

## Chapter 2

# Analysis of Circular Economy From a Household Perspective in the USA

**Badri Narayanan Gopalakrishnan**

*University of Washington, USA*

**Anchal Jain**

*Infinitesum Modeling, India*

**Nathalie Chalon**

*Infinitesum Modeling, Canada*

### **ABSTRACT**

*In this chapter, the authors conduct original research on household emissions based on data from various sources in the literature. They analyze the extent of reduction of GHG emissions by adopting zero waste strategies by the households voluntarily, incurring no costs, but rather savings in wasteful expenditure. They then model this extent of reductions using a global computable general equilibrium (CGE) model to understand what could have been the carbon tax imposed to achieve this extent of GHG reduction. From the analysis, they find about 50% of GHG potential can be reduced from household emissions, as well as the associated life cycle emissions of products consumed. Reduced wasteful expenditure may facilitate both savings-led investments and the purchase of more green products by consumers, thereby boosting the economy. Therefore, they conclude that policies that incentivize zero waste lifestyle may go a long way in reducing the supposed tradeoff between the economy and the environment. They also review some strategies for the households, based on the literature, to minimize waste.*

## INTRODUCTION

In the last decade of the 21st century, World has faced many challenges in the form of natural disasters because of the effects of Climate Change. The year 2017 would become the most expensive hurricane season on record in the US. To count on, damage caused by Hurricane Harvey in the Houston area of southeastern Texas in August 2017 is humungous. Subsequently, Hurricane Irma has affected the mainland of Florida, and Hurricane Maria pummeled Puerto Rico (Ornes, 2018), New Wales and Victoria regions of Australia caught fires and more than 1.2 million hectares of area has been affected. It is also estimated that 25,000 koalas were killed in flames of Kangaroo Island in the state of South Australia (BBC News, 2020).

Behind the widespread bushfires in Australia, one of the reasons attributed is intensifying of wildfires by drying out soil and vegetation which is envisaged to be caused by global warming, creating more fuel to burn farther and faster (BBC News, 2020).

Unprecedented events discussed above are consequences of global warming which is one of the effects of climate change which has happened due mainly to the increasing concentrations of greenhouse gases in the atmosphere (What is the difference between global warming and climate change?). It has also led to an increase in heat-trapping gases that humans are adding by burning fossil fuels to the upper layer (Kennedy, 2015). It implies the triggering of a basic phenomenon which is the buildup of excess heat energy in the Earth system due to human intervention.

The world is witnessing long term effects of climate change which does not only include increase in heavy precipitation and heat waves, but also increase in frequent coastal flooding and inland flash floods. The incoming effects range from decrease in snowpack in the western mountains in North America to Freshwater availability projected to decrease in Central, South, East and Southeast Asia by the 2050s (What are the long-term effects of climate change?, 2002).

As iterated above, if not taken the measures to contain the Climate change, it can affect the future generations as it has already started altering the present lives on Earth. To combat Climate change, steps can be taken globally, locally or an individual level. The approach to tackle Climate change can be split into three categories based on the levels of handling the issue- Action Driven Approach, Reactive Focussed Approach and Preventive Mind Set Approach.

**Action Driven Approach-**To address Climate change strategically at global level, The Intergovernmental Panel on Climate Change (IPCC) was set up by the World Meteorological Organization (WMO) and United Nations Environment. IPCC declared in 2013-”Climate change is real and human activities are the main cause” (Climate Change,). Much before conceptualisation of IPCC, Kyoto Protocol was formed which legally binds developed country Parties to emission reduction targets. Following IPCC, Paris Agreement was built in 2015 with an aim to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (Climate Change,). The agreement came effective in 2016. This forms an umbrella guidance for all the countries to take adequate measures which can have a prominent effect globally.

**Reactive Focussed Approach-** This approach is a response based approach which is driven by local prevailing factors in tackling climate change challenges. Local governments can customise the measures required taking international policies as the baseline (Kyoto Protocol is one such example). It can cover transitioning their local energy grid based on renewable energies in one area and convert fuel options in public transportation systems for another area. One of the key focus areas which local governance can

8 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/analysis-of-circular-economy-from-a-household-perspective-in-the-usa/277267](http://www.igi-global.com/chapter/analysis-of-circular-economy-from-a-household-perspective-in-the-usa/277267)

## Related Content

---

### Compromise Theory of Transnational Operation of Chinese Small and Medium Enterprises and Empirical Analysis Under Economic Globalization

Jing Sun (2012). *International Journal of Sustainable Economies Management* (pp. 41-48).

[www.irma-international.org/article/compromise-theory-transnational-operation-chinese/69956](http://www.irma-international.org/article/compromise-theory-transnational-operation-chinese/69956)

### Aggressions of the Socio-Economic System on the Natural Capital

Constana Popescu, Constantin Popescu and Maria Luiza Hrestic (2017). *Measuring Sustainable Development and Green Investments in Contemporary Economies* (pp. 109-140).

[www.irma-international.org/chapter/aggressions-of-the-socio-economic-system-on-the-natural-capital/174922](http://www.irma-international.org/chapter/aggressions-of-the-socio-economic-system-on-the-natural-capital/174922)

### IoT-Enabled Circular Supply Chains: Advancing Sustainability in the United States Logistic and Distribution

Abdul Waaje, Sahilali Saiyed, Md. Mustaqim Roshid, Mohammad Rafid Irisham and Md Anamul Haque (2026). *Strategic Innovations for Circular Economy* (pp. 27-68).

[www.irma-international.org/chapter/iot-enabled-circular-supply-chains/393147](http://www.irma-international.org/chapter/iot-enabled-circular-supply-chains/393147)

### Situating the Place of Youths' between African Union and Africa Diaspora

Babatunde Joshua Omotosho (2017). *International Journal of Social Ecology and Sustainable Development* (pp. 57-67).

[www.irma-international.org/article/situating-the-place-of-youths-between-african-union-and-africa-diaspora/179635](http://www.irma-international.org/article/situating-the-place-of-youths-between-african-union-and-africa-diaspora/179635)

### The Contribution of COVID-19 Innovative Projects for Sustainable Development: The Portuguese Context

Fernando Almeida (2022). *International Journal of Social Ecology and Sustainable Development* (pp. 1-12).

[www.irma-international.org/article/the-contribution-of-covid-19-innovative-projects-for-sustainable-development/306263](http://www.irma-international.org/article/the-contribution-of-covid-19-innovative-projects-for-sustainable-development/306263)