Does India Attain Self Sufficiency in Food Production

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Does India attain self sufficiency in food production?

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Abstract

Food production has been one of the major concerns for Indian political climate. Major agricultural changes and policies were initiated to bring more agricultural productivity in India. Union Government also addresses this issue in their five year plans to bring in more growth in Agricultural sector. Yet, the result seems to be slower agricultural growth and lack of proper vision & implementation. Major areas of concerns like availability of water, improper distribution of water through water channels, water pollution, land pollution, population growth, migration of rural mass to urban life, attraction towards industry and manufacturing sector, and increasing rural poverty are prominent in this country. Authors have highlighted with empirical evidence on above mentioned issues and bring to notice that it is mandatory to consider these points into their future policies. Authors have also pointed out that unless agricultural productivity increases, Average Indian poverty statistics is going to increase. It is important to keep these figures intact by tapping the growth potentials in this agricultural sector. India by 2030, manage to be first in population, yet food production is going to be a problem if current trend going to continue. Authors have also given some recommendations and suggestions to build strong agricultural productivity and revive the industry soon.

Keywords – Indian agriculture, Food production, Agricultural growth, future of agriculture

In a recent press release, our honorable Indian Prime minister shri Man Mohan Singh has admitted that there is short fall of food grains for the year 2009, due to failures of monsoon in the country. In an open meeting with state secretaries of agriculture and food on Aug, 10th 2009, he claims, around 141 districts in the Indian sub-continent has been declared as drought affected areas (The Economic times, 2009 10th Aug). In addition, report points out that their might be reduction in Kharif crops due to shortfall of production from six million hectares of paddy lands, due to deficit in south west monsoon. Surprisingly, the rise in essential commodities price and inflation 7.9% (IMF report, 2009) leaves individual Indians to spend more than 60% of his income towards essential commodities (The Economic times, 2008, 29th Mar). Historically, India was attracted by invaders due to abundant food production, rich water resources and vast fertile lands. But now the situation was quite opposing. Indian vision on agriculture is fading out in a phased manner. Individual states were encouraged to promote industries rather than agriculture. On the contrary, US President Barack Obama spends $6.9 billion towards rural development and encourages water conservation plans (www.whitehouse.gov/rural). Indian economy need to be towards the agricultural economy and upbringing more of the agricultural produce. This paper brings out facts & reasons contribute for decline in Indian food production.

Significance of Agricultural economy

Indian agriculture consists of only 21% of GDP, but its significance goes very well beyond economic, social, and political fabrics. About 72% of the total Indian population lives in rural areas, where almost poor. Most of them depend on rain-fed agriculture and river waters for their livelihoods. During Green revolution period 1970's, India achieved self sufficiency in the food grains production. At that time India showed

significant growth in rural economy with increase in rural wages and reduction in rural poverty. On the contrary, from 1990 waning of Indian agricultural growth was experienced and has become major cause for the rural poverty. India ranks second to China in population but on rice yield produces only 1/3rd of china's rice production and about half of Vietnam and Indonesia (WDR, 2009). Though Government of India voice out to reduce the rural poverty, promising agricultural productivity, but a bold policies, internationally competitive agricultural base and good R&D are not available for this sector. This is one of the major reasons for the backlog of such sector in India. India though, marching itself in IT and other Industrial sectors, but one cannot deny that its basis and strong roots were from Agriculture base. By the failure of such roots, Industries are grown in this country. Indian needs strong rural leadership to be built. This system might help the rural community to develop and grow in prosperity.

Factors for declining food production

It was clearly evident that agriculture was a major reason for rural poverty which constitutes more than 70% of Indian population (World Bank briefs, 2009). One of the significant reasons for rural poverty due to Rain fed agriculture and fragile forests for their livelihoods. In a recent report by Crisil (credit rating agency) says deficient monsoon was one of the critical factor that affected the current GDP and inflation percentage (The Economic times, 2009 10th Aug). A 64% of rainfall shortage during July – Aug had impacted on 25% on GDP and resulted in Inflation. The current GDP compared to last year has decreased to 5.7% (IMF, 2009). On the contrary, prices of commodities have increased due to heavy demand, less availability and increasing population growth. Government has failed to meet the demand and supply situations in the domestic market due to shortage of supply of food grains to domestic needs. In

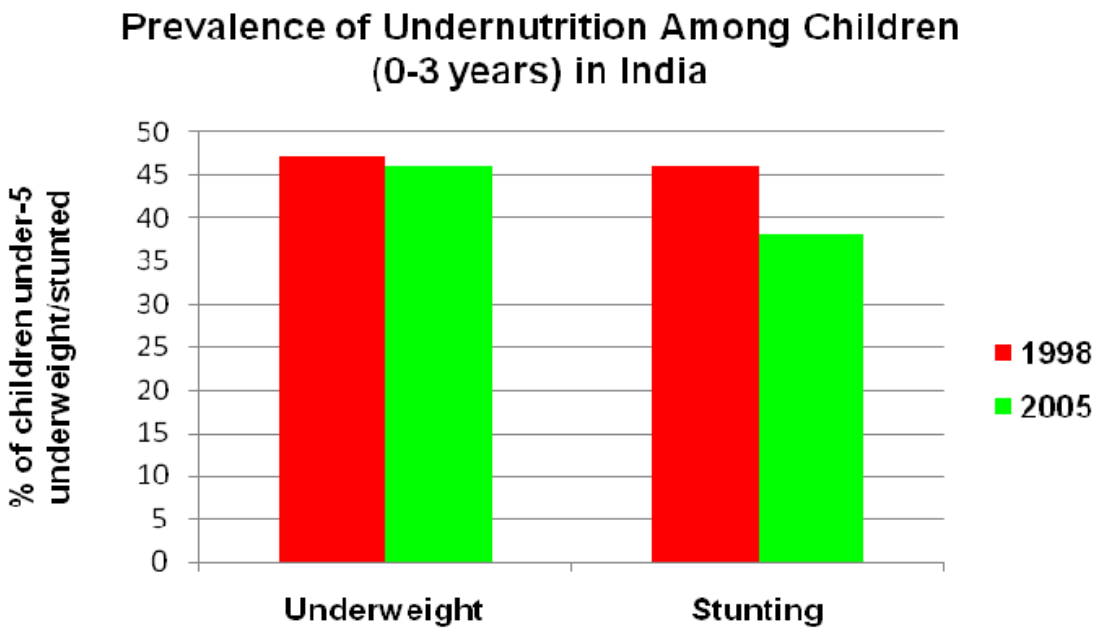
addition, proper marketing channel and standard procedures were also absent to control the mercantile of agricultural goods to the domestic needs. This report will elaborate these factors with statistical evidences to paint the real picture of the Indian agricultural yields.

Increase in Population growth

According to central demographic projection about population in India seems surprising. The projection for 2026 based on 2001 census, is in increase by 400 million. This will give a total projected population of 1,420 million peoples in 2026 (UN report, 1998). According to this report, India will surpass china in population by 2030. Concerns regarding population projection and increasing trends gives Indian Government managing pressure regarding every issues in the public. One of major issue is that government needs to address is about supply of agricultural produce. As far as food is concerned extra production of food is needed for at least before 2026. Incidence of Malnutrition for children's are reported in recent world development report, 2009. About 60 million children's are under weight in India (Michele et al, 2005). Chart 1 shows the data collected by National family health survey (NFHS) during 2005. The data shows about 46% children's aged between 0-3 will be of underweight and 38% will be stunted. This is going to have impact on health, education, productivity, and economic growth in country. The problem of Malnutrition is itself a concern for government, on top of it, government needs to manage increasing bigger population. The agricultural growth rate has slowed down (2004-2005 reported less than 2%) and it poses major threat on the future. More population, less production going to create of less supply and more demand for produce. Lesser agricultural growth going to increase demand for food production which is a major reason for India not achieving self sufficiency in food production. One

way India has large population to attract every global company to market their products towards them, but on contrary government should see how they are going to tackle the raising concern on food supplies and essential commodities supplies for all of the general public. Government machineries need to be expanded on this demand to serve to the nation people which are also a concern for the government to think about.

CHART 1 – NFHS survey on Malnutrition among Indian children



Source adapted from WDR on Indian Nutrition 2009

Urban migration by rural mass

Migration of rural mass towards urban lands or metro cities is also a major reason for slower growth rate of agricultural sector in India. Food production depends on more rural mass and skilled humans for this job. Most of the rural masses have migrated towards the urban cities due to employment and poverty reasons. The census data are alarming to note that with in 9 decades increasing urban population was noted. More over, 285 million people lives in urban areas (Garg, 2001). Urban population figure itself surmounts total population of Canada, Russia and Australia considering together. This

amounts to 28% of total Indian population lives in urban cities. During 1901, one out of 9 Indian lived in cities, but today every 3rd person is a city dweller. The migration of rural population to urban demonstrates rural mass has changed their occupation and career line. About 75% of the urban income comes from non-agricultural source. This prominently states that the importance for agriculture sector is waning in the Indian economy. This attributes as a major factor for declining food production in India today.

Table 1 Total Gross decadal migrant as % of Total Urban Population in 2001

States	Rural-to-Urban Migrants (1991-2001) as a % of Urban Population
Andhra Pradesh	6.72
Assam	7.12
Bihar	6.28
Gujarat	10.63
Haryana	11.45
Karnataka	7.03
Kerala	6.99
Madhya Pradesh	9.50
Maharashtra	10.41
Orissa	10.97
Punjab	7.63
Rajasthan	6.18
Tamil Nadu	3.34
Utter Pradesh	4.44
West Bengal	4.83
All India	7.32

Source adapted from Mitra & Murayama (2008) title "Rural to Urban Migration – district level analysis in India"

The table above states the statistics on fast migrating rural mass towards urban life. This phase also indicates that skilled, and semi-skilled agricultural labors will be scarce resources in coming decades. Probably, agricultural occupation might be totally vanishing in the rural lands.

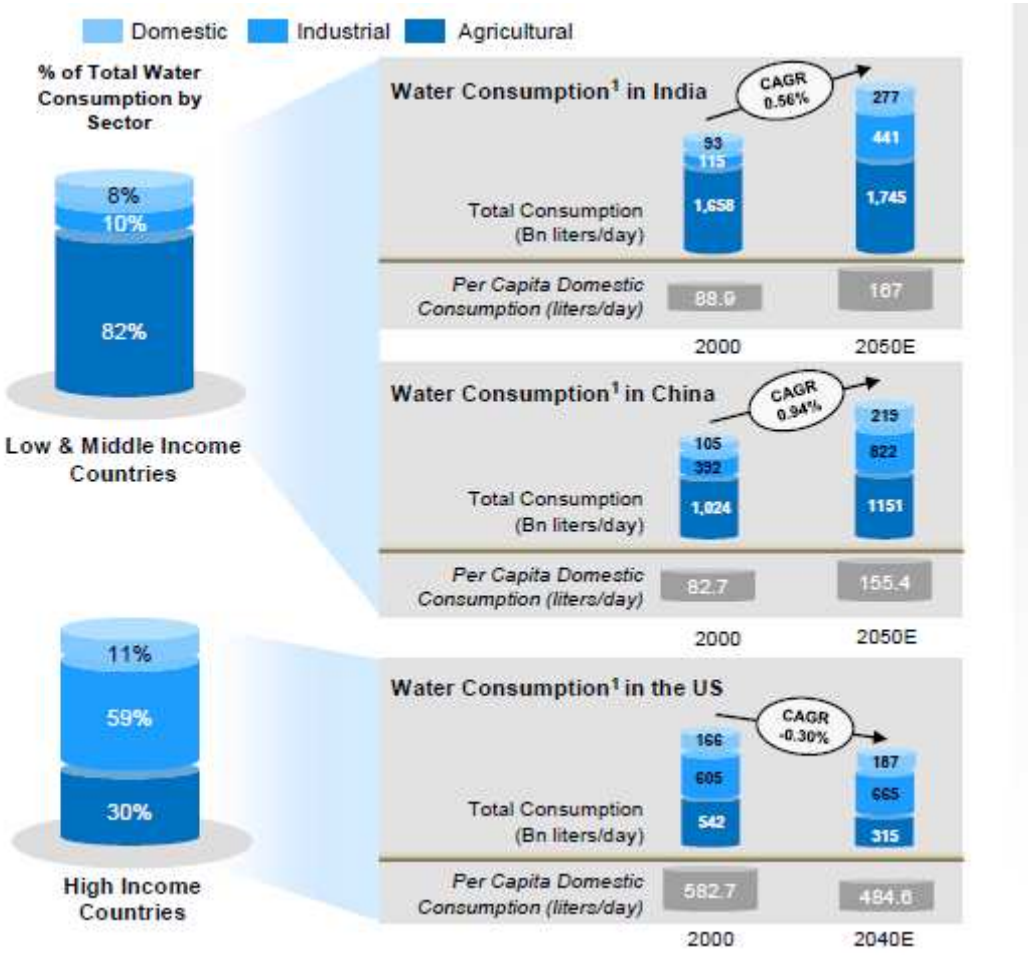
Need for more water reserves and consumptions

In a recent water survey report released by International water management institute (Grail 2008), states that the average consumption of water for agriculture during year 2015-2050 projected to be 80%. It is also stated that it need to grow water-intensive crops for its food production supplies. Water intensive crops like wheat, rice and sugar cane growth constituted 91% in the year 2008. Virtually, these water intensive crops have consumed 88 trillion litres over a period of 8 years (2000-2008). On this basis, it is projected to around 275 trillion litres of water needed for these crops to grow until 2025.

The below chart 2 depicts statistics on global sectoral consumption of water. India compared with china and US, it seems that consumption of water projected to be 56% compounded annual growth rate (CAGR). On comparison with China, Indian agricultural sector needs water consumption more than the current reserves. On the flip side of this data, it is noticed that Indian water footprints will be depleting sooner. It is projected that at least 50 -75% of depletion of groundwater reserves will be occurring in Ganges basin and also among various river basins in India. This is also threat for agricultural sector to consider this occupation. It needs innovative way of using or consuming water to minimum. “Grow bio intensive” type of agricultural strategies need to be trained for the agriculturist to grow the needed food grains in the country. Need for water is a primary need for agriculture which becomes a crucial factor for drop in the agricultural yields. As Prime minister points in the press, India has declared more

districts as drought affected areas, this shows that India's agricultural sector needs more strategic type of yields and production to tackle the coming water depletion problem.

Chart 2 – Global sectoral water consumption



Source adapted from Grail research, 2009 on "water – The India story"

Water pollution and sewerage distribution

Wastage of water and water pollution is also increasing day by day. Sectoral level of water pollution is increasing in trend with increase in population. Industrial water consumption is going to increase to 15% from 8% and additionally, untreated industrial waste water will be equal to 6.2 billion litres of water per day (Grail, 2009). Shockingly, about 9275 mm litres per day will be waste water generated from 23 major metro cities and around 18 major river basins and beds will be heavily polluted with garbage and

sewerages. This makes river water contaminated and polluted. This will decrease the water supply to irrigation by and large. Recent example, where untreated water drawn from Musi River near Hyderabad has reduced rice output to 40-50% (Grail, 2009). Ground water gets contaminated due to usage of fertilizers, chemical and untreated wastage waters presence. This will led to decrease in the crop yield and output. Presence of fluoride, heavy metals, arsenic etc is toxic contents for soil and also for water sources. This will be degrading the water minerals and makes agriculture to fade out quickly. Water pollution is one of the growing concerns which contribute to the shortfall of food production in India too.

Distribution system

About 90% of the land areas in Indian states are drained by river basins. Absence of river water stream and river water basin, the cultivable lands are not in use. It has to depend only on the natural rainfall for its water. Unfortunately, most of the river basins are rich fertile source of food grain producers. In absences, water intensive crops will be failing which in result will affect the food grain production. Water sharing and distribution was not properly managed by union government, resultant some states has taken water sharing problems with political motive for populace election victory. Union secretary of water resources states that River board act was established 50 years ago and until now, union government has not applied this act for any inter state river division (Duggal, 2004). In a simple issue of Cauvery water dispute between Tamilnadu and Karnataka, meetings and issues were talked for four decades right from 1968 till now. But the issue was politicized and no settlement was arrived till date (Richards & Singh, 2001). In a recent study conducted in a Cauvery river basin village Eachankottai, one of sample location depends solely on Cauvery water for their irrigation needs has shown

drastic decline in their paddy cultivation from 1305.08 tonnes (1995) to 707.09 tonnes (2005). The decline was recorded by 50% compared to its normal production periods and cultivable lands had also been declined from 210.77 hectares during 1995 to 121.16 hectares in 2005 (Srinivasan, 2005). This statistics visualizes clearly the drop of food production from one sample village. Readers could imagine the persisting problems over different river basins, water sharing problems between different states and how it affects the irrigation lands and food production. Unless, union government strongly enforces some innovative measure to restore the water resources to the disputed lands, food grains production will be affected in greater levels too.

Public spending and Agricultural policies

World Bank report (2008) highlights the importance of agricultural for growth of future economy and also evidently shows how transformation of economy from agriculture to Industry has increased rural poverty level. Strikingly noted, that agriculture contributes to only 7% growth of GDP, but 82% increase in rural poverty level noted by the country because of transformation. Poverty alleviation has not been achieved even government has changed its approach towards Industrial economy. World Bank stresses the importance of public spending on Agricultural line. Agricultural agenda should focus on reducing the disparity between rural and urban incomes and it will help raising the incomes of rural poor (WDR, 2008). According to the report, GDP from agriculture will be 4 times effective than GDP from industry to reduce poverty. Poverty is mainly attributed from rural side and rural migration to urban has also caused increasing crimes and unemployment situations in urban lands. This emphatically states the need to increase public spending on agricultural sector which in turn will increase food

production. If not, about millions of rural mass will be stranded within this sector and will be transforming towards other sector.

> "Agricultural growth, as shown at the time of the green revolution, can be highly successful in reducing rural poverty in India," said Isabel Guerrero, World Bank Country Director in India (WDR, 2008).

As pointed Isabel, rural poverty need to tackled and reduced. In order to reduce rural poverty, considerable government allocation towards agricultural research on soil management, water conservation policies, agribusiness investments need to be increased in the country. In support, agri-exports have grown up to 7.2 percent until 2003 and have opened significant foreign income opportunity for Indian rural mass. The report also stresses investing on infrastructure facilities in rural areas.

> Public investment on agriculture in countries like India is heavily skewed towards providing subsidies rather than investments. In fact, subsidies are more than four times that of public investments in agriculture (WDR, 2008).

Union government spending on rural infrastructure was lacking. A noted researcher in a recent article claims that about 75% of government allocation on agriculture was applied for subsidies only (Ahuja, 2009). Crowding of subsidies was one of the concerns noted by World Bank report as they are skewed towards few farmers. It is not equally shared and was not available to all the farmers who are in need of them. In stead, government spending should target public investments like developing infrastructure, roads, electric connections and other necessary infrastructure to make rural market approachable for every enterprise to reach the source. In a recent interview release from economic times with Mckinsey & company partner and commodity Editor Ireena Vittal emphasized the government spending on infrastructure needed faster (Prabha, 2009). He stressed that India being a perennial water flowing country with abundant

water prints, suffering with drought situation. This is not due to failure of rainfall; it is a pure case of failure of infrastructure. It's not going take more than 5-6 years to construct a proper infrastructure to store and save water throughout, but government fails to take initiatives in this direction (Srinivas, 2009). Truly, lack of proper infrastructure for agriculture, water management and irrigation has significantly damaged food production today in India demanding Prime minister to declare 141 districts in India as drought affected state and admitting short fall of food grains production. If this trend is going to continue for near future, India should be ready to face food scarcity like some African countries (www.economictimes.com).

Table 2

Investment in Agriculture
(Rs in Crore at 1999–2000 Price)

Year	GDP from Agriculture	Gross Capital Formation (GCF) in Agriculture			GCF in Agriculture as % of GDP from Agriculture		
		Public Sector	Private Sector	Total	Public Sector	Private Sector	Total
1980–81 to 1984–85	239678	12007	13132	25139	5.0	5.5	10.5
1985–86 to 1989–90	274034	9601	14370	23971	3.5	5.2	8.7
1990–91 to 1994–95	325957	7915	19348	27263	2.4	5.9	8.4
1995–96 to 1999–2000	383330	7724	22631	30354	2.0	5.9	7.9
2000–01	407176	7155	31872	39027	1.8	7.8	9.6
2001–02	433475	8746	39468	48215	2.0	9.1	11.1
2002–03	398206	7962	38861	46823	2.0	9.8	11.8
2003–04	441360	9376	35457	44833	2.1	8.0	10.2
2004–05	441183	12273	36835	49108	2.8	8.3	11.1
2005–06	468013	15006	39899	54905	3.2	8.5	11.7
2006–07	485939	17749	43013	60762	3.7	8.9	12.5

Source: National Accounts Statistics 2008 (New Series), Central Statistical Organization, Ministry of Statistics and Programme Implementation, New Delhi.

Principal Advisor for Ministry of agriculture, Mr.S.M.Jharwal admits that Investments in agriculture sector is lagging. Being 4.1% GDP growth rate projected for 11th five year plan, but union has not initiated any measures to attract private sector investments into agricultural sector (Prabha, 2009). About 27% of public fund budgeted for this investment and balance need to be from private sector, for which plans and policies are not initiated. This shows the union governments lack of priorities on this sector.

Table 3

Trend Growth Rate in Area, Input Use, Credit and Capital Stock in Agriculture—1980–81 to 2005–06

(% per Year)

Period	1980–81 to 1990–91	1990–91 to 1996–97	1996–97 to 2005–06
Technology#	3.3	2.81	0.00
Public sector net fixed capital stock	3.86	1.92	1.42*
Gross irrigated area	2.28	2.62	0.51*
Electricity consumed in agriculture	14.07	9.44	–0.53@
Area under fruits and vegetables	5.60	5.60	2.71@
Private sector net fixed capital stock	0.56	2.17	1.17*
Terms of trade	0.190	0.95	–1.69*
Total net fixed capital stock	2.00	2.06	1.28*
NPK use	8.17	2.45	2.30
Credit supply	3.72	7.51	14.37*
Total cropped area	0.43	0.43	–0.10
Net sown area	–0.08	0.04	–0.22
Cropping intensity	0.51	0.39	0.12

Note: # Yield potential of new varieties released of paddy, rapeseed/mustard, groundnut, wheat, maize, and cotton; * Upto 2003–04; @ Upto 2004–05.

Table shows the growth rate for different areas related to agriculture. Most of them, shows decline and negative trend, which should also be considered during planning any policies.

Slow down in Agricultural growth

Eleventh five year plan report has stated evidently, that agricultural growth GDP has been decelerating for past two decades. The below table will highlight the declining trend of agricultural growth rate and its trends in the past decades. For current five year plan projection made more or less to 4% growth GDP. The trend seems to seep into various strong agricultural areas like Punjab, Haryana and UP districts. This might be because of embracing rural poverty trend and depending on the rain fed irrigations. The table 2 shows overall average GDP growth has gone down from 3.52% to 0.89% during 2004-05. The projected for this plan year is 4.84%.

Table 4

Average GDP Growth Rates—Overall and in Agriculture
(% per Year at 1999–2000 Price)

Period	Total Economy	Agriculture and Allied Sectors	Crops and Livestock
1. Pre-green revolution 1951–52 to 1967–68	3.69	2.54	2.65
2. Green revolution period 1968–69 to 1980–81	3.52	2.44	2.72
3. Wider technology dissemination period 1981–82 to 1990–91	5.40	3.52	3.65
4. Early reforms period 1991–92 to 1996–97	5.69	3.66	3.68
5. Ninth Plan 1997–98 to 2001–02	5.52	2.50	2.49
6. Tenth Plan period 2002–03 to 2006–07	7.77	2.47	2.51
of which 2002–03 to 2004–05	6.60	0.89	0.89
2005–06 to 2006–07	9.51	4.84	4.96

Source: National Accounts Statistics 2008 (New Series), Central Statistical Organization, Ministry of Statistics and Programme Implementation, New Delhi.

This statistic reveals that agricultural growth over the period from 90's has gone down drastically.

Table 5

Growth Rates of National State Domestic Product (NSDP) from Agriculture
(States Ranked by % of Rainfed Area)

State	Growth Rate in NSDP Agriculture		Rainfed (%)	State	Growth Rate in NSDP Agriculture		Rainfed (%)
	1984–85 to 1995–96	1995–96 to 2004–05			1984–85 to 1995–96	1995–96 to 2004–05	
1	2	3	4	5	6	7	8
Punjab	4.00	2.16	3	Gujarat	5.09	0.48	64
Haryana	4.60	1.98	17	Rajasthan	5.52	0.30	70
Uttar Pradesh	2.82	1.87	32	Orissa	–1.18	0.11	73
Tamil Nadu	4.95	–1.36	49	Madhya Pradesh	3.63	–0.23	74
West Bengal	4.63	2.67	49	Karnataka	3.92	0.03	75
Bihar	–1.71	3.51	52	Maharashtra	6.66	0.10	83
Andhra Pradesh	3.18	2.69	59	Kerala	3.60	–3.54	85
All-India	3.62	1.85	60	Assam	1.65	0.95	86

Source: National Accounts Statistics, (State Series) Central Statistical Organization, Ministry of Statistics and Programme Implementation, New Delhi.

This table reveals the data relating to state level domestic product production in India. During Green revolution, states like Punjab, Haryana, Gujarat, Tamilnadu, west Bengal, and Maharashtra were doing remarkable agricultural yield. They were the prime states which supported India to attain self sufficiency. Now, the latest data seems very much *freighteing* for economic growth. Few states have gone to negative State domestic production, where as other states have touched the least minimum possible growth rate even to single figure. This trend is annoying for agricultural sector. Will union consider

these points seriously to take immediate necessary measures to reinstate the growth rate as it is mandatory for the country now?

Table 6

Growth Rate in Output of Various Sub-sectors of Agriculture

(Gross Value of Output at 1999–2000 Price)

Period	Cereals	Pulses and Oilseeds	Fruits and Vegetables	Other Crops	All Crops	Livestock	Fishery
1951–52 to 1967–68	4.19	2.98	2.67	2.42	3.00	1.02	4.68
1968–69 to 1980–81	3.43	0.97	4.82	2.98	3.00	3.26	3.08
1981–82 to 1990–91	3.52	5.41	2.84	1.71	2.97	4.78	5.74
1991–92 to 1996–97	2.36	2.92	6.07	2.18	3.09	4.00	7.05
Ninth Plan 1997–98 to 2001–02	1.49	−1.43	4.11	3.82	2.25	3.53	2.63
Tenth Plan 2002–03 to 2006–07	1.28	4.29	2.97	3.58	2.46	3.69	3.23
of which 2002–03 to 2004–05	−1.27	5.95	0.30	1.57	0.42	3.32	1.77
2005–06 to 2006–07	3.52	1.61	6.97	6.59	5.53	4.23	5.49

Source: New Series of National Accounts Statistics, Central Statistical Organization, Ministry of Statistics and Programme Implementation, New Delhi.

Data pertaining to the various agricultural produce were tabulated in this table and seems that during 2002-05 low percentage of yield has been seen in the output. This is not healthier for the country like India who survives in agrarian economy.

Climate change and Natural resources degradation

11th Five year plan have identified certain areas where natural distortions takes place. This leads to lowering productivity capacity for agricultural produce.

Table 7

Region-specific Factors Causing Low Productivity

Agro-climatic Region	States/Parts of States	Region-specific Constraints
Western Himalayan region-I	J&K, HP, Uttaranchal	Severe soil erosion, degradation due to heavy rainfall/floods and deforestation, low SRRs, poor road, poor input delivery, inadequate communication infrastructure and marketing
Eastern Himalayan region-II	Assam, NE States, Sikkim	Aluminium toxicity and soil acidity, soil erosion and floods, shifting cultivation, low SRRs, non-availability of electricity, poor road, poor input delivery system and communication infrastructure
Lower and middle gangetic plains regions-III and IV	West Bengal, Bihar, Eastern UP	Flood/water logging, improper drainage, salinity/alkalinity, arsenic contamination, low SRRs, non-availability of electricity, high population growth, poor road and communication infrastructure
Upper and trans-gangetic plains region-V and VI	Western UP, Punjab, Haryana	Groundwater depletion, decreasing total factor productivity, micronutrient deficiency, non-availability of electricity, and high population density
Eastern plateau and hills region-VII	Orissa, Jharkhand, Chhattisgarh	Moisture stress, drought, and soil acidity, iron toxicity, low SRRs, non-availability of electricity, high population growth, poor road, poor input delivery and communication infrastructure

Source: Cited in Report of the Working Group of Sub-Committee of National Development Council on Agriculture and Related Issues on Region/Crop Specific Productivity Analysis and Agro-Climatic Zones, Planning Commission, Government of India (February 2007).

The above table shows the region wise problems and nature of degradation resulting in those areas. This natural degradation has to be answered before making any suggestion for improving the agricultural produce. Natural resources sustainment needs to be addressed in India. One of pioneer environmentalist and international economist who have recently presented report to world bank about Global warming and impact on agriculture. The report points out that India might have to face severe consequences due to this issue.

> According to Dr. Cline, *"*India is among the most adversely affected with losses of 30-40% (in agriculture productivity) depending upon whether higher carbon dioxide provides a significant fertilization effect.*"* (World Bank Report on Climatic changes impact on south Asia, 2009)

In addition the report states that due to increase in temperature, the increase in temperature will surpass the tolerance level of crops resultant in southern part of India, the crop will dry and die. In North India, there will be higher increase in rainfall and increase in higher temperature which would affect agricultural productivity too (cline, 2009). Due to increase in Global temperature, Himalayan glaciers will be melting down, resultant increase of river water level, sea level, flood situation, including land slides, earthquakes and cyclones are projected. The loss of agricultural produce due to such natural disaster is going to affect the food production too. AR4 report projects a decline in global rice production by 3.8% by the end of 21st century (Five year plan report on Environment, 2009).

> "Studies have shown that even a one degree rise in temperature can cause a ten per cent reduction in crop yield. And we are talking about three degrees change expected in future in India," Krishnakumar (2008)

Readers could imagine how crucial it is to know about temperature issue and enumerate policies to stop immediately on Green house gas emission following Kyoto protocol standards.

Naturally, government has to take remedial measures to prevent such disaster or at least safeguard human life and his assets from future perils. Farmers need to be educated about the sustainability and agricultural impacts. It's must for union government to bring to notice the small and medium peasants about the hazards of chemicals and fertilizers. How they impact on the soil and also the produce. Government has to bring into notice such important issues to the poor farmers to prevent them from future risk. For immediate future the loss due to floods, cyclones and rainfalls are heavy in north and south India. There are no remedial measures for such situations till Independence.

Other factors

Other miscellaneous factors like marketing of agri retail products, stringent control over market sector, improper market channels, lack of adequate planning, price fixation, etc are also leading factors for the agricultural shortfall. Major factors like macro economical issues need to be focused by union government and solutions need to be achieved by them within in year or two to drive the agricultural production heavily to alleviate poverty line from India. Though country progress in another sector, it should be understood that on the death of rural skills and rural economy especially agricultural sector and production, India should not march forward with developed nations in other sectors. As pointed out once by Michael Porter famous corporate strategist, every corporation should focus on its core competitive advantage and innovate with in it. Expanding into other territories might be failure model or might cause troubles for other territories too. The same applies to our country, that India from the past history was

known for agricultural produce and products. On absences of such field, it should not march for business or service sector. It has to enhance its core competency and retain its leadership. India should target to bring more research centre and rural leaders to this nation to lead such community.

Conclusion

India is keen in developing Industries and business leaders whereas it should not forget that most of its leaders from past or present came from agricultural background only. Agriculture is our national prestige and status. This occupation is our hereditarily career, where every Indian blood carries this occupation DNA. It is inseparable to bring other occupation as priority one or in top in absence of such occupation. If India focuses its attention towards agricultural innovation and research once more, I can see in near future, India can achieve self sufficiency and can become veto power too. Applying huge rural mass into this occupation, drilling them to such good labor intensive work, surely will yield good results for India.

Other recommendations like going green, grow bio intensive, bringing more bio-based products and promoting agricultural research might bring more innovative ideas to this field. It is necessary to attract youths towards this occupation. Indian youths are being attracted towards Information technology field due to its income and growth. Government including state and central are keen to develop tidal parks, high-tech parks and IT parks to bring in IT skills and export them to US and UK. Agricultural education was not prioritized and rural leadership was not developed to up bring the rural community to the expected standards.

In a recent bio-tech conference held at Bangalore, 2007, Indian Agricultural Research institute, Director S.A.Patel stressed that investment in Agri-biotech will yield

good results for India. Citing the recent data by applying Agri-biotech methods in yield has substantially gone up from 102 million hectares in 2006 from 2 million in 1996 (Agriculture and Industry survey, 2007). Indian government has to focus on such technological improvement in Agricultural industry. Indian government need to focus its attention towards such policy initiatives to bring more agricultural productivity. Does Indian government look at this potential opportunity to work for itself to grow and sustain its position in the world?

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