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SANITATION AND HYGIENE POLICY OF INDIA: TOWARDS A NEW PARADIGM

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Abstract: *With the introduction of Swachcha Bharat Abhiyan (Cleanliness Campaign) by Modi Government, sanitation has emerged as major driving force of economic acceleration. Until now service sector has taken sixty percent of chunk of the GDP for the last two decades but the new decade is going to be the decade of sanitation and hygiene economy as it has the potential of developing a large number of sub-sectors and peripherals which will boost up the growth rate provided policy perspectives and imperatives are understood and intertwined. Sanitation attracted the attention of government planners because of the MDG requirement as "Millennium Development Goal (MDG) 7, Target 7c, calls on countries to halve, by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation". The government started Total Sanitation Campaign(TSC) in rural areas during mid 80's followed by National Urban Sanitation Policy (NUSP) in 2008. According to the estimate of a study by WSP the economic impact of inadequate sanitation in India amounts to Rs. 2.44 trillion (US $ 53.8 billion) which is equivalent to 5.64 % of GDP in 2006. There are sub sectors of sanitation economy which includes; sanitation market, sanitation equipments, sanitation products, sanitation human resources, sanitation educationand sanitation investment etc. It is estimated that the annual sanitation market will to grow from Rs. 300 billion (US$6.6 billion) in 2007, to Rs. 683 billion (US$15.1 billion) in 2020 (WSP). Sanitation issue is related to health, healthcare, education, poverty, tourism, waste management, energy, water preservation and many peripherals of economy.* According to authentic studies sanitation economy has a very bright prospect in India as still 55 % of all Indians or about 600 million people have no access to toilet, 74% of population rural defecates in open, seven lakh people make their livelihood by use of traditional methods of scavenging, vast majority of girls leaving schools because of lack of sanitation, less attendance in schoolsdue to non accessibility of hygiene facilities, cost of diseases caused by unhygienic management of human excreta disposal, economic cost in terms of water tre-

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atment, medical care, losses in fishery production, tourism, social cost and lack of privacy of women. The present paper is an attempt to address the issues which will become vital for the emerging scope of economic growth due to sanitation led growth with the objectives such as; portrayingthe existing status of sanitation and hygiene in India; finding a relationship between sanitation, health, education, poverty, energy, waste management and water preservation; chalking out potential sub sectors as peripheral to the sanitation economy; analyzing the cost-benefit analysis of sanitation economy and discussing policy imperatives of investment in sanitation economy and its peripherals.

The paper is a theme paper based on the proposition and extensive survey and dissection of research reports, available studies of national and international organizations, government documents, research studies of established private research organizations and data available in public domain.The paper has been divided into four segments. The first part is drafted to know the exact definition, nature, perceptible differencesand concept of sanitation and hygiene. The second is devoted to policy dimension of sanitation economy including rural and urban sanitation programs sponsored by the state and their outcomes. The third part is committed to the emerging field of economic activities going to be created in future related directly or indirectly with the sanitation driven growth including markets, investment, consumers, human resources, services, education, training, awareness, research, trade and many more. The last part of the paper is concluding having some policy imperatives.

I. PERSPECTIVES OF SANITATION AND HYGIENE ECONOMY

Before entering into a dialogue on perceptive of sanitation and hygiene economy, it would be pertinent to know the meaning of sanitation and hygiene in order to avoid synonymous nature of two words.Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater. Hazards can be either physical, microbiological, biological or chemical agents of disease. Wastes that can cause health problems include human and animal excreta, solid wastes, domestic wastewater (sewage, sullage, greywater), industrial wastes and agricultural wastes. WHO defines sanitation as "*the provision of facilities and services for the safe disposal of human urine and feces*". 'Sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and

wastewater disposal. Sanitation is a wider concept than hygiene as the later is connected with individual practice of keeping oneself away from these microbes as a result of contact with human solid waste or excreta. Sanitation is directly related to health and GDP of a country as proven in various researches. Asia Water Watch 2015 report projects that 80 percent of urban population of India and 48 percent rural population would achieve improved sanitation. The following quadrant supports the rational of cost-benefit analysis of sanitation economy:

Fig. 1: Cost-Benefit Analysis of Sanitation Economy

Cost	Benefit
Health Cost: ➢ Five million people die each year from preventable waterborne diseases as a result of inadequate sanitation and hygiene practices **Environmental Cost:** ➢ Due to 'open defecation' practice in India and lack of sewage treatment system for solid waste management, water, air and soil is badly affected and consequently cause toxic components harmful for human health. **Social Cost:** ➢ Lack of toilets in schools is correlated with drop-out rate in schools and also non availability of personal hygiene products like sanitary napkins in rural areas affects education of girl children in schools. ➢ Rural women are vulnerable to sexual assaults, rapes and abuses as they go out for defecation in open **Opportunity Cost:** ➢ Cost of loosing foreign exchange due to tourists not interested to visit India because of unsatisfactory sanitation infra and environment	**Preventive Cure:** ➢ Fifteen diseases have been listed which could be stamped out by improving sanitation: 1. Anaemia, malnutrition 2. Ascariasis (a type of intestinal worm infection) 3. Campylobacteriosis 4. Cholera 5. Cyanobacteria toxins 6. Dengue 7. Hepatitis 8. Japanese encephalitis (JE) 9. Leptospirosis 10. Malaria 11. Ringworm or Tinea (a type of intestinal worm infection) 12. Scabies 13. Schistosomiasis 14. Trachoma 15. Typhoid and paratyphoid enteric fevers **Environmental Sanitation** ➢ Environmental sanitation is the control of environmental factors that form links in disease transmission. Subsets of this category are solid waste management, water and wastewater treatment, industrial waste treatment and noise and pollution control. **Ecological Sanitation** ➢ Also known as ECOSAN, it is an approach, rather than a technology or a device which is characterized by a desire to "close the loop" (mainly for the nutrients and organic matter) between sanitation and agriculture in a safe manner. "ECOSAN systems safely recycle

➢ Burden of medical and health cost due to improper sanitation ➢ Loss of GDP due to less investment and low consumption of sanitary and hygiene products ➢ Impact on manufacturing and service sector	excreta resources (plant nutrients and organic matter) to crop production in such a way that the use of non-renewable resources is minimized". When properly designed and operated, ECOSAN systems provide a hygienically safe, economical, and closed-loop system to convert human excreta into nutrients to be returned to the soil, and water to be returned to the land. ECOSAN is also called resource-oriented sanitation. **Social Benefits** ➢ Demand for sanitary products and market ➢ Investment in sanitation and hygiene ➢ Infrastructure development ➢ Creation of entrepreneurial opportunities ➢ Jobs for specialized sanitation workers ➢ Higher enrolment ratio and increased education ➢ Reduction in crime rate against women

Talking the investment potential of sanitation in India-according to a World Bank report, simply meeting the MDG target would require totalinvestments of $38 billion up to 2017, the end of India's 12th Five-Year Plan. Annually, thatwould require about $2.2 billion for urban areas and $1.65 billion for rural areas. Recurrentexpenditures of the same order of magnitude will also be requiredand this is just to satisfythe MDG target for "*improved sanitation*," which can be met by constructing simple pitlatrines—a fairly modest target" (ADB, 2009).

In a joint study by WSP, ADB, AusAID and UK Aid it was observed that the total economic impacts of inadequate sanitation in India amounts to Rs. 2.44 trillion (US $ 53.8 billion) a year which is equivalent to 6.4% of India's GDP in 2006. The same study revealed the following facts about economic impact of inadequate sanitation category-wise:

Table 1: Category-wise economic impact of inadequate sanitation in India (2006)

Health (US$ million/INR billion)			**Water (US$ million/INR billion)**				**Access Time (US$ million/INR billion)**			**Tourism (US$ million/INR billion)**	
Premature Mortality	Product-ivity Loss	Health Care	HH Treatment, Drinking water	Bottled Water Consum-ption	Piped water	Cost of Fetching Water	HH Access	School Access	Work-place Access	Loss Tourism Earning	International Tourist illness
29052/1317	4787/217	4677/212	2471/112	132/6	397/18	1235/56	10544/478	66/3	132/6	110/5	154/7

Source: WSP, ADB, Aus AID and UK Aid (2009)

As far as market for sanitation is concerned the national cumulative sanitation market has the potential of Rs. 6.87 trillion (US$152 billion) over the 2007-2020 period, with Rs. 4.4 trillion (US$97 billion or 64 percent) in infrastructure and Rs. 2.5 trillion (US$54 billion or 36 percent) in operations and maintenance services. The annual sanitation market is estimated to grow from Rs. 300 billion (US$6.6 billion) in 2007, to Rs. 683 billion (US$15.1 billion) in 2020. (WSP et al. 2009)

The scope of sanitary ware industry in India is characterized by the present average growth rate of 10 – 12 % per year. The globalization trends have reduced distances and the demand for such products have increased worldwide. India is good at producing quality sanitary ware products by abiding by strict quality standards. Moreover, with the growing awareness of hygiene and health along with an intense desire for a higher standard of life has instilled the people around the world to direct their focus on sanitary ware products. According to an estimate the present size of the Indian sanitary ware market is approximately above Rs. 500 crores and is expected to grow in the near future at a rate of 3 to 4 percent annually.

II. POLICY OF SANITATION IN INDIA

Sanitation planning is relatively a new phenomenon in India.Sanitation and clean drinking water are critical determinants of health and are complementary to each other(Twelfth FYP, Planning Commission). Providing access to sanitation facilities in rural areas of India has been on the agenda of the Government of India for around the past three decades. Schemes like the **Central Rural Sanitation Programme (CRSP)** in 1986 and the **Total Sanitation Campaign (TSC)**were launched across the rural areas of India in 1999 (Kumar, 2015). TCS presented an important shift away from earlier supply-driven sanitation programs. TSC has a set of defined components, which includes information, education, and communication; community mobilization activities; construction of household toilets and community complexes; and provision of toilets in government schools and *anganwadis*(child-care and mother-care centers). Most importantly, TSC differs from previous campaigns in that, for most participants, there is no government contribution to the capital cost of sanitation facilities. Designed as a demand-driven project, the TSC emphasizes awareness creation for a cleaner environment and hygienic habits at the household and community levels.The TSC program failed to take off in most of the states until 2004–055. The political economy of the

program provides a number of significant reasons for this failure. Most of the states were reluctant to implement a low-subsidy program, in particular a subsidy that was not extended to households above the poverty line. On the demand side there was a lack of a felt need among communities for several reasons, including poverty, the ready availability of open space in rural areas, lack of information and knowledge, and above all, long years of habitually defecating in the open (WSP, 2011).In 2003, the **Nirmal Gram Puraskar (NGP)** sought to reward the achievements and efforts made to ensurefull sanitation coverage, and give incentives for fully sanitized and open defecation-free gram panchayats (GPs), blocks, districts and states (Kumar, 2015).In 2012, PURA (Provision of Urban amenities in Rural Areas), Nirmal Bharat Abhiyan (NBA) and Bharat Nirman were other subsequent initiatives for improving quality of life in rural areas including sanitation coverage of rural population by 2022. In 2010-11, fund releases for the TSC programme (including contributions from the Union Government, State Governments and beneficiaries) totaled to about Rs. 2170 crore. However, considering that about 640 million people in India defecate in the open this worked to an allocation of only Rs. 34 (or about 70 cents per annum) to reach such people (Unicef& CBGA, 2011).

TABLE 2: STATE-WISE RURAL SANITATION COVERAGE AND TSC PERFORMANCE (MAY 2010)

Rural Sanitation Coverage *(% of Rural Households Reporting Latrines- 2008)*		**TSC Performance of States** *(% of IHHL Targets Achieved)*	
High *(More than 70%)*	**Medium** *(50- 70%)*		**Low** *(Less than 50%)*
High (More than 75%)	Gujarat, Haryana, Himachal Pradesh (HP), Kerala, Mizoram, Sikkim, Tamil Nadu (TN), Tripura, West Bengal		Manipur, Nagaland
Medium (50- 75%)	Goa	Andhra Pradesh (AP), Karnataka, **Madhya Pradesh (MP),** *Maharashtra,* Punjab, **Uttar Pradesh (UP),** Uttarakhand	Arunachal Pradesh, Assam, Jammu & Kashmir (J&K), Meghalaya
Low (Less than 50%)		**Bihar, Chhattisgarh, Jharkhand, Orissa,** *Rajasthan*	

Note: (1) States highlighted in **bold** are those that report high levels of rural poverty and low human and gender development index scores.
(2) States highlighted in *italics*: Maharashtra has high levels of rural poverty but relatively better human and gender development index scores; Rajasthan, in contrast, has relatively lower levels of rural poverty but low human and gender development index scores.

Source: ddws.nic.in (the web-site of the DDWS, MoRD, GoI)

Table 3: Budgetary Allocation for TCS during years (in Rs. Crore)

Year	Allocation
2005-06	630
2006-07	720
2007-08	954
2008-09	1080
2009-10	1080
2010-11	1422

Source: WSP(World Bank)

The government of India's MDG commitments has motivated it to devise innovative ways to strengthen the TSC, including notably an incentive/award scheme designed to speed up coverage. This scheme, the Nirmal Gram Puraskar (NGP, Clean Village Award), has become one of the key drivers of the TSC program. NGP was introduced in 2003 by the government of India as a postproject reward to village, block and district *panchayats*(councils) that achieved the status of Open Defecation Free and fully sanitized unit. The NGP was inspired to a large extent by the SantGadge Baba scheme adopted by the government of Maharashtra.17

The progress of the TSC program as a whole has accelerated since 2005, and national coverage was reported to be around 57 percent by 2008, compared to just 21 percent in 2001 and 31 percent in 2005.

The Indian government is now gearing up to spend an additional $31 billion (Rs.1.9 lakh crore) over the next five years through the Swachh Bharat mission.

National Rural Drinking Water Programme:.. The National Rural Drinking Water Programme (NRDWP) is a flagship programme of the Government and a component of the Bharat Nirman with the objective of ensuring provision of safe and adequate drinking water supply through handpumps, piped water supply etc. to all rural areas, households and persons. The NRDWP (formerly Accelerated Rural Water Supply Programme-ARWSP) subsumes the programme of ARWSP, Swajaldhara and National Rural Water Quality Monitoring & Surveillance. Under this Centrally Sponsored Scheme financial assistance is provided to States/Uts for Coverage of all rural habitations, including quality affected habitations with safe drinking water provision; Sustainability measures for drinking water sources & systems; Operation & Maintenance of existing rural water supply schemes, Support activities like IEC, training, MIS & Computerization etc. and Water Quality Monitoring and Surveillance.

A ten years comparison of TCS performance in states as far as toilets are concerned reveals that Kerala, Haryana, Tamil Nadu, Gujarat and Maharashtra are performer states as the percentage of their rural households without toilets have significantly gone down during the period (table 4).

Table 4: State-wise comparison of % age of Rural Households without toilets

State	Year	%age of households without toilets
Orissa	2001	92
	2011	49
Bihar	2001	86
	2011	64
Tamil Nadu	2001	86
	2011	20
Maharashtra	2001	82
	2011	29
Gujarat	2001	78
	2011	18
West Bengal	2001	75
	2011	24
Haryana	2001	71
	2011	8
Kerala	2001	19
	2011	0
National Average	2001	78
	2011	31

Source: Accountability Initiative for Policy Research

For urban areas, the Government has also made substantial commitments. In addition to state-allocated funds, the most recent five-year plan allocates Rs. 7,816 crore ($1.6 billion) for urban sanitation projects. According to a World Bank report, simply meeting the MDG target would require total investments of $38 billion up to 2017, the end of India's 12th Five-Year Plan. Annually, that would require about $2.2 billion for urban areas and $1.65 billion for rural areas (ADB, 2009).

III. SOME PERIPHERAL ASPECTS OF SANITATION AND HYGIENE ECONOMY

The above discussion is sufficient to testify the need and strategies for sanitation driven economy as health and sanitation are very much correlated. The sanitation drive of the government has also opened scope of some peripheral issues which are important to understand. Hygiene is a derivative of sanitation movement as personal hygiene is

connected with the individual behavior and individual attitude. Habit of washing hands with a soap or liquid before and after meals or after every activity that involves the contact of bacteria or microbes is now rampant thanks to the awareness campaign by the agencies. According to the Public Health Association, only 53 per cent of the population wash hands with soap after defecation, 38 per cent wash hands with soap before eating and only 30 per cent wash hands with soap before preparing food. Only 11 per cent of the Indian rural families dispose child stools safely and 80 per cent children's stools are left in the open or thrown into the garbage. Only 6 per cent of rural children less than five years of age use toilets. If these figures are to be believed then there needs to be a bigger scope for hygiene market.

Sanitation drive should not be understood only in terms of removing dust and garbage from the roads or streets with a simple *jhadu* but it how to clean roads in environmental and health safety manner using modern equipments and machines. The scope of cleanliness equipment has emerged as a boon for the first generation entrepreneurs provided financial adequate support and government subsidy is given to them. According to store.maketline.com website information the Indian personal hygiene market had total revenues of $2,316.8m in 2013, representing a compound annual growth rate (CAGR) of 12.6% between 2009 and 2013.Market consumption volume increased with a CAGR of 7.3% between 2009 and 2013, to reach a total of 6,800.6 million units in 2013.The performance of the market is forecast to decelerate, with an anticipated CAGR of 9.9% for the five-year period 2013 - 2018, which is expected to drive the market to a value of $3,714.1m by the end of 2018.Since sanitation is directly related to water and clean water technology is expanding at a faster pace in India. The scope of water purifiers and RO equipments is accelerating exponentially which will definitely boost up the peripheral economy of sanitation. The construction of toilets requires sanitary hardware like toilet sheets, tanks, plastic panels and taps. The scope for their manufacturing, distribution, installation and maintenance enhances services by skilled manpower and sound sewage systems. He training and development of service workers related to sanitation industry is also one of the emerging peripheries.

IV. CONCLUSION

From the above discussion it is obvious that if the last two decades have been the decades of service-driven growth, the next growth-driver would be the economy of sanitation and hygiene. India can no longer neglect the health sector and because sanitation is one of the major components of health where lies a lot of potential in terms of consumption, investment and market growth. Sanitation should not be seen from a lope-sided view i.e. as a government's campaign to clean India and fulfilling the mandatory MDG clause but holistic viewpoint is required to derive the benefits and returns from its socio-economic dimensions. For achieving urban and rural sanitation targets, a sustainable sanitation approach has to be adopted where the strategies, plans, policies and goals converge together and so called sanitation efforts lead to more investment, entrepreneurial incubations, markets, manufacturing, trading, viable business models, education, training of workforce, small scale sector contribution, community driven initiatives, NGO participation, PPP models, funding, research & developmentand collaboration with multiple agencies. More research and field studies are desired by the educational institutions in public and private sector for devising, designing and implementing sanitation planning at municipality,panchayat and metro levels so that the benefits and returns of sanitation and hygiene economy can be derived and distributed to all.

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