

THEWEEK

'Save Soil': Why India should listen to this clarion call

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In March 2022, renowned spiritual leader and yoga proponent Sadhguru set out on a 100-day motorbike journey covering 27 countries and a distance of 30,000 kilometres to raise awareness about the widespread loss and degradation of soil—one of the most serious and alarming environmental issues in the modern era. He hit the road in front of London's Parliament Square and traversed Europe and the Middle East—meeting government leaders, influencers, and the general public—before coming to a halt in India in June.

The 'Save Soil' campaign has been gaining traction both home and abroad, with thousands of eminent figures, including scientists, celebrities, policy experts, and even heads of states coming together with this common goal. Sadhguru's Isha Foundation, based in Coimbatore, says 81 countries, two United Nations agencies— United Nations Convention to Combat Desertification (UNCCD) and the World Food Programme (WFP)—and the International Union of Conservation of Nature (IUCN) have already pledged their support to this campaign.

The movement has come up as a wake-up call at a time when soil extinction in India as well as across the globe call for urgent intervention from governments and policy makers. According to a United Nations report, almost one-third of the world's farmable land has disappeared in the last four decades due to intensive agricultural practices. If the current rate of loss continues, all of the world's topsoil could become unproductive within 60 years, posing a major threat to food security and exacerbating the issue of climate change.

Why is healthy soil important

Soil degradation is the physical, chemical and biological decline in soil quality due to its improper or poor management for agriculture, industrial or urban purposes. The degradation can involve water erosion, wind erosion, salinity, loss of organic matter, fertility decline, soil acidity, structure decline, mass movement or soil contamination.

Healthy soil will be teeming with biodiversity. According to Food and Agriculture Organisation (FAO) of the United Nations, millions of microscopic and larger organisms in the soil “perform many vital functions including converting dead and decaying matter as well as minerals to plant nutrients, controlling plant disease and insect and weed pests, improving soil structure with positive effects for soil water and nutrient holding capacity, and ultimately improving crop production”.

The minerals and microbes in soil help clean water by filtering and buffering potential pollutants. Organisms like earthworms, ants and termites also facilitate this process by creating channels and routes for water and air to flow through. Moreover, soil is the second largest carbon sink after the ocean, thereby playing a crucial role in mitigating climate change.

India's depleting soil cover

Prime Minister Narendra Modi has set a 2030 target for India to become land degradation neutral, a state “whereby the amount and quality of land resources, necessary to support ecosystem functions and services and enhance food security, remains stable or increases within specified temporal and spatial scales and ecosystems,” according to UN Convention to Combat Desertification.

However, data released by the Indian Space Research Organisation (ISRO) shows a grim picture with almost all Indian states recording an increase in degraded land in the past 15 years. As per the latest Desertification and Land Degradation Atlas of the ISRO published in June 2021, 87.85 million hectares of land in India (around 30 per cent of the country's geographical area) has already been degraded, of which 3.32 mha was added between 2003 and 2019 alone. Interestingly and alarmingly, the biodiversity-

rich northeastern states recorded the most rapid increase in degraded soil. Rajasthan, Gujarat, Maharashtra, Jammu and Kashmir, and Karnataka have the highest area of degrading land. In Jharkhand, Rajasthan, Delhi, Gujarat, and Goa, the area of degrading land account for more than 50 per cent of each of their total area. Rajasthan, however, along with Uttar Pradesh and Telangana—has recorded a reduction in the degrading soil as these three states combinedly reclaimed around 0.7 mha of land in the last 15 years.

An analysis of the ISRO data done by the environmental magazine [Down to Earth](#) shows that more than half of the degraded land in the country is either rainfed farmland, responsible for the food security in the country, or forest land that offers the best defence against climate change. Around 37 mha of the degraded land falls in the 'agriculture unirrigated' category. The *DTE* analysis further claims that water erosion is the most common reason (80 per cent) for degradation of unirrigated farmland, followed by wind erosion, salinity/alkalinity in land and water logging.

A 2022 report of the Centre for Science and Environment, too, reiterates the gravity of the situation as it claims 13 Indian states/UTs have over 30 per cent of land under degradation—Jharkhand, Rajasthan, Delhi, Goa, Gujarat, Nagaland, Maharashtra, Himachal Pradesh, Tripura, Ladakh, Karnataka, Odisha and Telangana. As per the report, in Jharkhand, Rajasthan and Delhi, more than 60 per cent of land is under degradation.

India supports 18 per cent of the world's human population and 15 per cent of the livestock, but has only 2.4 per cent of the world's land area. The country, where agriculture is a large contributor to the GDP, is already paying a heavy price for soil degradation. The Energy and Resources Institute (TERI) has [estimated](#) that the economic losses from land degradation and change of land use in 2014-15 stood at 2.54 percent of India's GDP or Rs. 3.17 lakh crore. Almost 82 per cent of the estimated cost is on account of land degradation and 18 per cent due to land use change. The TERI study further urges government to speed up the process of reclamation as the cost of land degradation will outstrip the cost of reclamation in 2030.

According to experts, the wrong and inappropriate [farming practices](#) that led to widespread land degradation in India in the recent decades included low and imbalanced fertilization, excessive tillage and use of heavy machinery, crop residue burning and inadequate organic matter inputs, poor irrigation and water management, poor crop rotations, pesticide overuse and soil pollution. Overgrazing, deforestation, careless forest management, rampant industrialization and urbanization, infrastructure development and mining are the other major human-induced causes for loss of fertile land.

Land shortage, land fragmentation, poor economy, and population have also contributed to the degradation of land, along with natural causes such as earthquakes, tsunamis, droughts, landslides and floods.

Policy interventions need of the hour

PM Modi says India is working towards restoring 26 million hectares of degraded land by 2030. This, he claims, would contribute to India's commitment to achieve an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent. However, it would require a major policy overhaul, since experts point out that even though more than half of India's farm land remains rainfed, the country's farm policy has always encouraged resource sensitive and chemical intensive cropping, which work well in irrigated farms.

The government, however, has taken a few promising steps. In his address on the World Environmental Day, Modi informed that the government has focused on [five main things](#) to save soil. 1) How to make the soil chemical free. 2) How to save the organisms that live in the soil, which are called Soil Organic

Matter in technical language. 3) How to maintain soil moisture, how to increase the availability of water till it. 4) How to remove the damage that is happening to the soil due to less groundwater. 5) How to stop the continuous erosion of soil due to the reduction of forests.

He also claimed that the Soil Health Card, launched in 2015, has played an important role in changing the mindset of farmers. These cards provide every farmer with soil nutrient status of his land and teach him about the dosage of fertilizers to be maintained for good soil health.

In last year's budget, the government announced natural farming along the Ganga river corridor. In March, the Centre started the rejuvenation project of 13 rivers, which it claims will help in increasing the forest cover by over 7,400 sq km. Schemes like Parampragat Krishi Vikas Yojana (PKVY) and Mission Organic Value Chain Development for North Eastern Region also promote low cost organic farming. PM Krishi Sinchayi Yojana and 'Per drop more Crop' campaign seek to educate farmers on how to maintain soil moisture, while National Afforestation Programme (NAP) and Green India Mission (GIM) aim to control continuous erosion of soil due to the reduction of forests.

However, given the pace of soil degradation, the government will have to do more and further harmonise the existing policies at the central and state level.

The 'Save Soil' movement is urging nations to mandate 3-6 per cent organic content in agricultural soils around the world through policy driven initiatives. The average organic content in India's soil is 0.68 per cent, but nearly 60 per cent of the land has below 0.5 per cent.

In December 2022, Sadhguru, along with renowned soil experts and scientists, released a [Global Save Soil Policy Handbook](#) for seven regions—Africa, Asia, Europe, Latin America and the Caribbean, Middle East and Northern Africa, North America and Oceania—offering “practical and scientific policy recommendations” that the governments can put into action to revitalize the soil.

The document puts forward a three-pronged strategy, including attractive incentive for farmers to reach the minimum threshold of 3-6 per cent organic content. Facilitating and streamlining of carbon credit for farmers and developing a mark of superior quality for food grown from soils that have the target 3-6 per cent organic content level are the other two policy recommendations. “Alongside this, we should also clearly articulate the various health, nutritional, and preventive health benefits of consuming such foods. As a result of this initiative, people would be more healthy, more productive, and more resilient – thereby leading to gains in man-days, and a lower stress on our health care systems,” the document says.

In its Asia-specific recommendations, the document calls for a Package of Practices (PoP) where all the work done by the research institutes will be cataloged and documented. The nutritional requirements and means of production for specific crops should be precisely articulated to avoid problems that arise due to excess usage of inputs or application of the wrong inputs. Implementing this will ensure the pollution and contamination of soils from excess use of agrochemicals does not occur, says the handbook.

The documents points out the lack of a farmer ecosystem, and suggests that farmers be given hands-on training on their land to adopt sustainable soil management (SSM) practices. “Soil doctors” must be developed and nurtured to support farmers in their region and farmers must be rewarded for ecosystem services provided by their SSM practices, it says. Standardisation of indicators to assess soil health and setting up of laboratories to conduct biological, physical and chemical properties of soil are the other major recommendations of the document.

But, not all are impressed. While the 'Save Soil' campaign's recommendations for all nations remain oriented around the same 3-6 per cent soil organic matter goal, some experts point out that increasing

organic matter by any amount will help boost fertility, improve biodiversity and fight climate change. “Fixing on a specific number obscures the variations in soil types across countries and environments,” Jo Handelsman, a noted biologist, tells the [Grist](#). Also, experts like Antony of 'A Growing Culture' believe that while industrial agriculture is the main factor for soil degradation, the 'Save Soil' movement makes it sound like the soil was ruined because of our collective abuse of the environment. However, all ecofreaks have been unanimous in admitting what Sadhguru called attention to is a very dire situation and it is high time the governments formulated policies that revitalise ecology and soil.