Chapter 3
Global Sustainability Leadership: A Key for the Peace in the World

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ABSTRACT
Deteriorated living conditions of the world endangers humanity’s survival and the peace in the world. Human beings whose living conditions have been deteriorated in a way that they cannot fulfil their primary needs (based on Maslow’s hierarchy of needs) can look for different options (including war) to have access to the scarce resources vital for their survival. Peace can be sustained through sustainability. For this reason, global leadership initiatives on sustainability are required for the proactive conflict resolution and for the proactive peace building among the countries. This chapter aims to introduce the global sustainability leadership as a key for the peace in the world. With this aim, the chapter covers the following topics: need for sustainability and sustainable development; role of the sustainability in the peace of the world; ways of enhancing sustainability performance of the world; and need for the global leadership initiatives for sustainability movement and role of the global leadership in the proactive conflict resolution and peace building.

INTRODUCTION
Humanities’ environmental footprint deteriorates the world at an higher rate than the world can regenerate itself. Increase in the amount of the released greenhouse gases fosters climate change which influences the world’s living conditions adversely. Increase in the amount of the CO₂ emission released annually could not be prevented despite of the humanities’ precautions taken to fight against the change. In August 2017 CO₂ emissions have reached to 406.94 parts per million (ppm). [NOAA (National Oceanic Atmospheric Administration) as cited in NASA, 2018f]. European Environment Agency (2016a) summarized the state-of-the-art of the atmospheric greenhouse gas concentrations and their potential future status as follows:

The total concentration of all greenhouse gases, including cooling aerosols, reached a value of 441 ppm in CO₂ equivalents in 2014 ... The current total concentration of all greenhouse gases implies that the

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long-term probability of exceeding the 1.5 °C temperature increase, compared to pre-industrial levels, is already more than 50%...

Earth is being heated, ocean stagnation has been started to be observed, ice in the poles are melt and the sea levels rise due to the greenhouse gasses emissions. According to the Goddard Institute for Space Studies, temperature anomaly in 2016 reached to 0.99°C increase (NASA, 2017). Furthermore, the ocean stagnation has started to endanger the sea life preventing air circulation between the upper and lower sea levels as the temperature difference between the upper and lower levels of the sea is being decreased. NASA’s GRACE satellites revealed that the land ice sheets in Antarctica and Greenland have been losing mass since 2002 and that they have started to loss their mass in an accelerated way since 2009. NASA’s observations further revealed that “Antarctica mass has been varied approximately 127 Gigatonnes per year whereas Greenland mass has been varied approximately 286 Gigatonnes per year since 2002.” Furthermore, sea ices are melt. “September Arctic sea ice is declining at a rate of 13.3% per decade, relative to the 1981 to 2010 average.” (Data source: Satellite observations (NSIDC/NASA 2018 c). NASA’s satellite sea level observations indicated that sea level’s rate of change is approximately 3.4 mm per year and that sea level has been raised by 85.9 mm from 1993 to June 2017 (NASA 2018e). Rise in the sea levels causes border problems especially for the countries having their borders at the sea side. As the agriculture areas on the shore might be under the sea levels, the amount of the agriculture areas might be decreased due to the melt ices fostering the agriculture problems.

Seasonal changes, precipitation pattern changes as well as extreme weather conditions occur due to the climate change. Winters are becoming colder and wetter whereas the summers are becoming hotter and drier. Precipitation pattern is being changed causing agriculture problems and scarcity in potable water. Extremes in the weather conditions cause natural disasters (e.g. floods, droughts, frozen earth surface, hurricanes) endangering human lives, built environment, food chain and biodiversity. For example, decrease in the amount of the rainy days per year results in floods as the same amount of rain falls within shorter period of time. Agriculture is affected adversely due to the floods as the soil cannot absorb majority of the rain beyond its saturation point. Furthermore, agriculture and farming are adversely affected by the soil surfaces frozen due to the extreme cold weather conditions in the winter. Agriculture problems can be intensified due to the agriculture areas’ deforestation. Deforested areas in the world are being increased and deforestation is being accelerated especially due to the climate change (e.g. droughts, change in the rain pattern) and humanities’ environmental footprint. Deforestation further fosters climate change due to reduced capacity of the world to clean the air through absorption of the GHGs released. Deterioration rate of water resources is high and is becoming higher affecting the agriculture adversely. Waslekar (2015) emphasized this fact in his following statement:

At present, water resources are depleting at the rate of over 320 billion cubic meters in Asia, Africa and the Middle East…If this trend continues, there will be steep decline in food production and a fresh demand for about 200-300 million tonnes of food grains in the international market. (Waslekar, 2015)

Furthermore, water stress has been intensified in the 20th century as freshwater withdrawals grew nine times and the population grew four times (FDFA, 2015). Floods, deforestation, and water stress do not only harm the agriculture but also farming and production. Collapse in the food chain and loss in the biodiversity endanger human beings’ survival and their ability to fulfill their primary needs (such as food). Scarcity in the food supply can endanger social sustainability. Human beings need to fulfill their
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