

## **SBI Research**

**Social Fabrics – How Har Ghar Jal has initiated a revolution with an estimated decline in 9 crore female population fetching water from outside premise resulting in significant increase in women participation in Agri & allied activities at all-India level: Almost 25 crore population have been taken out from social deprivation for the decade ended 2021**

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- ❑ The protracted spell of hyper growth exhibited by the resilient economy post-pandemic is being accentuated by transformative changes honing the critical pillars of social infrastructure ecosystem, from health, education, sanitation, digital empowerment to quality of life in rural areas through focused and smart planning and delivery of various government welfare schemes, propelling the lives of common men and women for a better living
- ❑ To gauge the exact level, and impact of changes in the decade gone by, we reconstructed an index of deprivation (DI) considering intra–state disparities relating to certain minimum needs of the population, viz.
  - ❑ Percentage of households fetching water from a distance/outside premises
  - ❑ Percentage of households without toilets
  - ❑ Percentage of households without drainage

The state-wise index, having a value ranging from 0 to 1 (lower value indicating lower deprivation) has been re-constructed for 2011 and 2021
- ❑ The DI index has shrunk considerably, halving in the intermittent period at All-India level, with many states exhibiting a significantly better performance with the decline has been all pervasive across states (inter-alia, improvement has been noticeable across all states with almost 6 crore households (or 25 crore population) has been taken out of the deprivation in the decade ended 2021. UP, Bihar and Maharashtra alone have taken out ~10 crore people out of deprivation in the period
- ❑ Also, the findings indicate, in almost all states the decline in percentage of households fetching water outside premise significantly lead to increase in working females in Agriculture & Allied activities. **The results further vindicate that an 8.3 percentage points decline in percentage of households fetching water from outside premise leads to 7.4 percentage points increase in females' participation in Agri & allied activities (at all-India level)**

- ❑ The improved situation has a cascading positive impact on mortality rates, both maternal as also neonatal (infant), echoing the findings of the study in Nature revealing the Swachh Bharat Mission (SBM)'s- India's ambitious national sanitation program- significant contribution to reducing infant and under-five mortality rates across the country – averting 60,000 – 70,000 infant lives annually
- ❑ **Our state-wise analysis indicates that there is a negative correlation between having latrine and drainage with infant mortality rate (IMR) and maternal mortality rate (MMR) though select states like UP, MP and Rajasthan [where more than 20% (30%) of households are still without latrine (drainage)] require accelerating focused approach regarding sanitation**
- ❑ A thumping and resounding success has come through country's aspirational Jal Jeevan Mission (JJM), launched on August 15, 2019, with the ambitious goal of providing tap water supply to every rural household (19.34 crore) within a 5-year period i.e., by 2024. Incidentally, at the time of its inception, only 3.23 crore (17%) of rural households had tap water connections and the JJM mission aimed to cover rest of 16.10 crore households with tap water connections through a high-caliber / intensity pitch, involving multiple stakeholders. **The results of the JJM are a resounding testimony to India's giant strides in public policy, with JJM successfully providing tap water connections to 11.96 crore additional rural households, bringing the total coverage to more than 15.20 crore households (accounting for 78.62% of all rural households in India!)**
- ❑ The JJ Mission with an estimated outlay of Rs 3.60 lakh crore, with center and State share of Rs 2.08 lakh crore and Rs 1.52 lakh crore respectively, has reached a significant milestone, profoundly impacting the lives of rural people by providing them with reliable access to potable water in their homes
- ❑ The state-wise granular analysis of households with tap water connection shows out of the 34 State/UTs, 11 States/UTs have achieved 100% coverage of HH with water-supply, benefitting ~2.36 crore HHs, while 13-States/UTs have achieved coverage in the range of 80-96%, benefitting ~7.28 crore HHs from the targeted 8.30 crore HHs while select states namely Jharkhand, Kerala, Rajasthan & WB need to up the ante immediately, having covered 2.22 crore HHs out of the targeted 4.16 crore HHs
- ❑ **WHO estimates show over 5.5 crore hours would be saved daily, primarily for women, otherwise spent collecting water, through achievement of JJM goals in full while also simultaneously preventing nearly 400,000 deaths from diarrheal diseases, saving approximately 14 million Disability Adjusted Life Years (DALYs) through providing safely managed drinking water for all households in the country.** Further, Nobel laureate Prof. Michael Kremer's research suggests that safe water coverage could reduce mortality among children under five by nearly 30%, potentially saving 136,000 lives annually while a joint study by IIM(B)-ILO estimates that JJM will generate 59.9 lakh person-years of direct and 2.2 crore person-years of indirect employment during its capital expenditure phase while additionally generating 13.3 lakh person-years of direct employment in its operation and maintenance phase. The giant steps in social infrastructure ecosystem/sanitation, and their encouraging results vindicate the audacity of a shared dream of a Viksit Bharat in 2047 through strengthening the economic fulcrums.

- ❑ The latest Economic Survey (2024) stated that, “**India’s high and sustained economic growth in recent years is being accompanied by social and institutional progress**, underpinned by transformational and effective implementation of Government programmes with an empowering edge that has become the hallmark of a transformed approach to welfare. Be it health, education, sanitation, digital empowerment, or quality of life in rural areas, each aspect of the social infrastructure ecosystem has made strides through effective planning and delivery of various welfare schemes”
- ❑ In this regard, through this study we show how much India has progressed in a decade in respect of certain key social parameters and how their impact percolates to the overall economy

- ❑ Twelfth Finance Commission (12 FC) had constructed an index of deprivation to take into account intra–state disparities on the basis of data relating to certain minimum needs of the population
- ❑ It considers the indicators like percentage of households fetching water from a distance/outside premises (A), percentage of households without latrines (B) and the percentage of households without drainage (C) to construct the deprivation index (DI)
- ❑ A simple but powerful formula used by 12 FC to construct the index is as follow:

$$\text{DI} = 0.50 \times \text{A} + 0.25 \times (\text{B} + \text{C})$$

- ❑ The index value ranges from 0 to 1 and lower the value indicate lower deprivation
- ❑ We have constructed the state-wise index for 2011 and 2021 using the data of above three indicators from survey on Drinking Water, Sanitation, Hygiene and Housing Condition' by NSS 76th round and Multiple Indicator Survey (MIS) of the NSS 78th round

Our result indicate following interesting points:

- At all-India level, deprivation index (DI) has halved in a decade, which is a stellar achievement
- Only a few states have more DI than all-India level and there also, the decline is significant
- Using household data, **we believe that almost 6 crore households (or 25 crore population) has been taken out from the deprivation for the decade ended 2021**
- Only three states (UP, Bihar and Maharashtra) managed to get ~10 crore people out of deprivation in the decade**

Deprivation Index					
	Major States	2011	2021	Change	Pop out of Deprivation in decade (crore)
More deprived than All-India level	Odisha	0.79	0.60	-0.19	0.5
	Jharkhand	0.75	0.52	-0.23	0.4
	Andhra Pradesh	0.51	0.41	-	-
	Madhya Pradesh	0.71	0.41	-0.30	1.6
	West Bengal	0.56	0.41	-0.15	1.1
	Chhattisgarh	0.78	0.39	-0.38	0.8
	Tamil Nadu	0.57	0.35	-0.22	1.4
	Rajasthan	0.63	0.35	-0.28	1.5
All-India		0.51	0.28	-0.23	24.9
Less deprived than All-India level	Karnataka	0.50	0.25	-0.25	1.4
	Uttar Pradesh	0.48	0.22	-0.27	4.5
	Bihar	0.58	0.21	-0.37	3.4
	Assam	0.46	0.19	-0.26	0.7
	Uttarakhand	0.41	0.19	-0.23	0.2
	Gujarat	0.42	0.19	-0.24	1.2
	Maharashtra	0.38	0.17	-0.20	2.0
	Telangana	-	0.17	-	-
	Haryana	0.29	0.13	-0.15	0.3
	Kerala	0.26	0.12	-0.14	0.4
	Himachal Pradesh	0.41	0.08	-0.33	0.2
	Delhi	0.11	0.05	-0.06	0.1
	Goa	0.24	0.04	-0.20	0.0
	Punjab	0.17	0.04	-0.13	0.4

Source: SBI Research; 2011 AP is including Telangana

- Our result indicate following interesting points:
  - At all-India level, an 8.3 percentage points decline in % of households fetching water outside premise leads to 7.4 percentage points increase in females' participation in Agri & allied activities
  - Barring a few states, in all other states declined in percentage of households fetching water outside premise significantly lead to increase in working females in Agriculture & Allied activities

Impact of Drinking water availability on women labour force						
State	% of households fetching water outside premise			% of working females in Agriculture & Allied		
	2017-18	2020-21	Change	2017-18	2020-21	Change
Andhra Pradesh	69.3	60.3	-9.0	61.1	56.5	-4.6
Assam	11.6	13.3	1.7	45.8	74.7	29.0
Bihar	8.2	9.7	1.5	53.6	82.1	28.5
Chhattisgarh	61.7	58.6	-3.1	78.4	77.0	-1.3
Goa	4.3	5.2	0.9	16.2	12.3	-3.9
Gujarat	28.3	16.7	-11.6	56.4	61.1	4.8
Haryana	23.7	24.9	1.2	47.1	45.9	-1.2
Himachal Pradesh	30.1	10.7	-19.4	83.9	78.5	-5.5
Jharkhand	74.6	63.8	-10.8	62.9	76.6	13.7
Karnataka	46.8	36.5	-10.3	54.4	58.4	4.0
Kerala	12.9	12.0	-0.9	19.0	36.4	17.3
Madhya Pradesh	72.1	54.5	-17.6	72.3	76.8	4.5
Maharashtra	33.0	22.2	-10.8	65.5	59.0	-6.5
Odisha	74.7	66.9	-7.8	54.7	69.5	14.8
Punjab	8.1	5.1	-3.0	25.6	34.0	8.4
Rajasthan	48.2	41.0	-7.2	75.6	74.3	-1.3
Tamil Nadu	58.8	45.7	-13.1	36.3	38.6	2.4
Telangana	54.4	24.1	-30.3	54.5	53.1	-1.4
Uttar Pradesh	29.7	24.9	-4.8	64.6	81.8	17.3
Uttarakhand	22.3	26.3	4.0	69.3	68.0	-1.3
West Bengal	55.1	48.8	-6.3	35.6	50.8	15.2
<b>All-India</b>	<b>42.0</b>	<b>33.7</b>	<b>-8.3</b>	<b>57.0</b>	<b>64.4</b>	<b>7.4</b>

- Sanitation has huge impact on mortality rates (both infant and maternal). A recent study published in Nature by leading experts reveals that the Swachh Bharat Mission (SBM), India's ambitious national sanitation program, has contributed significantly to reducing infant and under-five mortality rates across the country – averting 60,000 – 70,000 infant lives annually
- Our state-wise analysis indicate that there is a negative correlation between having latrine and drainage with infant mortality rate (IMR) and maternal mortality rate (MMR)

Impact of sanitation & drainage on Infant and women health				
State	% of households reporting		Indicators (2020)	
	access to latrine by the majority of household members*	principal source of drinking water within premises	IMR (%)	MMR (%)
Andhra Pradesh	86.6	39.7	24.0	2.4
Assam	98.7	86.7	36.0	12.1
Bihar	69.3	90.4	27.0	11.2
Chhattisgarh	92.8	41.3	38.0	9.9
Delhi	99.5	90.3	12.0	3.9
Goa	99.0	94.8	5.0	3.9
Gujarat	85.3	83.3	23.0	3.9
Haryana	97.7	75.1	28.0	8.0
Himachal Pradesh	97.7	89.3	17.0	3.9
Jharkhand	66.1	36.1	25.0	4.2
Karnataka	87.5	63.5	19.0	3.5
Kerala	99.9	88.0	6.0	0.9
Madhya Pradesh	78.0	45.6	43.0	15.3
Maharashtra	90.6	77.7	16.0	1.8
Odisha	66.4	33.1	36.0	7.3
Punjab	97.3	94.8	18.0	5.4
Rajasthan	78.2	59.1	32.0	9.6
Tamil Nadu	83.6	54.3	13.0	2.7
Telangana	94.8	75.7	21.0	2.3
Uttar Pradesh	79.1	75.0	38.0	14.3
Uttarakhand	97.6	73.7	24.0	6.3
West Bengal	90.0	51.2	19.0	5.0
<b>All-India</b>	<b>84.6</b>	<b>66.2#</b>	<b>28.0</b>	<b>6.0</b>
<i>Memo: Correlation Matrix</i>				
% of households with latrines with			-0.49	-0.34
% of households with drainage with			-0.49	-0.13
Source: SBI Research, Multiple indicator survey, NSO(2021), *by majority of household members, as per NSP survey on drinking water, sanitation and hygienic conditions in India (76th round, 2018, % of households having No drainage (no formal system of carrying off household wastewater and liquid waste) was 28.3, which we expect has improved further #66.2 % is improved further after the introduction of Har Ghar Jal Jeevan mission				

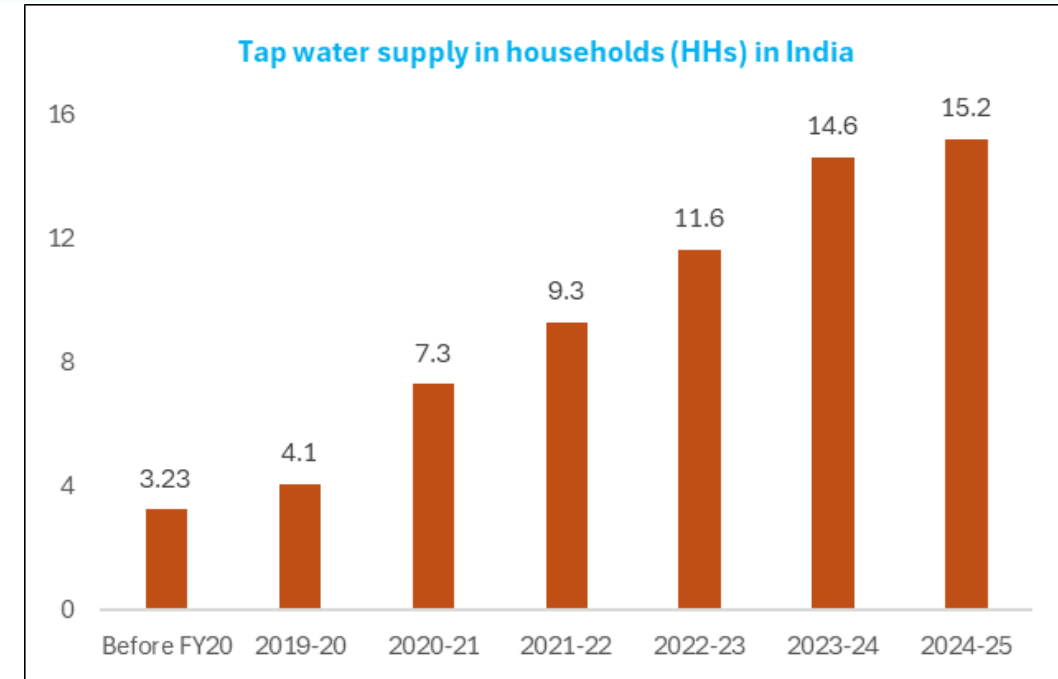
## Does Capex impact the livelihood?

- States' capital expenditure in physical infrastructure has direct impact on the social condition of population
- During 2011 and 2024, States's capital expenditure increased from 2.0% of GSDP to 2.9% of GSDP which led to sharp decline in deprivation index also
- However, the state-wise trend is not uniform. There are states where capex declined in the said period and deprivation index also declined (e.g., Bihar, Delhi, HP)
- Although a close observation indicate that the states which performs most in deprivation index are those where capex in increased significantly (e.g., Assam, Gujarat, Jharkhand, etc.)

States CapEx and Deprivation Index				
State	Deprivation Index		CAPEX as % of GSDP	
	2011	2021	2011	2024 BE
Andhra Pradesh	0.51	0.41	1.9	2.2
Assam	0.46	0.19	1.8	4.2
Bihar	0.58	0.21	4.5	3.4
Chhattisgarh	0.78	0.39	2.5	3.7
Delhi	0.11	0.05	1.6	1.0
Goa	0.24	0.04	3.6	5.5
Gujarat	0.42	0.19	1.9	2.7
Haryana	0.29	0.13	1.5	1.6
Himachal Pradesh	0.41	0.08	3.1	2.4
Jharkhand	0.75	0.52	3.4	4.9
Karnataka	0.50	0.25	3.3	1.9
Kerala	0.26	0.12	1.3	1.3
Madhya Pradesh	0.71	0.41	3.3	3.7
Maharashtra	0.38	0.17	1.7	1.9
Odisha	0.79	0.60	2.2	5.9
Punjab	0.17	0.04	1.1	1.4
Rajasthan	0.63	0.35	1.6	2.4
Tamil Nadu	0.57	0.35	2.1	1.6
Telangana	-	0.17	-	2.7
Uttar Pradesh	0.48	0.22	3.4	5.5
Uttarakhand	0.41	0.19	2.2	3.9
West Bengal	0.56	0.41	0.5	2.0
<b>All-India</b>	<b>0.51</b>	<b>0.28</b>	<b>2.0</b>	<b>2.9</b>

Source: RBI,SBI research, AP' 2011 number is before division 9

- ❑ The Jal Jeevan Mission (JJM) was launched on August 15, 2019, with the ambitious goal of providing tap water supply to every rural household (19.34 crore) by 2024
- ❑ At the time of its inception, only 3.23 crore (17%) of rural households had tap water connections and this mission aim to cover rest 16.10 crore households with tap water connections
- ❑ As of 10 Oct 2024, JJM has successfully provided tap water connections to 11.96 crore additional rural households, bringing the total coverage to more than 15.20 crore households, which accounts for 78.62% of all rural households in India
- ❑ The mission has reached a significant milestone, profoundly impacting the lives of rural people by providing them with reliable access to potable water in their homes
- ❑ The estimated outlay of the mission is Rs 3.60 lakh crore, with center and State share of Rs 2.08 lakh crore and Rs 1.52 lakh crore respectively



- ❑ Out of the 34 State/UTs, only 11 States/UTs have achieved 100% of HH with water-supply, which benefits 2.36 crore HHs
- ❑ There are 13-States/UTs have achieved 80-96%, which benefitted 7.28 crore HHs from the targeted 8.30 crore HHs
- ❑ Four states, namely Jharkhand, Kerala, Rajasthan & WB has achieved the lowest, i.e., below 55%. Out of the targeted 4.16 crore HHs only 2.22 crore HHs connected with Tap water

Status of Households with Tap Water Connections			
State/UT	Total HHs	HHs with Tap Water Supply	HHs with Tap water Supply (%)
A & N Islands	0.01	0.01	100
Arunachal Pradesh	0.02	0.02	100
D&NH and D&D	0.01	0.01	100
Goa	0.03	0.03	100
Gujarat	0.91	0.91	100
Haryana	0.30	0.30	100
Himachal Pradesh	0.17	0.17	100
Mizoram	0.01	0.01	100
Puducherry	0.01	0.01	100
Punjab	0.34	0.34	100
Telangana	0.54	0.54	100
Uttarakhand	0.15	0.14	96.3
Bihar	1.67	1.60	96.1
Ladakh	0.00	0.00	95.2
Nagaland	0.04	0.03	92.2
Lakshadweep	0.00	0.00	90.8
Sikkim	0.01	0.01	89.4
Tamil Nadu	1.25	1.09	86.9
Maharashtra	1.47	1.27	86.8
Uttar Pradesh	2.66	2.27	85.3
Tripura	0.08	0.06	83.7
Assam	0.72	0.58	81.3
Meghalaya	0.07	0.05	80.8
Jammu & Kashmir	0.19	0.15	80.2
Manipur	0.05	0.04	79.6
Karnataka	1.01	0.80	79.5
Chhattisgarh	0.50	0.40	78.9
Odisha	0.89	0.67	75.0
Andhra Pradesh	0.96	0.70	73.5
Madhya Pradesh	1.12	0.73	65.4
Jharkhand	0.63	0.34	54.4
Kerala	0.71	0.38	53.8
Rajasthan	1.07	0.57	53.4
West Bengal	1.75	0.92	52.7
<b>Total</b>	<b>19.34</b>	<b>15.20</b>	<b>78.6</b>

- ❑ WHO estimates that achieving JJM's goals will save over 5.5 crore hours daily, primarily for women, otherwise spent collecting water
- ❑ WHO also projects that ensuring safely managed drinking water for all households in India could prevent nearly 400,000 deaths from diarrheal diseases, saving approximately 14 million Disability Adjusted Life Years (DALYs)
- ❑ Nobel laureate Prof. Michael Kremer's research suggests that safe water coverage could reduce mortality among children under five by nearly 30%, potentially saving 136,000 lives annually
- ❑ IIMB, in partnership with the International Labour Organization (ILO), estimates that JJM will generate 59.9 lakh person-years of direct and 2.2 crore person-years of indirect employment during its capital expenditure phase. Additionally, the operation and maintenance phase could generate 13.3 lakh person-years of direct employment.

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