



The Role of NSS in Growth of Sustainable Environment

Dr. A.B. Patil¹ Dr. Sharwari S. Kulkarni²

¹Assistant Professor

Department of Computer Applications

V.P. Institute of Management Studies and Research, Sangli, Maharashtra

²Professor and Head

Department of Commerce and Management

Kanya Mahavidyalaya, Miraj, Maharashtra

Corresponding Author- Dr. A.B. Patil

Email: abpatil@vpimsr.edu.in

DOI- 10.5281/zenodo.14249299

Abstract:

Natural resources are fundamental element of the economy and human welfare. They provide raw materials, energy, food, water and land as well as environmental and social services. All economic activities are affected by these natural and environmental resources. Activities such as extraction, processing, manufacturing and consumption change the stocks of the natural resources generate wastes to the environment. The way natural resources are used and managed has economic, social and environmental consequences that often extend beyond the borders of countries or regions and affect future generations. Ensuring that the natural resources are managed effectively and efficiently is the key to economic growth including sustainable development of the environment. The soil ecosystem such as croplands, forests, etc. is one of the core parts of natural resources and it plays a crucial role in agricultural and socio economic issues. In order to maximize the effectiveness of nutrients applied to raise agricultural output, it is important to regularly monitor changes in the soil and study the dynamics of the soil.^[1] As the Government of India has explicitly declared the NSS as a driving force for achieving the Sustainable Development Goals, the contribution of NSS will definitely help in providing the right push towards a sustainable environment deriving from a healthier and nutrient soils in synchronization with “Better Environment, Better Tomorrow”.^[2]

Keywords: SDG, NSS, Soil Nutrient Index, Soil Health Card, Model Village Program

Introduction

As far as India is concerned, it exhibits immense diversity, not only in terms of its climate and ecological system but also in its people and culture. The country has a richness of natural resources and biodiversity wealth that is closely interlinked with the lives and culture of the people, especially in the rural and remote areas. The conservation, preservation and protection of the environment is a top most priority for India and it is reflected in various provisions embedded in the Constitution of India. India is highly committed towards environment protection and climate change action as India has set the target to reduce emission intensity of its GDP has been increased to 45% by 2023 from 2005 level and the target on cumulative electric power installed capacity from non-fossil fuel-based energy resources will be increased to 50% by 2030. The National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI) has initiated with the “Development of Environment Statistics and Development of methodology, concepts and preparation of National Resource Accounts for India”. In order to provide a road-map for

development for Environmental Accounting in India, NSO has released the ‘Strategy for Environmental Economic Accounts in India: 2022-2026 where some of the potential areas for work are identified as given below: ^[1]

- (a) Energy Accounts
- (b) Ocean Accounts
- (c) Soil Nutrient Index
- (d) Biodiversity

Soil Nutrient Index

Soil is the most important link that connects food production and healthy living to Zero Hunger one of the goals of Sustainable Development Goals (SDGs). SDGs rely considerably on plant production which depend on soil processes. Four basic elements found in most of the soils and they are: air, water, mineral particles, and organic matter or carbon. Though it holds nitrogen, phosphorus and a variety of other nutrients, soil organic carbon is the foundation of any soil and is essential to preserving fertility. Soil testing schemes are the first step towards determining nutrient status of these soil elements and to make efficient soil management decisions. Soil testing also helps in identifying soil fertility level, pH, etc. Soil health and Soil quality

remain a matter of great concern for the Government of India. The Soil Health Card (SHC) scheme is a flagship program of the Ministry of Agriculture and Farmers Welfare. Under the Soil Health Card Scheme, soil health condition is assessed with respect to twelve important soil parameters, namely: ^[1]

- Nitrogen (N), Phosphorus (P), Potassium (K) – *primary macronutrients*;
- Sulphur (S) – *secondary macronutrients*;

- Zinc (Zn), Iron (Fe), Copper (Cu), Manganese (Mn), Boron (B) – *micronutrients*;
- pH, Electrical Conductivity (EC), Organic Carbon (OC) – *physical parameters*.

The current assessment of Soil Nutrient Index for States/UTs have been made on the basis of information on the soil samples collected under Soil Health Card Scheme for the year 2023-24 and is given in the Table below. ^[1]

Table 1: State-wise Distribution of Soil Nutrient Indices 2023-24

S.No.	State	Low	Medium	High
1	Andhra Pradesh	N, Zn, OC	P, B, S, Fe, Mn, Cu	K
2	Arunachal Pradesh		N, P, B, S, Fe, Zn, Mn, OC, Cu	K
3	Assam	B	N, P, K, S, Fe, Zn, Mn, OC, Cu	
4	Bihar	N	P, B, S, Fe, Zn, Mn, OC, Cu	K
5	Chhattisgarh	N, S, Zn, OC	P, B, Fe, Mn, Cu	K
6	Goa		N, P, B, S, Fe, Zn, Mn, OC, Cu	K
7	Gujarat	N, Zn	B, S, Fe, Mn, OC, Cu	P, K
8	Haryana	N, B, OC	P, K, S, Fe, Zn, Mn, Cu	
9	Himachal Pradesh	N	P, B, S, Fe, Zn, Mn, OC, Cu	K
10	Jharkhand	N, OC	P, K, B, S, Fe, Zn, Mn, Cu	
11	Karnataka	N, Fe, Zn, OC	P, B, S, Mn, Cu	K
12	Madhya Pradesh	N, Zn	P, B, S, Fe, Mn, OC, Cu	K
13	Maharashtra	N, S, Fe, Zn, OC	P, B, Mn, Cu	K
14	Meghalaya	Cu, S, Fe, Zn, Mn	N, P, K, B, OC	
15	Mizoram	N, S, Fe, Mn	P, K, B, Zn, OC, Cu	
16	Nagaland	S	N, P, B, Fe, Zn, Mn, OC, Cu	K
17	Odisha	N, Zn, OC	P, B, S, Fe, Mn, Cu	K
18	Punjab	N, K, Mn, OC	P, B, S, Fe, Zn, Cu	
19	Rajasthan	N, Fe, Zn, OC	P, B, S, Mn, Cu	K
20	Sikkim		N, P, B, S, Fe, Zn, Mn, OC, Cu	K
21	Tamil Nadu	N, S, Fe, Zn, OC	P, B, Mn, Cu	K
22	Tripura	N, Zn	P, K, B, S, Fe, Mn, OC, Cu	
23	Uttar Pradesh	N, S, Zn, OC	P, B, Fe, Mn, Cu	K
24	Uttarakhand		P, K, B, S, Fe, Zn, Mn, OC, Cu	
25	West Bengal	S	N, P, B, Fe, Zn, Mn, OC, Cu	K
26	Andaman & Nicobar	N, P, K, S, OC	B, Fe, Zn, Mn, Cu	
27	Jammu & Kashmir	Fe	N, P, B, S, Zn, Mn, OC, Cu	K
28	Puducherry	N	P, K, Fe, Zn, Mn, Cu	

Nutrients - N: Nitrogen; P: Phosphorus; K: Potassium; S: Sulphur; Zn: Zinc; Fe: Iron; Cu: Copper; Mn: Manganese, B: Boron; OC: Organic Carbon.
Level of Nutrients: Low: <1.67; Medium: 1.67-2.33; High: >2.33
Source: Calculated using data received from Ministry of Agriculture & Farmers Welfare as on 01/07/2024

The above table shows that the majority of Indian soils are low in essential nutrients and most of the nutrients except Potassium are found to be at Low and Medium range. Over the last decade, Government is conducting programs such as national soil health card using rapidly changing agricultural research ecosystem with smart sensing, robotics, remote sensing techniques. ^[4] The realization that farmers are to be associated with such soil research and development, partnership with organizations like NSS will set a new trend to enable the country and farmers self-reliant. To meet soil-linked SDGs in India, NSS can definitely act as a vehicle for achieving these Sustainable Development Goals. ^[3]

Role of NSS in Soil Health Card (SHC) Scheme

National Service Scheme (NSS) was launched during 1969, the birth centenary year of Mahatma Gandhi, in 37 universities involving

40000 students. NSS is co-curricular dimension of the higher education system to orient the student youth to community service while they are studying in educational institutions. It is being implemented by the Ministry of Youth Affairs and Sports of Government of India. The program design of NSS is supposed to reflect the priorities of the Government and the nation. ^[5] The Model Villages Program has been taken up under Soil Health Card (SHC) Scheme on a pilot basis. The scheme is managed by the Integrated Nutrient Management (INM) Division in the Ministry of Agriculture and Farmers Welfare, Government of India. ^[4] NSS volunteers can be contributors as well as beneficiaries of these initiatives. In this program, soil samples collection can be taken up at individual farm holdings with NSS participation. It is important to know the fertility status and physical properties of soil for maximum production and rational soil management.

As per the objectives to identify the needs and problems of the community and involve them in problem solving process, NSS can help farmers in knowing the nutrient status of the soil and applying fertilizers in required quantity according to the specific needs of the crops or plants being grown. While a lot of good work is being done under NSS, there is potential to do much more. In order to maximize the effectiveness of nutrients applied to raise agricultural output, it is important to regularly monitor changes in the soil and study the dynamics of the soil. The students and NSS volunteers are young Indians and they represent the most dynamic and vibrant section of the Society. While the Ministry of Agriculture and Farmers Welfare has aligned the SDG Agenda 2030 goals with the national outcomes of the environment sustainability, mobilization and coordination of the NSS is needed in-order to establish the foundation for long-term development and human well-being by managing natural resources sustainably.^[1]

Conclusion:

A study of the soil nutrient index is important from a crop husbandry point of view, since it reveals the soil characteristics that directly impacts the plant growth. A study of soil nutrient index supplemented by physical, chemical and biological properties of the soil will provide a full picture of the soil fertility and productivity. The impact of soil fertility is reflected in most of the Sustainable Development Goals which are particularly based on contain economic, social and environmental aspects. Therefore, proper management of soil resources is essential to ensure that productive arable land, an essential pillar of sustainable agriculture, is kept intact. This will also aid in reducing water and air pollution and also help in regulating water availability. Healthy soils supply the essential nutrients, water, oxygen and root support that our food-producing plants need to grow and flourish. Nutrient loss severely affects humankind, impacting its wellbeing. Therefore, in order to maximize the effectiveness of nutrients applied to raise agricultural output, it is important to regularly monitor changes in the soil and study the dynamics of the soil.^[1] In light of the NSS's potential role in contributing to the SDGs, it becomes imperative to involve NSS volunteers' for achieving these global goals.^[5]

References:

1. EnviStats India 2024: Environment Accounts (7th Issue), Government of India, National Statistics Office, September 2024, www.mospi.com
2. Knowledge of the UN Sustainable Development Goals Amongst India's National Service Scheme Volunteers Shreeletha Solomon, PhD Research Scholar, Martin Luther Christian University, Shillong, Meghalay, India.
3. Bhabani S. Das, Suhas P. Wani, Dinesh K. Benbi, Sekhar Muddu, Tapas Bhattacharyya, Biswapati Mandal, Priyabrata Santra, Debashis Chakraborty, Ranjan Bhattacharyya, Nirmalendu Basak, Nagarjuna N. Reddy, Soil health and its relationship with food security and human health to meet the sustainable development goals in India, Soil Security, Volume 8, 2022, 100071, ISSN 2667-0062,
4. The Ministry of Agriculture and Farmers Welfare, <https://agriwelfare.gov.in/>
5. National Service Scheme, www.nss.gov.in