Post-pandemic agenda for change

Nature rejuvenation for eternal development

Rajendra Singh and Indira Khurana

Dedicated to

Prof G D Agarwal, who gave up his life for the *aviralta* (free flowing) and *nirmalta* (clean and clear) of river Ganga

Inspiration

Migrants and villagers, who braved the pandemic and continue to strive so that the forests are healthy, rivers come alive, the country is fed, and services provided.

Mentor

Jal Purush, Rajendra Singh
Chairperson Tarun Bharat Sangh

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Foreword

The COVID 19 pandemic has proved yet again that the present model of development does not augur well for the planet: Its natural resources, people and the economy.

This development model has destroyed the environment and resulted in climate change, biodiversity loss and increased vulnerability. It has destroyed water resources across the world and led to displacement, disaster and conflict. This model is dependent on 'big' projects which are extractive in nature, destroy the planet's natural resources and benefit only a few, while increasing vulnerability of large populations across the world.

While the cost has been incalculable, this pandemic has taught us invaluable lessons. It has taught us that our lives are dependent on the health of nature and the environment. It has humbled us to realize that no matter what be our might, all it takes is a tiny virus to immobilize us. Tampering with nature comes with huge losses and one needs virus to immobilize us. Tampering with nature comes with huge losses and one needs to question if this tampering is really necessary.

The pandemic is thus a reminder that there is need for revolutionary action for sustainable growth models. In India, there is now an increased focus on *atmanirbharta* or self-sufficiency. This *atmanirbharta* needs to start from the villages through the gram sabhas or village communities, wherein the villagers rejuvenate their natural resources and livelihoods. This *atmanirbharta* will come when nature is rejuvenated, from healthy forests and soils, filled aquifers and *aviral* (free flowing), *nirmal* (clear and pure) streams and rivers.

For more than three decades, Tarun Bharat Sangh has supported communities to rejuvenate nature and as a result, rivers have been revived, greenery increased and livelihood dramatically improved. This and the ongoing efforts of the *Rashtriya Jal Biradari* and Jan Jodo Abhiyan campaigns, to revive some 100 rivers, rejuvenate nature and promote water literacy provides hope. These positive experiences reinforce that this revolutionary action of decentralized and nature aligned development is viable and the only way forward for living with the pandemic and beyond.

The purpose of this paper thus is to reflect on what the pandemic taught us, the lessons that we have learnt through our work in the past few decades and how together we can chart out solutions as we move forward to live with the pandemic. For the first time, the concept of *sanatan vikas* or eternal development is proposed for a planet with shared and peaceful common future.

We look forward to your thoughts

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Preface

Just how fast a pandemic can lock down the world was made evident by the Corona virus responsible for the COVID 19 pandemic. This is yet another zoonotic virus that crossed over from animals to humans. Zoonotic diseases emerge due to environmental degradation: Clearing large tracts of virgin forests is an example.

Destruction of nature comes with a cost. Cutting dense forests are an open invitation for disease and pandemics. Human health is dependent on the health of rivers, and the quantity and quality of water. Water is now even more critical for survival because of the heightened hygiene requirements.

The lockdown revealed the capacity of nature to regenerate by itself, that alternate ways of working are possible, and that people are willing to set limits to their demands as they seek sustainable solutions for peaceful co-existence.

The purpose of this paper is to reflect on the learnings of the pandemic and to use these learnings and the positive experiences on nature rejuvenation to chart a changed path for a healthy planet. It proposes a course of action that is based on evidence and traditional wisdom, aimed at bringing local self-sufficiency and equality.

The paper is an outcome of deep discussions with Bhaiji, Magsaysay and Stockholm Water Award winner Rajendra Singh, Chairperson of Tarun Bharat Sangh (TBS), and research. It draws on his innate wisdom and experience and openness in sharing.

This paper would not have been possible without the untiring support from Maulik Sisodia, Executive Director, TBS and his entire team. Paras Pratap Singh was extremely helpful in coordinating photographs and other requirements. The photographs provided by so many friends is gratefully acknowledged, as is the role of Shilpi Jain, who was instrumental in linking to the company which voluntarily provided design support. It would also not have been possible without the technical inputs and constant challenging from Ashok Khurana, Director General (retd), Central Public Works Department.

I look forward to receiving comments, suggestions and sharing of experiences, so that collectively we can all contribute towards making this planet a peaceful and healthy place for us all.

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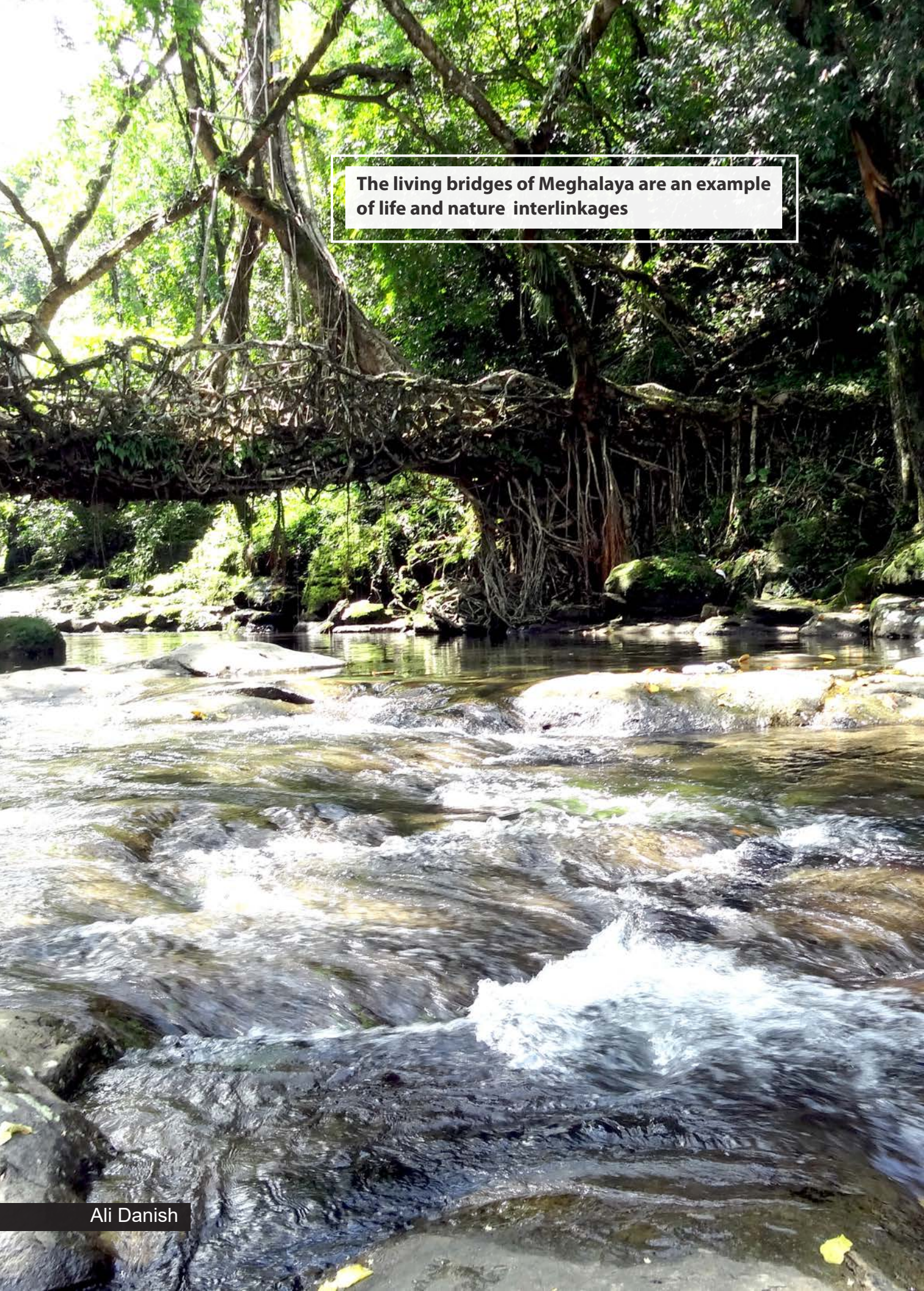


The living bridges of Meghalaya are an example of life and nature interlinkages

Ali Danish

Section I: Introduction

Over the past few decades, mounting evidence indicates that the current natural resource-intensive and exploitative development model adopted by countries across the globe is not viable, sustainable or equitable. It is extracting an unnecessarily heavy toll on natural resources. This model has led to:

(a) Global warming and climate change leading to unpredictable monsoon patterns and increased extreme weather events;

(b) Grievous impact on water resources;

(c) Destruction of biodiversity; and,

(d) Emergence of new diseases.

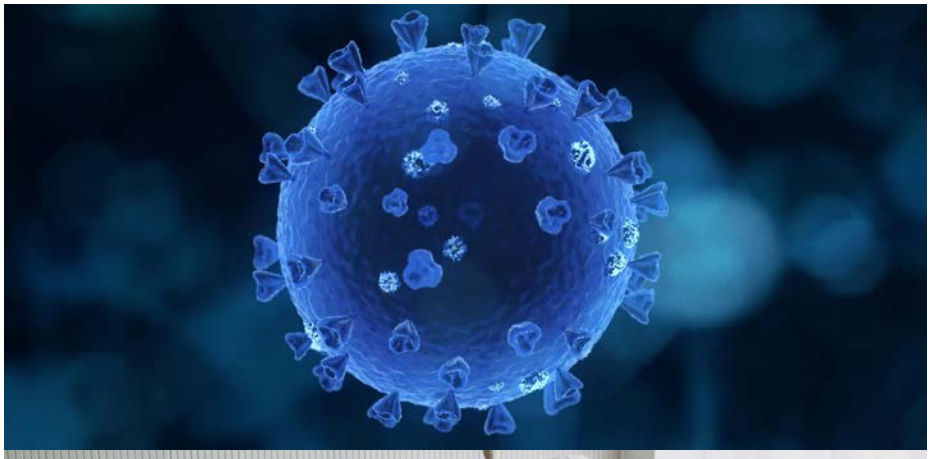
It has also led to widening the gaps between the rich and the poor, distress migration and increasing conflicts within and between countries. Sagging under the weight of this development model, the world is moving on a one-way street of self-destruction, merely for economic gain.

The present development model does not augur well for the planet or its people. It has led to climate change, biodiversity loss, increased vulnerability and social and economic disparity

One casualty of this model is water. If the state of water resources is an indicator of how humans have lived on land, the answer is: Poorly. Water underpins survival, fulfillment of human rights, nature regeneration, peace and security. It enhances a feeling of well-being. Unfortunately, water faces immense threat globally in terms of quantity, quality, access and sustainability. It is being increasingly assessed merely for its economic value. Groundwater reserves are drying up and rivers are disappearing. Prosperity expansions is at the cost of increasing complexity of water quality problems as dangerous new contaminants emerge. Most responses to address the containment of these problems is to develop profit-making and energy-consuming technologies and treatments, rather than prioritizing investment on avoiding pollution.

In June 2020, Nisarga was the strongest tropical storm to strike Maharashtra since 1891. Scientists agree that climate change has increased the frequency and severity of cyclonic storms

Post pandemic, India is focused on being* atmanirbhar *or self-sufficient as it rebuilds lives, livelihoods and the economy. For this water is central



Caused by a RNA Corona virus, COVID 19 originated in China in December 2019 and rapidly spread across the world, challenging governments, health infrastructure and people

The world is slowly devising mechanisms of living with the COVID 19 pandemic which began in December 2019, recognizing that drastic changes will be required to rebuild lives, livelihoods and economies. It is thus crucial to review, reflect and redesign to adapt to the changed circumstances. Nature, especially water, will play a critical role. In case of India, water will be central to achieve *atmanirbharta* or self-dependency.

This paper reflects on the fallouts and implications of the pandemic and ensuing Lockdown and charts a course that is based on time-tested traditional wisdom and community-centric approaches.

Water conservation led to revival of natural resources and in situ livelihoods in Alwar district of Rajasthan. The pandemic reinforces the need for localized self-sufficiency wherein water will play a critical role

Section II: India's water behavior

When water becomes business, the resource is not rightly valued.

India was once known for its ecological wisdom, water-prudence and climate-specific rainwater conservation systems and practices. For centuries, these systems were managed by the people themselves as they adapted their lives to the water resources that were locally available.

Over the past few centuries India began to view water as a commodity and an object for trade. As a result, these practices are now largely forgotten as the country has turned towards extractive processes and unsustainable uses of water.

The results are visible: Depleting groundwater and drying of surface waterbodies. Several rivers have either run dry, are overexploited, encroached upon, sand mined, polluted or diverted.

Decades of investment have failed the river Ganga *(see Box: Ganga concerns).*

The decline in water resources began when the perception of water changed from respect and reverence to commoditization and economics

Ankit Khurana

Catchment destruction, deforestation and overexploitation of water has led to drying up of wells, ponds and tanks in Bundelkhand region, known for its traditional water conservation measures

Around 70 per cent of surface water resources and a growing percentage of groundwater sources are contaminated by biological, organic and inorganic pollutants and heavy toxic metals. Many water sources are now unsafe, not only for human consumption but also for irrigation and industrial needs.

Ganga concerns

The river Ganga is so closely associated with the civilization, culture and spirituality of India and yet, there is little public engagement towards reviving the river so that it flows unfettered and clean. The rejuvenating powers of the river emerged from its natural, unfettered and bubbling flow which allowed for dissolution of minerals into the water and attain optimal oxygen levels. Modern science has proved that the Ganga at its point of origin contained bacteriophages capable of killing several microorganisms. With diversion of the Ganga water into pipes and its pollution, this characteristic no longer exists.

The Ganga is a striking example of how a revered river, respectfully called mother is now a receptacle of waste. This Ganga river basin is emerging as a major cancer centre as it has turned into a large mix of heavy metals, organic and inorganic pollutants and other industrial and agricultural waste. A river has now turned into a sewer. In large stretches there is hardly any flow left. There is hardly any safe water available in West Bengal. The Ganga proves that while nature is adequate enough to meet the needs of all living beings, it cannot bear the burden of greed.

The Ganga, a living of symbol of India can be saved only if we honestly question ourselves on how we have let the river come to the stage it currently is

The Ganga is a victim of contradictory action: We revere the river, call her sacred and 'mother,' and yet pollute the river with impunity

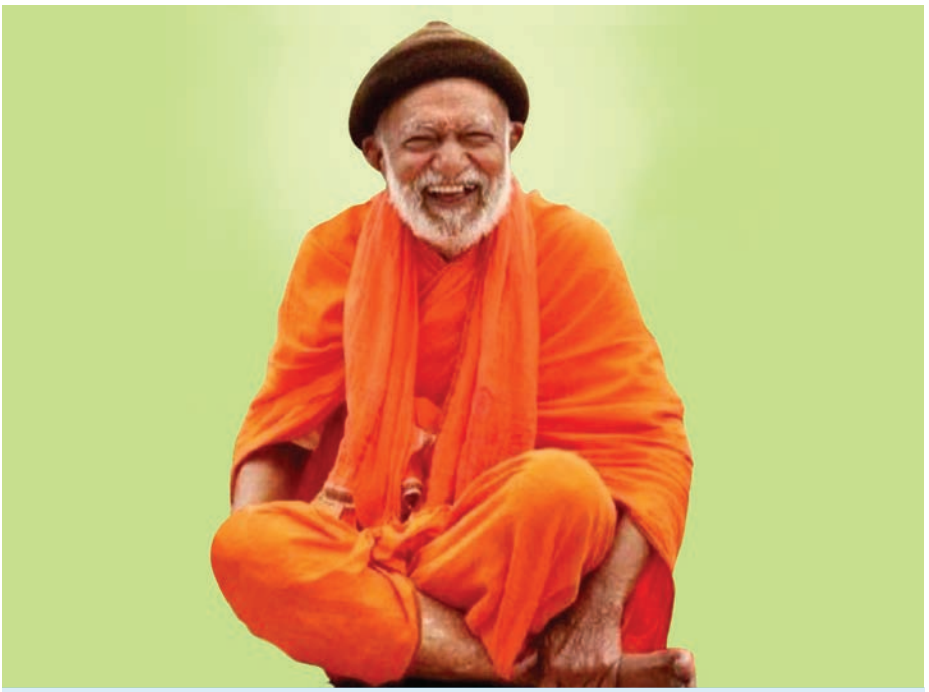
The Ganga aviral yatra which travelled from Gaumukh in Uttarakhand to Ganga Sagar in West Bengal in 2018-19, observed that the investments to improve this river have largely been rendered useless, since these have not been directed towards addressing causes of the river's critical state. This national river is now in the ICU: The river is suffering from a serious heart condition, but the efforts appear as if a dentist is performing cosmetic treatment.

We need to ask ourselves, "How have we allowed ourselves to convert the Ganga who we call *ma* or mother, to a sewer system that carries our waste? How have we allowed ourselves to earn from exploitation of 'mother' Ganga?

When the health of a river suffers, so does the economy and health of the people. In 2018, a report from the Central Water Commission revealed the presence of toxic heavy metals such as cadmium, chromium, copper, iron, lead and nickel in 16 river basin systems. Heavy metals cause serious health consequences. The Ganga river basin has emerged as a major cancer centre. It was to draw attention of the government and the people to stop interventions in the river so that it could be ever flowing and clean that Swami Sanand or Prof G D Agarwal sacrificed his life.

It was to take forward the work and legacy of Swami Sanand that the subsequent water literacy yatra was planned from October 2019 onwards.

The water literacy yatra was undertaken to take forward the legacy of Swami Sanand and create awareness, and was subsequently modified due to the pandemic



Swami Sanand gave up his life for the river Ganga. With him the world has also lost comprehensive and holistic knowledge on the river

The water literacy yatra

The water literacy yatra was jointly undertaken by Jan Jal Jodo Abhiyan, Rashtriya Jal Biradari and Tarun Bharat Sangh and took place between October 2019 and March 2020. The yatra and had to be modified/halted due to the COVID-19 pandemic and Lockdown which began on March 24, 2020. The purpose of the yatra was to:

(a) Spread water literacy;

(b) Draw the attention of the people on the state of the Ganga and other rivers; and,

(c) Strengthen a campaign for rejuvenating rivers and conservation of water resources.

This yatra allowed for holding more than 350 discussions in 19 states which provided an outreach to more than 2,50,000 persons.

While the yatra was under way, the world was hit by the COVID 19 pandemic. Countries, including those in the powerful 'developed world' were brought to their knees with the spreading infection that shattered robust health systems, forced national lockdown and devastated economies. While countries collaborated on research, vaccines and treatment protocols, they had little capacity to support each other. Suddenly a globalized economy had lost its sheen as nations scrambled to address requirements of the pandemic that struck them. In India the Lockdown began on March 24, 2020 and subsequently, the concept of *atmanirbhar* or self-dependence/ sufficiency has emerged.

As the pandemic affected one country after another, globalization began to lose its sheen as the focus shifted to self-preservation

The water literacy yatra was able to reach out to people across states and hold discussions in rural and urban environments

Section III: Reflections

As global death tolls continue to mount and people are forced to stay indoors, life changed. New ways of working and education through online platforms gathered momentum. People realized that they could do with 'less.' Photos captured the disappearance of the pollution haze and clear skies, rivers appeared cleaner and wildlife recaptured their territories. It seemed that nature had got a much-needed breather – albeit at huge cost. While life will never be the same again after the pandemic, the deeper question to ask is: **Will humankind change?**

The pandemic has made the following abundantly clear:

(1) *Destruction of nature sickens humans:* Nature has always been a casualty on the altar of development and in the race to establish supremacy as a global economic superpower. Rather than setting the pace of development within limits of needs and not of greed, projects that destroy nature are being implemented. Centuries old diverse forests are demolished to make way for dams, roads, railway tracks, industrial areas, coal and mineral mining. Vast tracts of land are cleared up for infrastructure projects.

Clearance of forests leads to emergence of new zoonotic diseases where the virus has transferred into humans from animals. Some 75 per cent of emerging infectious are due to zoonotic viruses as is COVID 19

When the existing nature balance is disturbed, there are implications *(see Box: Implications)*. Increasing scientific evidence points to linkages between clearing of forests and the emergence of new diseases and epidemics. Some 60 per cent of all known infection diseases and 75 per cent of emerging infectious diseases are due to zoonotic viruses, that is spilling over from wild animals to humans.

India is among the top geographical hotspots for zoonotic diseases, and in recent past, India has seen emergence and re-emergence of high priority and neglected zoonoses

According to researchers, usually in undisturbed habitats, viruses keep circulating in mild forms in animals. It is when this equilibrium is disturbed and they come in contact with humans, some cross the species barrier due to a mutation, and human infections start taking place. When extractive industries are implemented in largely uninhabited wilderness areas, they provide the opportunity for human exposure to novel pathogens.

Open cast mining destroys habitats and biodiversity and causes pollution and disease. Alternate less violent energy sourcing is possible

Large infrastructure projects come at huge cost to the environment and the people, altering microclimates and changing ecologies

Implications

- In China, a 'four-pest public health campaign' to eliminate sparrows, rats, mosquitoes and flies was launched between 1958 and 1962. It was thought that sparrows caused immense economic harm affecting its economic development. This was one of the worst environmental disasters in history with devastating consequences. As sparrows were eliminated, locust attacks multiplied since no longer were sparrows present to eat these insects. This led to and one of the greatest famines, resulting in massive starvation and death.
- Burning of the rainforests in Indonesia led to forest trees not producing fruit, which in turn led the fruit bats carrying deadly virus fly elsewhere in search for food, beginning with Malaysia. Soon pigs fell sick as they consumed the fallen fruits the bats had nibbled on, as did the pig farmers. As they fell sick with brain inflammation, this was the first known emergence of the Nipah virus amongst humans.

As fires destroyed forests in Indonesia fruit bats flew elsewhere in search of food. Thus, began the journey and infection of pigs and humans by the Nipah virus

- The Kyasanur Forest Disease (KFD), also known as monkey fever was first found in Kyasanur forest of Shimoga district in the 1950s where it was found in monkeys and humans and is now endemic. This viral hemorrhagic fever has since then spread to humans in other districts of Karnataka, Kerala, Goa, Maharashtra and Tamil Nadu. The Indian Council of Medical Research attributes the transfer of this disease from animals to human beings and to other states to deforestation and climate change.
- Large scale interventions in river systems such as the 3 Gorges dam on the Yangtze river have shown that this can lead to catastrophic results, such as flooding in low rainfall areas, drought in green areas, biodiversity loss and spread of new diseases. In July 2020, the unprecedented levels of water in the dam due to unusually heavy rains led to 'distortion' in parts of the dam displacing certain structures and seepage is the main outlet walls.

COVID 19 too is due to a zoonotic virus and the pandemic is one of the results of pursuit of this extractive development. Several diseases have originated in China and it is important to understand why, and the repercussions of China's development model. China is keen to occupy the position of a global economic power and so it follows economic models that are infrastructure based and historically are not aligned with nature or its natural resources. This development is thus not one to be pursued. When profit becomes central to development, it is no longer development, but exploitation. The global movement of populations makes the environment conducive for a pandemic as COVID 19 has shown.

The message is clear: Tamper with nature at your peril. Unfortunately, in spite of this irreplaceable loss to nature and the emergence of new disease, this type of development continues.

While human health and well-being is directly linked to the health of rivers, the pandemic proved nature can regenerate, if given a breather

Nature has the capacity to regenerate. All it usually needs is 'a lockdown' from over-extraction and pollution as rivers such as the Ganga and Yamuna demonstrated

In India, great injustice has been done to her rivers and water resources as they face the brunt of 'development.' Lack of access to adequate and safe water leads to debilitating diseases and intergenerational consequences. Drought for instance leads to stunting and wasting of children. Water pollution causes life-threatening diseases. Some of these include, nervous disorders, various forms of cancer, arsenicosis, fluorosis, kidney and liver disorders, gastric disorders, growth retardation, hereditary disorders, skin disorders and miscarriages.

To assure and secure the future, there is a need to live in harmony with nature. Living with COVID-19 and possible future pandemics will thus require significant efforts in regenerating nature and aligning with it, rather than destroying it. Rejuvenation of rivers will be key for human health. India will need to make a choice between two models: Economic development on the fast track, or sustainable development aligned with nature protection and revival.

(2) *Nature regenerates:* The Lockdown provided a much-needed respite for nature to regenerate. Wildlife reclaimed their areas. Media reports highlighted how a temporary halt to developmental activities had reduced or halted enviormental destruction. The Himalayas could be seen from Jalandhar and even Saharanpur. Social media was full of nature-related messages, photographs and memes. River and air pollution abated. The quality of river Ganga improved markedly, proving that the river needs a Lockdown from the pollutants that make their way into the river. Thus, if pressure on nature is released, quick regeneration is possible. However, the decision to let nature be, is ours.

(3) *Hygiene needs water, which the poor don't have:* As the pandemic raged in countries, the role of maintaining hygiene to prevent infection transmission was identified as critical. Maintaining hygiene is water intensive. Prior to the pandemic, the world was already struggling with water scarcity. During the pandemic, reports from several water scarce countries began to pour in of how it was impossible to maintain hygiene in the absence of water. In India also, slums found this as a challenge as did rural areas where water supply is erratic. Those without access – largely the poor, were further marginalized. Access to adequate water is critical for human equality and for overall health of the nation.

The pandemic starkly reflected how the poor were at a clear disadvantage as they faced challenges of maintaining hygiene due to limited access to water and struggled to maintain social distancing in overcrowded settlements

Crowded settlements and slums where residents were unable to practice social distancing were vulnerable to becoming hot spots of COVID 19

(4) *Immunity helps to ward infection:* Adequate nutrition strengthens the immunity levels and enhances the capacities to fight against infections, including COVID-19. In India, large populations of the poor, especially in rural areas, suffer from malnutrition, which is further exacerbated with limited access to the clean water. Their chances to fight the infection are limited. Thus, the strategy to fight COVID-19 by keeping immunity levels optimal through balanced diet and supplements are out of reach for a large population. This scenario can change through local food and nutrition security.

(5) *Practicing social distancing in India is a challenge:* Social distancing is a major defense tool to prevent COVID-19 infection. For slum dwellers and those living in shanties, under flyovers and in illegal crowded *jhuggies* or shanties, this concept was practically impossible. Clearly, a mechanism that enables 'decongestion' of urban areas is necessary. But for the rural population to remain in their villages, they need economic livelihood and opportunities in their villages itself. This requires building a nature bank replete with water resources.

(6) *Decongestion of urban areas is possible but needs rural natural resource regeneration:* India is rapidly urbanizing leading to the sagging of infrastructure in towns and cities. As an increasing number of villages continue to dry up and distress migration continues unabated the shift from rural to urban areas is causing the urban landscape to move in a dangerous direction. Urban areas continue to build infrastructure at the cost of natural resources to cater to the incoming population, and are not able to keep pace. As a result, several cities are simply giving away under the weight of the population influx and population density. Large portions of the population live in congested areas bereft of basic services, and in unhygienic conditions. They become hot spots of infection and disease such as COVID-19 even when they were not responsible for the first cases in the first place.

This urbanization has still not reached the point of no return. Reverse migration — back to rural areas could help reverse this trend and decongest these crowded spots. By facilitating and investing on rural resilience, the future urban landscape can be saved. Distress migrants from rural areas migrate towards cities thinking that their secured livelihood is more assured in these areas. The forced migration needs to be reduced dramatically. In any case with the increase in technological interventions and the use of artificial intelligence, the need for human resources in urban areas will be further reduced.

Villagers have always understood the importance of water but are helpless as sources dry up. Decongestion of urban areas is possible through regenerating rural landscapes

Villagers understand the value of water. As sources dry up they are left with little option but to migrate

(7) *The migrant challenge:* Villagers have always understood the importance of water. Unfortunately, as water is no longer available in their villages, they have become helpless and have no option other than distress migration. When the village water has dried up feeding urban pockets, where will these villagers go, if not to urban areas in search of work and money? Who would like go to urban areas and live in crowded unhygienic conditions in bastis and slums when they have their own lands back in the villages?

The plight of migrants because of the Lockdown and their struggle to go back to their homes has left a deep scar on the collective conscience. It is important to understand and address why most of the migrants leave their villages for ‘greener pastures in urban areas’ in the first place. Most of the migration takes place because agriculture is not possible due to water scarcity, and no other livelihood options are available. This is distress migration.

Distress migration leads to disruption of the social fabric, health issues, increased burden on women, hunger, malnutrition, trafficking, child marriages and suicides. The health burden on the women left behind to live in drought includes increased spontaneous abortion, uterus prolapse, kidney stones and water-borne diseases. The men who have migrated often come back with diseases such as TB, silicosis and asthma. Vaccination routines are thrown out of gear. Children leave school.

This year, the migrants faced double distress migration: One in search of work and another in returning back home because of the Lockdown. With their uncertain futures, most migrants who made it back to their homes, don't want to leave their villages again. But for this, they need water for agriculture or other livelihood opportunities in their villages itself.

(8) *Discipline and sewa (service) are necessary to defeat COVID-19:* The pandemic taught us the need for discipline by remaining under Lockdown, maintaining hygiene and practicing social distancing. This discipline is reminiscent of India's behavior and practices till almost 700 years ago, when India was considered as a global leader.

As life came to a standstill because of the Lockdown, for the poor and migrants, survival was at stake. Fortunately, as always, this Lockdown also brought out the generosity of Indians who helped those in need, easing and sharing their pain. Civil society organizations and individuals across the country came to the rescue of destitute families in the villages and towns by providing ration and sanitation kits and spreading awareness about social distancing and hygiene practices. This work demonstrated how it was possible to help others while maintaining the strict norms to prevent self-infection. Civil society will continue to play a significant role in alleviating pain and poverty in this post-pandemic world.

The largesse of Indian society was visible in their efforts to support migrants on their journey home and provision of ration

Civil society left no stone unturned in reaching out to migrants and the poor immediately following the announcement of the first Lockdown and providing them with ration and hygiene kits

(9) *Globalization focuses on economic net rather than social security systems:* The current global systems are designed for an economic net and yet the gap between the rich and the poor is widening. Most of these models are infrastructure-heavy and ecologically unsustainable. Thus, this model is neither equitable nor sustainable. This approach has shifted global priorities from putting in place security systems that can sustainably address needs of all, to priortizing profit for a few.

When monetary gains alone take centerstage, at the cost of sustainability and inequity, chaos follows. Climate change is a striking example of an outcome of this development model which has led to erratic monsoons, increased incidences of extreme weather events, rise in sea levels, increased poverty, emergence of new disease and biodiversity loss, all of which leads to increased insecurity.

Smoke spewing from chimneys has led to air pollution and respiratory and other diseases. Air pollution does not spare the unborn child either

Economies are a product of healthy societies which need clear air, water and food. Mere focusing on economic gain will not serve the purpose

Economies are a product of health human societies, which in turn rely on the natural environment – clean air, water and food. As the world remerging from a shutdown, the opportunity to move towards nature regeneration protection for eternal or *sanatian vikas* should not be lost.

Mohan Upadhye

As frequency and severity increases, climate change has made India extremely vulnerable to natural disasters such as the tropical storm Nisarga

Section IV: Nature rejuvenation for eternal development

Emerging and living with the pandemic will require revolutionary action to bring about a shift from development to rejuvenation for *sanatan vikas* or eternal development (*See box Sanatan vikas: Jal Purush speak*).

India will need to make a choice between two models: Economic development on the fast track, or sustainable development aligned with nature protection and revival. This is necessary for *atmanirbharta* (self-sufficiency), especially for living successfully with the pandemic. This self-dependence and self-sufficiency will need to begin from villages. That means, changing the development paradigm from a centralized natural-resource extractive model to a decentralized model of rural community managed natural resource regeneration.

For self-sufficiency India will need to adopt models that are aligned with nature. Self-dependency for India will need to begin in the villages

Ranjan Panda

Sal seeds from sal forests in Jharkhand provide income support to forest communities while providing environmental services

Vishwajeet Yadav

Replenished dugwells meet cultivation needs as these fields from Satara district of Maharashtra demonstrate

Critical steps for developing villages as sustainable self-sufficiency units will include creating:

(i) Water sufficiency; (ii) In situ livelihoods; and (iii) Nutrition sufficiency.

If water is assured the other critical steps are assured. Creating water self-sufficiency in villages will include:

(a) *Rainwater harvesting and conservation:* Conserving the rain that falls through locally-appropriate water harvesting systems and structures such as check dams, ponds, talaabs, bunds, recharge wells and others. This conserved water can be used either directly or for recharging surface and groundwater reservoirs.

Food and nutrition sufficiency will depend on building local water security, which in turn is possible through rainwater conservation and judicious use of water

With appropriate water conservation structures, irrespective of rainfall, it is possible to meet the needs of the planet and the people. Villages in Rajasthan stand testimony of this

(b) *Using water judiciously:* Adopting crop patterns according to the water availability and bringing in efficient use of it, would result in the availability of sufficient water for household needs including hygiene, and catering to future drought-like scenarios.

(c) *Building local water security:* The villages need to work towards having least dependence on sources outside of the village or piped water supply from distant locations. The villagers can themselves decide on the crop pattern depending on water availability and can monitor in a way that no one is left out from accessing the water.

With the available water from local sources and leading to food and nutrition security, the villages can develop as self-sustaining, economically viable units focused on agricultural development and rural-based enterprises.

Fortunately, this is a time-tested model for India. The pandemic reinforced the time-tested approach adopted by Tarun Bharat Sangh (TBS) more than three decades ago. In this model, the village is taken as a unit for self-sufficiency and the river basin as a system. This work, over the years has led to the revival of eight rivers and also turned these into perennial rivers. Because of the dynamic relationship between the surface and groundwater, the wells, ponds and talaabs in the river catchment areas have filled with water. This work demonstrated the resilience capacity of nature and the long-term viability of building economies around nature regeneration. It has promoted local food and nutrition security.

Sanatan vikas: Jal purush speak

COVID-19 made people aware of the *vinaash* caused by the so called *vikaas* — the destruction caused by the development strategies of the government. So far, development has mostly led to destruction, displacement and disaster.

Due to COVID-19, the people who had been displaced and had left their villages to work in cities are returning — this is a revolution. But revolution by itself is not enough; it needs to be combined with action for change, to transform it into rejuvenation and *sanatan vikas*.

The meaning of the word sanatan is areligious and complex: It is a combination of spirituality and wisdom based on scientific evidence. *Sanatan* is about revival and rejuvenation. It means *saidav nitya nutan:* Eternal, new and changing. This constantly changing development is based on indigenous knowledge systems that are aligned with nature and the changes in nature. It is sustainable development in its true form, and adaptation by humans at its best.

For eternal *vikas* we need to find ways to bring prosperity in village from what nature offers. We need to start soil and water conservation and management, seed conservation in every house, making our own fertilizers, and so on. We don't want development anymore, we want rejuvenation of nature, of humankind.

Based on spirituality and science, sanatan means 'eternal,' and is about rejuvenation and revival. Living with the pandemic and achieving atmanirbharta will require nature rejuvenation

This rejuvenation will generate employment for everyone and pave the way for self-reliance. Self-reliance, or *atmanirbharta* for the poor will not come from the things that the government talks about. *Atmanirbharta hawa se nahin aati hain*; *atmanirbharta mitti se shuru hoti hain*. Self-reliance doesn't just does not come from thin air; it starts from the soil. It comes from villagers being able to find work and fending for the necessities of life in the village itself. This includes farming, and most importantly, villages having their own water. A village can become self-reliant only when it has its own water. And only when villages become self-reliant and self-governing units, will India become a true *atmanirbhar* republic.

As soil and water conservation measures began to yield results, agricultural activity increased in villages of Alwar district of Rajasthan. The lives of the women eased as earning increased and the menfolk did not migrate

India thus needs to adopt the path of rejuvenation for economic, social and environmental progress for *atmanirbharta* and *sanatan vikas*. When humans consider themselves part of nature and mold their character and development work to align with nature, this is adaptation. There is then little displacement and hence limited disaster due to human interventions. If we are able to do this then we can live in endless peace and prosperity, when the communities are content, nature is 'happy' and is not 'forced' to respond to our interventions in the form of disasters and disease. This is *sanatan vikas.*

People in cities need to understand that the water in their taps comes from the villages. If we take away this water, we deprive people in the villages of their means of livelihoods and they will be forced to come to the cities. Urban dwellers need be disciplined in their use of water, as well as practice water harvesting and conservation. Our cities urgently need a water literacy movement, and this is something that the government can do. The Indian urban future is moving in a dangerous direction. The reverse migration caused by COVID-19 has reduced the pressure on urban infrastructure to an extent, but we need to continue educating our urban populations.

Rural communities, on the other hand, understand the relationship of water with other elements of life better than us. They know that nothing is possible without water, and they have the will to conserve it. They also know that when there is acute water shortage, they are the ones who get displaced. But they now have limitations in what they can do and need our support.

Urban populations need to understand that their water supply often comes at the cost of rural depravation and need to be more disciplined in its conservation and use

In the currently adopted development process, there is displacement of this knowledge system and disrespect of nature. With this displacement begins destruction, ultimately leading to disaster.

Post-pandemic, there must be a global movement to secure the common future through nature regeneration and adaptations aligned with nature.

With appropriate water conservation structures, irrespective of rainfall, it is possible to meet the needs of the planet and the people. Villages in Rajasthan stand testimony of this

Section V: Road to rejuvenation

Rejuvenation begins from the smallest unit in rural and urban areas. *Atmanirbharta* starts from the soil *(mitti)*. It starts with filled aquifers and flowing rivers, with locally produced biogas, use of local seeds and biodiversity. It starts with democracy in the villages through *gram sabhas*. Thus, it is in the villages where the *gram sabha* has the capacity to initiate rejuvenation. For rivers rejuvenation also, the village is the smallest unit.

Discussions should be held with the *gram sabha* on how the river can be rejuvenated *(see Box: River rejuvenation)*. Priorities have to be decided so that work can begin accordingly. Resource mapping will need to be undertaken, village boundaries mapped, rainfall documented, water audits and budgeting undertaken by the villagers. They have to decide whether they want to revive the river, or they want to turn it into a receptacle of waste and let it die.

Almost always the gram sabha is favour of rejuvenation. They realize that river rejuvenation is associated with their dignity, lives and livelihoods. It is associate with their *samann* or respect and recognition. One striking example is the facilitation of the villagers of Hamirpur for their Arvari revival work, when then President K R Narayanan visited the village to felicitate them.

With restoration of water resources and river comes livelihoods, dignity, respect and honour for the gram sabha or village community

Work that will bring water and benefits to all then starts. As work progresses, nature revival and rejuvenation begin. Water bodies begin to have water, stretches of the river are revived and rejuvenated. Agriculture becomes possible. Greenery increases, biodiversity increases and with this revival happiness levels increase.

In urban areas, it is important to activate ward sabhas, raise awareness and launch and strengthen campaigns on water literacy and conservation. Urban citizens need to realize that they are using village water and must use this with a conscience. The urban population must harvest rainwater and use this water supplied by the villages of India judiciously. This will only be possible the villages have adequate natural resources that can sustainably provide livelihoods for the people who stay there.

There is a strong need for urban water literacy, so that with their involvement it is possible to clean urban stretches of the river and also prevent pollution in the first place.

In the premises of Tarun Bharat Sangh, village models outline the existing natural resources and proposed water conservation measures. As work proceeds, water conservation structures dot the landscape. Several rivers in Rajasthan which have now turned perennial

River rejuvenation

River rejuvenation will be key for *atmanirbharta* and *sanatan vikas*. The river is a complete system that includes the streams that form it, the water in the streams and the river; the terrestrial, aerial and aquatic biodiversity it supports; the surface and underground flow; and, the people living along its banks. Rejuvenation of rivers will play a central role in life after the pandemic. Rivers are integral part of the natural ecosystem, wherein different resources are interdependent.

Civilizations were set up along rivers: When the rivers were affected civilizations were wiped out. Thus, human health and survival depends the health of our rivers. If rivers are flowing and clean, so is the health and economy of the people. This rejuvenation will need to be initiated from the smallest units in villages and urban areas and then move upwards to cover larger areas.

Atmanirbharta starts from the soil, from filled aquifers and flowing rivers. It starts from democratic decision making at the lowest level, the village

In Sariska, Rajasthan rivers have become perennial due to soil and water conservation. Water is now amply available for the forest animals and for agricultural activities of the forest dwellers

Section VI: Enabling environment for change

Conviction that a nature-centric and people driven model of development is possible emerges from the following:

(1) *Water is at great risk, but there is hope:* While India has chosen the path of centralized and resource intensive development, its people do continue with the culture of living with nature and doing it minimal harm.

While exposing the pitiable conditions of rivers and water resources, the *pani yatra* also came across beacons of hope, where water sources were respected, revived and augmented. Local communities had rallied together and invested their confidence in decentralized and locally managed solutions to conserve water, that were aligned to the local ecology and to nature. Successful efforts were made to revive rivers and to liberate these and other surface bodies from encroachment, over-extraction, sand mining and pollution. Some legal battles were won. While there were uphill struggles, there were successes as people remained steadfast to their commitment of rejuvenating water resources.

Through the *Rashtriya Jal Baradari* network efforts are being made for the rejuvenation of some 100 rivers in states such as Andhra Pradesh, Madhya Pradesh, Maharashtra, Rajasthan, Telangana and Uttar Pradesh. There is a need to intesify the campaign for river rejuvenation.

The COVID 19 pandemic has reinforced the need to regenerate nature. While water remains at risk in India, hope arises from the untiring efforts of communities to revive rivers and water bodies

The ray of hope also comes from the hundreds of streams and rivers which still flow unbated, untouched by human hand, revered in the true sense, flowing uninterrupted and clean. These rivers, and the respite that rivers got due to a slowdown of human activities, give hope that India continues to have a heart and can use its collective intellect to rejuvenate rivers for perennial and quality flow.

Efforts to rejuvenate the Agarni river in Maharashtra by the state team of Rashtriya Jal Biradari included digging Continuous contour trenches on the hill slopes. These pictures reveal the capture of rainwater

Thus, the *gyantantra* indigenous knowledge of India still exists, though it is covered by a layer of dust. This layer needs to be dusted off and the *gyantantra* needs to be revived. What India needs is a focus on strengthening the rural economy, using decentralized approaches that focus on the available local resources, topography and the ecology, viz-a-viz the needs of the people and aligned with nature. COVID-19 provides an opportunity to revive indigenous knowledge, review it and assess its viability in the current environment.

(2) *People, specially youth are eager to engage:* In the discussions and workshops organized with the support of local partners, the yatra found that water literacy levels amongst the people was not always up to the mark. Fortunately, the quality of the sessions and subsequent interactions raised their interest and motivation. People, specially youth, media, institutions and civil society organizations came forward and committed to take forward the water literacy campaign through river bank walks and other literacy campaigns. The school and college students who were present, vowed to take back their learning and share it with others in their villages/ towns. It was heartening to see the youth ignited, irrespective of religion. The implication of the pandemic on their education and the positives of the changed environment will only reaffirm their conviction and desire to contribute to change.

Hope for a green future comes from committed communities, especially the youth, who are eager to engage and committed governments

Several parts of the country continue to live their lives aligned with their environment. In Sonitpur district of Assam the ponds play a critical role in water management, fisheries, agriculture and livestock rearing

(3) *Supportive government:* In several places the government machinery was active and supportive. For example, village panchayat leaders in Maharashtra and Deputy Commissioners of Puducherry demonstrated exemplary leadership in taking innovative steps in reviving ponds, lakes and rivers. This reinforced the faith in the local government system, especially when the results were visible to all.

(4) *Opportune time to involve disillusioned migrants for self-sufficiency:* A large number of migrants who returned back to their villages, are disillusioned and unwilling to go back to towns and cities. But they need livelihood options in the villages. Interacting and supporting them would help to promote and implement the concept of self-sufficiency at village level, thereby also regenerating natural resources and creating more jobs and business. Not only would this promote pride in their heritage and roots, but having faced severe hardships during the Lockdown, they would be eager to act on this concept of village-sufficiency. Already migrants in states such as Uttarakhand, Rajasthan and the Bundelkhand region are reviving traditional water harvesting systems and becoming water warriors in parched areas. This demonstrates a strong willingness towards self-sufficiency.

Society and the government will need to work together. Employment needs to be provded as they engage in works that rejuvenate nature. MGNREGA funds can be used for this, for building water conservation structures and undertaking river rejuvenation activities (*see Box — TBS pandemic interventions: From relief to regeneration*). The youth need to be trained and engaged in local resource mapping so that plans can be developed and implemented for augmenting these resources. While this work has already been initiated in districts of Rajasthan, this work is also being replicated in other states by the Rashtriya Jal Biradari.

The pandemic provides an opportunity to engage the migrants in restoring nature and rebuilding their confidence in rural livelihoods

Migrants who returned back to Nandurbar and Jalgaon districts of Maharashtra contributed their labour towards plantation on the denuded hill slopes

TBS pandemic interventions: From relief to regeneration

After the Lockdown began and the migrants began to return to their villages, TBS provided 10,000 families with ration kits sufficient for one month's food. Subsequently, TBS began implementing the proposed decentralized model with the support of migrants who have returned, youth, women and others, in 100 villages across Bharatpur, Dholpur and Karauli districts of Rajasthan. Over 3,000 acres of land where agriculture was not possible are being covered. The land is being treated. Water conservation structures such as talaabs and anicuts are being constructed. Trainings are being conducted for the migrant youth on nature nourishment, water conservation and construction using mud, cement, stones and other locally available materials. Construction work in and around their villages continues and with this training the migrants will be able to undertake jobs and find employment close by. Women from the villages are preparing saplings in nurseries so that plantation material is readily available for boosting natural asset development. This is also an earning opportunity for them. By doing this, the migrants and village youth are getting daily wages and more importantly, much-needed confidence. The migrants see hope as they are now part of the efforts to resolve the problem that was forcing them to migrate in the first place. In front of their eyes they are witnessing unproductive lands being turned into cultivable fields. They are beginning to believe that they can earn through farming if they stay back. Locally available seeds are being collected and stored. In these villages, river rejuvenation work has also begun on the Teevra and Sherni rivers.

Civil society continues to walk with the migrants from relief to rehabilitation. In Karauli district TBS provided ration and is working with the villagers to rebuild natural resources

Tarun Bharat Sangh

Strengthening water resources in Karauli district of Rajasthan will transform this barren land into cultivable fields, instilling much needed confidence amongst the migrants that livelihoods will be possible closer to home

(5) *India's emergence as a global leader will depend on its domestic performance:* In the past, India was water sufficient and known for its relationship, love and respect for water. People understood the importance of rivers, and believed in the principles of Revere, Respect, Reduce, Reuse, Retreat and Recycle. This was in sharp contrast with how the rest of the world perceived water, with lack of respect and reverence. India was therefore in a position to show the world how water could be managed.

India can again emerge as a global leader for sustainable development of a post-pandemic world. Simultaneously, the country will need to rethink and redesign its own development model to one that is aligned with nature. The crisis of the environment will need to be addressed. Water security will play a critical role.

While the people gravitate towards nature-driven and sustainable development models, this will also require strong political will and appropriate policies.

India's positioning as a global leader for post pandemic development will depend on its domestic performance of nature-aligned growth

The pandemic reinforced the need to address malnutrition for boosting immunity levels. For this adequate nutrition and a diet that includes fruits and vegetable is needed

COVID-19 provided an opportunity to revive and explore the use of traditional knowledge and systems such as Yoga and Ayurveda for boosting immunity and strengthening the human body to fight the virus.

While the country takes this knowledge to the global stage, India also needs to invest in systems that promote local food and nutrition security, so that malnutrition levels drastically decline and are finally erased.

(6) *Rethinking development will include redefining and repurposing the UN and other international institutions:* To remain relevant, the UN and its affiliates will need to review its processes and commitments made on global platforms.

For instance, March 22 is celebrated as UN World Water Day, to elicit political commitment towards water security and water conservation. This day has now been reduced to festivals and political events. Political leaders now view water as a source of earning and the celebration of March 22 as the end of their commitment. This needs to be translated into concrete policies and actions that support water security.

International organizations will also need to realize that nature is not able to bear the load of the current development paradigm and should act accordingly. The way ahead lies in the revival of existing sustainable development models and creation of new ones which are more aligned to nature and come with a lighter consumption footprint. This is the right time to address challenges at the root itself rather than addressing the manifestation of ill-conceived models.

It is not too late to go back to the drawing board and rethink development, based on self-sufficiency, self-sustainable natural resource management, so that we can improve our planet and our chances of dignified survival. Then only will global *atmanirbharta* be possible.

International agencies will need to repurpose themselves so as to effectively support the challenges of a world wounded with a degraded environment, climate change, and now, a pandemic

Over centuries cropping patterns have been aligned to the local ecology. This traditional knowledge continues to be used in Ladakh, the world's highest altitude desert

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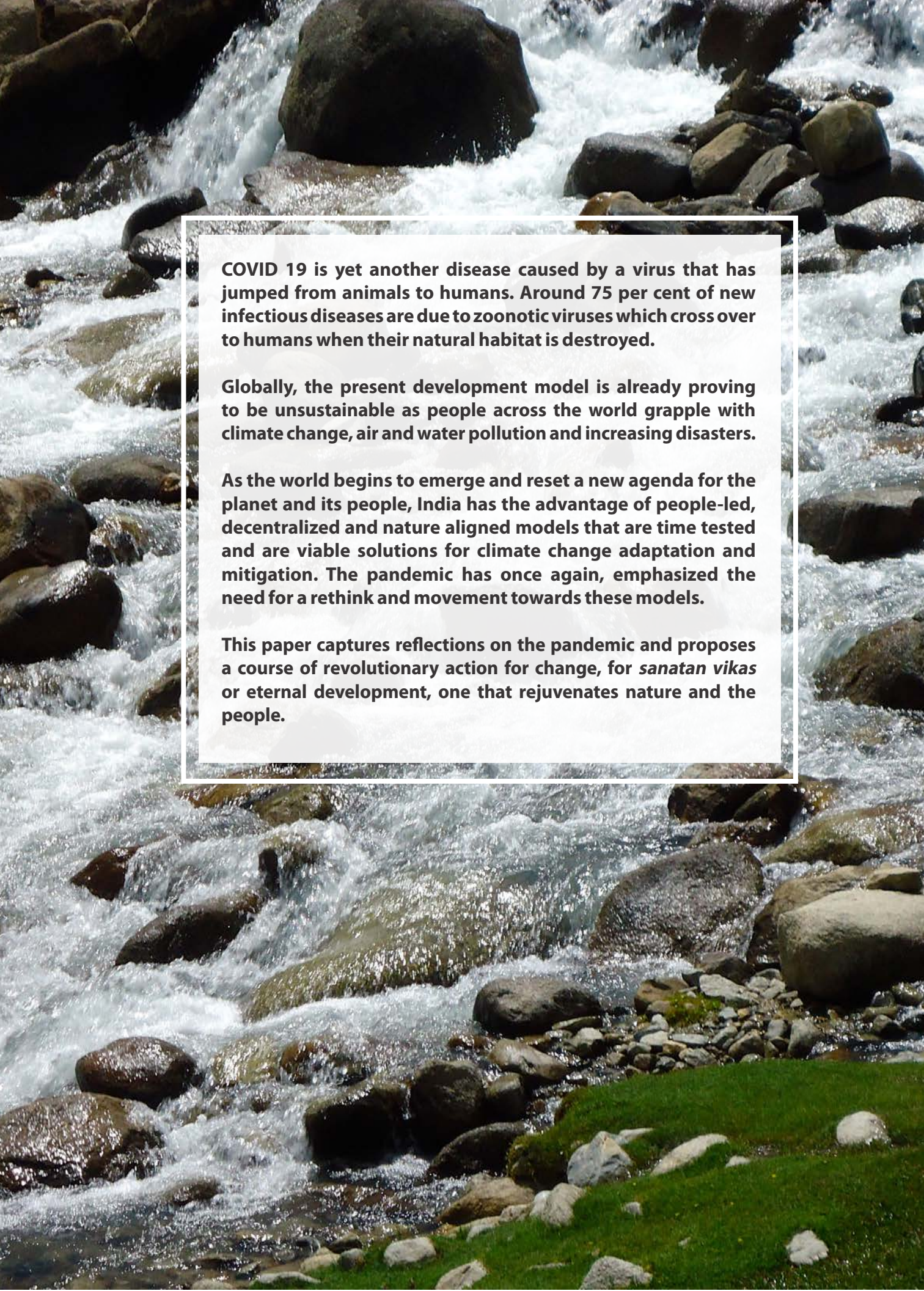
Food habits of communities are linked to ecologically appropriate cultivated crops. This interconnection informs on the multiple layers of diversity and culture

Indira khurana



COVID 19 is yet another disease caused by a virus that has jumped from animals to humans. Around 75 per cent of new infectious diseases are due to zoonotic viruses which cross over to humans when their natural habitat is destroyed.

Globally, the present development model is already proving to be unsustainable as people across the world grapple with climate change, air and water pollution and increasing disasters.

As the world begins to emerge and reset a new agenda for the planet and its people, India has the advantage of people-led, decentralized and nature aligned models that are time tested and are viable solutions for climate change adaptation and mitigation. The pandemic has once again, emphasized the need for a rethink and movement towards these models.

This paper captures reflections on the pandemic and proposes a course of revolutionary action for change, for *sanatan vikas* or eternal development, one that rejuvenates nature and the people.