



Soil Ecology: Key to Climate Solution and Sustainability

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Editorial

Soils of the Earth constitute the largest and undoubtedly, the most wonderful terrestrial ecosystem. This ecosystem is also a mysterious in the sense that it is one of the least understood and perhaps the most neglected one. Its mysteries are yet to be revealed so that we could understand it in its entire depth and articulate its functioning into what could be a boon for nurturing our hopes, happiness and sustainability. Much of our visible world-the above-soil world-is attributable to the soil [1]. Soil is not just the "uppermost mantle of the lithosphere". It is more than that. It is the sort of habitat of the numerous organisms belonging to all the kingdoms of living beings. And thus, soil make a wonderful and mysterious world of their own - a non-visible or less visible world which is so rich in its living varieties reverberating with fullness of life. What is there in the above-soil world prevails in the world of the soil. What is the first and the foremost truth about our living planet is this that most of the life - gauged in numbers, varieties (diversity), as well as in biomass-inhabits soil ecosystem rather than the above-soil environment. The relationship, nevertheless, is reciprocal, mutual, complimentary, and synergistic. The above-soil life has positive bearing on the life within soil, and vice versa. The soil life is fed by the energy fixed by means of photosynthesis (which is largely performed by the above-soil life-by the chlorophyll-containing organisms) and by means of the energy fixed by means of chemosynthesis (which is performed almost exclusively by the soil organisms, free-living as well as symbiotic). The soil organisms have their monopoly in nitrogen fixation that becomes the sole source imparting structure-an 'infrastructure' of the living organisms functioning both in the soil as well as in the above-soil environments. Life in the biosphere, in essence, cannot be divisible. Biosphere is one. Life imbibes in oneness. All ecosystems in the biosphere are interconnected, one influencing the functioning of the other and being influenced by the functioning of the other [2]. Every ecosystem, however, is unique in itself: unique in its structure, unique in its functioning. Uniqueness of an ecosystem is its inherent feature. The soil ecosystem is unique in the extreme degree of its complexity: complexity in its structure, in its functioning-imparting phenomenal influence on the structure and functioning of the entire biosphere [3]. It is because the soil ecosystem has an edge over the above-soil ecosystem: it is this that the structure of all life-the biosphere-is rooted into the soil ecosystem [2]. In other words, the structure of the above-soil ecosystem is an attribute of the soil ecosystem. It is because the soil ecosystem is empowered with nitrogen fixation-the very basis of the structure of living organisms. Therefore, the above-soil life is largely-in essence, entirely-owing to the soil life. It implies that the wellbeing of

the above-soil life is also owing to the wellbeing of the soil life. The above-soil world, philosophically speaking, is rooted into the invisible or less visible world of the soil. In ecological terms, sustainability of the above-soil life rests on the sustainability of the soil-life. One of the realities of our world lies in the socio-economy. Human society's economy revolves round the natural resources which are accommodated in the above-soil ecosystem. Wellbeing of our natural resources is directly proportional to that of human society. But, as we have noted down earlier, wellbeing of the above-soil ecosystem is rooted into soil ecosystem, we can infer that human welfare is also rooted into soil ecosystem. Soil ecology has been so crucial for us! So crucial that a deeper understanding of it greatly prompts us to explore the roots of sustainable future. Our sustainable future depends on how we manage our socioeconomic systems. An understanding of the soil ecology helps us weave a web of our sustainability: which is rooted into the soil [4]. A healthy and vibrant soil ecosystem serves as a healthy and vibrant agriculture-a part of the above-soil ecosystem. Human's physical intellectual, ethical, psychological, emotional and aesthetic development is nourished by the quality of foods, which in turn, depends on the quality of our soil ecosystem. The whole world and its systems of nourishment are conspicuously suffering from climate change. The climate change is deeply stirring core of the life phenomenon. Of course, there are too many factors responsible for the on-going climate change, a sound, workable and effective strategy to mitigate the climate change will have the soil at its heart.

Therefore, if we own a healthy and vibrant soil ecosystem, we owe our healthy and balanced nutrition, our holistic development [5]. If we owe a healthy and vibrant soil ecosystem, we shall be all-powerful to sustain life in its fullness. We shall have a sustainable future to be witnessed by healthy and vibrant humanity in our hands. If our soil is vibrant with life, we shall be able to reach the stars. If we owe a healthy and vibrant soil, we shall be able to control over skies.

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