

Mishra, Nirbhay Kumar

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Social distancing as social engineering & health management: Applied ethics perspective to global management & strategic leadership

Nirbhay Kumar Mishra

Institute of Applied Sciences & Humanities, GLA University, India

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ABSTRACT

Resilient leadership and responsible attitude are the crucial factors for social-economic, engineering and management developments, and in the absence of those, a crisis usually takes place. The same happened in the case of Corona pandemic. Both China and WHO did not adequately manage the epidemic, and could not control; it turned ultimately in a pandemic. Asian Development Bank Report estimates global economic loss up to 8.8 trillion due to Covid-19. Undoubtedly, the Corona outbreak has severely affected SDGs and put forth several socio-economic-managerial challenges to sustainability and human development. The UN, World Bank, IMF, ADB, and ILO which prepare global social-economic strategies to reach the sustainability goals are working on the problem-solving mode to arrive at the best possible approach to get rid of the worst possible disease at present. Undoubtedly, reversing to a normal-healthy life is a difficult task. However, India is responding to the world's hopes, and motivating the leaders, policymakers, managers and technocrats to accept the new model of health management and medical leadership to contribute in developing the global narrative what we call the 'New-Normal'.

1. Introduction

The world has been facing such a deadly crisis that put almost everyone in increased stress and anxiety as psychologically people experience that they are living dangerously (Renjan, 2020; Judd, 2020; Murton, 2020). Quarantine, road-curfew, sanitization, mask culture, online social-economic-engineering-educational engagements and social-distancing emerge as a new-normal (Staff Reporter, 2020). However, timely and stringent Lockdown in India has mitigated the severity of the pandemic. The efficacy of Lockdown and social distancing is quite evident in the low spread of covid-19 and lesser number of deaths in comparison to developed countries like USA, Spain and Italy who those have even better health care facilities (Das et al., 2020). Moreover, the positive effects of Social Distancing and Lockdown reflected in decreased gas emissions and environmental pollution as it broke down the social-mobility, economic, industrial and manufacturing activities (Paital et al., 2020). As a result, the air quality has been improved in India due to low air pollution resulted by the lockdown (Mahato et al., 2020). It has been a historical experience for this generation and will be a lesson for the generations to come. A virus can change the whole dynamics of human thinking and can make people compel to coop and quarantine. Ranging from an ordinary person to prominent leaders, policymakers, managers all have

so deeply sensed the pandemic; according to IMF, Covid-19 has so adversely impacted global economy since the great depression of the 1930s (Sawada, 2020; Solberg & Dankwa, 2020; Express Web Desk, 2020). The world has realized in the troubling phase that India has not only protected his people from the severe deadly impact but also set a paradigm for 'Global Management & Strategic Leadership' in extending the social empathy and medical support to the whole world (Express Web Desk, 2020).

The fundamental research questions in the wake of covid-19 are as follow: 1) How did India protect his people from a massive, deadly impact of Covid-19, 2) what are the challenges, 3) what kind of global management & strategic leadership is required, 4) What would be the right view for the New-Normal, and what is the right ethics model for Global Management & Strategic Leadership? By adapting the observational approach and applying to the secondary data, I attempt to respond to the above questions. First, I analyze the social-distancing as a model of Social Engineering & Health Management. Second, I discuss the impact of Covid-19 on the Indian economy. Third, I develop an ethical perspective and argue that India has set the benchmark for the 'Global Management & strategic Leadership'. Fourth, the paper emphasizes on the certain challenges concerning socio-economic and medical reasons and figure out the 'New-Normal' (Buchanan, 2014). Fifth, I discuss the prevailing medical ethics in India regarding the

E-mail address: nirbhay.mishra@gla.ac.in

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Ayurveda, Yoga, Homeopathy and Unani medicines used for the protection from the disease. Finally, I argue through secondary data that covid-19 has a positive impact on the environment. The paper makes a valuable contribution to ongoing researches in understanding the efficacy of social distancing and Lockdown to know-how ethical modelling of 'Global Health Management & Strategic Leadership' is the need of the hour to manage the pandemic problems (Chaulia, 2020).

2. Social distancing as social engineering & health management

Emergency medical conditions have been prevailing across the world. It has witnessed till date, more than 1.3 million positive cases and more than 70 thousand deaths reported (El-Bawab, 2020). Social-distancing, quarantine & isolation of the people in large scale have always been a gigantic task to manage since the inception of the pandemic. Governments, corporations, civil societies and social institutions across the globe have to make the pragmatic policies and take tough decisions to manage the outbreak (Upshur, 2003). Controlling epidemic and epidemiological modelling is not primarily an engineering problem. But, here what I mean by social-engineering is to understand how an outbreak can be controlled in society by applying mathematical modelling to know the intervention periods so to prevent community spread. If a government does not implement social distancing, it grows exponentially. Social distancing is an effective controlling method to reduce the spread (Stewart & Dumont, 2020). Hence, I view the social distancing as a global social engineering & health management modal to minimize the transmission of Covid-19. In this section, I analyze the Lockdown from the first case and social distancing decisions taken by three significant countries to know the efficacy of their choice making to control the pandemic.

In China: The first case reported in December 2019 and Lock-down starts in January 2020. China took almost two months to enforce Lock-down from the first case said. USA: the first case reported in January last and Lock-down implemented on March 23, 2020. The USA also took almost two months to Lockdown from the first case said (The First Case of 2019 Novel Coronavirus in the United States, 2019). India: the first case reported in January last. India also took nearly two months to completely lockdown (Wikipedia, 2020a, 2020b). However, looking at overall impact (Social-Economic-health) of Covid-19 it is clear that the right time decisions regarding social distancing and four phases of Lockdown by the government have protected India from the worst hit as compared to the USA & China (World Health Organization, 2020).

Although the socio-economic condition in India right now is, of course, challenging, the future socio-economic-medical-engineering-management prospects are bright, looking at the current international relations and industrial situations that have emerged as new understanding and trust during Covid-19. India will be definitely on the positive side because of its proper decision making: Applying the social distancing as a social-engineering & management model for two months to combat the Covid-19. These following studies show the efficacy of the decision and model. In another study, mathematical modelling shows that 21 days lockdown is necessary and will reduce community transmission, while 42 days is required and will break the transmission chain in local communities (Matrajt & Leung, 2020). Some scholars based on mathematical modelling have proved that social distancing has reduced spread from polynomial to linear, and 60 days lockdown requires for a complete recovery (Ambikapathy & Krishnamurthy, 2020). Following figure shows the lock down intervention and reduction in the number of infected cases (Fig. 1).

One of the studies expresses the socio-economic-medical situation and challenges to social distancing and Lockdown very neatly as follows:

"Our simulations suggest that even in the more optimistic scenario in which all age groups reduce their contact rates $\geq 85\%$, the epidemic is set to rebound once the social distancing interventions are lifted.

Our results suggest that social distancing interventions can give communities vital time to strengthen healthcare systems and restock medical supplies, but these interventions if lifted too quickly, will fail to mitigate the current pandemic. Other modelling results also have suggested that extended periods of social distancing would be needed to control transmission. However, sustaining social distancing interventions over several months might not be feasible economically and socially. Therefore, a combination of social distancing interventions, testing, isolation, and contact tracing of new cases is needed to suppress transmission of SARS-CoV-2" (Matrajt & Leung, 2020).

Although the world's top economies are under tremendous pressure, India made the right decision and protected his people from the adverse impact of the pandemic. The efficacy of social distancing as social engineering & management model qualifies; as covid-19 effect trust deficit of almost every country and 'Geo-Economic shift' of most of the companies from China will favour India with more opportunities and practical challenges (Darswal, 2020).

3. Covid-19 impact on Indian economy

The economy is re-experiencing great depression like the 1930s. The medical industry, software industry, and online economic ventures will mostly deliver many new products and will substitute many old methods, mechanisms and industrial operations. The impact of Covid-19 is very much on the eight-core industries electricity, steel, refinery products, crude oil, coal, cement, natural gas and fertilizers in India (Correspondent, 2020). However, the five sectors in India are worst hit: Aviation, retail, financials, realty and automobiles (Kumar, 2020). There is a direct impact on demand and supply chain management, international trade and finance. India's growth trajectory, International trade and global manufacturing and supply chain has mostly fallen. In the current scenario, there are evident barriers in the supply chain in India: lack of labour, raw material, local enforcement, unavailability of imported goods, lack of Covid-19 business-friendly awareness, overseas transport, end to end delivery, technology transfer, liquidity, lack of buyers, a decline of consumers on luxury items and e-passes availability (Agrawal et al., 2020).

In a recent report namely, Turning massive challenges into meaningful change Accenture has emphasized on five priorities to reopen and reinvent your business considering the impact of covid-19: a) Put people first, caring environment b) Design spaces that work- safety is the key., c) Solve in phases- redesign for business, d) Commit to an elastic cost structure-create fuel for growth, e) Get future ready-create next-generation agility. Moreover, It explains the several impacts on engineering and management as follow:

1) Impact on Strategy-the journey to agility must start now, 2) Impact on workforce-paring people with opportunity resilience, 3) Impact on Customers-connecting with changing customers habits, 4) Impact on Operations-restructuring for global stability, and 5) Impact on Finance-building the resources to seize new opportunities, and 6) Impact on Technology-building technology for the strength to succeed (Correspondent, 2020). For beating the challenges posed by the covid-19 situations, engineering and management required to transform it into meaningful changes as so neatly expressed in the report:

"All industries have been impacted by the COVID-19 crisis, with varying degrees of severity. Some have stronger defences, while others will struggle to return to a constantly shifting "normal." Consumer demand patterns are shifting, global supply chains are disrupted and remain under pressure, and different regions, markets, and governments are responding uniquely to the COVID-19 crisis. Companies must continuously adapt to new and uncertain market conditions (Report, 2020)."

Nevertheless, for software engineering, the covid-19 environment will create a new online-lifeline world. Online lifestyle and virtual socio-economic culture will prominently shape the new normal and will connect almost everyone. Telecom industry, data services cloud

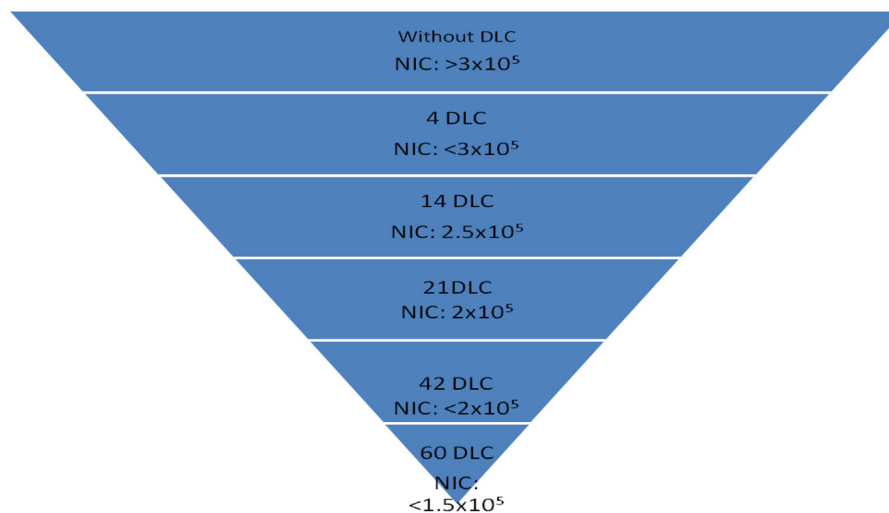


Fig. 1. DLC-Days Lockdown, NIC-Number of Infected Cases.

computing and IoT will cash covid-19 effect with numerous opportunities. It is very much clear that the impact is profound, and challenges are extensive. However, the Indian economy will respond by adapting to R-4 management strategy: Respond, Recover, Resurrect, and Redeem with increased trust, strong leadership, and geo-economic shift.

4. Global management & strategic leadership: ethical perspective

When people were dying, and the whole world was afraid of the Covid-19, and they had no clue how to fight against it; if they once get infected. In that bewilderment and desperate time, India emerged as a great hope. Prominent countries from the USA, Europe and Asia were eying to India for medical supports. India, being the largest producer of a game-changer drugs hydroxychloroquine anti-malarial drug which proved to be effective against Covid-19 (Kumar, 2020), became a global leader in the troubled times. India had stringent demands to fulfil to supply the drugs and other medical aids to save humanity. India, in a speedy time, became 2nd largest producer of PPE Kit (personal protective equipment). India has established many pharmaceutical drugs and pieces of equipment manufacturing plants and supplied to other countries as well. The way India handled the pandemic and responded to the other countries when they demanded life-saving needs; it shows its character as a nation. Admittedly, it developed a new trust, and the world has appreciated the 'Global Management & Strategic Leadership of India (Edit, 2020). US President twitted, and it goes viral, and that expressed the very point I am arguing for in this paper.

"In a tweet hours earlier, Donald Trump praised Narendra Modi for his strong leadership and said that India's help during this crisis would not be forgotten."Extraordinary times require even closer cooperation between friends. Thank you, India and the Indian people for the decision on HCQ. Will not be forgotten!" he said."Thank you, Prime Minister, for your strong leadership in helping not just India, but humanity, in this fight!" (Economic Times, 2020).

On the other hand, some studies tried to make controversies over the use and efficacy of hydroxychloroquine. The most reputed medical journals Lancet and the New England Journal published controversial research showing the cardiovascular risks in using the drugs. As a result, the WHO stopped trials of the drug and its prescription to control Covid-19 positive cases (Servick & Enserink, 2020). However, the Indian Council of Medical Research did not accept the research and continued the use of the drug (ANI, 2020). But, researchers could

not produce the data to review, and then the journals withdraw the research papers in the absence of proof. It raises medical ethics issue concerning data ethics & patients' privacy. Researchers must think that if the fact was not well established then stopping the use of that drug which was controlling the Covid-19 could have saved many people or many people died only because of the unethical controversial research; they were not given the medication. Consequently, the World health organization who has suspended the trial of the drug over safety concerns resumed its testing (Davey et al., 2020). One of the studies shows the effectiveness of the drug in controlling the infection in an early stage; first six days, and when the drug applies with azithromycin combination it gives results in 5 days as represented in the figure given below which shows percentage of patients with PCR-positive nasopharyngeal samples from inclusion to day6 post-inclusion in COVID-19 patients treated with hydroxychloroquine only, in COVID-19 patients treated with hydroxychloroquine and azithromycin combination, and in COVID-19 control patients (Gautret et al., 2020) (Fig. 2).

India has occupied the centre stage for many countries, and they have realized the global leadership of India in the fight against covid-19. India has shown good intention, goodwill and empathy for humanity. The Global Management & Strategic Leadership model it has presented and practised springs from applied ethics (Tännsjö, 2011). Following the virtues like care, safety and humanity first, India proves its practical ethics of accepting the whole world as a family. Indian global ethics is deeply rooted in Indian culture. India shows its global ethics (Madsen, 2004) whenever the world expects and demands. India has applied the pragmatic approach utilizing the medical resources for the maximum number of people for social welfare (Foot, 1985; Anderson, 1982). It has followed duty-based ethics (Micewski and Troy, 2007) in supplying the medicinal drugs, types of equipment and has shared medical experiences in controlling and saving the people across the whole world from Corona outbreak. Addressing a conference at Whitehouse on Covid-19, US President Donald Trump praised India and Indian people and said Indian Prime Minister is terrific in allowing the export of the drug to the US (India, 2020).

Moreover, it shows the character and virtues of a leading nation. India, with these virtues, has become a global leader and has won the trust of many countries. Thus, India has not only exemplified an active worldwide leadership and strategic management model in the battle against Covid-19 by fighting on both national and international fronts but also has earned a global image in the covid-19 world by

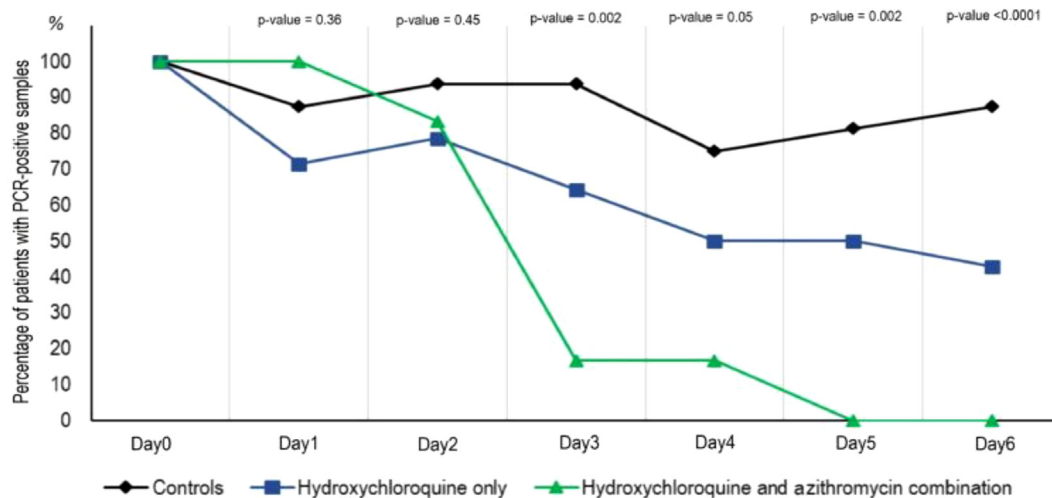


Fig. 2. Percentage of patients with PCR positive nasopharyngeal samples from inclusion to day 6.

motivating and fulfilling the hopes of the other countries. As a result, despite the crucial challenges; covid-19, India has brighter economic prospects as many industries, companies and corporate people are planning to shift here as a covid-19 effect in search of a 'New-Normal' for business-economics, engineering and management services. Therefore, India has set a new benchmark for Global Management & Strategic Leadership.

5. Challenges & opportunities to covid-19: The New-Normal

In a recent report, the World Economic Forum reflects on covid-19 challenges & opportunities in which it mentions that it will reshape the global economy (Weforum, 2020). Tarik S. El-Bawab so rightly says: "The hardship of the pandemic has furthered the impact of communications and networking technologies on human lives in many ways and is opening the eyes of our community to new research challenges (Chaulia, 2020)." The new normal will take some more time to take its shape, but one thing is for sure that there is a need for significant medical awareness; a challenging task is to change the lifestyle and social health practices. Several studies based on mathematical modelling and drug testing proves the worth of hydroxychloroquine and social distancing as a right health-management strategy in controlling the pandemic. Social distancing, Work-from-home, Respiratory hygiene, use of mask & sanitizer are the unavoidable healthy social-practices in the new-normal. US India Business Council (USIBC) observes: India has an opportunity to create a resilient, diversified globally attractive economy for manufacturers (India, 2020). Responding to emerging covid-19 challenges & demands pharmaceuticals, medicinal pieces of equipment, online software mechanisms for educational, health and other engineering and management consultancy projects will create an abundance of opportunities in India and the world (India, 2020).

6. Medical Ethics: Ayurveda, Yoga, Homeopathy and Unani strategies to combat Covid-19

it's pragmatic to follow strict measures and medical ethics to maintain excellent personal and social hygiene by cleaning surroundings, boosting immunity and protecting ourselves from covid-19. Different types of medicines and methods can be useful to avoid infections but adhering to the guidelines is necessary, and caution is required while treating the patients, especially looking at the criticality of the disease and stages. Ministry of AYUSH works for the development of medical ethics, care and strategies for the people of India. Under the ministry,

the efforts have been made to improve the health of the people by applying Ayurveda, Yoga, Unani, Sidha and Homeopathic medicines and therapies. Ministry has been working on multiple strategies to fight against covid-19. It has developed an app, namely, Arogysetu, which is the most downloaded app in the world. It gives useful information about covid-19 symptoms and information about infected patients in close locations (Ayush, 2020).

Moreover, the ministry has provided a dashboard, a helpline number and an email to contact in case of emergencies. Indian mass population relied on Ayurveda and Yoga practices to boost their immunity so to avoid covid-19 infection, including bearing the mask and following the hand and respiratory hygiene. One of the Ayurvedic medicines has attracted the eyeballs of the almost everyone in India is known as *Tinospora Corifolia*. In local people, it is known as Guduchi or Giloy. It has been already used to fight dengue, but during covid-19 it has worked as an effective medicine to make a medicinal drink known as KADHA by using other ingredients like ginger, black paper and basil leaves. Ashwagandha (*Withania Somnifera*) is another ayurvedic medicine recommended to use. Some scholars have argued for the use of traditional Chinese medicines to treat covid-19 (Girija & Sivan, 2020), and some others have advocated a pragmatic plan for Ayurveda interventions (Rastogi, 2020). Ministry has issued national clinical management protocol based on Ayurveda and Yoga for covid-19 in which the guidelines are given to use the medication and dosage for asymptomatic and mild covid positives. Yogic practices have been recommended with different standing and sitting Asana (physical exercises) and Kriya (therapeutic methods) for improving the immunity and improvising the lung and respiratory capacities (AYUSH Ministry, 2020).

Ministry of Ayush has recommended a detailed guideline for Homeopathy medicines and treatments to apply according to the different stages of disease such as mild and severe but not critical. For the mild cases *Arsenicum album*, *Bryonia alba*, *Gelsemium semper-virens*, *Rhus tox*, *Eupatorium perfoliatum*, *Ipecacacunha*, *Belladonna*, *Camphora*, may be used depending upon the similarities of the symptoms. And, for the severe but not critical condition, the criteria recommended as follows: Dyspnoea, respiratory frequency $\geq 30/\text{min}$, blood oxygen saturation (SpO_2) $\leq 93\%$, $\text{PaO}_2/\text{FiO}_2$ ratio < 300 , and/or lung infiltrates greater than 50% within 24 to 48 h (HOMEOPATHY-AYUSH Ministry, 2020). Scholars have proven the efficacy of homeopathy medicinal treatment through mathematical modelling (Kalliantas, et al., 2020), and some others have recommended Merc Sol as one of the top homeopathy medicines out of 25 other supportive homeopathy drugs to treat covid-19 (Vaishampayan, 2020).

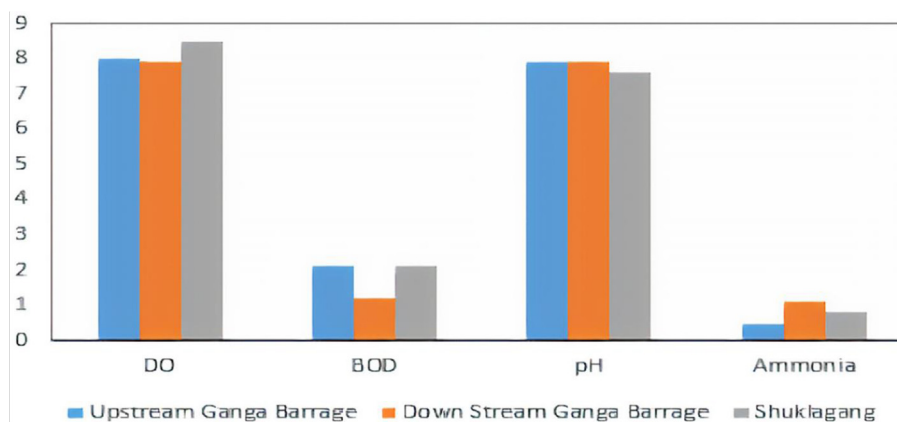


Fig. 3. Impact of Covid 19 on Water quality of Ganga on (Source CPCB 28th March 2020).

A guideline has been issued by the ministry of Ayush for Unani medicinal treatments to Covid-19. Some medicine is good and known for their antiviral medicinal properties such as Kalonji (*Nigella sativa*), Seer (*Allium sativum*), Zanjabeel (*Zingiber officinale*), Aslassus (*Glycyrrhiza glabra*), Afsanteen (*Artemisia absinthium*), Tukhm-e-Kasoo (*Cuscuta reflexa*), Khayarshamber (*Cassia fistula*) for gargle, Gilo (*Tinospora cordifolia*). Some medicines work as immunity busters: Khameera Marwareed (Not recommended for diabetics), Asgandh (Safoof). Besides, some Some Unani drugs are recommended specifically under prophylactic approach Zanjabeel (*Zingiber officinale*), Gilo (*Tinospora cordifolia*), Aslassus (*Glycyrrhiza glabra*), Khameera Marwareed, Safoof Asgand and some are used for symptomatic relief in upper respiratory tract infections: Behi dana (*Cydonia oblonga*), Unnab (*Zizyphus jujuba*), Sapistan (*Cordia myxa*), Karanjwa (*Caesalpinia bonducella*) (UNANI-AYUSH Ministry, 2020). Some scholars have explored the potency of Unani drug to treat the covid-19 they have recommended three measures to control the epidemic by Unani medicinal methods which are about purifying the environment, boost the immunity and to protect the health. They have suggested drugs in different forms such as Loban (*Styrex Benzoides*), Sandroos (*Hymenaea Verrucosa*), Zafran and vinegar (UNANI-AYUSH Ministry, 2020).

7. Environmental Ethics: Lockdown impact on environment

The most ethical action can be no-action at sometimes. It has been proved by the lockdown and curfews enforced due to Covid-19. It all resulted in right, good and necessary outcomes to the environment. Lockdown can be seen as a paradigm for environmental ethics. The Lockdown across the world due to pandemic has a positive impact on the environment. As a result, there is a most significant ever single year shift of three weeks delay on the earth overshoot day. Some studies have shown a good improvement in air and water quality index in India. The most polluted location, like Ghaziabad and Delhi, has demonstrated improvement in air quality (Nikhat & Fazil, 2020; Lokhandwala & Gautam, 2020). Lockdown in India proved very useful for clean Ganga mission as socio-economic, industrial and farming activities decreased, and it resulted in rejuvenating the river. Studies show the ecological restoration in river basins in the form of increased dissolved oxygen and reduced biological oxygen demand, faecal coliform and nitrate. Although it is temporary, if wastewater and flow releases issues are tackled properly and treated adequately, the Ganga can be cleaned (Dutta et al., 2020). Lockdown had a positive impact on the environment. TDS concentration has reduced to a good level on surface water. It has lower down the air, water and noise pollution and has decreased land surface temperature in some regions in India (Mandal & Pal, 2020). Another study highlights point that due to lockdown there is a positive shift in "Dissolved oxygen (DO), Biological

Oxygen Demand (BOD), pH of river water by 79%, 30% and 7.9 respectively (Arora et al., 2020).

The following figure represents the point: (Fig. 3)

It argues that the curfew and breakdown in social commercial, industrial activities have worked as a vaccine for the earth to protect it from human-produced pollution (Arora et al., 2020). All in all, the covid-19 proved to be a virtue in disguise for environmental healing in India. It has nurtured nature and has restored the ecology and environment at the global level.

8. Conclusion

India has undoubtedly offered a working model for Global Management & Strategic Leadership. It has effective health management and medical ethics and is extending the medical care, safety and trust for the other countries as well. India has done well to cut down the severity of the covid-19 and has protected his people by mitigating the worse effects of the pandemic. Besides, the other medical methods such as Ayurveda, Yoga, and Homeopathy have helped people to develop immunity and protection from the disease. On the other hand, Lockdown has proved a sigh of relief for the environment and ecological restoration. But, India has to face specific security, defence and strategic challenges by the nations who are facing trust deficit because of their irresponsible attitude. However, in the view of the covid-19, world economics will undergo a drastic change and India will reap the benefits of good medical leadership. Hence, accepting India as one of the influential global leaders, the major countries of the world will trust the people and land of India for the future investment and industrial growth. Therefore, the contribution of India to the world socio-economy will bring a better change to the 'New-Normal' covid-19 world.

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