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Journal of Development Economics and Management Research Studies (JDMS),
A Peer Reviewed Open Access International Journal

ISSN: 2582 5119 (Online)

05(05), 43-52, July-September, 2020

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COVID-19- A study on Health System of India, and Tamil Nadu in particular: Are we ready to Tackle the onslaught of Covid-19?

Dr.P.G.Prabakaran, M.A., Ph.D.,I.R.S(Retd)

ABSTRACT

The Corona Virus, named Covid-19, has impacted the people, the leaders, the countries world over in different degrees. The pandemic created panic and the world is abound by mistrust. The health systems of medically advanced rich countries and low infrastructure less developed and poor countries are overwhelmed by the speed transmission and mortality. The virus is new and hence it takes time to find out an effective vaccine or medicine to control this Covid-19. In this scenario, how the world, India and the state like Tamil Nadu are going to fight against he scourge. UN and WHO have taken various steps, time to time, to strengthen the Health system of countries through proposals like Universal Health Coverage and Sustainable development Goals-2030. If a country has equitable health system covering all strata of people without discrimination, the country act decisively against any new contagious disease. The Covid-19 can be winning over by unity of nations. India has made a long stride on Health System by building primary, secondary and tertiary level health infrastructures with robust Medical educational system. Huge population is a mitigating factor. Several Indian states are doing well even on International parameters, like, IMR and MMR. Tamil Nadu is one among the frontline states which are performing creditably on Health System. Still, Certain fault lines like inadequacy in SCs, PHCs and CHCs to cover enough people effectively and lack of enough medical personnel in rural and Taluk and District level hospitals are to be looked in to. The bolstered Health System would be ready to tackle not only Covid-19 but also any such eventuality in future, too.

Key words: Health infrastructure, Covid-19, interdependency, medically, contagious disease

INTRODUCTION

The impact of the corona virus on business is varied; the outbreak of covid-19 highlights cracks in Global Trust, the pitfalls of global interdependency and the challenge for global governance. Epidemics are both standalone business risk and an amplifier of existing trends and vulnerabilities. Business that invest in strategic, operational and financial resilience to emerging

global risks will be better positioned to respond and recover (Bingham, Richard Smith-) The Corona Virus, named COVID-19, spread its pangs and affected 4.4 million people the world over, as on 15, May 2020. It has extended its borders to more than 200 countries and has shocked the richest, technologically-medically advanced countries, like China, US, UK, Russia, Spain, Italy, France and Germany etc., Covid-19 has changed the world order and put stops to all the chest thumping against the Nature. The fatalities are more worrying which has crossed 3 lakhs. In this scenario, India has initiated the Virus containment programme in time and hence able to slow down the spread to an extent. As of 15th May 2020, the Covid-19 has affected 82,000 people in India and fatality was 2650. The rate of infection suggests it may cross a lakh in another five days.

The country with such a larger population fights for containing and power over the Corona Virus, valiantly. The decision of Lockdown is bold and sensible though it hurts the Industry, Agriculture, Commerce and consequently the economy. The lockdown started from 25-03-2020 and is likely to be extended even after lockdown-3 which ends on 17-05-2020. However, the proliferation of cases and fatality is muted in India while comparing the cases reported positive first in other countries with in time frame of 10 days. The USA reported its first case on 21st January 2020 followed by France on 23rd, Germany on 27th, UK and India on 30th and Italy on 31st Jan 2020. The first case in India was reported in Kerala, a student who came from Wuhan, China, the birth place of the Covid-19 virus. In 12 weeks, after the first positive case was reported, the total number of cases proliferated to 39 times in US, in Germany to 9 times and in France 11 times than cases reported in India. It is pointed out that the lockdown has impacted the doubling rate of positive cases from 3.5 days to 7.5 days, as of 22nd April 2020.(Amitabh Kant et al, 2020).

In Indian states the most affected are Maharashtra, Tamil Nadu, Gujarat, Delhi, Rajasthan, Madhya Pradesh, Uttar Pradesh and followed by other states except Sikkim, which remained out of reach to the Covid-19. Maharashtra has crossed more than 27,000 affected cases followed by Tamil Nadu with 10,000 cases, on 15th May 2020. The actions taken initially of screening all Air passengers from Corona affected countries and monitoring, identifying, tracing the contact persons, treating, quarantining and public propagation of do's and don'ts had yielded good results. Unfortunately, the cluster spreads and people's group behaviour in markets have paved ways for sudden spurt of positive cases in all states.

WHO has announced The Covid-19 as Pandemic? The speed in which the virus expands its territory is phenomenal and its nature is unpredictable. The mutations happen, makes difficult to find a preventive-curative vaccine or medicines. The world gradually opens up for business and industry, after 45 days since the outbreak, lest the world would experience contraction of economy and Hunger, despite on the face of deadly menace. The health system of India, Tamil Nadu in particular, is at cross road. Of all the states in India, Tamil Nadu has acquitted itself well for its socio-economic welfare programmes and achieved creditable milestones in health sector. The pandemic affected all sectors of economy. It seems Covid-19 threat is going to linger for a long period.

Now, it's an opportune time to study and evaluate our readiness for such unforeseen pandemic outbreaks. This paper evolves through Global Health Perspective, Indian Health efforts to attain Universal health Care; Tamil Nadu's pioneering efforts on health system and the

present status on the call of UHC and Sustainable Development Goal-2030 on Health and fight against COVID-19.

Global Health Perspective

Good Health is very fundamental for good Society with mental health, entrepreneurial skill, managerial acumen and great labour force, better productivity and equitable wealth. The environmental degradation, the climate change, man-made disruptions, involuntary migration lead to inequality on resources, deprivation, hunger and effect on Health. World Health Organization (WHO), has as Vision- A world in which all peoples attain the highest possible level of Health, considers Universal health coverage as its priority objective. UHC is ensuring that all people have access to needed health services (including prevention, promotion, treatment, rehabilitation and palliation) of sufficient quality to be effective while also ensuring that the use of these services does not expose the user the financial hardship. United Nations General Assembly resolved on 12 December 2012 on Global Health and Foreign Policy, urging countries for Universal Health coverage to everyone with emphasis on Primary health Care and social protection mechanism. UN passed a resolution on 25th September 2015, on Transforming our world: The 2030 Agenda for Sustainable Development along with a target of Universal Health Coverage by 2030. UHC day is being celebrated on 12th December every year, since 2017. Sustainable Development Goals cover seventeen priority areas from No poverty to Good Health and well-being to Clean water and Sanitation to Partnerships for the goals. The drive on UHC and SDG-2030 has brought good results in Infant Mortality rate, Maternal Mortality rate at the time of childbirth, reduction of deaths in infectious diseases like measles, polio, HIV/AIDS, malaria, TB and Non contagious diseases (NCD). Measles vaccines have averted 15.6 million deaths, since 2000. MMR has fallen to 37% since 2000. Antenatal care for women increased to 83% in 2012 from 65% in 1990. HIV positive people are accessing antiretroviral therapy; still millions are getting affected every year. Global malaria incidence rate has fallen by 37% and mortality rate by 58 %. (UN/Sustainable development). An UN handout on 'Good Health and Well-being: Why it matters', proclaims that an expenditure of US\$1.0 Billion in expanding immunization against influenza, pneumonia and other preventable diseases, could save 1 million children each year. Some of the Targets of Goal-3 in SDG, by 2030, are;

- Reduction of global MMR to less than 70 per 1,00,000 live births ;
- End preventable deaths of new born and children under 5 years, reduce neonatal mortality to at least 12 per 1000 live births and Under 5 mortality rate 25 per 1000 live births;
- End the epidemics of Aids, TB, malaria and neglected tropical diseases and combat hepatitis, water borne diseases and other Communicable diseases.
- Reduce by one third from pre mature NCD.
- Prevention of abuse of narcotic drugs and harmful use of alcohol.
- Universal access to sexual and reproductive health care.
- Achieve universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
- Substantially increase health financing and the recruitment, development, training and retention of the health force. Etc., these are the goals set out to be achieved in 2030.

The novel Corona Virus-COVID-19

The whole scenario has completely overhauled when the Covid-19 virus struck China first and then spreads like fire to all the countries of world. The speed with which the virus spreads its tentacles was uncontrollable and fatality rate is around 3.9%. The existing capacity seems inadequate. The corona virus overwhelmed even the countries having the best of Health system, like US, UK, Italy, Germany and France. On 31st December 2019, WHO was informed about Pneumonia attack on a cluster of people in Wuhan City, Hubei Province in China? Chinese authorities confirmed, on 7th January, 2020, that they have identified a novel (new) coronavirus being the cause for pneumonia. For the virus an interim name was given, 2019-nCoV. A veteran respiratory Doctor in Wuhan Hospital, Dr.Zhang Jixiang examined an old couple for the symptoms of fever, coughing and tiredness which seemed like a flu or common pneumonia, on 26th December 2019. The CT-scan of them made her sensitive, having worked as a medical expert earlier during SARS outbreak in 2003, to signs of an epidemic. She took the CT scan of the couples' son and found the abnormalities in all their lungs. On 27th another patient turned in with same symptoms. Upon her report and further opinion of the experts, Wuhan Municipal Health Commission on 30th December 2019 sent out notification on an outbreak of pneumonia on unknown cause and was reported to WHO on 31st December. But, this confidential news was shared by Ophthalmologist Dr. Li Wenliang among his friends on 30th itself, before it being officially announced. WHO then issues guidance and cautioning about the virus. Director General of the WHO, Dr.Tedros Adhanom Ghebreyesus vouched that stopping the spread of the virus both in China and Globally was WHO's highest priority, after meeting China's President Xi Jinping, on 28th January 2020. The water has flown over the bridge, now as more than 4 million people got affected all over the world. Within the span of few months, a localized outbreak of COVID-19 evolved in to a global pandemic with speed and scale; severity; and causing Societal and Economic disruption. The outcome of COVID-19 is enormous on Economy due to long shutdown of factories, business and services; the loss of employment to the millions of labourers, their daily wages. Intra migration with in the countries crated havoc and social disorder. The social impact is still unfathomable. Mental illness and physical fatigue cause people more vulnerable to the infectious and to even Non communicable diseases like, cancer, diabetes and other respiratory diseases.

WHO in its COVID-19 Strategy Update on 14th April 2020, urged "A renewed Focus on large scale Public Health must be implemented with urgency. The world stands at a pivotal juncture in the course of this pandemic. Collaborative research and knowledge sharing have helped to answer crucial questions about the benefits and costs of different response strategies in different contexts, the transmissibility of the virus, the clinical spectrum of the disease, and its capacity to rapidly overwhelm even the most resilient health system. We know now what we are up against, and we are learning how to beat it. Covid-19 threatens human life, threatens livelihoods, and threatens the way of life of every individual in every society". The impacts on less prioritized people in developed countries are heavy. In the case of developing and less developed countries the impact will be devastating health wise as well the economy. The Global strategic objectives to win over the Covid-19 are:

1. Mobilize: all sectors and communities to ensure that preventing cases through Hand Hygiene, respiratory etiquette and individual level physical distancing
2. Control: prevent community transmission; isolate, trace, quarantine and support all contacts.
3. Suppress: Community transmission through appropriate infection prevention and control measures, physical distancing and appropriate restrictions on non-essential travel- domestic and international.
4. Reduce: Mortality by clinical care for those affected by Covid-19, ensuring the continuity of essential health and social services, and protecting frontline workers and vulnerable populations.
5. Develop: Safe and effective vaccines and therapeutics that can be delivered at scales and are accessible on need (WHO).

UN and WHO are urging the countries for long, strengthening of Public Health Care through their UHC and SDG strategies. The fatality shows more on vulnerable society of migrants, suppressed groups and low income groups. World Economic Forum in its Global Risks Report released in early 2020 warns that Health systems worldwide are still under prepared for significant outbreaks of other emerging infectious diseases, such as SARS, ZIKA and MERS. A recent first of its kind comprehensive assessment of health security and related capabilities across 195 countries found fundamental weaknesses around the world: no country is fully prepared to handle an epidemic or pandemic. Meanwhile, our collective vulnerability to the societal and economic impacts of infectious disease crises appears to be increasing. (WEF-GRP). The apprehension of WEF found to be true.

The Indian Efforts on Public Health

Indian economy was considered, along with China, the Growth engine for the world. The Economic reforms in India has brought the stimulus and required impetus to the Industry and commerce. The juggernaut was stopped abruptly due to the spread of Coronavirus, Covid-19. India was alert and has taken necessary steps to contain the virus from its track by stopping international flights initially and put lockdown to all kinds of transport, Industrial and service sector activities. Lockdown started on 25 March, 2020 and being extended till 31 May,2020. Though partial relaxation allowed, the economic damage already caused is irreparable. Millions of Guest workers from Bihar, Uttar Pradesh, Orissa, Jharkand and Chattisgarh have lost their livelihood in the states of Gujarat, Maharashtra, Rajasthan, Kerala and Tamil Nadu. It is not only their personal loss, but loss to the MSME, Large Industries, Construction sector, hotel Industries, Tourism in turn contraction in GDP. Economists are wondering whether India can avoid negative growth, as Developed countries lost their hope.

India did improving in Social and Health parameters because of its growing GDP from US\$ 1675.62 in 2010 to US\$ 2800 in 2019 and Per Capita Income from US \$ 1357.6 in 2010 to US\$ 2104.2 in 2018(WB). Better Income tends the Government and individual to spend more on health and wellbeing. India attributes top priority to the UN programmes of Universal Health Coverage and Sustainable Development Goals-2030, and has fully committed to align its development agenda with the SDGs to enable timely achievement of the goals and their targets. The Scheme on Nutrition, POSHAN Abhiyan and Pradhan Mantri Jan Arogya Yojana on

providing access to hospital care in secondary and tertiary care are game changers in covering under nourished children in targeted districts and 500 million people in overall health system, respectively. The challenges confronted by India, holding 17% population of the world, like Poverty, Hunger, Health and wellbeing, Sanitation and Clean water and capacity to tackle these scourges shape the Health of India. The initiatives of the Government like, Swachh Bharat Mission on clean water and sanitation; Entitlement to Food under National Food Security Act, the targeted National Nutrition Mission and Poshan Abhiyan; eVIN, electronic vaccine intelligence Network to track and improve immunization coverage; ANMOL to extend better maternal and new born care, have improved the Health care system in India

India has achieved some remarkable improvement in Maternal Mortality Ratio, by reducing 78%, from 556 in 1990 to 122 per 1,00,000 live births in 2017. While, Kerala, Maharashtra and Tamil Nadu have reached the SDG-3 target MMR of less than 70 per 1,00,000 live births. Eleven states have already achieved the NHP target of MMR of less than 100 per 1,00,000 live births in 2015-17. Infant Mortality Ratio has reduced from 44 to 37 per 1000 live births. Communicable diseases incidence in the country poses a threat. TB and HIV infections are prevalent though are reducing. In the front of Non Communicable diseases, there are effective programmes, to mitigate Cancer, Diabetes, respiratory and renal illness..

Anaemic among children and Pregnant women

There are causes for concern, 40.5% children between 6-59 months are Anaemic (target 14% by 2030), 50.3% of pregnant women aged between 15-49 years are Anaemic (target 25.15% by 2025), 34.7% children aged under 5 are stunted(target 2.5% by 2030). States Nagaland, Manipur and Kerala have achieved the target by reducing Anaemic among children; Kerala and Sikkim have reached the target by reducing Anaemic among women; On stunting growth of children under 5, Lowest rate prevailing in Goa(19.6%), Tamil Nadu(19.7%) and kerala(20.5%). In UT, Jammu&Kashmir attained 15.5%. The states, such as Andhra Pradesh, Bihar, Gujarat, Haryana, Madhya Pradesh, Uttar Pradesh, West Bengal have to put in mind and soul to reduce the percentage of Anaemic in children and pregnant women to improve the overall performance of India in this Goal. Institutional deliveries are only 54.7% in India. In peoples' health environment availability of housing, Bathroom and Latrines and improved drinking water are also playing very vital role. The percentage of households with improved source of drinking water as obtained from NSS 76th round survey and NSS 69th Survey are as given below:

NSS Round	Percentage of households with improved principal sources of drinking water		
	Rural	Urban	All
NSS 76 th round (July-December,2018)	94.5	97.4	95.5
NSS 69 th round (July-December,2012)	88.5	95.3	90.6

Source: NSS Report-584(NSS-76) St.-6.

When compared to 2012 and 2018 improved water sources have progressed well in rural and over all, too. Still 4.5% people are yet to be covered. Similarly, sanitation is an important issue to be tackled in India. The Swachh Bharat Scheme has made aware of the intensity of the necessity of cleanliness and eradicating open defecation. The problem still persists in rural India, despite the Movement.

	Rural	Urban	All India
Access to Bathroom	56.6	91.2	68.5
Access to Latrines	71.3	96.2	79.8
Short of Access; bathroom/ Latrines	43.4 / 28.7	8.8 / 3.8	31.5 / 20.2

Sources: NSS Report-584(NSS 76) Sts.10 & 12. (compiled by author)

The stark reality is shown in the shortfall of the access to Bathroom and Latrines to the people of India. Despite the Governments campaign awareness is lacking among rural people. It is alleged that the scheme has not been used by the people in down the line. Unless, the gap is plucked in the sanitation part, India has to struggle to contain contagious and communicable diseases, every year during monsoon season. The spurt in cluster of Covid-19 is also partly because of the lack of household latrines. The common community Latrines have spread the menace in Dharavi area, as reported. The practice of hand washing before meals and after defecation is to be mandated for better hygiene practice. It is surveyed that 99.0 (98.7% in rural and 99.5% in Urban) people are hand washing before meals. In the case of hand washing after defecation, India recorded 100% on this score. However, by using soap or detergent is 74.1% only, this area can be taken for improvement.(NSSR-584)

Availability of Hospitals, Beds and Doctors and paramedicals

UN and WHO have urged Universal health Coverage for all. To attain that stage infrastructure in terms of Hospitals like, Primary Health Centres and Community Health Centres at Block levels ; Sub-Divisional hospitals and District Hospitals for secondary and tertiary levels are required. Apart from that Speciality hospitals, medical college hospitals in the Public sector and private sectors are playing important role in building better health system in a country. As far India is concerned, as on 31st March 2019, the no. of Sub Centres, PHCs, Health Wellness centres-SCs, Health Wellness Centres-PHCs and CHCs are as follows:

All India	Sub centre		PHCs		HWC-Sc		HWC-PHC		CHCs	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
	1,49,590	3204	16613	3456	7821	98	8242	1734	5335	350

Total Nos. of Sub Centres including HWC-SCs are 160713; Nos. of PHCs including HWC-PHCs are 30045; Nos. of CHCs are 5685. The numbers seems to be mind boggling, but when compared to our total population the numbers are inadequate. In all India basis each Sub Centre covering around 5616 people; each PHC serves 35567 people and each CHC catering to 1,65, 702 people, is it not daunting tasks for health personnel?. India needs to increase SCs, PHCs and CHCs to provide basic primary health care and for comprehensive coverage of all

including the poor and deprived. The short fall is evident in accordance with IPHS norms, 23% in SCs, 28% in PHCs and 37% in CHCs.

India has as on 31st March 2019, 1234 sub divisional Hospitals; 756 District Hospitals and 240 Medical colleges. The shortage of Doctors and paramedical is a real issue in Indian Health system. The vacant posts of Doctors in Rural PHCs alone 7715; Surgeon posts vacant at CHCs(Rural) is 2572 but shortfall as per norm is 4567. Government is giving utmost importance in reducing IMR and MMR but the vacant of Obstetrician & Gynaecologist at Rural CHCs is 2135 and shortfall as per norm is 4002. The shortfall, as per norm Health Assistants Male and Female Nurses, Technicians are immense. Despite our Government Doctors and medical and Para medical staff put up valiant fight against Communicable and NCDs, the people are losing trust and faith on Public health system because of this shortfall and vacancies. This is the right time, in the Covid-19 time, if the Government act swiftly the trust can be restored. For Covid-19 treatment the Government Doctors, health workers and para medics are only working round the clock, risking their life with available infrastructure. The people are realizing and reposing faith on our health system, now the Government has to foster.

India has 1.34 doctors(Modern+Aush) per 1000 people while Norway top with 5.53, Germany 4.64, Italy 4.1, US 2.74 and japan with 2.5. India has reached WHO norm of 1:1000 ratio, but cannot be complacent as population pressure increases along with reduction in number Hosp. Beds. As of now India is having 0.53 Hospital Beds per 1000 people. India's expenditure on health was 1.4% (2014) to GDP below than the world average of 6%.(World Bank-HDR, UNDP 2015)

Health System in Tamil Nadu

The dedication and selfless services of Government Doctors, Nurses, Health workers, technicians on COVID-19 fight have redeemed the lost hope in recent years upon the Government hospitals. It is true that Government hospitals could not match the cleanliness and quality treatment provided by the Private Corporate hospitals. But, one thing stands out, without any expectation from the corona victims and the Government, the medical professionals have proved their mettle and provided their sacrificial service. It is never enough to congratulate them by clapping hands alone, they deserve more.

Tamil Nadu is in fore front in providing better Health system to the public. The state has been traditionally steeped with ideas of social emancipation and economic equality. Hence, no doubt it is pioneer in providing welfare measures to all and providing Health Schemes to cover rural and urban people including poor and deprived. Tamil Nadu in its "Vision Tamil Nadu 2023" aspire to create Medi-cities, Medical colleges in each District, Speciality Centres for geriatrics, mental health and cancer etc., Now, Tamil Nadu has Medical colleges in all districts, some are in construction stages. The state boasts of receiving maximum number of patients on Medical Tourism for which the High quality Hospitals in Private sector is the main reason.

The state started to modernize its health system through International collaboration earlier than other states. Its DANIDA Scheme, the approach of TNHS, Health Policy 2003, TN Health System Reform programme with WB funding, the route map is impressive. The reform

programme aims to modernize the system through effective monitoring, improving quality of service through training and adequate staffing etc. Improving PHCs and secondary hospitals to NQAS certification, NABH certification for 7 hospitals in 5 years time frame.(tnhsp.org/thhsrp). Tamil nadu Urban Health Programme with the help of Japan; PMJAY- CMCHIS have benefited lakhs of people. The schemes for pregnant mother and Children are implemented. These activities increase the quality of services in Health system in all levels.

Tamil Nadu has achieved some of the National SDG-2030 targets, now itself. The state is fore runner in 9 SDG parameters including Good health and wellbeing, clean water and sanitation and life on land and placed third along with Andhra Pradesh. Kerala and Himachal Pradesh are First and second. Infant mortality Rate has reduced from 37 in 2006 to 17 in 2016 per 1000 live births(SRS) and maternal mortality ratio reduced from 111 in 2014-16(SRS) to 66 per lakh in 2014-16 while national average was 130.(Sample Bulletin on MM in India)

Tamil Nadu spent 0.70% and 0.62% vis a vis GSDP, in the year 2014-15 and 2015-16(RE), which are comparably lower than the national average of 0.77% and 0.87% for that years. AP, Goa, Odisha, Rajasthan and Uttar Pradesh spent more than 1% in the respective years.(Alok Kumar et al), In Tamil Nadu, the share of out-patient care by Public Health care provider in 2014 was 34.45% and Hospitalised care by the Public Health Provider in 2004 was 40.8% in Rural and 37.2 in Urban, however the same was reduced to 40.4% and 29.3%, respectively in 2014(Jain,Nishant et all).

Conclusion

In Nutshell, It is necessary to increase SCs, PHCs and CHC in rural and urban centres. In March 2019, in TN each SC services an average of 4172 people that has to be reduced to 2000 people per SC; each PHC covers 25,561 people that has to be modified to 10000 people per PHC and one CHC caters to 94,410 people, that has to be changed to 30000 people per CHC. The increases in secondary and tertiary hospitals and Speciality Hospitals with implementation of TN Health System Reform Programme quality services can be provided to all people. By the way the cost of Health care to common man will be reduced. It is imperative that the vacancies in the cadres of Doctors, Health workers, Nurses, Technicians and specialists have to be filled up. When the State takes in to consideration all these reforms, Tamil Nadu Health System would be healthy. One more thing, the state and the people have to inculcate the culture of respecting the Health Professionals.

The Shortfall of Surgeons-85.6%; Obstetrician&Gyneocologists-75%; Physicians-87.2% Paediatricians-79.9 and overall shortfall of 81.8% specialists, as on March 2019 has to be filled up in India. The coverage of rural infrastructure by kerala state is remarkable. The norm of health coverage has to be enhanced to one SC for 2000 people; for 10,000 people one PHC and for 30,000 people one CHC. Then only the target of Universal Health Coverage can be extended to all people who are in need, the pandemic like COVID-19 can be contained and people can be insulated against any contagion in future. Healthy people are capital for Healthy Economy.

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