; C.V. = coefficient of variation

FIG. 6a presents drought proneness index expressed in % years over India. FIG. 6b presents the onset dates as observed over Kerala Coast – followed 52-year cycle. The former relates to agriculture point of view and the later to onset of rainfall. FIG. 6c presents the variability in drought proneness for Kurnool in AP, wherein the average is 45% [used in FIG. 6a] and during

below the average in 70% of the years and during the above the average in 30% of the years – 56-year cycle of southwest monsoon season.

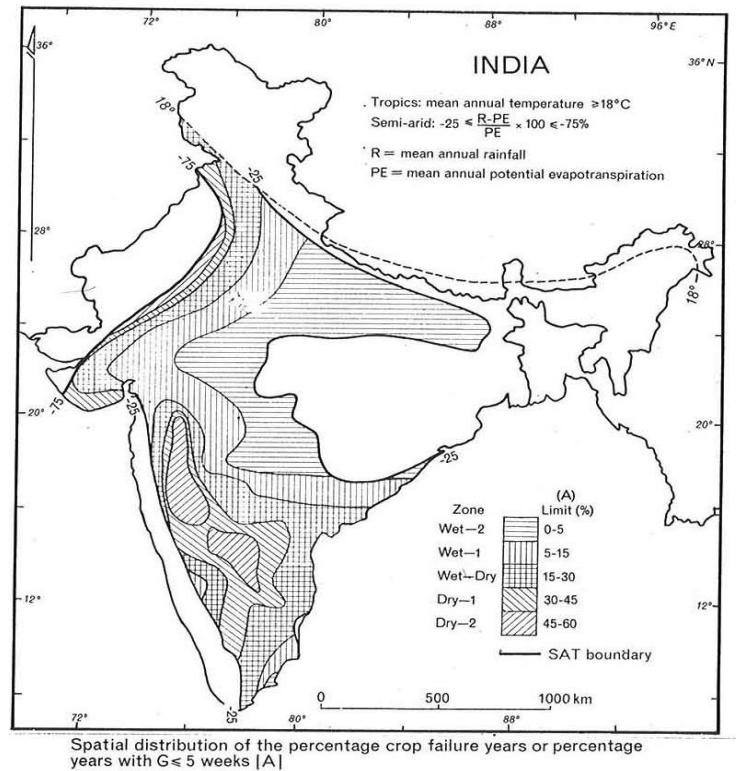


FIG. 6a. Drought Prone Index over India.

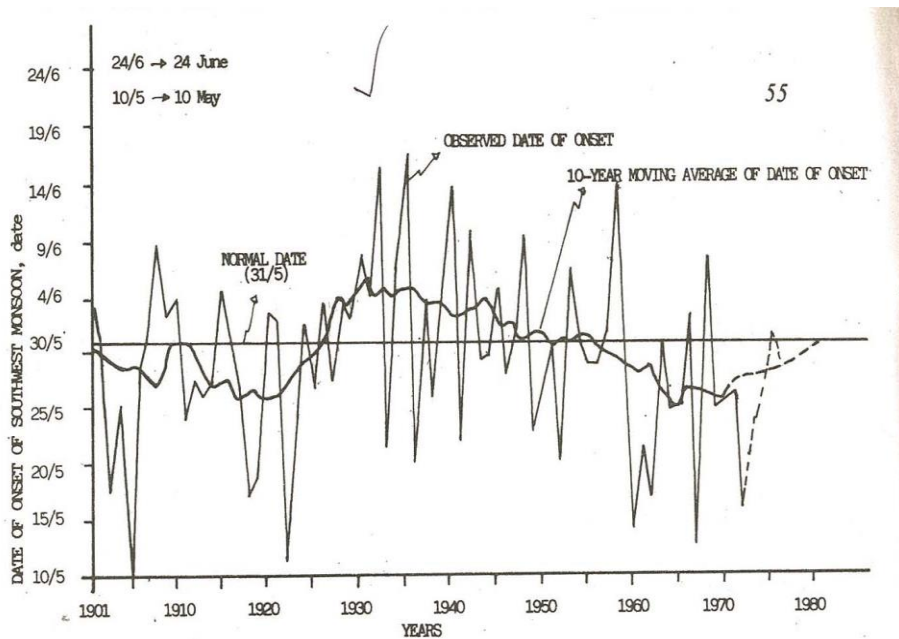


Figure 4 - 3 : Annual march of dates of onset of southwest monsoon over Kerala coast in India along with 10-year moving average.

FIG. 6b. Annual March of Dates of Onset over Kerala Coast in India with 10-year Moving Average.

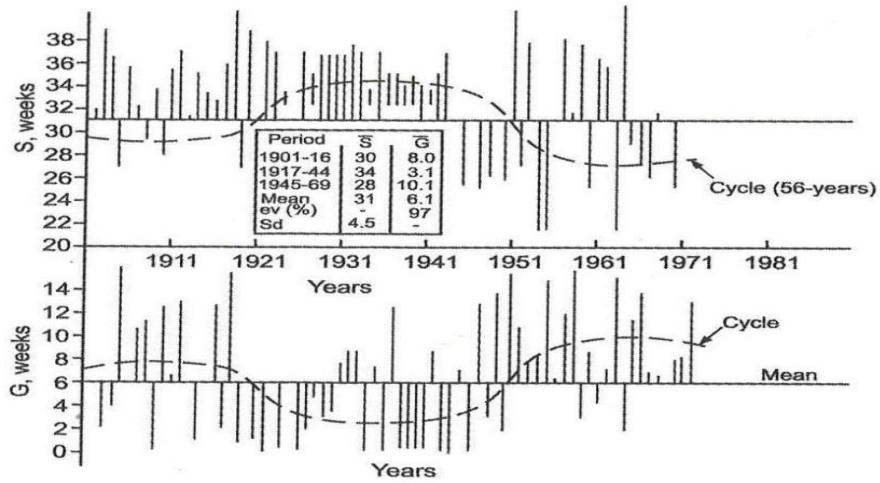


FIG. 6c. Drought Proneness Under 56-Year Cycle for Kurnool in Ap.

4.3 Temperature

When rainfall showed such a wide variation as per agriculture is concerned, unfortunately Indian government is more interested in pseudo global warming even though we grow crops in the three seasons by selecting seeds that are tolerant to that season and soil types - as the temperature regimes are different under different soil types: example: Anantapur, Kadapa & Kurnool. FIG. 7. [presents the annual march of adjusted global average annual temperature anomaly of 1880 to 2010 [trend & natural variability]. Natural variability presented 60-year cycle varying between -0.3 to +0.3°C - moving average showed it fits to 60-year cycle; Trend presented 0.6°C per century - in this greenhouse effect part is more than half; in this major component is global warming - if we take it as 50% of the total trend then global warming will be 0.45°C for 1951 [starting year of global warming] to 2100 - under linear trend, in reality it is not linear. With sparse met network in rural areas, the data series underestimates the rural cold-island effect. Thus, the global warming by 2100 is far less than 0.45°C. However, this is under adjusted data series [surface as well satellite data series were adjusted to show there is a trend - Hyderabad/India temperature, Sydney/Australia temperature & USA temperature data presents no trend. That means without data adjustments the value of 0.45°C will be 0.0°C only.

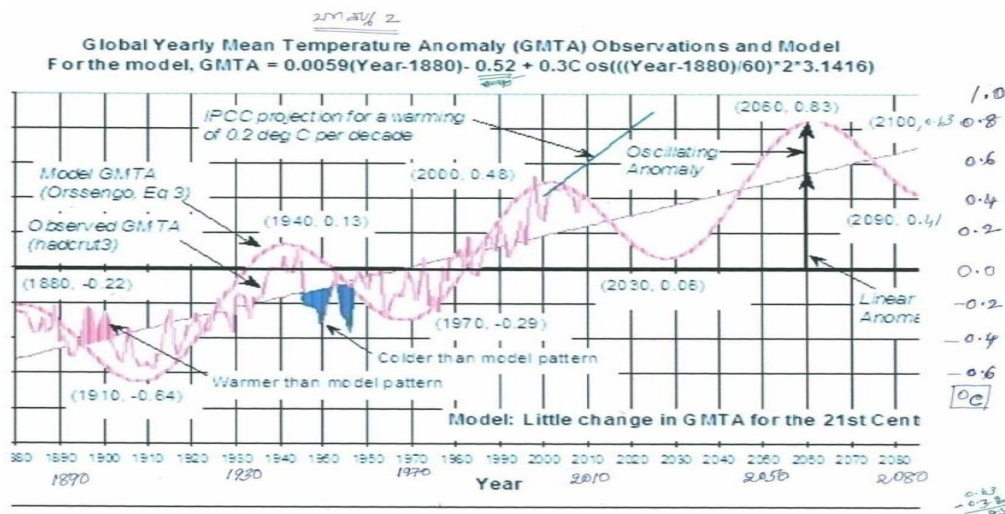


FIG. 7. Global Yearly Mean Temperature Anomaly - Trend and 60-Year Cycle.

5. Discussion on the Three Agri Bills of 2020

5.1 Introduction

In agriculture practical issues play an important role over the theoretical exercises, which are clearly evident from the weather & climate section presented above. It is a common scene when government or commissions comment or recommend proposals on agriculture they rarely account practical issues existing in a state or in the country. They based their theories primarily on theoretical exercises. On December 9, 2020, Yaman Garg presented an analysis of the three controversial Agri Bills of 2020 with reference to M. S. Swaminathan Commission [MSSC] recommendations on agriculture in 2004. Both are theoretical exercises only. 2020-kharif season Telangana Government fixed the crop-wise area; paddy was grown in 50,58,280 acres with a whooping production and thus government unable to procure the 100% produced rice. This has resulted reduction in area in 2021-kharif. That shows the poor-quality planning by the state government. In fact, with 24-hour free power, paddy was cultivated under groundwater instead other alternate crops. This affected severely groundwater. With good rainfall the impact was not felt much on groundwater. This severely effect employment in Agriculture Sector.

Also, NDA government says existing agriculture systems continue. If the existing agriculture system continues then where is the need to have parallel system with three Agri Bills? As long as farmers individually deal, middlemen are the main beneficiaries. The system that overcomes all those issues is through cooperative farming wherein farmers form cooperatives at village or group of villages' level. This help better utilization of natural resources, government subsidies-incentives, storage link with food processing and bargain for MSP, etc. can be achieved. In this animal husbandry & organic farming can be integrated. Input costs come down drastically and help in improving farmers' economy and nutrient security.

5.2 Discussion

5.2.1 Malnutrition free India

India ranked in the world's five largest producers of the over 80% agriculture produce items including many cash crops such as coffee, tea, cotton, livestock & poultry. But we are unable to control the waste in food produced, not meeting food quality and unable to protect the produce from the unseasonal weather fury, unable to stop the circulation of PDS rice in black market, etc. All these affect farmers' income. But NDA government introduced three bills that provide security to business houses [Indian and as well western].

AP government announced on nutritious food supply issues. In fact, it already exists. UPA government brought out "National Food Security & Nutrition Act [NFSA], 2013 issued on 5th July 2013. This act integrated all activities related to food security & nutrition issues to poor, women, children, old people, etc. Also, it proposed to issue PDS card on the elder women name in the household. Unfortunately, the state governments failed to implement it. The bill also included in PDS: Pearl Millet, Sorghum, Finger Millet at Rs. 1 [rice at Rs. 3 & wheat at Rs. 2] -- 7 kg per person. Unfortunately, this only paper as state governments thinking it will be white elephant to governments. Also, rice & wheat has a big lobby whereas millets have no such lobby to push the scheme at least in the states where they are grown.

In 2018, Ministry of Women and Child Development launched the Poshan Abhiyan with the set goals to reduce child under-nutrition (stunting and underweight) and low birth weight by 2% a year and anaemia across age groups by 3% and create a mass movement for good nutrition in the country. The target of the Abhiyan is to achieve a malnutrition-free India by 2022

[see TABLE 5. given below for current status on this]. To meet the targets and create a discussion around nutrition in the country, along with the National Nutrition Week, the entire month of September in the country is marked as Poshan Maah or Nutrition Month. Prime Minister Narendra Modi in Mann ki Baat [30th August 2020]: September would be celebrated as the nutrition month and schools should have not just report cards but also nutrition cards and nutrition monitors along with class monitors. Referring to the importance of nutrition, he said it had played a key role in building the nation. “September will be celebrated across the country as the nutrition month”. In this campaign towards nutrition, the participation of the public is important and that attempts were being made to spread its awareness. “Schools are being involved. There should be a nutrition monitor just like there is a class monitor. There should be a nutrition card along with the report card. These initiatives are in the works. Modi said a Bharatiya Poshan Krishi Kosh was being developed to provide information about food produced in every district of the country. However, it is not new, but it is part of the 2013 NFCA Act only.

With all those ambitious schemes, according to Global Hunger Index [GHI] 2021, India stands at 101 out of 116 countries falls below Nepal, Bangladesh & Pakistan. TABLE 5 presents India’s performance over 2014-2021. Since 2014 India’s performance under global hunger Index, we can say it is dismal even with excess production. To counter this though in 2013 government of India brought out Food Security & Nutrient Bill, the progress in implementation is tardy as the governments are more interested in populist schemes that fetch them votes. Neighbouring countries like Nepal and Pakistan have fared better at feeding its citizens than India.

TABLE 5. India’s Performance Under Global Hunger Index During 2014-2021.

India’s Performance over the years since 2014		
Year	Ranking	Total countries
2014	55	76
2015	80	117
2016	97	118
2017	100	119
2018	103	119
2019	102	117
2020	94	107
2021	101	116

India has been producing food in excess - around 40% is going as waste [according to FAO it is around 30% for the globe]; and thus, natural resources used to produce that also has been going as waste. India achieved “White Revolution” & “Blue Revolution”. However India with 18% of global population: (a) Nobody knows whether the food, milk, meet, etc. produced with highly contaminated water or not; (b) None has the knowledge on whether they are eating polluted-adulterated food or not; (c) None has the knowledge on whether they are drinking/eating polluted-adulterated milk/milk based food items or not; (d) None has the knowledge on whether they are eating polluted-adulterated sea/river/lake food-meat, etc. or not; (e) But they all talk of hypothetical-time pass “global warming and climate crisis” - that is creating global warming hysteria, etc.

FAO on 7th December 2018 approved India’s proposal to observe an International Year of Millets. FAO proposed Year 2023 as an international year of Millets. Millets consists of Sorghum, Pearl Millet, Finger Millet, and minor millets together termed as nutria-Cereals. Yet governments encouraging polluted foods of rice & wheat - including GM Foods.

5.2.2 Misuse of Funds Versus Diet

- How and why do diets change? --- One is associated with the food production through farming systems practices in agriculture and the other is non-agriculture system – animal meat and sea food. Under traditional agriculture farmers used to produce nutrient rich food including milk. With the chemical input agriculture technology this is drastically modified and now people get poor quality polluted diet including adulterated food. Even the sea/river/pond foods are contaminated with pollution. Cereals and pulses were important food components under traditional system. Now vegetables are consumed more but they are contaminated with polluted water use in producing them.
- What are the links between diets, consumption and consumer habits and food systems? --- With the urban culture, there is lot change in diet when compared to rural diet. ·
- How do changes in food systems affect changes of diets, and therefore health and nutritional outcomes? --- When people consume polluted or adulterated foods nutritional quality is affected and thus health is severely affected. Several new diseases were introduced with such food. ·
- What are the determinants of the changes in consumption? --- Urban to rural; country to country; based on local food availability; impact of western food habits in to developing countries; journey foods; hotel foods, etc.
- How do the dynamics of food systems drive consumption patterns? --- No answer!
- How to shape and to address pathways to healthy nutrition? --- There is only one way changing the agriculture system from chemical inputs technology to organic input technology; controlling of water pollution; controlling of adulterated foods; ·
- What is the role of public policy in promoting healthy, nutritious, and culturally appropriate food for all? --- Public policy under corrupt governance and MNC controlling such governance we rarely achieve healthy, nutritious and culturally appropriate food. Food for all is produced but we are wasting such food 30 to 50% of what is produced due to poor governance.
- How to build on the diversity of the existing food systems? --- With good governance.
- What is in practice the range of actionable solutions from farm to fork that enable better nutritional outcomes of food systems? --- Organic farming.
- What action should different stakeholders, including governments, civil society, and the private sector, take? --- At present the system is in the hands of MNCs and governments are run by the MNCs and even Nobel Prize winners are canvassing for MNCs cause.

Centre and state governments have been rarely addressed these issues except playing political game to get power and through which amass wealth.

5.2.3 Are the Agri bills contributing to exports?

Kishan Reddy [Central Minister] voiced that the bills will contribute to exports that help doubling of the farmers' income. This is false statement. On the contrarily with the Agri Bills India will become a dumping ground for Genetically Modified (GM) food and as a prelude present BJP/NDA government cleared cultivation of GM food crops in India. Like Arab & Camel proverb, we know what happens with multinational companies – nobody has power to control them – this is what is happening now in Indian agriculture.

Ram Madhav [BJP Spokesperson] voices that these bills form part of the proposals voiced by Bharatiya Kisan Union & Freedom of Farmers Charter demands form the foundation for the bills. It is false propaganda only. The fact is that National Agricultural Policy (NAP) of BJP Government of India announced in 2000 envisaged that “Private sector participation in agriculture shall be promoted through contract farming and land leasing arrangement (proposed corporate farming by TDP a partner of BJP under vision 2020) to allow accelerated technology transfer, capital flow and assured markets for crop production – as part of it the rise in MSP was drastically curtailed over Congress Government’s year-wise step of raise in MSP & stopped import part of fertilizer and thus reduced drastically fertilizer subsidy component. This was formalised by NITI AAYOG with draft model contract farming law titled Agricultural Produce and Livestock Contract Farming (Promotion and Facilitation) Act, 2018. PM announced, “With this farmers income will double”. “The Agriculture Produce and Livestock Marketing, (Promotion and Facilitation) Act 2017”; and “The Model Agriculture Produce and Livestock Contract Farming and Services (Promotion & Facilitation) Act, 2018” which contain many provisions which are now in the central laws. In November 2019, the parliament was informed that as far as the APLM Act is concerned only Arunachal Pradesh had adopted the Model APLM Act fully, while Uttar Pradesh, Chhattisgarh and Punjab had adopted selected provisions of the Act. In May this year, the Agriculture Ministry Secretary wrote to States to bring ordinances to implement the Model Acts. Madhya Pradesh and Gujarat dutifully made amendments in their laws on the basis of the Model Act. The Model Act on contract farming was adopted by one government — the Tamil Nadu government in 2019. Complete bypass of the states if state governments want to implement these reforms, they can do so through the adoption of these model acts in their respective state assemblies with whatever modifications they want. However, to coerce the states to adopt these model acts, the central government got the Fifteenth Finance Commission to introduce performance-based grants which the states could avail only if they passed the APLM Act and the Model Land Leasing Act. The central government has gone a step further in usurping the rights of the states by enacting the national laws to impose its pro-corporate agenda on the entire country in one go.

The new central laws are pushing for much more benefits to corporates compared to even the model acts. Interests of the global MNCs are also involved in this conundrum. Advanced capitalist countries led by the US have been demanding access to agricultural production and markets. As part of this BJP government [prior to 2004] allowed the entry of Bt-Cotton seed of a powerful multinational company – seed entered illegally and cultivated illegally. GM seed oil produced illegally and entered into Indian market without any label saying GM food. Congress/UPA government brought down the cost of GM seed drastically and stopped cultivation of Bt-brinjal [a food crop]. Now, BJP government allowed producing GM food crops – health hazardous. That clearly shows BJP is serving the multinational interest.

The Essential Commodities (Amendment) Act basically legalizes hoarding by considerably weakening provisions for regulation of the number of stocks of food commodities that can be held. Big traders and companies can use these provisions and, staying within the law, hoard food commodities to create artificial shortage and a rise in prices. Such volatility of consumer prices would hurt food security of all sections of people.

5.2.4 Has AP government introduced contract farming?

BJP/NDA leaders have been voicing that AP has announced contract farming in 2007 (AP2007) – In February 2001, Dr. YSR as CLP leader sent DS, Congress President [Father of present BJP MP from Nizamabad] & Chinna Reddy, convenor Agri sector in CLP” asking me “can I prepare black. Paper” to counter White Paper released by TDP government on agriculture &

vision 2020; and I accepted and prepared & released in press gallery in Assembly premises on 15th February 2001. On 16th February 2001 all print media highlighted this. Newstoday put the heading “Cong advocates cooperative farming” --- farmers were constrained to depend on private money lenders for the rest of financial assistance and at higher interest rate, thus entangled in debt trap, some of the farmers could find remedy by committing suicide --- the steep hike in the power tariff and erratic power supply also contributed to the farmers misfortunes.

In this backdrop, the solution lay not in corporate agriculture, but cooperative farming. The government need to encourage the cooperative farming and ensure remunerative prices for agriculture produce. --- Dr. YSR after becoming CM in 2004 asked a consultant to prepare the working paper on cooperative farming to introduce in AP. The consultant prepared the document with the heading cooperative farming but inside the text dealing on corporate/contract agriculture. Farmers opposed this. I wrote to Dr. YSR on this [Saakshi published my letter] and Dr. YSR got the report “stopped” and said he will get it revised appropriately. Just at that time he was killed. Dr. YSR put more emphasis on irrigation projects, known as jalayagnam.

5.2.5 Specific issues

There are several wishes but unfortunately these are mosqued by vote bank linked subsidies by states and centre – competing one over the other - but least bothered on the problems faced by farmers in executing agriculture. Contract/corporate farming are bad system for 85% farmers in India. NDA/BJP government is not looking in this direction. Around 40% of produce is going as waste. Hon’ble Prime Minister of India making weekly sermons but did not do much on this -- except helping corporates, like diverting lakhs of crores in favour of corporate houses. One of the primary wishes is to help in minimizing the weather-based destruction. Creation of storage facilities - though UPA government initiated in this direction in 2011 budget, but private lobby outplayed this. Other is food processing using locally produced items that creates employment also - this minimises the risk of MSP.

However, mechanization like USA will severely affect employment and family role severely hampered. Most talked is Minimum Support Price [MSP] - quoted here frequently Dr. M. S. Swaminathan --. Though government fixes the MSP, but the farmer is not getting it. For example, in Telugu states take the paddy - rice is the major one in PDS, but no body buy this and thus it goes into black market and thus to get MSP to new paddy is a big problem. In this connection on my request UPA government advised states to pay in Cheques. But they failed do so. The other important issue is quality – weather plays the major role here. NDA/BJP government failed to look into this vital issue. Finally, the three Agri bills are bad for Indian farmers with more than 85% have less than 5 acres. Doubling the income will be a dream that never fulfilled under the vagaries of monsoon. It is only possible to by linking agriculture with animal husbandry under cooperative farming at village/mandal level under organic farming concept.

5.2.6 Youth engagement and employment

A food system includes all processes and infrastructure involved in feeding a population: growing, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items. It also includes the input needed and output generated at each of these steps.” Theoretical exercises lead nowhere in answering issues affecting youth engagement and employment in Agriculture and Food Systems (AFS). This needs to take in to account practical issues such as: (i) Existing and changing AFS scenarios of states and central governments; (ii) Issues pertaining to interactions of multinational

companies/local business houses with governments with reference to AFS; (iii) Issues related to interactions of black-marketers in AFS with governments; (iv) Issues pertaining to governments policies of imports and exports; (v) Issues of local food processing sector versus role of governments; (vi) Issues on storage & transport facilities; etc. versus role of governments & private bodies; (vii) Local/regional/national weather and climate scenarios in terms AFS; etc.

Under traditional system of Agriculture Animal Husbandry was part in which youth was a part of agriculture and food systems as the entire family used to participate. With the population growth-urban growth slowly this system of youth participation in family-based agriculture activities were affected. This was severely affected with chemical input technology – the so-called green revolution technology [though in reality it is not green, but it is blue]. This is primarily a mono crop system and thus slowly animal husbandry was weakened under agriculture. They varied from country to country, region to region within the country based on the availability of natural resources and weather & climate soil conditions.

In India, states and central governments followed their own approaches as part of vote bank politics wherein incentives/populistic schemes played major role. Centre played major role in providing input subsidies and food subsidies. With all these 30%-40% of foods produced is going as waste. Multinational companies and local black marketers have been thriving. Multinational companies are dumping illegally seeds that are affecting the local seeds.

Now, there is a severe FIG. ht between central government and farmers on the three Agri Bills. As the present central government is favouring privatize-corporatize everything that are functioning well. In Agri sector with around 65-70 % of rural population were engaged in agriculture [directly & indirectly - more youth engaged in this sector]. When Agri Bills say, “anywhere you can sell to anybody”, which means bills not only dumped minimum support price (MSP) but also automatically indirectly follows that no government role in procurement. When Agri Bills say, “contract farming”, means Agri bills have not only dumped MSP but also automatically no procurement by government. These not only affect farmers but also all citizens of India.

Also, the present central government is encouraging multinational seed corporates to grow Genetically Modified (GM) Food Crops hitherto this was not permitted in India. Once this formalizes, automatically Indian markets will be flooded with GM food imports.

All these factors in an interactive way rural employment in Agri sector will be drastically come down. Here youth are the main victims. They have to move to urban areas. The present-day governments are encouraging real estate in urban areas by killing environment - creating environmental degradation with severe urban flooding.

Food processing industry at village/Mandal levels based on the local production systems help creation of employment opportunities to youth instead of migrating to urban areas. Under corporate/contract farming this is a big question but under cooperative farming that links agriculture with animal husbandry similar to traditional agriculture; under organic inputs provide better employment opportunities. However multinational companies’ black marketers pressurising governments not to encourage such system.

6. Conclusions

In Conclusion, Agri Bills of 2020 were built to serve the vested interests only. In the process of corporatization - privatization of India by BJP governments prior to 2004 and after 2014 patronized powerful business houses from India and multinational seed giants like Monsanto, who monopolised global GM seed business. In this process the middlemen have been reaping riches. Seed industry has already been put into the hands of multinational seed giants. Severely affect employment in agriculture sector with the entry of mechanization and mono crop system of agriculture. Agri subsidies & PDS [with question on procurement] severely affected. With the GM food crops entry exports will be severely affected, farmers suicides will increase; effect food security and nutrition security, it also effect milk & milk products & aqua farming, with the new disease's entry health will be the major casualty; and thus increase the pollution, etc. As proposed by the Prime Minister of India there is no chance of doubling of food production in near future, particularly under warm tropical countries with high variable soil and climate. There is a need to make the farmers united at village or villages' level, which is possible under cooperative farming. This facilitates to integrate animal husbandry in agriculture system, help in better utilization of natural resources and input and other subsidies, help in creating a link with food processing units, etc. that might improve the quality of life of farming community and provide opportunities to youth employment.

By killing well established Planning Commission NDA government created new institution, namely NITI Aayog which has turned in to rehabilitation centre for ruling party think tank. Let the government implement strictly "crop rotation", create crop-based boards with the responsibility of bringing in better seeds and extension services, control crops & cropping patterns under groundwater use, create cold-storage facilities at Mandal/district levels for perishable items and at village/villages level create storage facilities for post-harvest-based problems, etc. Animal husbandry must be integrated under agriculture farming.

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