



Opinion Article

Ecocentrism and Open Knowledge: A Unified Vision for Food, Health, and Environment from Traditional Wisdom

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Abstract

The food-first strategy, i.e., seeking nutritional solutions for preventing and managing diseases rather than relying on supplements, has recently gained momentum among the general public and policymakers, owing to increased awareness. Traditional medicine practitioners across the globe approach food as having therapeutic potential and dietary routine as a way of preventive healthcare. Conventional systems like Ayurveda in India utilized a variety of herbs, spices, and components derived from both plants and animals in specific preparations for preventing and treating ailments. As these preparations are very particular about the source of raw materials, the preservation of the flora and fauna, and in broader terms, the biodiversity, is of paramount significance. Ancient knowledge in India emphasizes this aspect as well as promotes ecological empathy to respect nature and its inhabitants with an interest in their well-being. Sustainable improvement in the quality of life is interconnected with the preservation of nature and the addressing of environmental concerns. The teachings of Hindu sage Chattampi Swamikal underline ecological empathy with an Open Knowledge approach as the foundation for sustainable growth and holistic well-being. In our opinion, an eco-centric approach with Open Access to knowledge seems crucial for achieving sustainable development, especially concerning food, health, and the environment.

Keywords: Ecocentrism; Open Data; Sustainable Development Goals; Food as Medicine; Healthcare; Biodiversity; Environmental Philosophy, Traditional Medicine.

Introduction

The heavy medical expenses associated with the curative healthcare strategy and the post-pandemic awareness caused a reevaluation of the healthcare approach among the general public and policymakers globally. The shift from 'sick care' to 'healthcare' is leading to significant changes in how healthcare is delivered (Friebe, 2022). Preventive healthcare can create a more resilient health system with a reduced burden, as people are prevented from becoming patients. Food plays a significant role in preventive medicine and holistic well-

being. The food first strategy (Yu et al., 2024) and the food is medicine approach (Mozaffarian et al., 2022) are being implemented worldwide to acquire nutritional security, especially to deal with diet-related chronic diseases and undernutrition. The therapeutic potential of food is recognized and exploited in traditional practices of India, China, Greece, etc. The indigenous healing traditions from these geographical regions have valued specific foods and culinary techniques for their medicinal values, incorporating elements such as herbs and spices to alleviate

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ailments (Khanal et al., 2021; Redvers et al., 2020). This traditional healing knowledge and unique practices are preserved in the teachings of the 'Rishis' of ancient India.

Traditional Healing Practices: 'Apoorva Chikitsa Vidhikal'

Knowledge of traditional healing methods practiced by ancient Hindu sages is mainly preserved through oral transmission along teacher-student lineages for generations. Later, this was archived in written form like Ayurveda, an 'upaveda' of the 'Atharva Veda,' which documents the traditional Indian system of medicine for holistic health. Conventional systems like Ayurveda acknowledge the geographical differences and allow regional variations in healing practices. These variations, which often include natural remedies prepared from readily available local materials, were also transferred orally along generations and recently documented in written books. 'Apoorva Chikitsa Vidhikal', by Chattampi Swamikal, is a compilation of his notes in this regard, collected and edited by Dr. Suresh Madhav, and published from Trivandrum by the State Institute of Languages in 2013, almost 125 years after they were written (Chattampi Swamikal, 2013). Chattampi Swamikal was a Hindu sage from Kerala who practiced traditional healing methods and advocated holistic well-being through healthy dietary practices. The book contains a collection of notes he left with friends and families he stayed with, which they have conserved and made use of. These notes contain numerous preparations that can be made from locally available shrubs and plants for traditional healing practices. His notes, collected together as Apoorva Chikitsa Vidhikal, provide insights into his treatment methods, including:

Use of Natural Remedies - He emphasized the use of herbs, roots, and plant-based medicine in treating diseases.

Mind-Body Connection - He believed that physical ailments often stemmed from

mental and emotional imbalances, advocating holistic healing approaches.

Preventive Healthcare - He promoted healthy living, fasting, and yoga as means to prevent diseases rather than just treating them.

Self-Healing Practices - He encouraged people to take charge of their health through disciplined lifestyles, proper nutrition, and simple home remedies.

The traditional healing practices passed down through generations in rural communities rely on locally available herbs, natural remedies, and holistic treatment approaches to manage various ailments. The herbal remedies include plants such as neem, turmeric, ginger, basil etc., with antibacterial, antifungal, and anti-inflammatory properties. Household ingredients like honey, garlic, and coconut oil for home-based remedies, oil massaging, proper diet, and nutrition are other approaches in traditional healing practices. Moreover, conventional diets rich in medicinal plants and natural foods play a crucial role in preventive healthcare. Changes in food habits possibly due to urbanization and modern work culture have led to the consumption of 'junk food' impacting health. Instructions on diet preparation, including how the ingredients should be sourced, were made available in ancient texts to ensure nutritional safety.

Dietary Practices from the Ancient Teachings

Traditional Indian dietary practices mainly involve local, seasonal, plant-based ingredients. 'Ayurveda' incorporates these traditional dietary practices as a core component of the healing methods and to maintain balanced nutrition (NV & Mishra, 2019). In preventive healthcare, nutritional strategies are often used to improve holistic health and prevent as well as manage chronic diseases (Salis et al., 2021). Food was seen as medicine by Hindu sages who insisted on healthy dietary practices for improving health. Chattampi Swamikal, based on his monographs 'Jeevakarunya Nirupanam' and

‘Sareera Tatva Nirupanam’, advocated for (Chattampi Swamikal, 2019; 2024 and 2024a):-

Vegetarianism - He believed a plant-based diet was ideal for physical health and non-violence.

Simple and Natural Diet - He recommended consuming fresh, unprocessed, and locally grown food, free from artificial additives and excess spices.

Moderation in Eating - Overeating and indulging in rich, unhealthy foods were seen by Swamikal as obstacles to health.

Food as Medicine - He saw food as a natural healer and encouraged people to consume food that nourished both body and mind.

Plant-based diets are becoming popular owing to their proposed health benefits and their positive impact on environmental health. Vegetarian diets have been shown to have protective effects on the prevention of diabetes and reductions in weight, blood pressure, glycosylated hemoglobin, and low-density lipoprotein cholesterol (Guest et al., 2024; Wang et al., 2023). Healthy vegetarian diets have cardioprotective effects mediated via modulation of metabolic pathways, hormonal signalling, and immune factors (Satija & Hu, 2018; Shridhar et al., 2014). A diet rich in minimally processed plant food can reduce the risk of developing multiple chronic diseases, including hypertension, cancer, and dementia (Boeing et al., 2012). Healthy vegetarian diets are generally lower in saturated fats and rich in dietary fiber, which aids in proper digestion and promotes gut health. Plant-based foods provide essential vitamins (like vitamin C, vitamin E and folate), minerals, and antioxidants that boost immunity and overall well-being (Wang et al., 2023a). In addition, various research groups have studied the environmental impact and potential risks of animal-based food consumption. These involve more land consumption, energy utilization, greenhouse gas emissions, etc., for meat production (Scarborough et al., 2023;



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Susruta (1000 B.C.) the ancient Indian physician administering medicine to the sick. A pen drawing of 17th century. Source: Wellcome Library, London. Image under Creative Commons Attribution 4.0 International license.

González et al., 2020). A shift toward a plant-based diet, as advised by Swamikal, can help reduce violence against animals, conserve natural resources, and restore ecological balance. Moreover, encouraging sustainable and ethical food choices can lead to a healthier planet and a more compassionate society.

Preservation of Nature in Hindu Philosophy

Preserving biodiversity and ecological balance is crucial for survival, well-being, and the sustainability of life itself. The essence of both theoretical and practical perspectives on maintaining ecological balance has been deeply embedded in Indian traditions, particularly in the Vedas and other ancient texts. Rooted in ethical considerations, these philosophical insights emphasize human responsibility in preserving the life-sustaining system, advocating for coexistence with nature and all living beings as part of a unified ecosystem. In Hindu philosophy, the concept of motherhood is a divine manifestation, and Earth is regarded as the ultimate mother of all living beings. Atharva Veda, the fourth Veda of ancient Hindu scripture, contains 'Prithvisukta' in book 12.1 that emphasizes Earth as mother and the interconnectedness of humans to nature. 'Prithvisukta' has 63 verses eulogizing mother earth and calls for a respectful relationship with nature (Khanna, 2014).

In her are interwoven
the waters of oceans and rivers;
In her lies the food she yields
when cultivated.
Within her, all life thrives;
may she grant us sustenance'

-Atharva Veda 12.1.3 (Whitney & Lanman, 1906)

The above hymn from Atharvaveda is a reverent plea to Prithivi (Mother Earth), seeking her grace for the land's natural elements and requesting protection for humanity. It highlights a sacred relationship between humans and the Earth, emphasizing the

responsibility to protect and respect the planet while drawing strength from its resilience.

‘O Prithivi,
may your forests be auspicious,
May your hills and snow-clad
mountains be blessed.
Unharméd, undefeated, and unbroken,
I set foot upon the Earth.
May we always stand as its guardians,
With unwavering courage,
free from injury and defeat.’

-Atharva Veda 12.1.11 (Whitney & Lanman, 1906)

The 'Prithvisukta' proclaims that, much like the blood ties that unite a family, all elements of nature- soil, rivers, trees, humans, animals, and birds- are deeply interconnected. It highlights that living solely for oneself is unrighteous and that selfishness ultimately leads to destruction. The text emphasizes equality and interdependence among all beings, asserting that humans neither create nor control the life-sustaining system but are merely a part of it.

Chattampi Swamikal's 'Jeevakarunya Nirupanam' reinforces the principles of ecocentrism by drawing from the teachings of the Vedas, Upanishads, as well as Islamic, Buddhist, Jain, and Christian philosophies. It stresses the need for humans to coexist harmoniously with nature, promoting love, compassion, and nonviolence as essential values. (Unfortunately, the complete manuscript of Jeevakarunya Nirupanam was lost, and only a summary, published by M.N. Nayar Magazine in 1938, remains available). Swamikal's vision of nonviolence encompassed a deep respect for all forms of life, making his teachings a timeless guide for harmony and coexistence. Moreover, ecocentrism is a vision shared by the traditional wisdom of many indigenous communities, such as that of Chief Seattle, a leader of the Suquamish and Duwamish tribes who lived in present-day Washington, USA (Stamolis & Bagley, 1938). The idea of compassion toward all living beings is not just an ethical duty but a necessity for sustaining the planet as a life-supporting system. Every creature has the right to

coexist, and humanity has a moral responsibility to protect the environment, not just for itself but for future generations. Ecological awareness and ethical responsibility are the fundamentals of the environmental philosophy presented in Jeevakarunya Nirupanam, which closely aligns with the views of Chief Seattle.

Ecocentrism in the Modern World

In the modern world, commitment to environmental preservation and conservation behavior among individuals is based on their value systems and ethos. Ecocentric individuals believe in the inherent value of the environment and its protection. In contrast, anthropocentric (human-centric) individuals believe environmental protection is necessary for sustaining and improving the quality of human life (Thompson & Barton 1994). New economic models proposed for growth and development need to be rooted in an ecocentric or anthropocentric approach to address environmental concerns and improve the quality of life. Recent times have seen the urge from world countries to minimize the environmental impact of industrial activities by reducing waste generation and enhancing resource efficiency by shifting to a circular economy. In this economic model, products, at the end of their service life, are turned into resources for others. This concept, based on reuse, recycle, repair, and remanufacture, is aimed at an efficient system with conservation of resources, reduced waste, and sustainability (Stahel, 2016). In a world where one-third of the plastic waste generated is not collected or managed (Ellen MacArthur Foundation, 2016) and between 1.15 and 2.41 million tonnes of plastic waste enter the ocean every year (Lebreton et al., 2017), this shift in the economic model is quintessential. The recent estimation of approximately 24.4 trillion pieces of microplastics, tiny particles of plastic, in the upper ocean (Isobe et al., 2021), is posing a serious threat to marine diversity and human health. These microplastics are eaten by marine organisms,

which accumulate in their body and enter the food chain. In addition to sea foods, microplastics are found in plant and animal-origin foods, drinks, and food additives, which have disastrous consequences for the health of our planet and all its inhabitants (Al Mamun et al., 2023). Human exposure to microplastic through food consumption leads to bioaccumulation in cells and organs, causing chronic biological effects and plausible health hazards like gastrointestinal disorders, respiratory problems, immune disorders, reproductive diseases, etc (Cverenkárová et al., 2021). The case of microplastic and its impact on our food, health, and environment is a reminder that economic progress without environmental protection is self-destructive.

In this era of the ‘fourth industrial revolution,’ low carbon, sustainable green economy has become the need of the hour. More sustainable modes of production and consumption are envisioned in the green economy model. This is in alignment with the 2030 Agenda for Sustainable Development (<https://sdgs.un.org/2030agenda>) and its 17 Sustainable Development Goals (SDGs) adopted by the United Nations (<https://sdgs.un.org/goals>). Sustainable business practices and technologies are being developed that address environmental issues like climate change, biodiversity losses, water scarcity, etc., thus establishing a real link between economic progress and ecological conservation (Loiseau et al., 2016; Söderholm 2020). Ecocentrism provides the ethical foundation for a green economy by highlighting the importance of protecting the natural world. The word ‘Ecocentrism’ is derived from the Greek *oikos* (house) and *kentron* (center); it considers Earth as a dwelling house for all creatures (ten Have & Patrão Neves, 2021). This ethical belief assigns intrinsic value to everything in the natural world and considers that everything deserves moral reasoning that propels us toward a sustainable future (Darnthamrongkul & Moz ingo, 2020). To maintain ecological integrity, the ecocentrism approach provides

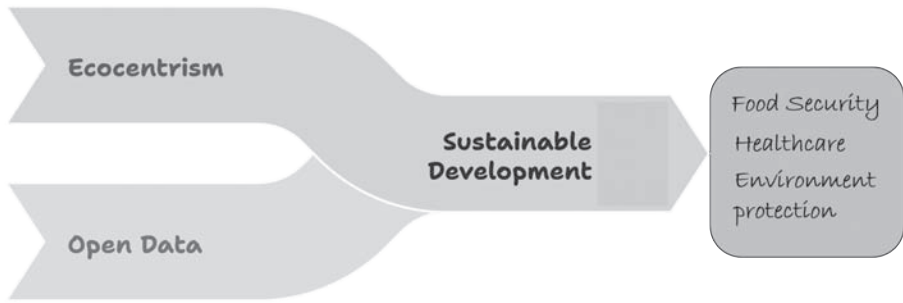


Figure 1. Pathway to Sustainability: Ecocentrism, the ethical belief represented by assigning intrinsic value and moral consideration to every entity of the environment, can provide a philosophical foundation for sustainable development and environment protection. Open data, on the other hand, is the key resource that helps to improve food security, healthcare, and environmental health, which are critical to sustainable development.

a philosophical foundation, while the green economy translates these values into tangible economic development by attaining SDGs.

Open Data for Sustainability, Health, and Environment

Open data plays a crucial role in achieving the 17 SDGs of the UN and measuring the progress in meeting these goals. Open data is defined as “data that is freely available online for anyone to use and republish for any purpose” as per the policy note of the World Bank Group, published in 2015. The accessibility and versatility of Open Data make it a key resource to achieve development goals. For example, Open Data can play a significant role in improving food security by providing farmers, policy makers, researchers, etc., vital information on climate patterns, agricultural practices, crop yields, genetic information, market trends, and so on. By providing access to the data, communities can be empowered to make informed choices to develop resilient crops adaptable to varying conditions, thus improving crop production and distribution. Similarly, in the healthcare sector, by sharing the information on disease outbreaks, trends, and patterns, preventive healthcare tips, available disease management strategies, resource allocations, etc., public health concerns can be addressed more effectively, and better access to care can be provided.

A data-driven approach in the health sector can enable us to develop more efficient healthcare systems. During the COVID-19 pandemic, Open Knowledge and Open Access to research played a critical role in the rapid development of vaccines and the global response to the crisis. Scientists and researchers worldwide freely shared genomic data, clinical trial results, and medical findings, enabling faster collaboration across borders. Open-access platforms allowed researchers to analyze the virus’s genetic code quickly, leading to the development of effective vaccines like CoronaVac, Covaxin, Covishield, Oxford-AstraZeneca, and Pfizer-BioNTech in record time. Also, Open Knowledge, Open Science, and Open Data policies helped scientists, politicians, administrators, public health officials, and policymakers to take informed decisions. By removing barriers to information, Open Science promoted innovation, accelerated drug discovery, and saved the human species from a great disaster.

The report by Open Data Institute 2015 identifies the following three areas where Open Data will be impactful to achieve SDGs. These are “i) to effectively target aid money and improve development programmes, ii) track development, progress and prevent corruption, and iii) contribute to innovation, job creation and economic

growth". The report also discusses different case studies where Open Data has been used to make evidence-based policy decisions to bring profound changes in the education, agriculture, and healthcare sectors. These case studies include protecting banana farmers of Uganda, enhancing access to education in Kenya, exposing price variation in pharmaceutical drugs in southern Africa if switched to generic medicines, mapping Ebola outbreak in West Africa, tracking child malnutrition in the world, etc (Truswell et al., 2015). It can be observed from these examples that data alone does not have any value, it is about how the data is used for value addition and development. The data should be used with the utmost integrity and an ethical mindset focused on an eco-centric approach for the sustainable development of humanity and the environment (Figure 1). We believe that the approach advocated by Swamikal is also based on ecocentrism and Open Knowledge for the sustainable growth of humanity.

Open Knowledge can play a crucial role in fostering a holistic approach to food, medicine, and environmental health. By ensuring free and accessible sharing of scientific research, traditional wisdom, and sustainable practices, Open Knowledge will empower communities, researchers, and policymakers to make informed decisions that can promote well-being for both people and the planet. In the face of global challenges such as food insecurity, climate change, and healthcare disparities, collaboration across disciplines is essential. Open knowledge and Open Data facilitate interdisciplinary research, innovation, and equitable access to solutions, breaking down barriers between science, indigenous wisdom, and policy. It will also enhance transparency and accountability, ensuring that sustainable and ethical practices are prioritised. By adopting Open Knowledge, we can create a more just and resilient system where food, medicine, and environmental health are interconnected, fostering a future that values both human and ecological well-being.

Conclusion

Even in the age of modern medicine, traditional medicinal knowledge remains a valuable resource, offering affordable, sustainable, and effective healthcare solutions. The traditional practices often lack evidence-based clinical practice guidelines, owing to insufficient dissemination of evidence/knowledge and inadequate scientific scrutiny. Disseminating traditional wisdom by providing Open Access and scientific validation may bring more acceptance to these concepts. Preserving ecological diversity through compassion and respect, as advocated by ancient wisdom, along with Open Access to knowledge, is the way forward for a sustainable future for humanity.

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