**Soil Organic Matter in the Anthropocene**

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The "Anthropocene" may have begun with the on-set of settled agriculture some 10 to 12 millennia ago, but was accelerated with start of the Industrial Revolution circa 1750. The atmospheric concentration of greenhouse gases (GHGs) has increased between 1750 to 2015 from 278 ppm to 400 ppm (+144%) for $CO_2$, 722 ppb to 1845 ppb (+256%) for $CH_4$ and 270 ppb to 328 ppb (+121%) for $N_2O$. The annual rate of increase in atmospheric concentration of GHGs in 2015 (2.3 ppm for $CO_2$, 11 ppb for $CH_4$ and 1.0 ppb for $N_2O$) will increase at even a higher rate with the projected increase in population from 7.5 billion in 2017 to 9.7 billion by 2050 and with increase in affluence of its lifestyle. Principal issues of the Anthropocene, driven by increase in population, are: climate change, deforestation, soil degradation and desertification, species extinction, water eutrophication and scarcity, and food and nutritional insecurity. Along with the increase in demand for energy and other products, increase in food demand will necessitate management of agroecosystems through the strategy of sustainable intensification (SI, "producing more from less") by enhancing the use efficiency of inputs. Rather than being the sources, soils of agroecosystems can be sink for atmospheric $CO_2$ and $CH_4$ through sequestration of C in the form of soil organic matter (SOM) and secondary carbonates. World soils are the largest among the global terrestrial C reservoirs. Estimated to 3-m depth, total soil C pools (organic, inorganic and those in the permafrost soils) of 6000 Pg is ~7.5 times that of the atmospheric pool (800 Pg) and 9.7 times that of the biotic pool (620 Pg). Depleted soils of agroecosystems and those degraded by erosion and salinization contain lower soil organic C (SOC) than their counter parts under natural ecosystems. Techniques of SOC sequestration, which can create a positive soil/ecosystem C budget, include conservation agriculture, agroforestry, improved pasture and grazing management, integrated nutrient management, water harvesting and recycling by fertigation, improved varieties and species, integrated farming systems etc. However, SOC pools can be restored by adoption of best management practices (BMPs) of SI which can create a positive soil/ecosystem C budget. The global technical potential (PgC/yr) of SOC sequestration by adoption of BMPs of SI is 0.4 to 1.2 for cropland, 0.3 to 0.5 for pasture/grasslands, 0.3 to 0.7 for reclamation of salt-affected soils, and 0.2 to 0.7 for desertification control and restoration of eroded soils. The global technical potential of world soils is 1.2 to 3.1 PgC/yr (2.15 PgC/yr) or ~22% of the annual anthropogenic emissions of 9.9 PgC in 2015. In addition to off-setting anthropogenic emissions, increase in SOM concentration in the root zone to above and the threshold level of 1.1-2.0% can enhance soil health and strengthen provisioning of numerous ecosystems services for human wellbeing and nature conservancy (e.g., food security, water quality and renewability, above and belowground biodiversity). Management of SOM has a stronger role in restoring soil health and improving the environment during the Anthropocene than ever before. The total soil C sink capacity of 80-100 PgC (equivalent to drawdown of atmospheric concentration of $CO_2$ by 40-50 ppm) is a bridge to the future until low-C or no-C fuel sources takes effects.