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## On Critical Policy Issues in India's Agricultural Economy

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For kind attention of:

The Hon'ble Prime Minister's Office,  
the Ministry of Agriculture and Farmers' Welfare,  
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# Towards Improving Implementation of MGNREGS

Brajesh Jha, Atrayee Choudhury

## Introduction

- The basic rationale of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) has been to establish a demand-based framework for employment of unskilled workers and make government legally accountable for providing employment to those who ask for it. In case, the employment is not provided by the gram panchayat within the 15 days, it is the responsibility of programme officer to provide certain unemployment allowance. However, the field level studies in MGNREGS, suggests that in actual, the desired fund for MGNREGS is often not available in the Gram Panchayat. In such a situation the unskilled workers who wish to work for MGNREGS is dissuaded from submitting their demand for work, till fund for MGNREGS arrives.
- This defeats the very purpose of the MGNREGS kind of rural works programme which has been designed to address seasonal unemployment of unskilled workers, specifically agricultural workers during the lean season. The probability of situation like this increase with a widening gap between allocation and expenditure for MGNREGS as is evident with the following Box 1. It shows the gap between allocation and expenditure in the recent years, at the national level.

### Box 1: The gap between allocation and actual expenditure in MGNREGS at National level

Years	Allocation	Expenditure
2014-15	37588	36025
2015-16	43380	44002
2016-17	57386	58062
2017-18	68107	63646
2018-19	55000	51510
2019-20	60000	71000
2020-21	61500	-

Source: Management Information System (MIS) report, MGNREGA

- The field level experiences suggest for scope of rationalization of expenditure under MGNREGA. The rationalization, to some extent attempts to internalize the gap between MGNREGA allocation and expenditure. It was observed that the prosperous regions have a limited requirement for MGNREGS

work (MORD 2018). However, the concerned officials of such region try to increase the work under MGNREGS, as it was perceived that performance of tenure staffs and certain administrative expenditures were linked with the work demanded under MGNREGS. Though, the demand for work, as per the guidelines of MGNREGS, is supposed to be aggregated from Gram panchayats (GP-block-district-state).

- In order to address the frequent problem of fund unavailability and hardships in MGNREGS, the present study attempts to arrive at indicators that will help policymakers to gauge a priori possible demand for work under MGNREGS. This will rationalize allocation of MGNREGS fund by reducing expenditure in developed regions and allocating more of it, in relatively less developed regions. The requirement of MGNREGS is highly associated with the prosperity of the region, and in the context of MGNREGS, prosperity can be reflected with the wage of unskilled workers. The same is associated with development variables like irrigation and urbanization. The present analysis considers cropping intensity instead of irrigation as agricultural development indicators, whereas urbanization is the indicator for development in the non-agriculture sectors.
- The present analysis looks into allocation for MGNREGS and its likely dependence on demand for work. The demand for work is associated with prosperity and development of the region. The data for household demand for MGNREGA and expenditure for the years from 2014-15 to 2017-18 were obtained from the Management Information System (MIS) report from MGNREGA website, and the data for urbanization and cropping intensity were obtained from Population census and Agriculture census of India. The data for the wages of unskilled workers in rural sector are obtained from the report on Agriculture Wages in India published by Directorate of Economics and Statistics, Dept of Agriculture, Cooperation and Farmer's Welfare.

## Findings

- The state-level association of prosperity (wage of unskilled worker) with development variables

(urbanization and cropping intensity) between 2014-15 and 2017-18 shows that in 17 out of the 28 states the above variables are significantly correlated. Based on the result, further district level analysis were carried out. The district-level analysis was conducted in the selected states, namely Rajasthan, Odisha, Karnataka, Madhya Pradesh and Uttarakhand, one each from different regions of the country. These states showed a positive association between outlay and demand for work in MGNREGA and negative association of the same with development and prosperity variables (cropping intensity, urbanization and rural wage).

### Districts level analysis

- The district-level analysis was carried out with quartiles of MGNREGA expenditure and household demand for MGNREGA work. A positive association between them is expected. Subsequently, each of the above variables was checked for its association with prosperity (wage for unskilled workers) and development variables (cropping intensity, urbanization) of the region. A negative association between them (demand for work and prosperity) was expected. Expected relationship was evident in the most of the districts of five states, barring few. Such districts are presented as over-funded and under-funded districts in Table 1 and 2 respectively. The first group of such districts (over-funded) was with high level of MGNREGA expenditure but low demand for MGNREGA work, and the same was supported with prosperity and high level of development of the region (Table 1). The second group of districts (under-funded) was with high demand for MGNREGA work supported with low prosperity and low levels of development (Table 2). But this group of districts has received low level of MGNREGA expenditure. These tables below show districts and its states where demand for work is not in consonance with MGNREGA expenditure.
- Table 2 shows that the districts Barwani and Panna in Madhya Pradesh (MP), Bargarh in Odisha have low MGNREGA expenditure despite having low levels of prosperity and development variables. Incidentally, these districts have also a high demand for MGNREGA work. This is in contrast to the districts (Ujjain, Mandsaur, Gajapati and Kalaburagi) in Table 1. Interestingly, the above discrepancies of (over and under-fund) have not occurred in any of the districts of Rajasthan and Uttarakhand.

**Table 1: Districts with possibility of over allocated funds in reference states**

States	Districts
Madhya Pradesh	Ujjain, Mandsaur
Rajasthan	No such districts found
Odisha	Gajapati
Uttarakhand	No such districts found
Karnataka	Kalaburagi

**Source:** *Financial Progress (Outlays and Outcome, 2014-15 to 2017-18), Management Information System (MIS) report, MGNREGA, Ministry of Rural Development, GOI ; Urbanization statistics, Census of India, 2011, Ministry of Home Affairs, GOI ; Agriculture Statistics at a glance, 2014-15 to 2017-18, Department of Agriculture Cooperation and Farmer's Welfare, GOI.*

**Table 2: Districts with possibility of under allocated funds in reference states**

States	Districts
Madhya Pradesh	Barwani, Panna
Rajasthan	No such districts found
Odisha	Bargarh
Uttarakhand	No such districts found
Karnataka	No such districts found

**Source:** *Financial Progress (Outlays and Outcome, 2014-15 to 2017-18), Management Information System (MIS) report, MGNREGA, Ministry of Rural Development, GOI ; Urbanization statistics, Census of India, 2011, Ministry of Home Affairs, GOI ; Agriculture Statistics at a glance, 2014-15 to 2017-18, Department of Agriculture Cooperation and Farmer's Welfare, GOI.*

### Block Level Analysis

- The analysis was also carried out at the block level to have a micro-level understanding of discrepancy in fund allocation. Considering the enormity of data, the above analysis was carried out in three states only: Madhya Pradesh, Rajasthan and Orissa. Due to unavailability of data for unskilled wage rate at block level the analysis was carried out with development variables (Cropping Intensity and Urbanization) alone.
- The discrepancy at block level was examined by cross-comparison of the quartile groups of MGNREGA expenditure and demand with the development variables. The block-level quartile comparison shows the expected positive association of MGNREGA expenditure with demand for work and its negative association with development variables (cropping intensity and urbanization). This holds true for most of the blocks in Rajasthan, Madhya Pradesh and Odisha. The exceptions were

for 12 out of 294 blocks (4.1%) in Rajasthan, 34 out of 314 blocks (10.8%) in Madhya Pradesh and 15 out of 315 blocks (5%) in Odisha. One can note that in Rajasthan district-level analysis did not show any discrepancies, but block-level analysis suggests the scope of reprioritization.

- The case for under-allocation and over-allocation at the block level is presented in Table 3 and 4. The above tables (Table 3 and 4) suggest that in Rajasthan out of 294 blocks in 5 blocks only funds allocated was less than the requirement (under-allocated), while in 7 blocks MGNREGA funds were more than the demand for work (over-allocated). Similarly, in Madhya Pradesh (MP) out of 314 blocks, MGNREGA expenditure was under-allocated in 14 blocks and over-allocated in 20 blocks. In Odisha, the under-allocated and over-allocated blocks were 6 and 9 respectively out of 315 blocks. These suggest the possibility of improvement in MGNREGA works.

**Table 3: Blocks with the possibility of under-allocated funds**

States	Blocks
Madhya Pradesh	PrabhatPattan, Jhabua, Khalawa, Bajna, Dhanaura, Kurai, Shahpura, Shahpur, Niwas, Chicoli, Athner, Maihar, Sendhawa, Chhapara
Odisha	Nilgiri, Kesinga, Brahmagiri, Narala, Nuagaon, Erasama
Rajasthan	Phagi, Bhopalgarh, Marvar junction, Sankra, Parbatsar

**Source:** *Financial Progress (Outlays and Outcome, 2014-15 to 2017-18), Management Information System (MIS) report, MGNREGA, Ministry of Rural Development, GOI; District Census Handbook, Census of India, 2011, Ministry of Home Affairs, GOI.*

**Table 4: Blocks with the possibility of over-allocated funds**

States	Blocks
Madhya Pradesh	Sidhi, Alot, Baihar, Gohparu, Aron, Niwari, Pandhurna, Rahatgarh, Ghoradongri, Waidhan, Kotma, Morar, Khilchipur, Zirapur, rajgarh, Birsa, Burhar, Nainpur, Pandhana, panna
Odisha	G.Udaygiri, Kukudakhandi, Jamda, Bandhugaon, Chikili, Bhapur, Tiring, Gopabandhunagar, Sukrui
Rajasthan	Jalore, Bhaisrorgarh, Padampur, Jalore, Karanpur, Shahpura, Sangaria

**Source:** *Financial Progress (Outlays and Outcome, 2014-15 to 2017-18), Management Information System (MIS) report, MGNREGA, Ministry of Rural Development, GOI; District Census Handbook, Census of India, 2011, Ministry of Home Affairs, GOI.*

## Conclusion

- The present study attempts to improve the efficiency of government expenditure in MGNREGA across districts and blocks of select states. It primarily consists of two steps. The first step ascertains robustness of demand for MGNREGA work with the association of rural wage of unskilled workers (an indicator for prosperity), with important development variables like cropping intensity and urbanization. The study in the second stage looks into the association of MGNREGA expenditure with household demand for MGNREGA works.
- The above analysis reveals the scope of reprioritization of the MGNREGA funds in even better performing states. It becomes clear with micro (district and block) level analysis. For instance, in Rajasthan discrepancy in MGNREGA expenditure and demand for work does not exist at the district level, while analysis at the block level shows that the above discrepancy was found in more than 4 percent of blocks. Thus, the secondary database analysis can be a guiding factor to rationalize public expenditure in MGNREGA. This would improve the implementation of MGNREGS by reducing the chance of return of unskilled worker due to paucity of funds.

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# Assessment of Livestock Feed and Fodder Situation in Gujarat

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## Introduction

- The dairy industry in the country has shown spectacular growth during the last few decades. India stands at the first position in the world in terms of population of cattle and buffalo and milk production. But the productivity of dairy animals is very low, which may be due to inappropriate feeding as well as inadequate supplies of quality feeds and fodder along with the low genetic profile of breeds.
- Achieving higher productivity by increasing its genetic potential is not possible. Therefore, due attention is needed to be given on adequate availability of feed and fodder as well as proper feeding of the milch animal. The availability of feed and fodder remains a major area of concern as there is a gap between demand and supply in the country. The current availability of green and dry fodder, however, is estimated at 500 million MT and 380 million MT respectively.
- The shortages tend to be even more serious during natural calamities. In order to improve the availability of fodder, there is very little scope to increase the area under fodder cultivation, particularly in view of the growing demand of human beings for food, fiber and shelter. The supply of feeds has always remained short of a normative requirement. The situation is further aggravated in Gujarat where considerable area falls in arid and semi-arid zones.
- It is necessary to increase the availability of fodder by increasing the productivity of available forage resources per unit area, improve the efficiency of fodder utilization and minimize the fodder wastages to increase and thereby reduce the gap between demand and supply. The present average green fodder yield of 40 MT/hectare/year of cultivated land and 0.75 MT/hectare/year for common grazing land are too low and there is huge potential to improve their productivity through adoption of latest technologies. A quantum jump in milk production is possible through an increase in productivity and linking smallholders to dairy cooperatives/producer groups/SHGs with forward linkages having milk processing facilities. Keeping this background, the study examines demand, supply, and a deficit of feed and fodder production in Gujarat.

## Findings

- As such there is lack of time series dataset regarding area under forage and fodder crops in all the state of India. Government of Gujarat 2018 (SAP & SIDP) report has highlighted area under forage crops in Gujarat which was estimated to be 2.32 lakh ha in the year 2017-18 in Gujarat. Out of the total area under forage crops in Gujarat, about one-fourth of the total area was in Banaskantha district followed by Mehsana having about 10 percent of the total area in the state.
- Other districts, having around 5 percent area under forage crop, were Vadodara, Sabarkantha, Kachchh and Kheda. As against the estimated animals' requirements, feed resources available in Gujarat are lower. During the period 2003 to 2011, the shortage of fodder was observed in the state. In the context of dry matter, a reduction was observed from 137 percent of the requirement to 66 percent; total digestible nutrients from 200 percent to 73 percent while the crude protein availability increased from -98 percent to a surplus of 19 percent.
- The selected households had relatively higher experience in dairy business (20 years) followed by farming (18 years) and sheep and goat rearing (10 years). The highest share of family members were found to be primarily engaged in dairy business (44 percent) followed by 36 percent in farming and rest of them were in sheet and goat farming. Agriculture was the primary occupation of 55 percent households followed by animal husbandry and dairy (22 percent) and around 12 percent depended on labour activities. Own farm establishment and self-employment were other major sources of occupation. The annual average income of the selected households was estimated to be Rs. 105756/- followed by Rs. 78705/- from dairy, Rs 6610/- from sheep and goat rearing.
- On average, the operational land holding was estimated to be the marginal size of holdings having 0.91 ha, of which 92 percent land was irrigated. It was very surprising and pleasant to note that almost 44 percent of total operational holdings was devoted to fodder crops, while same was very significant in case of land under rainfed condition (72 percent)

as compared to 42 percent land was under fodder by irrigated landholders. The groundwater was the main source of irrigation followed by surface sources such as canal and tank.

- The cropping pattern of the selected households indicates that the highest area under fodder crops was recorded during kharif and rabi season. Besides, during kharif seasons, supportive crops which by product can be used as fodder crops such as maize, bajra, moong, urad and groundnut were grown.
- The details on the fodder and feed fed to the milch animals indicate that the average feed and fodder consumption of milch animals was ranges between 14- 16 kg of green of fodder followed by 12-14 kg of dry fodder, 2-3 kg of concentrates and very few quantity of the supplements were fed to the adult animals. The quantity of feed and fodder fed to the animals were significantly high for milch animals followed by the heifer pregnant, dry animals and rest of them. Besides stall feeding, the animals were also taken out for grazing for few years on each day. The small ruminants were mostly fed outside by taking out for grazing, and very few of the households had fed them with the dry fodder and some concentrates. On average, animals were also taken out for grazing for 7-8 hours on each day.
- The total requirement of feed and fodder using the standards given by the NATP database and as per the available data of livestock census of 2012 was to be 85062 tonnes of green fodder, 415411 tones of dry fodder and 289746 tones of concentrates per day. With respect to green fodder availability, the production is estimated through a potential production per unit hectare from the land classification data of the state of Gujarat for the year 2016-17 and was estimated to be 71277 tonnes. The main crops residues available for livestock in the state are Bajra, Paddy, Wheat, Pulses, Oilseeds and Sugarcane. The percent gap between the requirement and availability indicate that the state is in deficit for dry fodder followed by availability of concentrates. The green fodder was estimated to the by 30 percent than therequirement.
- The major sources of livestock feed reported by the sample households are crop residues and was a major source of the livestock feed followed by grazing land. Half of the respondents depend on the improved forage and pastures, household leftover and tree legumes grown as ahedge. Very few households have cattle shed, and a majority of them are *kuccha* in nature, of which few are within the house. While in case of the shed for sheep and goat, very few of same of *kuccha* nature.
- As dairy activities are carried out as a complementary activity to agriculture activities, the labour use pattern by the selected sample households indicate significant involvement of females in dairy activities (buffalo, crossbred cows and indigenous cows) while in case of sheet and goats, males were engaged may be mostly for grazing them on the field. The time spent on management of dairy business for the stall feed animals was estimated to be around 2-3 hours per day while same was about 3-5 hours for small ruminants. The net returns realized by the sample households shows that the highest milk yield realized by the sample households from buffalo (9.22 lit/day) followed 5.82 lit/day from buffalo and 5.17 lit/day from indigenous cows. While the milk yield of small ruminants animals was reported to be less than a liter per day. Therefore, there is a huge scope to enhance producers' income from dairy by enhancing animal's productivity, improving management practice and ensuing remunerative prices.
- The constraints faced by the sample households indicate that the topmost constraint faced as expected was small size of land holdings and therefore selected households cannot afford to put more land under fodder seed/crop production as they need to grow food grains and commercial crops. The other major constraints reported are no provision of quality seed by society on credit & non-availability of quality fodder seed in the market; High Cost of Cultivation/Production and Low return on fodder production; non-availability of Grazing lands; and non-availability of adequate irrigation water.
- The adoption of post-harvest techniques plays an important role in the conservation of dry and green fodders for a long period to be sowed during off-seasons. It was very strange to note that despite the fact that fodder availability has direct relation with milk productivity as well as the health of the animals, almost all the households had not adopted any post-harvest technique, which indicates the failure of the agricultural extension mechanism/department of animal husbandry in training the farmers for such techniques (e.g. haymaking, silage, etc). The major reasons for non-adoption of these post-harvest

techniques were highly expensive to adopt post-harvest techniques (55 percent). It was followed by lack of awareness on production and post-harvest management (29 percent) and considered it inferior in comparison to fresh one (14 percent) and more laborious (2 percent).

- It was strange to note that hardly 3 percent of total households have reported that they have benefited from government and dairy cooperative having availed cattle shed subsidy, fodder seed and loan of purchase of livestock as well as free medicine and availability of feed at dairy cooperative. Almost 97 percent of households reported that they did not receive any support from the government net or dairy. The top three suggestions made by the selected households were availability of quality seed in time, seed availability at subsidized rate.

### Conclusions and Recommendations:

- The dairy industry can serve as a cushion in the form of a continuous flow of income as an industry complementary to the agricultural industry. While both agriculture and dairy, industry if simultaneously operate, it can improve not only farmer's income but also compensate for unexpected losses faced due to agriculture, especially for poor small and marginal farmers.
- Shortage of quality dry fodder and concentrates is a major constraint for livestock sector growth. The gap between the requirement and availability of feed and fodder is increasing due to decreasing area under fodder cultivations and reduced availability of crop residues as fodder. Also, there is continuous shrieking of common property resources leading to overgrazing on the existing grassland. Therefore, there is a need to work out the strategies for sufficient good quality feed and fodder for efficient utilization of the genetic potential of the various livestock species and for sustainable productivity improvement.
- Improvement in a nutritional rationed balanced diet can create a positive impact on yield, thereby improving net income and optimum use of available

fodder and feed with households. Ration Balancing Program (RBP) results in better health of the animal, improves the milk composition and the yield, improves conception rate and thereby lactation cycle improves due to reduction in the dry rate. Hence it is suggested that if the local educated youth of the village are involved in the form of Local Resource Persons (LRPs) it would result in the optimum utilization of the locally available resources in the form of fodder and labor as also the rural employment rate will improve. In the process such positive interventions would have multifold effect in net dairy income and reduction in the quantity of BEP through reduction in cost and improvement in income through improved quality of milk. Such benefits can be assured through proper assessment mechanism form RBP.

- Fodder forms a major component of the variable cost in the dairy industry. If the feed and fodder cost is reduced it can result in improvement in net income and reduce the BEP quantity.
- Fodder is the major component of the variable cost. Hence fodder community farming farms should be encouraged, benefits assessed, and should be effectively communicated to the dairy farmers. Cooperative farming of fodder particularly on the barren land of the village can assure sufficient local availability of the fodder and thereby reduce the variable cost, create a positive impact on net income.
- The cooperative structure is very weak in Saurashtra and Kachchh regions of the state. Therefore, presence of Milk Producer Company's sales & distribution network is spread across Saurashtra & Kutch region support the dairy development in this regions. Therefore, there is a need to support the MPCs in all the areas for balanced development of dairy sector.

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# Price Behaviour of Onion in Maharashtra

Deepak Shah

## Introduction

- Onion is grown in several Indian states like Orissa, Karnataka, Tamil Nadu, Madhya Pradesh, Andhra Pradesh and Bihar, but most of the onion produced in India comes from the states of Maharashtra, Karnataka and Madhya Pradesh. Maharashtra is reckoned as the leading onion producing state in the country. During 2017-18, the state accounted for 40 percent area under cultivation and contributed 38 percent to the total output of onion produced in the country. The state of Maharashtra is, therefore, called onion basket of India. In Maharashtra, Nasik ranks first in contributing to bulk production of the total onion production.
  - Fluctuations in onion prices occur when there is either glut in the market due to favourable production or lack of supply of the crop in the market due to poor harvest. This creates a demand-supply gap in the market. In 1998, due to unseasonal rainfall, the onion crop was damaged in most parts of the country. This had led to a tremendous increase in onion prices throughout the country. Due to shortfall in production, India had to import onion from Gulf countries. This kind of scenario was also witnessed during the period of the second half of 2019 when onion crop got severely damaged due to heavy rainfall in most of the onion growing belts of Maharashtra, which adversely affected the supply of onion throughout the country.
  - There are wide fluctuations in monthly prices of onion, which leads to seasonality and becomes a matter of perpetual concern to producers. Added to this are the fluctuations in annual prices, which are generally cyclical in nature and also affect export performance. These facts make it necessary to understand the nature of these fluctuations, especially at wholesale and retail levels, and the present paper is an attempt in this direction.
- 2008-09 to 39.5 percent in 2017-18. Similarly, the share of Maharashtra in total onion production of India has increased from 29.1 percent in 2008-09 to 38.1 percent in 2017-18 (Table 1).
- Lasalgaon near Nasik is the biggest onion *mandi* in the whole of Asia. Onion is also grown in Pimpalgaon, Manmad, Yeola, Saikheda, Chandwad and Satana- all located around Nasik. All these places have marketing centres set up by NAFED. The onion produced in Nasik district is transported and distributed throughout the country. Nasik onion is not only consumed in the farthest corners of India; it is also exported to many countries catering to the requirements of several varieties of onion.
  - The cultivation of horticulture crops is one end of the spectrum, the other end being their efficient marketing. An efficient marketing system implies improving the whole gamut of marketing functions such as harvesting, grading, processing, packing, pricing, development of channels and production. This necessitates determining the price mechanism of produce from the point of production to the point of consumption. When some cost is incurred and to when a value is added to the product, and inefficiency in marketing channel is determined when actual prices deviate from the normal price.
  - Large scale fluctuations in wholesale prices of onions could be observed in the state of Maharashtra over the past decade. Though, in general, the wholesale prices of onions were found to increase over time, time-scale deceleration in the same could also be observed during some phase or the other during the period 2006 to 2014 (Table 2). The wholesale onion prices were seen to increase from 2006 to 2007 with a decline in 2008, and a further steady increase in the same from 2008 to 2010. The onion prices fell steadily again from 2010 to 2012 only to pick up in the following year with a sharp decline thereafter.
  - In general, wholesale prices of onion in Maharashtra increased from Rs.407 per quintal in 2006 to Rs.2292 per quintal in 2013, showing thereby more than five folds rise in wholesale prices of onion in Maharashtra during the period between 2006 and 2013 with a decline in the same to Rs. 1,470 per quintal in 2014.

## Findings

- Among various horticulture crops, onion is one of the most important vegetable crops grown in Maharashtra. In due course of time, there has been a steady increase in the share of Maharashtra in total area as well as the output of onion cultivation in India. The share of Maharashtra in total area under onion crop in India has grown from 30 percent in

**Table 1: State-wise Area Production, Productivity of Onion in India**

Area (000 Ha), Production (000 MT), Productivity (MT/Ha)

State	2008-09			2017-18			Share			
	Area	Production	Productivity	Area	Production	Productivity	2008-09		2017-18	
							Area	Prod.	Area	Prod.
Maharashtra	250.0	3952.5	15.7	508.0	8854.1	17.9	30.0	29.1	39.5	38.1
Karnataka	165.1	3031.8	18.4	195.3	2986.6	15.0	19.8	22.4	15.2	12.8
Gujarat	57.6	1409.6	24.5	22.5	546.2	24.4	6.9	10.4	1.8	2.3
Bihar	51.6	946.6	18.3	53.8	1240.6	20.9	6.2	7.0	4.2	5.3
Madhya Pradesh	53.0	881.8	16.6	150.9	3701.0	24.1	6.4	6.5	11.7	15.9
Andhra Pradesh	39.0	662.6	17.0	60.0	1242.3	18.0	4.7	4.9	4.7	5.3
Rajasthan	41.0	369.1	9.0	64.8	996.7	3.4	4.9	2.7	5.0	4.3
Haryana	18.8	347.9	18.5	29.9	701.5	21.7	2.3	2.6	2.3	3.0
Tamil Nadu	35.0	305.5	8.7	28.4	429.7	11.4	4.2	2.3	2.2	1.8
Orissa	Included in Others			34.9	301.1	12.0	-	-	3.3	2.5
Uttar Pradesh	22.3	308.0	13.8	26.9	439.6	17.8	2.7	2.3	2.1	1.9
Others	100.7	1369.1	13.6	109.6	1822.9	16.6	12.1	10.1	8.5	7.8
Total	834.2	13564.5	16.3	1285	23262.3	16.0	100	100	100	100

Source: Computations are based on figures obtained from 'Indian Horticulture Database - 2011 and 2018

**Table 2: Trend in Wholesale and Retail Prices of Onion in Maharashtra: 2006 – 2014**

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Average (Rs./Quintal)
<b>Wholesale Prices</b>													
2006	403	287	273	279	288	320	350	408	419	513	639	712	407
2007	966	1123	683	594	592	846	681	1337	1477	1399	997	757	954
2008	422	369	393	384	559	481	764	883	731	701	1049	1141	656
2009	1378	1162	764	560	762	899	728	739	762	1445	1816	2164	1098
2010	1552	1222	741	633	643	745	761	908	1373	1599	2509	3312	1333
2011	3025	1008	585	568	604	776	915	1118	1223	995	1031	777	1052
2012	559	537	457	512	582	557	669	766	735	861	1272	1292	733
2013	1440	1641	1036	970	998	1371	2228	3789	4411	4462	3383	1773	2292
2014	1105	743	817	945	1302	1641	2213	1947	1761	1614	1757	1794	1470
<b>Retail Prices</b>													
2006	589	411	415	425	438	408	438	511	550	700	850	905	553
2007	1172	1375	950	782	800	1050	812	1566	1822	1829	1274	955	1199
2008	740	590	722	723	703	628	974	1186	994	990	1410	1515	931
2009	1801	1521	1077	805	941	1045	1187	1064	1055	1809	2282	2687	1439
2010	1989	1607	990	991	889	969	966	1181	1718	2030	3196	4265	1732
2011	4263	1534	925	833	955	1286	1257	1516	1648	1467	1456	1156	1525
2012	842	846	757	994	938	846	963	1099	1097	1165	1739	1731	1085
2013	1863	2165	1469	1380	1425	1819	2825	4544	5192	5356	4344	2383	2897
2014	1656	1025	1092	1389	1891	2467	2800	2529	2339	2176	2385	2499	2021

Note: 1) Monthly figures are computed from average monthly wholesale and retail prices prevailing in Nasik, Pune and Mumbai market centres during the period from 2006 to 2014, which are obtained from NHB Website: <http://www.nhb.gov.in/OnlineClient/MonthwiseAnnualPriceandArrivalReport.aspx>

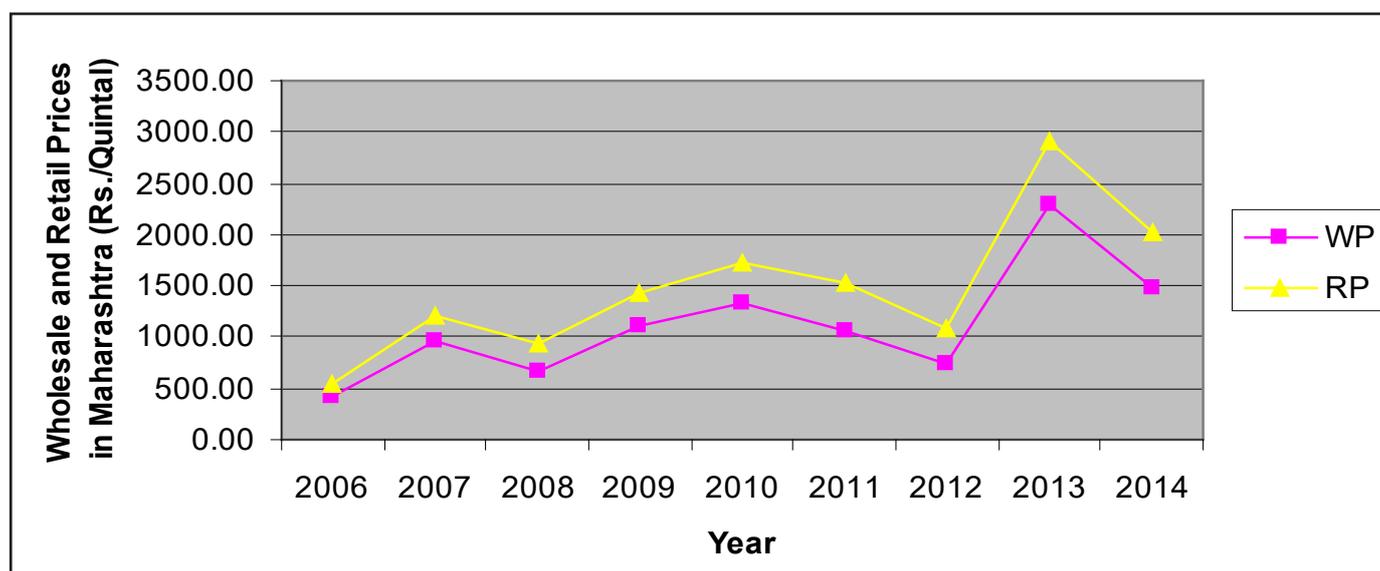
2) Wholesale and retail prices of onion prior to 2006 are not available on NHB Website

- The retail prices of onion in Maharashtra were also seen to be marked with wide fluctuations during the last decade. They showed a trend similar to that of wholesale prices. The retail prices of onion increased from 2006 to 2007 with a decline in 2008, and a steady increase in the same from 2008 to 2011 (Figure 1). The retail prices of onion showed a further decline from 2011 to 2012 with a sharp increase in 2013 and a decline thereafter (Table 2). The retail prices of onion in Maharashtra increased from Rs.533 per quintal in 2006 to Rs.2,897 per quintal in 2013, showing thereby nearly six-folds rise in the same during the period between 2006 and 2013, notwithstanding deceleration in these prices observed during some of the phases of this period

with a decline in the same to Rs.2,021 per quintal in 2014.

- It could be further discerned from Figure 1 that initially the gap between wholesale and retail prices of onion in Maharashtra was not much, but it widened with the passage of time, showing the increasing share of market functionaries them. The wholesale and retail prices of onion in Maharashtra moved closely in 2006. However, the gap between wholesale and retail prices of onion started growing from 2008 onwards. The higher difference in wholesale and retail prices of onion can be witnessed in 2013 and 2014.

**Figure 1: Trend in Wholesale and Retail Prices in Maharashtra: 2006 To 2014**



### Monthly and Annual Percentage Mark-ups

- The estimates relating to the monthly and annual percentage of mark-ups in retail prices over wholesale prices of onion during the period between 2006 and 2014 are brought out in Table 3 below. The estimates presented in below table clearly show higher monthly percentage mark-up in retail prices over wholesale prices of onion during March, April and May, moderate in January and February and low during other months of the year. The monthly percentage mark-up in retail prices over wholesale prices of onion in Maharashtra varied from 16.25 percent in June 2009 to as high as 94.08 percent in April 2012. During the entire period between 2006 and 2014, the annual percentage mark-up in retail

prices over wholesale prices of onion in Maharashtra was the highest in 2012 and the lowest in 2009.

- The average annual percentage mark-up in retail prices over wholesale prices of onion in Maharashtra was estimated at 47.89 percent in 2012 and 25.63 percent in 2007. In general, the average percentage mark-up in retail prices over wholesale prices of onion in Maharashtra during the entire period of 2006 to 2014 was estimated at 33.87 percent, which could be considered quite reasonable in view of high fluctuations in wholesale and retail prices of onion in Maharashtra.

**Table 3: Monthly and Annual Percentage of Mark-ups in Retail prices over Wholesale Prices of Onion in Maharashtra: 2006-14**

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Average
2006	46.34	43.21	52.29	52.33	51.91	27.54	25.18	25.40	31.16	36.36	33.02	27.11	35.78
2007	21.39	22.49	39.02	31.65	35.14	24.11	19.19	17.10	23.37	30.76	27.75	26.17	25.63
2008	75.49	60.13	83.96	88.44	25.82	30.63	27.39	34.28	36.04	41.34	34.46	32.85	41.93
2009	30.67	30.90	40.99	43.72	23.45	16.25	63.08	44.04	38.47	25.21	25.67	24.20	31.08
2010	28.14	31.48	33.65	56.50	38.24	30.11	26.89	30.08	25.10	26.98	27.35	28.75	29.95
2011	40.91	52.23	58.06	46.60	58.17	65.75	37.34	35.57	34.78	47.45	41.25	48.82	44.92
2012	50.48	57.44	65.52	94.08	61.08	51.73	43.92	43.41	49.21	35.40	36.70	33.98	47.89
2013	29.35	31.90	41.84	42.18	42.82	32.68	26.78	19.92	17.70	20.04	28.42	34.43	26.41
2014	49.85	37.89	33.56	47.07	45.20	50.34	26.54	29.90	32.82	34.82	35.77	39.32	37.47
Avg.	41.40	40.85	49.88	55.84	42.42	36.57	32.92	31.08	32.07	33.15	32.27	32.85	33.87

**Note:** 1) Mark-ups are computed from average monthly wholesale and retail prices of onion prevailing in Nasik, Pune and Mumbai market centres during the period from 2006 to 2014, which are obtained from NHB Website: <http://www.nhb.gov.in/OnlineClient/MonthwiseAnnualPriceandArrivalReport.aspx>

### Conclusion and Recommendations

- The study showed large scale fluctuations in wholesale as well retail prices of onion in Maharashtra with retail prices following a trend similar to wholesale prices in terms of inter, intra monthly and yearly fluctuations in the same. The computation of typical seasonal indices clearly exhibited a trend of peak wholesale and retail prices of onion in the month of November with lowest prices in this respect being observed in the months of April and May. The wholesale and retail prices of onion showed a rising trend from May/June to November.
- A noticeable trend emerging out from the analysis was the steep and steady decline in wholesale and retail prices of onions during the period between January and April/May and sharp increase thereafter. In general, the average percentage mark-up in retail prices over wholesale prices of onion in Maharashtra was estimated at 33.87 percent, which could be considered quite reasonable in view of high fluctuations in wholesale and retail prices of onion in Maharashtra.
- The study clearly showed that the cyclical fluctuations in annual and monthly prices of onions is a cause of perpetual concern to producers since their share in consumer's price still remains at lower ebb. One of the major factors responsible for lower share of producers in retail prices of onion is higher cumulative marketing margins of various market functionaries within the channel.
- There is a need to exercise various regulative measures to check practices of these functionaries involved in the marketing of high value crops such as onions. It is to be noted that due to inadequate storage facilities most of the farmers prefer to dispose of their produce immediately after harvest, which results in low offer prices. This obviously necessitates developing adequate post-harvest infrastructure facilities for high value crops in order to protect farmers from undue low prices for their produce.

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# Impact of COVID-19 on Indian Farm Sector

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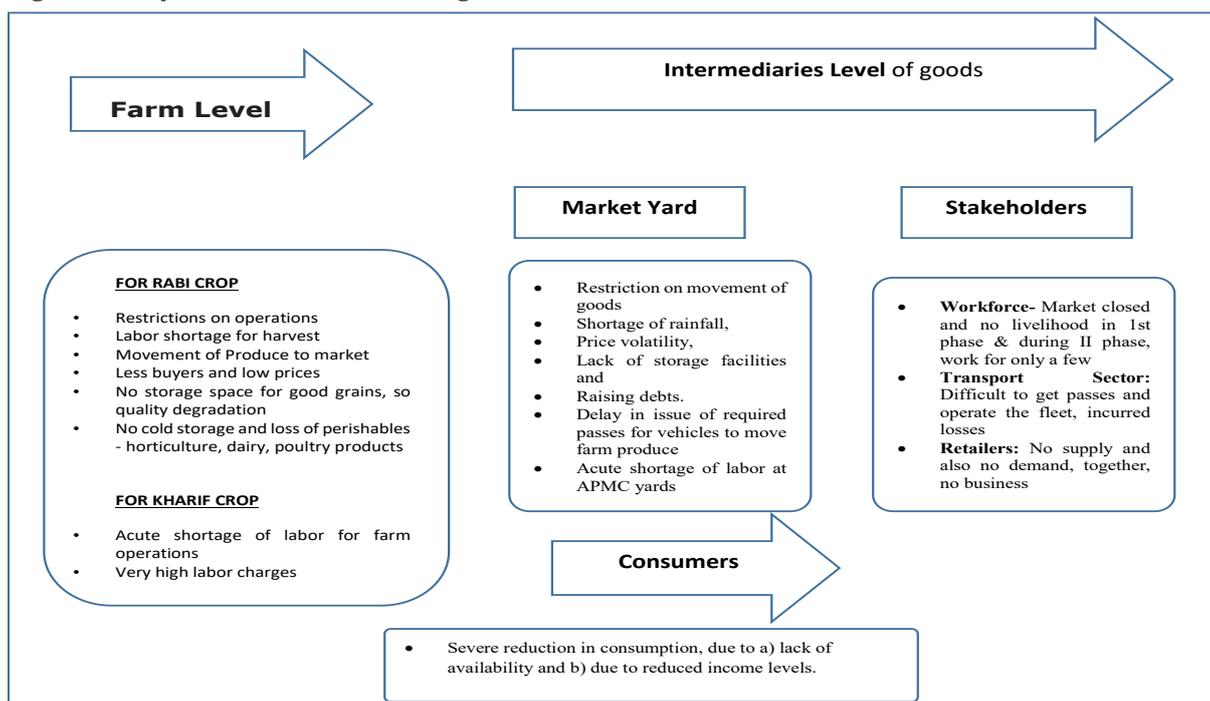
## Introduction

- Keeping the virulent nature of pandemic COVID-19, the Government of India has imposed a nation-wide lockdown, from the last week of March 2020. During the first phase of lockdown, many of the economic activities were suspended with an exception given only to the emergency services like hospitals and supply of essential items. Thus, activities being brought to a standstill. Even the agriculture sector was affected adversely, as the lockdown was too sudden to explore the alternatives, and has caused a significant problem to the farming community. It is in the light of the spread of COVID-19, we have attempted to take a note on the impact of this pandemic on agricultural production, food supply chains and its operations.
- The present study is based on the information collected from both the primary (the officials) and secondary (about 23 State Department of Agriculture) sources, across the country at the time of gathering the data on Agriculture Indicators Report, April-June 2020 quarter, submitted to the Ministry of Agriculture and Farmers Welfare (MoA&FW, GoI) on a quarterly basis and the study is descriptive in nature.

## Findings

- Most of the people in India are dependent highly on agriculture for their livelihood. India accounts for about 120 million smallholder farmers, and they contribute over 40 percent of the country's grain production (Bruinsma and FAO, 2003). Every year, Indian farmers have been going through many challenges and facing risks such as shortage of rainfall, price volatility, lack of storage facilities and raising debts. However, risks involved due to COVID-19 pandemic are putting a new challenge in front of the agriculture sector, which is already under threat.
- Broadly, the impact of COVID-19 can be seen and grouped into three levels: Farm-level (Cultivating farmers and Agricultural labour), Intermediaries (in the supply chain) level (Transport Sector, Retailers and Market yard workforce) and Consumer level.
- The impact at different levels and the activities hampered can also be depicted as follows:

Figure 1: Impact of COVID-19 on Agriculture at different Levels



Source: Authors compilation (based on the feedback received from participating AERCs for Agricultural Indicators Report)

## Impact at Farm Level

### a. Cultivators/ Farmers

- The 1st phase of lockdown on account of COVID-19 was imposed from last week of March 2020. By that time, a majority of the crops are either at harvesting or near to the harvest stage. Farmers, whose crops were at the harvesting stage, had to face the problem of harvesting and also the post-harvest management. Regarding harvest, farmers somehow managed to mobilize the workforce (with higher wages) and harvested the crop to a large extent. However, the second set of problems, i.e., post-harvest management had become a significant concern due to the nature of harvest and the produce. The problems faced at the post-harvest stage can be grouped into three categories based on the perishability of the produce, viz.,
  - i. Non-perishables like food grains, wheat, maize, and other similar items, which used to be the norm for a farmer to sell the produce immediately after the harvest at the mandi. However, the closure of mandi and in the absence of buyers, primarily the government agencies, forced the farmers to explore the storage space before the harvest, till the purchase centres were opened.
  - ii. Semi-perishables like poultry, fishery and livestock products - due to a severe disruption in supply chains and also spread of malicious and misinformation, for instance, linking poultry and piggery products with the spread of the virus, the demand for these products has come down drastically and forced these farm owners to cull these animals.
  - iii. Perishable products like vegetables, dairy products have a very limited shelf period, if not stored in cold storage. The existing cold-storage infrastructure was unable to cater to the sudden spike in demand and led to spoilage of these products and thus, causing the economic hardships to the growers/farmers.

### b. Agricultural Labour

- During March and April, the farm labour demand is generally restricted to harvest operations only, and a majority of these labourers tend to explore the employment elsewhere, for instance, MGNREGA. Thus, the lockdown has a limited impact on the farm labour, but, the grinding halt to the MGNREGA

operations has brought a severe economic deprivation in rural India.

### Impact at Market Intermediaries (Supply Chain) Level

- The period from the beginning of April till mid-July is a period that marks with hectic activity in every segment of the farm sector, for instance, carrying the harvest to government procurement centres, transporting the perishable horticultural products like mangos from the areas of production to consumption, moving fertilizers to their endpoint etc. Each movement of farm products supports the livelihood of several stakeholders. However, the adverse impact of the pandemic has changed the functioning of agricultural markets by bringing it to a standstill, simultaneously affecting the livelihoods of all the intermediaries.

#### a. Transport Sector

- With an exception to a massive movement of foodgrains, such as APMC to FCI godowns and from FCI godowns to various points of consumption, transport segment in the farm sector is mostly represented by transport agents/agencies with a less than four vehicles and vehicle loans to be repaid. With the market coming to an abrupt stop, this segment has failed to operate even bare minimum operations and has created problems from the livelihood of both skilled and unskilled manpower like drivers, cleaners of the vehicles, and hamals, respectively.

#### b. Retailers

- In the first phase of lockdown, though the permission for operation for essential services was provided, operations problems at borders had led to the disruption in the flow of goods at the endpoint – retailers shop. Further, due to economic uncertainty and fear psychosis, the community has restrained itself from purchasing of essential goods only and thus lowering the commercial transactions and effecting the trading community.

#### c. Market Yard Workforce

- The unloading and loading operations of farm produce at the market yard is an important livelihood source for a particular workforce, but the frequent disruptions have created problems for the workforce and were deprived of earning any incomes.

## Consumer Level

- Due to the efforts of the government, there was no change in the availability and prices of essential goods. The average consumer has not opted for panic buying. However, there was a shortage of perishable goods in the initial stages of the lockdown, but as permissions were relaxed, near-

normalcy was resorted. However, on the economic front, COVID-19 has left a mark and may take a long time to recover.

- The gist of the impact of COVID-19 on Indian agriculture is prepared and presented in Table 1.

**Table 1: Summary of Impact of Pandemic COVID-19 on Agriculture in India**

Impact	State/s	Action taken by the Authorities
Restriction on vehicle movement	Meghalaya, Tripura, Tamil Nadu, Karnataka, Gujarat	Passes are distributed for vehicles to move the grains to market.
Input scarcity	Meghalaya, Tripura, Haryana, Uttarakhand, Himachal Pradesh	Dept. distributed seeds at subsidized rate to the farmers Supply of inputs through alternative marketing channels
Harvest and selling	Haryana, Uttarakhand, Assam, Bihar, West Bengal, Tamil Nadu, Karnataka, Rajasthan	No additional charges at APMCs Online registration and sales were promoted
Corruptions in the Market	Uttar Pradesh	
Financial Issues due to lack of employment/ no sales	Uttar Pradesh, Tripura, Bihar	Free distribution of foodgrains to marginal, small and landless labourers Cash transfer under PM Kissan Samman Scheme to the land holders Allocation towards MGNREG has increased Self-employment programmes were promoted (mushroom, banana etc)
Labour shortage	Tripura, Haryana, Uttarakhand, Assam, Bihar, Punjab, Himachal Pradesh, West Bengal, Tamil Nadu, Karnataka, Rajasthan, Gujarat	Special permissions allowed for labourers Special buses were organized for labourers for rice transplantation
Market failure due to limited buyers	Haryana, Uttarakhand, Assam, Bihar, Himachal Pradesh, Tamil Nadu, Karnataka, Gujarat	Allowed markets to function at restricted and limited time period Institutions were involved in distribution of perishables especially in major cities.
Default on loan repayment	Assam	Moratorium announced
Supply of perishables affected (Dairy, flowers, fruits & veg)	Assam, Bihar, Jharkhand, West Bengal, Tamil Nadu, Karnataka, Rajasthan, Gujarat	Allowed markets to function at restricted and limited time period
Kharif preparation halted	Jharkhand	Inputs made available
Reverse migration	Bihar, Jharkhand, Uttar Pradesh, Karnataka, Rajasthan, Gujarat	Free distribution of foodgrains to marginal, small and landless labourers without BPL/ APL cards Employment provided with MGNREG Successfully Quarantined the migrants Awareness programmes on COVID-19 were taken up
Consumption of poultry and Fishery products	Bihar, West Bengal, Karnataka, Gujarat, Rajasthan,	Awareness programmes were undertaken to erase myth among consumers.

**Source:** Authors compilation (based on the feedback received from participating AERCs for Agricultural Indicators Report)

## Conclusion

- Every stakeholder in the farm sector felt the adverse impacts of COVID-19, and the extent of the consequent damages was directly proportional

to the vulnerability and exposure level of the stakeholders.

- As reported, the majority of the stakeholders dealing with perishables were suffering significantly, and the

losses were comparatively lower in the case of non-perishables. However, the inadequate storage space both in terms of godowns and cold storages have again brought the problems of post-harvest losses and indicated the need for up-gradation of the post-harvest infrastructure.

- In the wake of COVID-19, the Government of India has initiated several measures, viz., Reforms in APMC Act, Repealing of Essential Commodities Act and Land Reforms. These paradigm changes are brought to help the farming community, and the extent of benefits to the farming community can be monitored over the years.

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