Estimating the Cost of Reducing CO2 Emissions by 17 Percent by US in 2020

Topic: Environmental input-output modeling VI
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US is facing serious climate problems i.e. extreme weather, hurricanes, storms and floods their frequency has increased in recent years which caused huge economic and social loss (WRI, 2013). The unsustainable human production and consumption patterns have brought about these problems that have posed serious threats to biodiversity, ecosystem, and global mean temperature. Every country will have to face these issues (Onishi, 2007). Although most of climate problems are global in nature but all these problems are very important to be addressed seriously and carefully.
Human activities have contributed greenhouse gases (GHGs) emissions in atmosphere significantly since industrial revolution (Raman et al., 2012). Increase in anthropogenic emissions of GHGs caused global warming that causes chain of climatic problems to human and other living beings on planet earth. According to Fan et al., GHGs effect will put an end to environment, humans and every other living thing (Fan et al., 2007). Fossil fuel is the main source of energy production and GHGs emissions. In order to get rid of serious climate issues, nations of the world have to reduce consumption of fossil fuel significantly (IPCC, 2007).
Growing awareness regarding the current and future implications of global warming brought together both developed and developing countries to cooperate in forming platforms to address and solve this serious issue. For this, in Kyoto Japan in 1997 about 160 countries reached on common agreement that resulted in Kyoto Protocol. According to this agreement, Annex I countries have to reduce GHGs emissions by average 5 percent below to 1990s level in 2008-2012 and Kyoto Protocol became effective after ratified by Russia in 2004 (Lixon et al., 2008).
On the one hand Europe was attempting to reduce GHGs emissions with compliance to the targets set under Kyoto Protocol and on the other hand, US had no interest to address climate change issues seriously and Kyoto Protocol seemed to be a dirty thing for Bush Administration (Black, 2001), whereas US was emitting more CO2 per capita than any other OECD country (Byrne et al., 2006). Bush Administration also opposed Kyoto Protocol on the grounds of it exempts 80 percent of world population mainly China and India from reducing GHGs emissions and this would damage US economy seriously (Byrne et al., 2007). The withdrawal of US from Kyoto Protocol created uncertainty and division among the countries to proceed further as the world's largest GHGs emitter deviated from its earlier promise (European Commission, 2001).
US showed great support and interest in 15th Conference of the Parties for United Nations Framework Convention on Climate Change (UNFCCC) held at Copenhagen in 2009. New reductions targets were given to the members of Annex I countries with respect to 1990 or 2005 levels emissions. This conference also focused on methods and principles that determine climate change targets (Turner et al., 2012). As conference was supported by new players like President Obama who made commitment to reduce GHGs emissions by 17 percent compared to the level of 2005 emissions (WRI, 2013) but this conference was not more than a promise and discussion (Suranovic, 2013). Nonetheless, US commitment was a great step towards reducing GHGs emissions globally.
The purpose of this paper is to estimate the cost of implementing the commitment made by President Obama in Copenhagen conference that is reducing GHGs emissions by 17 percent by 2020 using input-output technique. The opportunity cost will be measured in terms of GDP and employees' compensation in 2005 year prices. This paper focuses only CO2 emissions as the international scientific community has consensus that carbon dioxide gas (CO2) is the key GHGs that has significant impact on global warming (Solomon et al., 2007). The study further uses policy scenarios i.e. improvement CO2 per dollar intensity in few important sectors of the US economy developed on the basis of recommendations given in WRI report 2013. We expect that improvement

in CO2 intensity in key sectors will help US economy to reach closer to its target.