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Socio-economic Conditions and WASH practices in dominant out-migrating states in India: In the amid of COVID-19

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Abstract: The present study has examined the trends and patterns of COVID-19 in the high outmigration states and their socio-economic conditions and WASH practices in India. The study used www.covid19India.org, an Indian government portal to collect data on COVID-19 from 25 April to 31 June 2020, to identify the trends and patterns. Data collected from Census of India (2011) and nationally representative Survey-National Family Health Survey (NFHS 4), 2015-2016. Three separate vulnerable indexese.g. WASH practice, Socio-economic-demographic, and overall vulnerability index respectively prepared to detect the conditions of WASH practice and socio-economic condition. The high outmigration states are the worst COVID-19 affected state than least outmigration states because of the large number of reverse migration. There is a big challenge to follow proper home isolation guidelines in the states where vulnerability index values are high. Results also reveal that the high outmigration states with poor and inadequate migration welfare policy having more chances to employment crisis and an unstable economy. Mass reverse migration, high vulnerability conditions of socio-economic, contingency and WASH practice and migration welfare programs, policies and initiatives in highly outmigration states in India are the big challenges to obey proper home isolation practices and economic sustainability.

Keywords: **Outmigration, COVID-19, Vulnerability, Challenges, Policies**

I. INTRODUCTION:

The world migration's volume, diversity, and geographical sphere have increased abruptly over time [1]. Migration extends the volume and sphere of COVID-19 globally [2, 3].Initially, COVID-19 outbreak happened in metro cities due to international return migration [4]. Government of India (GOI) announced a complete nationwide lockdown on 24 March 2020 to defend spread of COVID-19. The government had no strategy for millions of internal migrant workers, they have lost their jobs overnight, and they are facing food and financial crisis due to nationwide lockdown [5]. After two months of lockdown, the government arranged special trains and announced, three-phase unlock plan. Mass reverse migration has taken place from destination states to origin states. Unfortunately, very little research has focused on systematic documentation of COVID-19 transmission, and socio-economic conditions in highly internal out-migrated states in India. A comprehensive study is highly desirable to find out the trends and patterns of COVID-19 in the dominating outmigration states. Do the socio-economic, demographic, WASH practices apposite to preventing the COVID-19 outbreak in these states?

II. DATA AND METHODS

In this paper, the analysis was based on different sources of secondary data, i.e. Census 2011, NFHS-4 and MoHFW. The number of outmigration, illiteracy, aged parsons, slum population calculated from Census 2011. COVID-19 data were collected from the Indian government's data-sharing portal, i.e., (www.covid19India.org). Information related WASH practices, sleeping room arrangement, and health insurance are taken from the nationally representative survey-National Family Health Survey (NFHS 4), 2015-2016.

In this paper, we used COVID-19 cases, recovery and death data from 25 April to 31 June 2020 to identify the trends and patterns of COVID-19. Three separate vulnerable indexes, e.g. WASH practice, Socio-economic-demographic, and overall vulnerability index respectively prepared to detect the conditions of WASH practice and socio-economic condition. WASH index includes Unimproved toilet, Open defecation, Using the shared toilet, Practice without soap, Unimproved source water. The Contingency index includes Slum Population, Urbanization, have only one sleeping room and Socio-economic index includes sixty and above aged parsons, illiteracy, no mobile, no bank account, no insurance. The non-weighted normalization is followed to calculate the index values. The values of each indicator have been normalized first by dividing the value (x) with their mean (average). The averages of the normalized values for each state have been considered for this vulnerability index. The higher value indicates a higher vulnerability for COVID-19 transmission.

III. RESULTS

3.1 Inter-state outmigration in India, 2011

Table 1 presents the share of inter-state outmigration (based on place of birth for all duration) at census 2011. It is visible that that Uttar Pradesh is the most dominant outmigration state accounting for 22 percent followed by Bihar accounts for about 13 percent, Rajasthan 6 percent, Maharashtra 5 percent and Madhya Pradesh 5 percent of the total outmigration in India. Uttar Pradesh and Bihar are called chronic migrants sending state accounting for more than one-third of the total inter-state outmigration. These two states are sharing one-fourth of the total pupation in India and presenting almost at the bottom of the economic development. It is observed that the Karnataka 4 percent is the top out-migrating state followed by Andhra Pradesh 3 percent and Tamil Nadu 3 percent among the southern state in India. West Bengal and Haryana has been accounting almost similar percentage of outmigration 4 percent. Punjab, Jharkhand, Gujarat, Delhi and Kerala also in the top 15 outmigration states, all are individually accounting for more than 2 percent of outmigration. It may be seen that all the others states accounting for less than 2 percent of the out-migrants. It is evident for 90 percent of the total inter-state outmigration is from above 15 states. Thus, studies confirmed that these above fifteen states people are more mobile in India.

Table 1: Interstate out-migration in India, 2011

Rank	States	Outmigration (in Million)	% of out migrants	Cumulative frequency
1	Uttar Pradesh	12319592	22.7	22.7
2	Bihar	7453803	13.7	36.4
3	Rajasthan	3756716	6.9	43.4
4	Maharashtra	3068231	5.7	49.0
5	Madhya Pradesh	2979492	5.5	54.5
6	Karnataka	2502956	4.6	59.1
7	West Bengal	2405522	4.4	63.6
8	Haryana	2315915	4.3	67.8
9	Andhra Pradesh	2030004	3.7	71.6
10	Tamil Nadu	1985157	3.7	75.2
11	Punjab	1740877	3.2	78.4
12	Jharkhand	1704827	3.1	81.6
13	Gujarat	1571862	2.9	84.5
14	Delhi	1556308	2.9	87.3
15	Kerala	1291325	2.4	89.7
16	Odisha	1271121	2.3	92.1
17	Uttarakhand	993570	1.8	93.9
18	Chhattisgarh	693632	1.3	95.2
19	Assam	659694	1.2	96.4
20	Himachal Pradesh	535823	1.0	97.4

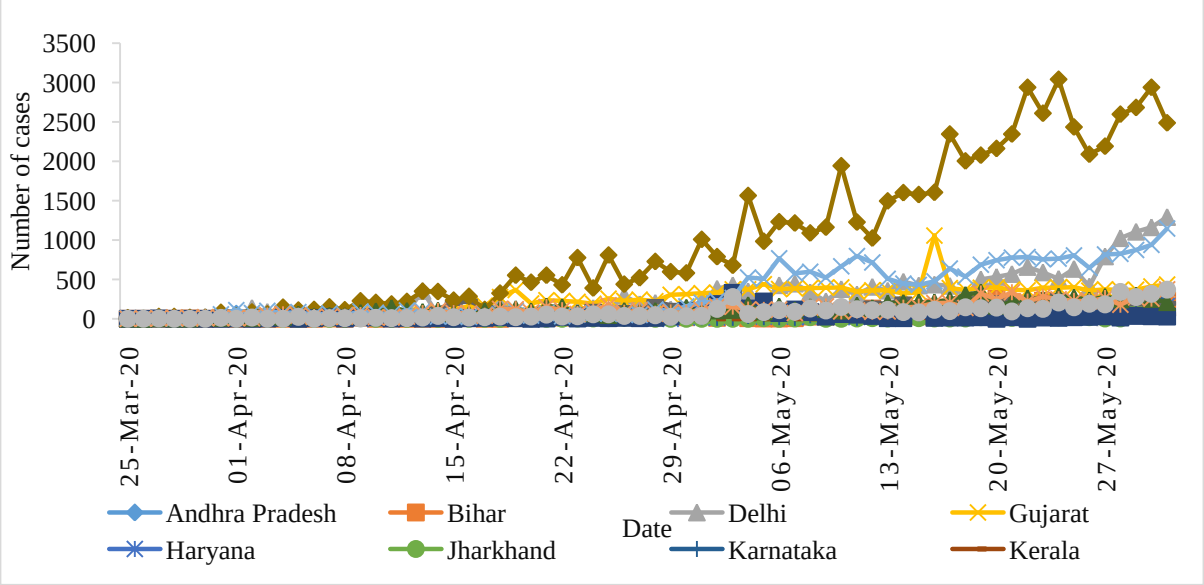
21	Jammu And Kashmir	328919	0.6	98.0
22	Puducherry	288834	0.5	98.5
23	Chandigarh	265645	0.5	99.0
24	Goa	106196	0.2	99.2
25	Tripura	85862	0.2	99.3
26	Manipur	75751	0.1	99.5
27	Meghalaya	70268	0.1	99.6
28	Nagaland	45734	0.1	99.7
29	Arunachal Pradesh	37368	0.1	99.8
30	Mizoram	30365	0.1	99.8
31	Sikkim	21459	0.0	99.9
32	Andaman And Nicobar I	20700	0.0	99.9
33	Daman And Diu	18906	0.0	99.9
34	Dadra And Nagar Havel	16635	0.0	100.0
35	Lakshadweep	15680	0.0	100.0
	Total	54264749	100.0	

Source: Census of India, 2011

3.2 Trends and Patterns of COVID-19 Cases in the selected States of India:

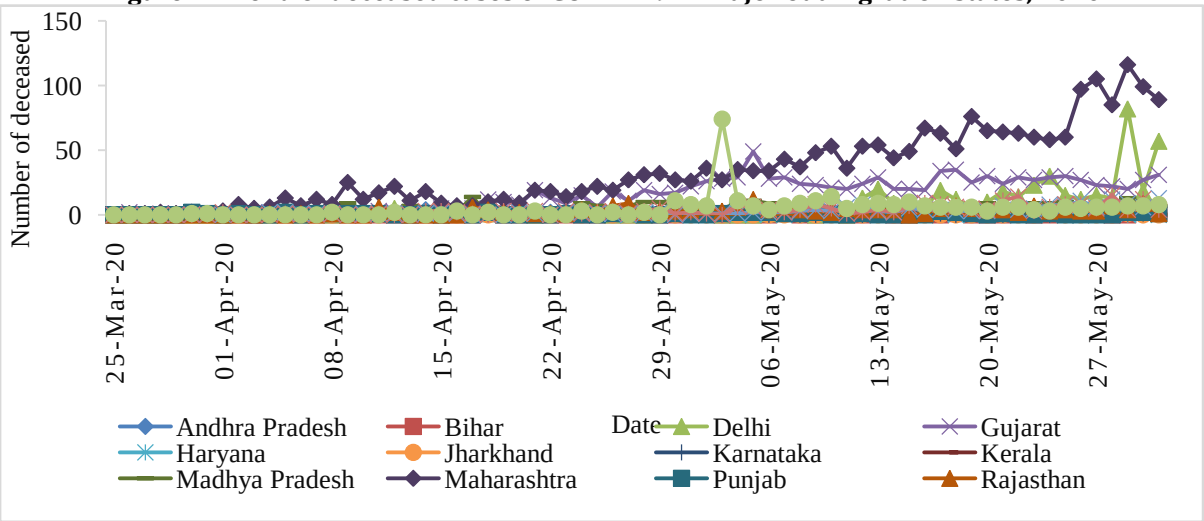
Figure 1 presents the confirmed cases of COVID-19 testing until 31 May 2020, for the top fifteen migrant states in India. By the end of the lockdown four, i.e. on 31 May 2020, there were 182,143 confirmed cases and 5,164 deaths in India. Almost half (42%) of the confirmed cases were from the top fifteen out-migrant states in India on 31 May 2020. Among the major migrants' states Maharashtra, Delhi, Tamil Nadu, Gujarat followed by Uttar Pradesh reported the highest number of confirmed cases. However, between lockdown 3 and lockdown 4, the number of confirmed cases rapidly increased in Maharashtra, Delhi, and Tamil Nadu. Although, other major migrant states like Bihar, Rajasthan, Madhya Pradesh or Karnataka still reported the lower number of confirmed cases as compare to Maharashtra or Delhi. On 1 May, the special trains have started to alleviate the movement of migrants, in Bihar, Rajasthan and Tamil Nadu, an increasing trend of confirmed cases could be observed. The number of deaths across the states also show similar patterns in trends (see Figure 2). The deceased cases across the following migrant states also vary from 89 deaths (Maharashtra) to 0 (Kerala, Haryana and Jharkhand) on the 31 May 2020. However, with the start of the lockdown phase 3, the number of deceased increased in Delhi, Uttar Pradesh, and Tamil Nadu.

Figure 1: Trend of confirmed cases of COVID-19 in major outmigration states in India, 2020



Source: www.covid19India.org

Figure 2: Trend of deceased cases of COVID-19 in major outmigration states, 2020

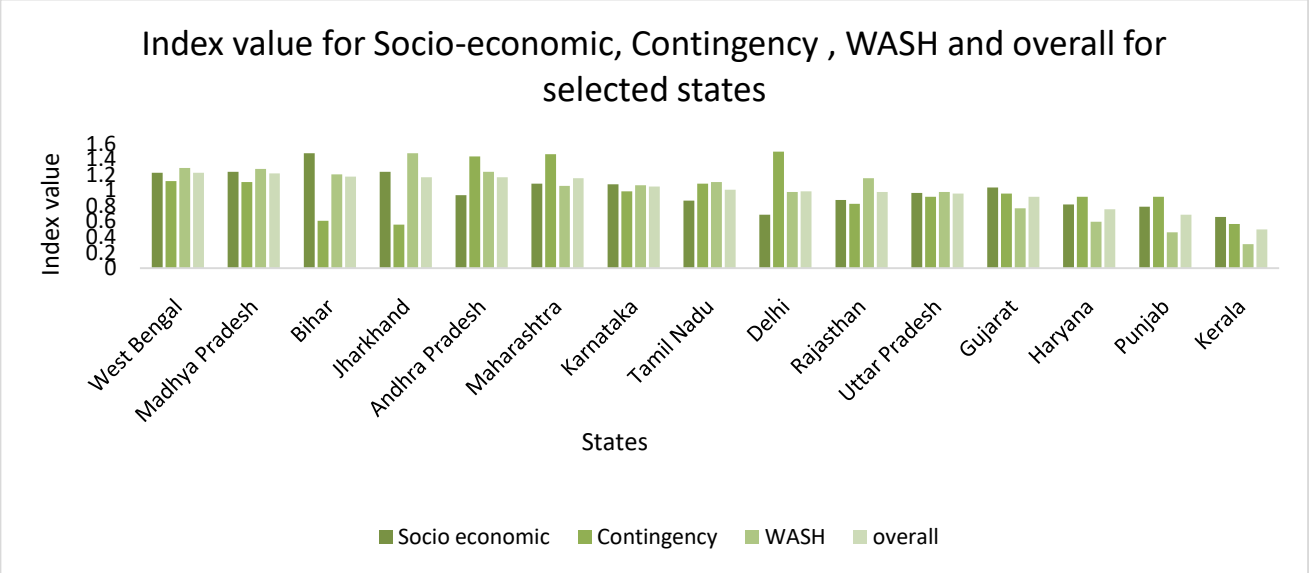


Source: www.covid19India.or

3.3 Vulnerability index for socio-economic condition, contingency and WASH practices

The study found that among the states, Bihar (1.48), Madhya Pradesh (1.24), Jharkhand (1.24), West Bengal (1.24) had the highest value of the socio-economic index value means they are perfuming poor in the socio-economic states (Figure 3). On the other hand states like Delhi (1.50), Maharashtra (1.47), and Andhra Pradesh (1.44) had the higher value of contingency index, means theses states are poor performing states in housing and residence. Whereas the WASH index value is highest for the Jharkhand (1.48), West Bengal (1.29), Madhya Pradesh (1.28), meaning these states poor performing in sanitation and hygiene conditions. However, the overall index value is highest for the West Bengal (1.23), Madhya Pradesh (1.22), Bihar (1.18), and Jharkhand (1.17). These states are the poor performing states in terms of socio-economic, contingency, and WASH practices are low. So, with the emergence of the COVID-19 pandemic, states like West Bengal, Madhya Pradesh, Bihar, and Jharkhand are vulnerable not only in the COVID-19 transmission but as well as the repercussive effect on the economy and social life. On the other hand, these states are also the major out-migrant states of the country. With such poor performing socio-economic, contingency, WASH practices, these following states may be experiencing unprecedented community spread of the COVID-19.

Figure 3: Index value for Socio-economic, Contingency, and WASH and overall for selected states



Source: Census of India 2011 and National Family Health Survey, 2015-16.

Note: The simple non-weighted normalization method used to construct the index values

3.4 Challenges faced by migrants and policies taken by the government for them

The problem of migrant workers may not be unique to India, but the sheer scale portrays there are more than 40 million migrant labourers across the country makes it difficult to provide relief to everyone. Most move from villages to work in the cities as domestic helpers, drivers and gardeners, or as daily-wagers on construction sites, building malls, flyovers and homes, or as street vendors.

Workers were not registered for pending dues— precisely issue of MGNREGA workers, who partly do construction workers have not to get rations in Karnataka. Rations have not reached many of the intra-state farmworkers in Andhra Pradesh. Access to food and ration was difficult for industrial workers, and industries have not paid their full wages in Haryana. They have not received their wages and cannot pay rent in Tamil Nadu. Workers not been paid wages for several days. The exodus creates labour shortage and hiring new, more expensive labour in Punjab. Workers found themselves without any source of income to sustain themselves, and no easy way to return home. While some chose to walk back to their home provinces, sometimes hundreds of kilometres away, to avoid starvation, others were left behind in Delhi. Bearing the expenses towards rent and food is not a viable option for many. The potential mass cancellations of trains in the days have also triggered panic among those eager to return home in Kerala. Migrants were running away from quarantine, anger as migrants sprayed with disinfectant. Train and bus services halted and state borders sealed, that was not an option. In some shelters in Bihar, people have been slipping out at night but returning during the day for free food. Many who left the centres have complained of overcrowding and inadequate facilities some said they were not given any food, others said there was no soap or sanitiser, while some others complained about filthy toilets or too many mosquitoes.

Jharkhand government brings new guidelines of the Mahatma Gandhi National Rural Employment Guaranty Act to provide the employment security of migrant workers. Bihar government conducted a skill survey within the migrant workers who return to Bihar from another state to create employment for them. Uttar Pradesh is one of the first states take a strategy to provide and ensure work security of skilled and semi-skilled migrant workers by skill mapping exercise. A family food survey has been launched by the Rajasthan government to identify poorest people and migrant workers who are not covered under the National Food Security Act and distribute free ration for two months. Madhya Pradesh government launched the Rozgar Setu Portal which provides employment to migrant labour as the basis of their skill. Punjab government implement the Atmanirbhar Scheme to ensure free ration for people not covered under the National food security act. Maharashtra government decided to launch a new policy for returning migrant workers who left Maharashtra due to COVID-19 pandemic so they can resume their duties or get new jobs.

Day to day, the coronavirus infection is spreading extensively. Places earlier reported no COVID cases, are now becoming new hotspots. Infections are mostly getting cured. However, there were a certain number of people moving from destination states to the place of origin are more vulnerable for spreading of the virus. People migrate out of territory to earn for their livelihood [6]. According to Census of India 2011, one-fifth of India's populations are inter-state migrants. Outmigration from rural areas to five megacities, especially, enables them to get employed in manufacturing, transport, and other informal sector jobs. It is well established that migration pattern; government decision is strongly associated with the COVID-19 outbreak [7]. However, as migrants start to return to their native states, in the states like Bihar, Uttar Pradesh, Madhya Pradesh, Jharkhand, etc. may be an unprecedented increase in the COVID-19 cases [8].

Migration is a complex phenomenon, along with other factors, economic motives play an important role in determining outmigration from a region [9]. In India, the majority of them are labour migrants [10]. The migrant workers have been staying in the destination or working place without work; even they do not have money to return to their home, due to announcement of nationwide lockdown by Government of India on 23 March 2020 [11,12]. This has brought a catastrophic situation for the migrant population in India. Government of India has not considered migration as an issue, and this nationwide lockdown situation put-forward the most neglected and worsen conditions of the out-migrant population (PIB April 2020). In such circumstances, migrants are trying to return their native place due to loss of employment; and outmigration states have been facing a massive return migration [13,7]. This leads to sudden and beginning of virus cases throughout the remotest part of India. Until people have arrived at their home states, evidence of infections was negligible. But after May, there was steady growth in the number of infected cases. Trend and pattern of COVID-19 have entirely changed, as depicted in the above Figure 1.

It has been found that among the states, Bihar, Madhya Pradesh, Jharkhand, and West Bengal had the highest value of the socio-economic index, that means they are perfuming poor in the socio-economic

status. This worse socio-economic condition compels them to migrate out to another state, to earn for their living. However, states like Delhi, Maharashtra, and Andhra Pradesh had a higher value of contingency index that means these states are poor performing states in housing and residence. The highly slum populated states like Andhra Pradesh, Maharashtra, Madhya Pradesh, West Bengal, and Delhi are facing more community transmission of COVID-19 due to inadequate WASH practices and lack of social distancing [14]. The WASH practices playing a crucial role to protect the transmission of COVID-19 [15, 16]. Improved sanitation and hygienic practices prevent the spread of COVID-19, including other infectious diseases. Sanitation and hygiene practices were very worse in highly populated and economically underdeveloped states like Uttar Pradesh, Bihar, Madhya Pradesh, and Jharkhand; similar results also found in previous research [17]. However, the overall index value is highest for the West Bengal, Madhya Pradesh, Bihar, and Jharkhand. These states are the poor performing states in terms of socio-economic, contingency, and WASH practices are low. The policies taken by the government and their proper monitoring bring changes in socio-economic and other dimensions.

IV. CONCLUSION:

The study found high socio-economic vulnerable conditions and poor WASH practice among the high outmigration states in India. The lack of better management of migration flow, poor WASH practice and migration welfare programs, policies and initiatives will be burning issues during COVID-19 pandemic among there states. To obey proper home isolation practices and economic sustainabilityare major challenges in high migrated states in India due to existence of poor WASH practice and lack of migrant welfare initiatives.

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Conflict of interest-

The authors declared that they have no conflict of interests.

Author's Contribution

Margubur Rahaman & Prof. K.C Das– Conceived idea, data curation, analysis of the data, reviewed and edited the manuscript.

Babul Hossain &Moslem Hossain- Validated the result, interpreted the results, drafted the first manuscripts, reviewed and edited the manuscript.

Tushar Dakua& Astapati Hemram - Interpreted the results, validate the results, reviewed and edited the manuscript and validated the results, reviewed and edited the manuscript.

All the authors read and approved the final manuscript.

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