Dirt by David Montgomery

Author name

Affiliations

 **Dirt by David Montgomery**

**Main Theme of the Book**

This book is written by a geomorphologist, David Montgomery. In this book, he focuses on the rapid change in the landscape through time and stresses on the issues faced by human beings and other species on this earth regarding dirt. The author provides the most intriguing insights into one of our most valuable natural resources and provides significant indicators for sustainable land management. He argues about how the previous civilizations treated their soils and the topic stimulates the debate on how can soil, land and agriculture be protected for years to come. Soil is the most important natural resource of mankind and is fundamentally connected to the survival of modern civilization. You can tell a lot about a society by the way they treat their soil. Talking about agricultural history, the author mentioned that the societies in the past collapsed because human beings exhausted the soil. Eventually, everyone moved on but that is not the option anymore because there is not enough land for our future generations. Mechanized agriculture in the United States has eroded an alarming quantity of agricultural property, due to which the degraded soil has become one of the biggest cause of poverty in the developing world. If things don’t change now, we will soon run out of soil and it won’t be possible for agriculture to sustain the increasing population of the world. Chemical fertilizers are not the answer since they are produced from lots of cheap oil. Environmentalists in the past suggested that genetically modified seeds could be used, but they have not produced a great outcome and also increased the need for pesticides. In this book, the author proposed a soil based agrarian revolution. He suggests that we should bring organic matter back into consideration by simulating natural circumstances instead of tilting the soil and making it susceptible to erosion. This view of the author was mostly dismissed in the beginning but was later acknowledged on making a convincing case for the need to respect and maintain the limited supply of soil in the world.

 The author stated that the two problems of hastened erosions and degradation of soil ultimately decide the destiny of civilizations to come and it is crucial for the well-being of humanity to prioritize long term interest of society in soil stewardship. Dirt is the foundation of existence of life on earth, supporting our farms and our towns. This book is very captivating as well as disturbing at the same time due to the revelation that it makes about dramatically changing conditions of our agriculture and land. We are short on soil and dirt and it is a matter of serious concern for not just environmentalist but all of us. This book “Dirt: The erosion of civilization” investigates the convincing concept that we have used the soil of earth for a long time and there has been an enchanting cultural and natural history of soil from ancient evolution to the modern times. Cultivated soils are eroded bit by bit when there is no proper protective flora or vegetation and is exposed to any kind of weather conditions. It is not evident quickly but it is fast enough to restrict the civilization’s lifespan. This book touches the role of soil and its consumption and abuse over the past 1000s of years with respect to the mix of geology, history and archaeology. With the rise and prosperity of human beings, we have witnessed how the soil is shaped and how it has shaped us. With the latest increase of organic and no-till farming, the author David R Montgomery is hopeful for a fresh agricultural revolution that might assist us in avoiding the destiny of previous civilizations (Pearce, 2014).

**Environmental Message of the Book**

Over the past 80 years, severe soil erosions have degraded 1.3 billion hectares of agricultural area which was nearly equal to the size of India and China combined. Some researchers argue author’s view that when people face shortage of food, culture and even civilization of that society itself is at risk. The author stresses on the fact it is disturbing how landscapes has changed over time and how the relationship between geology, climate, topography and vegetation affects soil structure and density. Industrial farming practices that require cheap oil and fertilizers cannot be maintained and the effects would be catastrophic. Montgomery encourages the food production system where small level traditional farm culture is promoted in order to treat soil as locally embraced biological system. And the myth that huge farms with heavy machinery and chemicals can produce more efficient results is rejected. Agriculture utilizes 30% of our petroleum consumption, and Montgomery calculates that agriculture industry based on petroleum will end later this century because natural gas and oil have become too important to use for fertilizer manufacturing. Mr. Montgomery has bravely discusses the emotional and one of the most controversial problem that the population of the world has touched an unsustainable level, and has enlisted unpleasant facts scientifically. Agriculture is considered to the natural reaction to population growth. There are dire behavioral responses and civilization collapses when the maximum food production achievable by agriculture is reached and it becomes hard to feed the population. Scientists estimated the earth's population at 4 million people in the year 20,000 BC when the glaciers melted in the latest glaciation. They also estimated that over the next 5,000 years, the earth's population increased by 1 million to achieve 5 million in 15,000 BC. Currently, after two thousand years the population of the earth is 6.5 billion. It requires 0.2 hectares of agricultural land to feed one person. Keeping in mind these statics, Montgomery warns that it would only be possible to support around 6 million people. Given the continuing loss of fruitful cropland, it is predicted that by 2050, the quantity of accessible agricultural land will fall to less than 0.1 hectares per individual. It is possible to support up to almost 10 million people but it would require some huge developments in agricultural technologies and it would take a log of time to produce appropriate outcome. The author provides a list of examples of how various societies collapse when there is an increased pressure of growing population and insufficient food supply. Back in 1990’s half of the Iceland’s agricultural area was deforested due to extreme weather conditions. The soil that took more thousands of years to build up, disappeared in a few years. At that central part of Iceland, the soil has been totally removed, it turned into a barren desert, nothing develops in that area and no one lives there anymore. Farming on sharp slopes converted almost one third of the country into plain rocky land which is not capable of supporting any kind of agriculture anymore (Montgomery, 2007).

 According to me, there are many positive and negative sides to this book. The positive side to this book is that it gives an easy and relaxed presentation on science of soil with a detailed background. Author covers all aspects i.e. biology, geology and chemistry in a disturbing but informative and considerable way. This book seems to be about soil but actually it’s more about human history, their need for soil to survive and how all civilizations have been destroying it. Montgomery’s book covers the topics ranging from cost of agricultural machinery to Guatemala's banana export policy, from history of conversation of soil services to crop domestication causes. His grip on all these fiends and disciplines is admirable. Chapter 4 and 5, “Let Them Eat Colonies,” takes us back to the time of European colonization of America, it seemed to be heavily motivated by the need for more food, which was in short supply due to soil degradation in the Old World. He also stressed on the view that the U.S. Soil erosion caused civil war and the appearance of social classes resulted from the fertile soil of the Mesopotamian valleys. The only problem with this book is that most of its content is based on previous researched, there is no disagreement, debate and alternative interpretations, it only follows a single and an unchallenged narrative. But he tried to make us realize about our moral responsibilities to treat the soil as communal legacy instead of a commodity. Therefore, I appreciate Montgomery’s effort of assimilating human history with scientific understanding and speaking about an issue that has a great importance (Yee, 2007)

**Environmental Issue is still relevant**

 Global soil degradation is a highly under rated crisis. In the past 40 years, soil erosion has caused farmers to abandon nearly 500 million hectares of agricultural land. Climate change is the biggest cause of soil erosion as per Dirt, the book by David Montgomery, political war and social evolution has caused an irreparable damage to the nature. Author suggests that the fundamental condition for sustaining a civilization is to protect the soil and its fertility. According to the most recent study in 2010, soil erosion causes deforestation which is the biggest cause of downfall of the ancient civilization around the globe. Study suggests that in the upcoming years, many new environmental crisis will rise but environmentalists will not be able to recognize them due to the slow pace at which they are occurring. In order to cater with such situations smartly, we need to prioritize environmental information through media. Global warming has become and undisputed fact about our livelihood, our planet is heating up and we are the part as well as reason of this problem. This is not the only issue about our environment that we need to be worried about, environmentalists come up with researches on daily basis about drastic changes in climate and are significantly changing the landscape. These problems make us susceptible to disasters and tragedies. There is a huge list of environmental issues that need to be addressed on emergency basis i.e.

* Pollution
* Global warming
* Overpopulation
* **Natural Resource Depletion**
* **Waste Disposal**
* **Climate Change**
* **Loss of Biodiversity**
* **Deforestation**
* Agricultural runoff
* **Ocean Acidification**
* **Ozone Layer Depletion**
* **Acid Rain**
* **Water Pollution**
* **Industrial discharge**
* **Recreational and Commercial uses**
* **Urban Sprawl**
* **Salt and heavy metal contamination**
* **Polar ecosystem degradation**
* **Public Health Issues**
* **Genetic Engineering**

**All these factor are the cause of environmental issues which lead to the soil erosion and other challenging problems. In areas with growing population, the biggest challenge is to achieve the appropriate amount of agricultural production but soil erosion is a huge hurdle. It** adversely hampers the growth of agricultural yields, plants, recreation and quality of water. Environmental change is a slow phenomenon, sometimes goes unnoticed but it occurs at a rapid rate causing a huge loss of agricultural soil. Environmental change is the biggest crisis of this generation and for the generations to come. Problem is that rising seas, Dangerous floods, devastating storms and melting glaciers have become regular facts of our everyday life. We must recognize the problem in order to make efforts towards solving it (Richard, 2016).

# References

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