Core 1: Weekly Response Week #14

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Due in hard copy and/or on turnitin.com the first discussion section class following lecture.

Name: Majok Ring Date:4/26/15

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Lecturer: Asmeret Berhe & Teamrat Ghezzehei

Lecture Title: “Soil Conservation”

Lecture’s Central Argument: In order to better conserve soil and decrease negative effects such as soil erosion, waterlogging, contamination via groundwater, and salinization, we must take steps to increase our education on the earths many different soils. This begins with educating younger populations on the differences between dirt and soil and the different conditions upon which affect its fertility, porousness, and ability to retain water, all of which dictate the types of plants that can be grown on that soil.

Lecture’s Supporting Evidence/Examples: We learned from lesson # 1 that there is an explicit difference in soil and dirt as these are two different things. Teamrat explained soils dynamic nature by stating that that it has properties that are derived from both climate and biotic activities as well as the topography in which affects the very nature of the soil. Soil’s impact is present within the pedosphere, biosphere, lithosphere, atmosphere, and hydrosphere. It also depends on the size, structure, organic matter and water content. Some soils can be better suited to certain environments due to its increased ability to retain water or even a large amount of organic material present for nutrients. Soil is made of 45% inorganic materials such as sand, silt, and clay and is 5% organic material from dead organisms and other organic matter. The other 50% are pore spaces which are empty.

"Soil is a dynamic natural body having properties derived from the combined effects of climate and biotic activities, as modified by topography, acting on parent material over periods of time" -

Three questions you have with respect to this lecture:

* Are there any legal repercussions to farmers who over irrigate and cause groundwater runoff/contamination of other areas?
* How can we introduce more education on soil conservation and implement it into schools within the nation?
* Should we introduce legislation decreasing the amount of phosphates allowed within fertilizers?

Other Core 1 subjects to which the lecture might be related:

Within this week’s lecture “Soil Conservation” by Asmeret Berhe & Teamrat Ghezzehei, we primarily focused on the aspect that our soil can be the basis for all life as it is an integral component of the carbon cycle. Since our environments depend on soil to produce vegetation as well as release oxygen into the atmosphere, it is imperative that we take measures to limit anthropogenic causes of soil erosion such as acidification, salinization, contamination via groundwater and overall habitat destruction for home development and its proliferation through urban sprawl. Overall, Teamrat stressed an understanding of the necessities of soil and the difference between it and dirt. Soil is as varied as ourselves as its properties depend upon location, structure, climate, and amount of water available. Since we depend heavily on soils for agriculture, we are contributing to soil erosion via overuse. Soil remains integrated within our identity as we depend upon it for food, fuel, timber, roads, and home development. In order to limit our effects on soil and its continued degradation, we need to have a better understanding of its functions. Contrary to most people’s beliefs, bacteria and microorganisms can prove to provide benefit to soil/trees through a symbiotic relationship in which both benefit. Microorganisms in return for increased surface area for the tree to absorb water, are given shelter and can inhabit the roots of a tree. Now imagine the possibilities and applications if we were to engineer our own microbes to provide benefits for our own productions. This idea is evident within Richard Conniff’s “Microbes Help Grow Better Crops” as he states “Adding bacteria to a crop to prevent human disease could be the start of a whole new path to food safety, possibly extending beyond tomatoes to cantaloupes, spinach, sprouts and other crops that have made Salmonella and Escherichia coli headlines” (Conniff 1). By being able to engineer microbes, we can develop ones in which can increase the surface area by greater multitudes and thus decrease the amount of water loss that can occur, saving the state water and resources. These microbes can then be developed and produced in a lab and shipped to any location or farm in the world at low cost since they will reproduce on their own. Now even with the possible advancements that may occur, we are still in fact in danger of increasing the amount of soil degradation that occurs and can have the effect of destroying habitats and limiting the amount of resources that we can produce. This concept is highlighted within Robbin’s “The Hidden World of Soil under Our Feet” as he states “A 2003 study in the journal Ecosystems estimated that the biodiversity of nearly 5 percent of the nation’s soil was “in danger of substantial loss, or complete extinction, due to agriculture and urbanization” (Robbins 2). Here we are in fact at a loss as the overuse of land for agriculture and even urban sprawl is causing more of the soil top to be removed and leaving soil which lacks key nutrients and has is low in fertility. Our impact on the soil is related to lack of education on the topic as many cannot see the key differences between soil and how it can become limited. By stressing the importance of soil and its variability, we are in essence creating a better future as we will be more careful with our surroundings.

Narrative Response (½ single-spaced page): Examine some aspects of the lecture in relation to the weeks’ readings and to other course subjects (lectures or readings) of interest to you. (Generic prompt)

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Weekly Responses are graded according to the following rubric (on a scale of 0 to 5):

“5” Response: Specifies the focus of lecture/readings. Engages thoughtfully and accurately with the particulars of the lecture/readings. Fills the page with insightful observations that demonstrate inventive, connective processing of ideas.

“3” Response: Sketches the focus of lecture/readings. Engages lecture/readings, although may do so incompletely or partially. Fills much of the page with useful observations suggestive of emergent ideas.

“1” Response: Vaguely addresses the focus of the lecture/readings. Includes insufficient or inaccurate particulars of the lecture/readings. Fills little of the page, exhibiting thoughts that suggest incomplete processing of ideas.

“0” Response: no submission