

Secondary School Teachers' Understanding of Energy Flow in Ecosystems: Carbon Sink and Sequestration Perspective

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ABSTRACT The energy and other environmental conservation measures are emerging issues of concern all across the world. The awareness on climate change and sustainable environmental resource utilization are being discussed globally in all sectors of development. It is for this reason; the study investigated Kenyan biology teachers' understanding of soil carbon sink and sequestration in Kenyan ecosystems as emerging issues. The study aimed at relating biology teaching content to a wider scope of energy flow in ecosystem; a subject taught and assessed by teachers of different secondary schools in Kenya. The study employed descriptive research design. Twenty-four (24) secondary school teachers were randomly selected and sampled from thirty-six (36) secondary schools of Lugari District in Kenya. Self-valuation questionnaire (SVQ) was used to capture key information on understanding of soil carbon sequestration as some of the emerging issues in terrestrial ecosystems. The results revealed a rich understanding of green house effects on the general environment among teachers assessed. A high percentage of the teachers demonstrated understanding climate changes phenomena in their response (21%). However, a high percentage (71%) of selected and assessed teachers lacked clear grasp on carbon sequestration concepts and phenomena beyond photosynthesis process. Further, the teachers' demonstrated poor understanding of premiums paid by industrialized nations in a bid to mitigate environmental pollution, particularly via Green House Gases (GHGs) (70%). The study, in conclusion revealed that, there was a general ecosystems knowledge gap among biology teachers in Kenyan secondary schools concerning emerging issues particularly in ecology and is, therefore, important that they get updates by undergoing refresher courses as a means of strengthening their competencies. It is also probable that the teachers may have acquired the misconceptions during the period of study or it was an indirect manifestation of complexes of interrelations between biological processes.