A Commentary on Consumption

Rich Indians versus Rich (and Poor) Americans

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INTRODUCTION

IN OCTOBER 2015, Centre for Science and Environment (CSE) published a report titled *Capitan America: US Climate Goals—A Reckoning*.[2] A central point of this report was that climate change inaction in the US was directly linked to its unfettered consumption of goods and services, that consumption is non-negotiable for the US and that it wants to 'solve' the climate puzzle without doing anything to change the status quo. It wants the ultimate win-win—to consume but not pollute. We concluded that this is not possible at least in the existing economic–technology–emissions paradigm and that the US would have to put constraints on the material-, energy- and emission-intensive lifestyle patterns of its citizens if it wants to contribute equitably in the fight against climate change.

The US wants to 'solve' the climate puzzle without doing anything to change the status quo. It wants the ultimate win-win—to consume but not pollute

We received many and varied responses from our friends and colleagues in the US. Some recognized the importance of the consumption debate while others felt that technology would solve the consumption–pollution conundrum. However, a few wrote to us saying that we should also write about the burgeoning consumption by the rich in developing countries, that we cannot talk about consumption in the US without comparing it with the rising consumption of the hundreds of millions of the consuming rich and middle class in India. The subtle message was that it was the spiralling consumption of the rich in developing countries that was the problem for climate change, not consumption in developed countries, which is a fait accompli.

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[2] Narain, Sunita and Bhushan, Chandra 2015, *Capitan America—US Climate Goals: A Reckoning*, Centre for Science and Environment, New Delhi.

To start a debate on sustainable consumption and production, this paper compares the consumption of the rich in developing countries with that in developed countries

The growing consumption of the 'rich' in 'poor' countries has been a running theme in the climate change debate for some time now. A large majority of opinion makers in developed countries, especially the US, are convinced that rising consumption of the rich in the developing world is responsible for climate change.

In the last few years, the theme of the egregiously consuming middle class in India scorching the world has taken a whole new form. In this form, the excesses of the developed world are hidden. The problem, according to this narrative, is not the lifestyle of the North; rather, it is the burgeoning consumption of the South. I have a problem with this narrative.

Let me make it clear that I do not support flagrant consumption either in the North or the South. However, I do support and propagate the view that there is a level of consumption that is required to meet basic needs of everyone in the world. The world must create economic, social and ecological space to meet the basic consumption needs of everyone—nourishing food, adequate shelter, complete healthcare, sufficient education, full employment and so on. In this context, the rising 'basic necessities' of the poor (who live mostly in the South) cannot be compared with the 'luxury consumption' of the rich (who live both in the North and the South).

But this paper is not meant to be a haranguing on the rich versus the poor. There is enough literature on that. This paper is also not meant to correlate consumption with environmental destruction. This field is oversaturated.

What this paper intends is to start a serious debate around sustainable consumption and production (SCP). To do this, it compares consumption and emissions of the rich in India with that of the rich in the US.

1. THE AMERICAN VERSUS THE INDIAN

There are two types of data available to compare consumption of Americans and Indians:

i. Data on consumer expenditure published as part of consumer expenditure surveys: The US Bureau of Labor Statistics conducts an annual consumer expenditure survey. In India, the National Sample Survey Organisation (NSSO) conducts a consumer expenditure survey once every decade. The most recent NSSO survey was in 2011–12. The paper compares the latest Indian data with US consumer expenditure survey of the same year, i.e. 2011. Also, the consumer expenditure data has been harmonized (as the classification of goods and services in India and the US are not identical) and converted in per capita terms using household sizes given in the consumer survey.

In MER terms, the average per capita consumption expenditure in the US is 37 times higher than India's (US $33,469 as compared to US $900).

ii. Data on household consumption expenditure published as part of national accounts each year: This data gives the total private consumption in a country under different categories of goods and services. The Bureau of Economic Analysis (BEA) in the US and the Ministry of Statistics and Programme Implementation (MOSPI) in India publish annual data on total household consumption expenditure. The paper has considered the average of 2011 and 2012 household consumption expenditure data for the US and of 2011–12 for India, harmonized them (as the classification of goods and services is not identical in India and the US) and converted them in per capita terms using estimated total population of the countries.

To enable comparison, Indian rupees have been converted to US dollars both in terms of the market exchange rate (MER) and purchasing power parity (PPP).[3]

COMPARING AVERAGE HOUSEHOLD CONSUMPTION EXPENDITURE

There is absolutely no comparison between the consumption expenditure of the average American household and that of the average Indian household. In MER terms, the average per capita consumption expenditure in the US is 37 times higher than India's (US $33,469 as compared to US $900). Even in terms of PPP, the average per capita consumption expenditure in the US is 11 times higher than India's (US $33,469 as compared to US $3,001).

In MER terms, an average American spends 15 times more on food and beverages, 50 times more on housing and household goods and services, over 6,000 times more on recreation, and over 200 times more on health compared to an average Indian. Comparing 'averages' is, therefore, meaningless.

[3] Indian rupees have been converted to US dollars using the annual average market exchange rate published by the Reserve Bank of India (https://www.rbi.org.in/scripts/ReferenceRateArchive.aspx). For the year 2011–12, the average exchange rate of the US dollar to Indian rupees was 47.9229. The US$ (MER) was converted to US$ (PPP) using the data published by the World Bank on price level ratio of PPP conversion factor (GDP) to market exchange rate (http://data.worldbank.org/indicator/EP.PMP.SGAS.CD). For the year 2011–12, the conversion factor was 0.3 for India.

Table 1: Average per capita consumption expenditure in the US and India

	Average per capita consumption expenditure			India vs USA	
	United States: Average 2011 and 2012	India: 2011–12		US consumption as number of times India's consumption	
	($US)	($US-MER)	($US-PPP)	($US-MER)	($US-PPP)
1. Food, beverages and tobacco	5,160	324	1079	15.9	4.8
2. Clothing, footwear and related services	1,158	67	223	17.3	5.2
3. Housing and household goods and services	7,827	154	512	51.0	15.3
4. Health	7,099	33	109	216.8	65.0
5. Transportation	3,447	142	474	24.2	7.3
6. Communication	828	12	39	70.2	21.1
7. Recreation	3,021	0.5	2	6,173.4	1,852.0
8. Education	829	24	79	35.0	10.5
9. Other goods and services	4,099	145	484	28.3	8.5
Total per capita household consumption expenditures	33,469	900	3,001	37.2	11.2

Source: Data on household consumption expenditure by the Bureau of Economic Analysis, USA, and the Ministry of Statistics and Programme Implementation, India.

To make the comparison more meaningful, the per capita consumption expenditure of the richest Indians has been compared that of with various classes of Americans. The latest year for which such data (consumer expenditure survey) is available is 2011–12.

2. THE RICHEST INDIANS VERSUS THE RICH (AND POOR) AMERICANS

The topmost consuming class in India is the top 5 per cent of urban households, or the urban 12th fractile class as per the National Sample Survey Organisation (NSSO) consumer expenditure survey 2011–12. The NSSO ranks different fractile classes based on their monthly per capita consumption expenditure (MPCE). The consumption of the urban 12th

fractile class practically dwarfs consumption of other classes. For example, the MPCE of the urban 12th fractile class is 90 per cent higher than the MPCE of the urban 11th fractile class and more than double of the rural 12th fractile class. So, the urban 12th fractile class is the highest-spending class of the Indian consuming classes.

The annual consumer expenditure survey in the US divides households into five quintiles of income before taxes—the lowest 20 per cent, second 20 per cent, third 20 per cent, fourth 20 per cent and the highest 20 per cent. This paper compares the urban 12th fractile class of India with average American expenditure, expenditure of the lowest 20 per cent quintile and the highest 20 per cent quintile.

Table 2: Average per capita consumption expenditure: Poorest Americans versus richest Indians

	United States: 2011 (in US$)			India: 2011–12	
	Average: All consumers	Lowest 20 per cent income quintile	Highest 20 per cent income quintile	Urban 12th fractile class (in US$-MER)	Urban 12th fractile class (in US$-PPP)
Average annual expenditures on major goods and services	**16,043**	**11,689**	**22,323**	**3,071**	**10,237**
1. Food, beverages and tobacco	2,906	2,372	3,828	740	2,466
1.1 Food at home	1,535	1,440	1,821	517	1,725
Cereals and bakery products	212	202	249	76	252
Meats, poultry, fish and eggs	333	313	391	50	168
Dairy products	163	149	196	105	351
Fruits and vegetables	286	264	355	131	435
Sugar and other sweets	58	54	68	10	34
Fats and oils	44	47	45	26	86
Miscellaneous foods	295	273	357	75	249
Nonalcoholic beverages	144	139	161	45	151
1.2 Food away from home (in hotels, restaurants etc.)	1,048	646	1,613	198	661
1.3 Alcoholic beverages	182	100	311	14	47
1.4 Tobacco products and smoking supplies	140	186	83	10	33
2. Housing	6,721	5,159	9,163	1,233	4,111
2.1 Shelter	3,930	3,035	5,491	838	2,793
Owned dwellings	2,459	964	4,278	546	1,822

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	United States: 2011 (in $US)			India: 2011–12	
	Average: All consumers	Lowest 20 per cent income quintile	Highest 20 per cent income quintile	Urban 12th fractile class (in $US-MER)	Urban 12th fractile class (in $US-PPP)
Rented dwellings	1,471	2,071	1,214	291	972
2.2 Utilities, fuels and public services	1,491	1,344	1,659	203	676
Electricity and fuel	800	772	873	105	349
Telephone services	490	401	549	91	303
Water and other public services	200	171	238	7	24
2.3 Household goods and services	1,300	781	2,012	193	642
3. Apparel and services	696	500	1,021	215	716
3.1 Clothing	477	332	697	115	384
3.2 Footwear	128	105	175	21	68
3.3 Other apparel products and services	90	64	149	79	264
4. Transportation	2,336	1,315	3,432	384	1,281
4.1 Vehicle purchases	1,068	486	1,737	151	504
4.2 Gasoline and motor oil	1,062	722	1,273	137	455
4.3 Public and other transportation	206	107	423	97	322
5. Healthcare	1,325	876	1,609	165	550
6. Entertainment	1,029	577	1,571	52	175
7. Personal care products and services	254	159	376	54	179
8. Education and reading	466	504	876	227	758
9. Miscellaneous	310	226	448	0	0

Source: Annual consumer expenditure survey – 2011, Bureau of Labor Statistics, USA, and National Sample Survey Organisation (NSSO), 2011–12, Ministry of Statistics and Programme Implementation, Government of India.

Note: The consumption expenditure under different headings has been harmonized and some consumption expenditure of the US has been excluded. For instance:

- *Reading and education haves been clubbed. Under the US survey they have been treated separately though there is no such separation under the Indian consumption expenditure survey.*
- *Expenditure items under personal insurance and pensions, cash contribution, personal tax and gifts of goods and services have been excluded. This is because the Indian consumption data does not capture these expenditures adequately.*
- *Expenditure items under vehicle finance charges, maintenance and repairs, vehicle insurance and other vehicle expenses have been excluded. This is again because the Indian consumption data does not capture these expenditures adequately.*
- *Under Indian consumption expenditure, data is not collected for mortgage, interest and charges for own dwellings. However, imputed rent is estimated for 'own dwellings'. For a comparison, 'Own dwelling—Mortgage, interest and charges' in the US consumption expenditure has been equated with 'Own dwellings—Imputed Rent' in Indian consumption expenditure.*
- *'Miscellaneous' expense for the Indian consumer is captured in household goods and services.*

The implication of this harmonization is that the consumption in the US has been underestimated.

It is quite clear from Table 2 that the richest Indians consume less than even the poorest 20 per cent Americans. If we consider the consumption expenditure in terms of MER, the richest Indians consume less than one third of the poorest 20 per cent Americans. Even if we consider the consumption expenditure in terms of PPP, the richest 5 per cent Indians still spend on goods and services close to what the poorest 20 per cent Americans do. However, as we explain below, expenditure in terms of PPP tends to give a distorted picture of the consumption pattern; MER seems more appropriate to compare consumption of the 'rich' in the developing countries with consumers in developed countries.

In MER terms, the richest 5 per cent Indians spend less than one third on goods and services compared to what the poorest 20 per cent Americans do

Figure 1: Average annual per capita expenditures on major goods and services (in US$-MER)

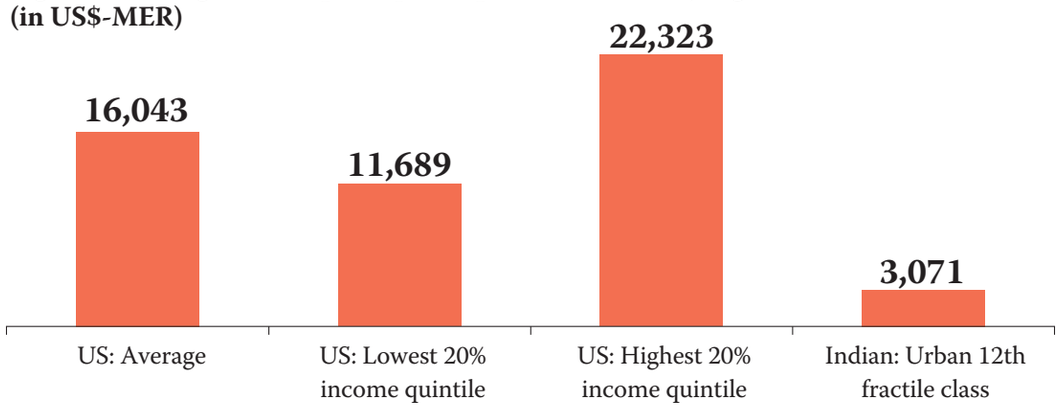
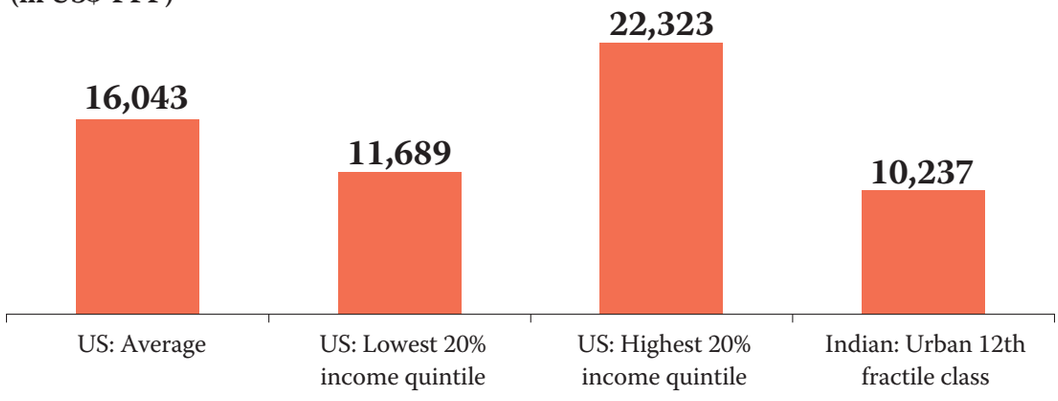


Figure 2: Average annual per capita expenditures on major goods and services (in US$-PPP)



3. CONSUMPTION OF ENERGY GOODS AND SERVICES

The aspirations and consumption pattern of the 'rich' in developing countries are similar to those of citizens in developed countries. The rich in developing countries now wear branded clothes, drive vehicle models that ply on the roads of developed countries, live in large houses and have access to products and services (food, electronic gadgets, entertainment, personal products etc.) like those consumed in developed countries. Most importantly, they buy these products and services at prices comparable to (or even higher than) those paid by consumers in developed countries. In such a scenario, PPP seems a more realistic way to compare consumption expenditure of the rich in developing countries with that in developed countries. This can be clearly demonstrated with energy-related product and services.

Data on the energy-related products and services for the richest Indians has been compared with that for various classes of Americans for the year 2014. This is the closest year to 2011–12 for which data on electricity prices in India is publicly available.

The richest in India consume less than one sixth of the energy the poorest 20 per cent in the US consume

Petrol prices in India are actually higher than in the US. In 2014, the average pump price for petrol in India was US $1.2 as compared to US $0.91 in the US. So, a dollar in India, in terms of MER, actually buys less petrol than a dollar in the US.[4]

Similarly, electricity prices in India for high-end consumers (households consuming more than 300–400 kWh/month or a per capita consumption of about 80 kWh/month) are comparable and in some areas even higher than the residential electricity prices in the US.[5] So, as far as energy goods and services are concerned, consumption expenditure based on MER gives a more accurate picture than PPP.

The annual per capita expenditure on electricity and fuels and on gasoline and motor oil of the richest 5 per cent Indians was about US $241 in 2011–12. The corresponding expenditure for the poorest 20 per cent Americans is about US $1,500—more than six times higher than that for the richest 5 per cent Indians. The expenditure of the richest 20 per cent Americans on energy goods is US $2,145, about nine times higher than expenditure of the richest 5 per cent Indians. Assuming equal prices of energy (an underestimation for consumption in the US), the richest in India consume less than one sixth of the energy the poorest 20 per cent in the US consume.

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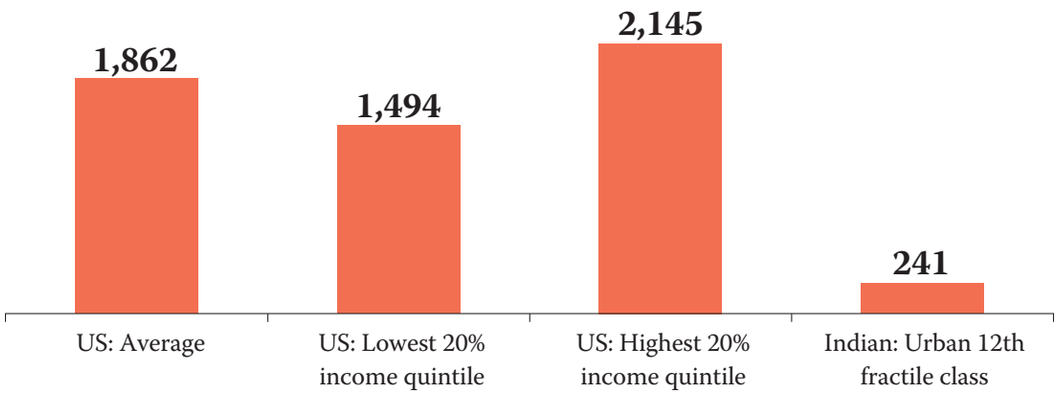
[4] Data on the US gasoline price is from https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_a.htm. Data on petrol prices in India is from https://iocl.com/Products/PetrolDomesticPrices.aspx. Average price is the average price of petrol in Delhi, Mumbai, Kolkata and Chennai.
Annual average exchange rate of Rs 61.028 to US $1.0 in 2014 (https://www.rbi.org.in/scripts/ReferenceRateArchive.aspx).

[5] According to the July 2015 *Monthly Energy Review* of the US EIA, the average retail price of electricity for the residential sector in 2014 was 12.5 cents/kWh. In July 2014, a household in Delhi consuming more than 401 kWh/month electricity had to pay a tariff of Rs 7.3/kWh. At an annual average exchange rate of Rs 61 to US $1.0 in 2014, the tariff comes to 12 cents/kWh. The tariff was even higher in Mumbai where a household consuming more than 301 kWh/ month had a pay a tariff of more than Rs 8.20/ kWh, or 13.5 cents/ kWh. In most parts of India, the residential tariff for households consuming more than 300–400 kWh/ months exceeded 10.0 cents/kWh.

Figure 3: Energy consumption of rich Indians versus poor Americans (per capita expenditure on energy goods and services in US$-MER)



Are Indian consuming more today compared to 2011–12?

The low consumption of the 'rich' in India as per the NSSO's consumer expenditure survey of 2011–12 seems to hold true even today. In its January 2018 issue, *The Economist* published an article, 'India's missing middle class', which essentially concluded that despite all the hype around '300-400 million middle class consumers', India remains very poor compared to the developed countries. For instance, as the article quotes, only about only 78 million Indians make close to $10 a day and the proportion making around $10 a day hardly shifted between 2010 and 2016. Comparing India with the US, the article found that over 99 per cent of the Indian population is in the same league as Americans who were below the poverty line (those with annual income of around $25,000 for a family of four).

Source: India's missing middle class, 11 January 2018, *The Economist*.

4. CO_2 EMISSIONS

Per capita CO_2 emissions (excluding emissions from land use, land use changes and forestry) of the top 10 per cent of Indians are similar to per capita emissions of the bottom 20 per cent of Americans.

This has been estimated by using the methodology developed by Eric Kemp-Benedict and colleagues at the Stockholm Environment Institute in preparing the Greenhouse Development Rights Framework.[6] As per the methodology, per capita emissions are assumed to be

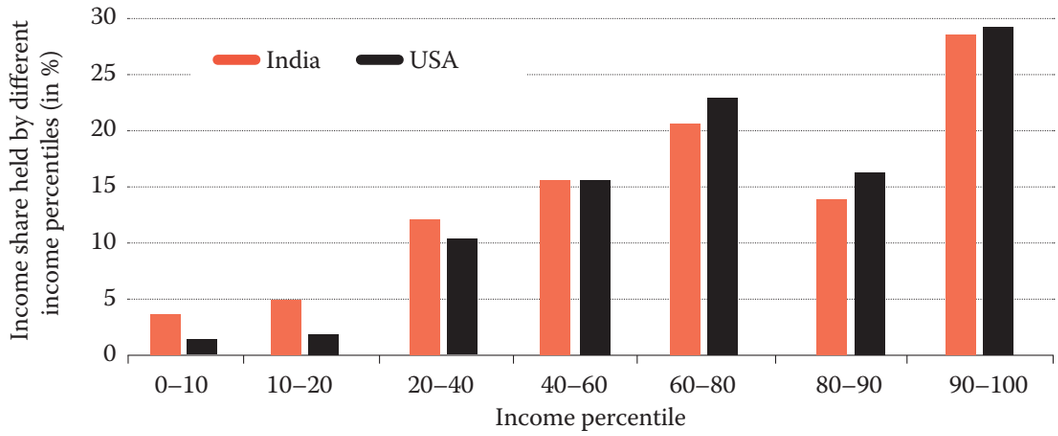
Per capita CO_2 emissions of the top 10 per cent of Indians are similar to per capita emissions of the bottom 20 per cent of Americans

[6] Kemp-Benedict, Eric, 2009, *Calculations for the Greenhouse Development Rights Calculator*, Working Paper WP-US-0803, Stockholm Environment Institute, Somerville.

directly proportional to income, with income elasticity of emissions ranging from 0.7 to 1.

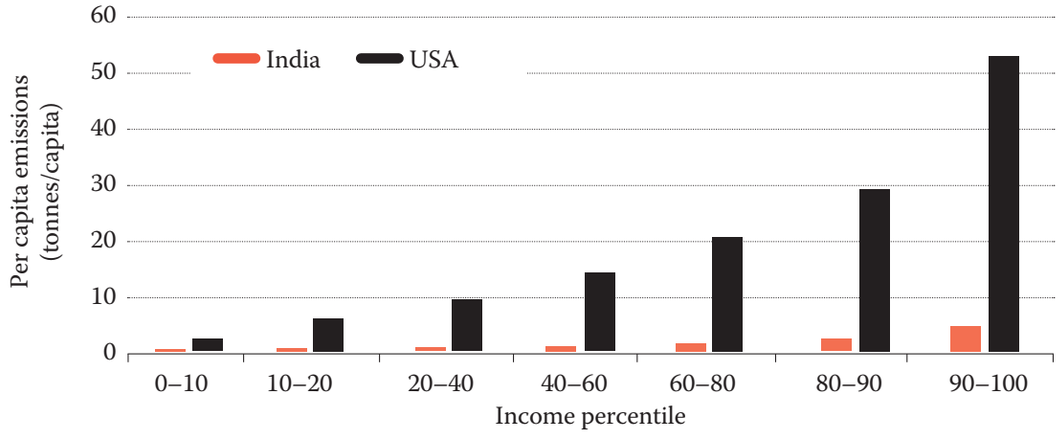
The data on national income distributions published by the World Bank as part of its World Development Indicators (WDI) database has been used. The WDI database gives national income distribution for the first and second deciles; second, third and fourth quintiles; and ninth and tenth deciles. The data on income distribution is not available for the years 2011 and 2012. The proximate years for which such data is available is 2009 for India and 2010 for the US; this data has been used to estimate CO_2 emissions of different income classes in the US and in India. Income distribution has been converted into per capita CO_2 emission distributions assuming income elasticity of emissions as 1.

Figure 4: Income distribution in the US and India



Income distribution in both countries is very similar. The tenth decile (the richest 10 per cent of the population) in both countries has about 29 per cent share of the national income. The first decile (the bottom 10 per cent) accounts for 3.7 per cent of the income in India and 1.4 per cent in the US.

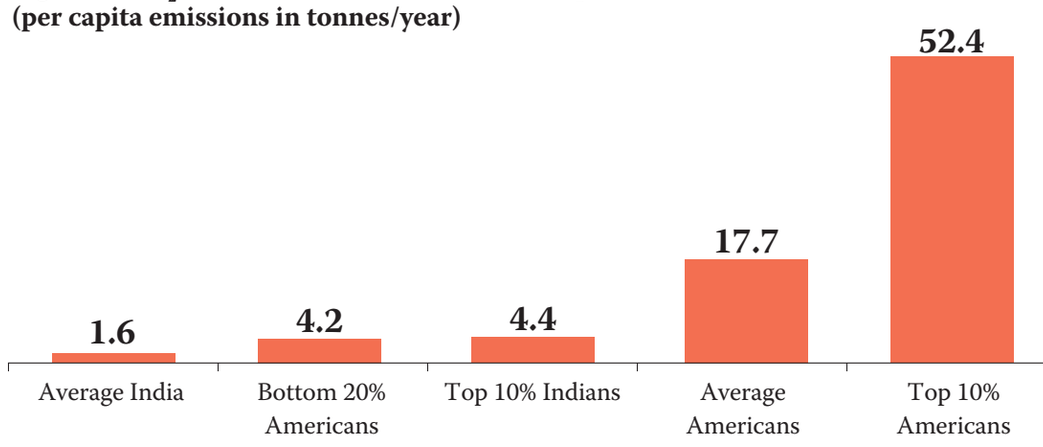
Figure 5: Per capita CO_2 emissions for different income classes in India and the US



Our analysis shows that:

- The per capita CO_2 emissions of the richest 10 per cent Indians is about 4.4 tonnes. In comparison, the per capita emissions of the richest 10 per cent Americans is 52.4 tonnes—almost 12 times higher than that of the richest Indians.
- The per capita CO_2 emissions of the poorest 10 per cent Americans is about 2.4 tonnes. This is 60 per cent higher than the average per capita CO_2 emissions of India.
- The per capita emissions of the bottom 20 per cent Americans is about 4.2 tonnes. This is similar to the emissions of the richest 10 per cent Indians.
- The per capita emissions of richest 10 per cent Indians, therefore, is:
  - *similar to the per capita emissions of poorest 20 per cent Americans*
  - *less than one quarter of the American average*
  - *less than one twelfth the per capita emissions of America's richest 10 per cent.*

Figure 6: CO_2 emissions of rich Indians versus poor Americans (per capita emissions in tonnes/year)



It is clear that consumption and emissions of even the 'poor' in the US are comparable to those of the 'rich' in India. But this is not an argument in support of increasing the consumption of the rich in developing countries. Rather, it should be used to seriously discuss some fundamental questions related to consumption. For instance:

- If the rich of India can live 'luxuriously' with annual per capita emissions of less than 5 tonnes of CO_2, why can't the rich of the developed world?
- How much consumption is enough?
- How do we control consumption in both the developed and the developing world?
- Can we meet climate goals without addressing consumption? Will technology and efficiency be sufficient to reduce GHG emissions?
- Can we have the ultimate win-win—to consume but not pollute?

5. SUSTAINABLE CONSUMPTION AND PRODUCTION

The world wants to address consumption issues through the concept of sustainable consumption and production (SCP), which is one of the Sustainable Development Goals (SDGs). According to the UN, *'Sustainable consumption and production is about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty.'* But this definition of SCP doesn't even address the issue of consumption. It completely ignores the ideas of 'sufficiency' and 'limits to consumption'.

But can we tackle the environmental challenges of the twenty-first century without addressing consumption? For instance, can we meet the 2 degree Celsius (°C) temperature target without addressing consumption?

MEETING THE 2°C TARGET

The Paris Agreement has set the goal of keeping the increase in global temperature to well below 2°C compared to pre-industrial levels and of pursuing efforts to limit warming to 1.5°C. To meet these temperature goals, the world has a finite carbon dioxide (CO_2) budget that it can emit till 2100. The CO_2 budget for the period 2012–2100 is about 1,000–1,400 $GtCO_2$ for global warming to be limited to below 2°C with a probability of over 66 per cent.[7]

Table 3: The carbon budget

Unit: Gt CO_2	>>33% probability of staying within 2°C	>>50% probability of staying within 2°C	>>66% probability of staying within 2°C
Total anthropogenic CO_2 budget 1861–1880 to 2100	5,762	4,441	3,670
Total anthropogenic CO_2 budget remaining after excluding non-CO_2 forcing: 1861–1880 to 2100	3,303	3,009	2,899
Total anthropogenic CO_2 emitted 1861–1880 to 2100	1,890	1,890	1,890
Total anthropogenic CO_2 budget remaining 2012 to 2100	1,413	1,119	1,009

Source: IPCC, 2013: *Climate Change 2013: The Physical Science Basis*. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1535.

[7] AR5, IPCC.

To remain within the carbon budget, global CO_2 emissions in 2050 should be 40–70 per cent below 2010 levels and near zero or below in 2100

According to the *Emissions Gap Report 2017*, published by the UN Environment Programme, if all the Nationally Determined Contributions (NDCs) put forth by countries under the Paris Agreement are fully implemented, they will result in cumulative emissions of 750–800 $GtCO_2$ during the period 2011–30—about 80 per cent of the remaining CO_2 budget for the 2°C goal. The available global carbon budget for 1.5°C with 50–66 per cent probability will already be well depleted by 2030.[8] The world, therefore, needs urgent action to reduce emissions to remain within the carbon budget. According to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), for temperature rise to remain within 2°C, global GHG emissions in 2050 should be 40–70 per cent below 2010 levels and near zero or below in 2100.[9] Let us assume that it has to be 55 per cent below 2010 levels.

Emissions of GHGs is a factor of three parameters—population, consumption (per capita GDP can be taken as a proxy for consumption) and GHG emissions intensity of consumption.

GHG emissions (E) = Population (P) x Per capita GDP (G) x Emissions intensity of GDP (Ei) ——— **(1)**

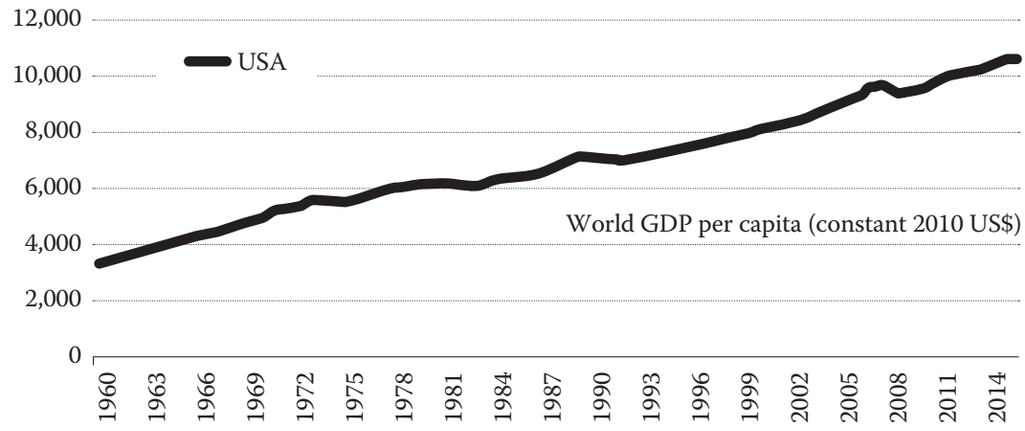
Emissions in 2050 have to be 55 per cent below 2010 levels.

$$E_{2050} = 0.45\, E_{2010} \text{ ——— (2)}$$

In the last 50 years, the world's per capita GDP has grown by 1.67 per cent (see F*igure 7: Growth in world GDP*). Let us assume that the world's per capita GDP will grow by 2 per cent annually on the back of increasing growth in Asia and Africa to meet the needs of the growing population. If this happens, the world's per capita GDP in 2050 will be 2.2 times the world's per capita GDP in 2010.

$$G_{2050} = 2.2\, G_{2010} \text{ ——— (3)}$$

Figure 7: Growth in world GDP



Source: World GDP per Capita, World Development Indicators, The World Bank.

[8] UNEP (2017). *The Emissions Gap Report 2017*. United Nations Environment Programme (UNEP), Nairobi.
[9] *IPCC Fifth Assessment Synthesis Report, Approved Summary for Policymakers,1 November 2014.*

According to the UN Department of Economic and Social Affairs (UN DESA), the world's population is expected to reach 9.7 billion by 2050 and 11.2 billion in 2100.[10] This means that the world's population in 2050 will be 1.4 times the world's population of 2010.

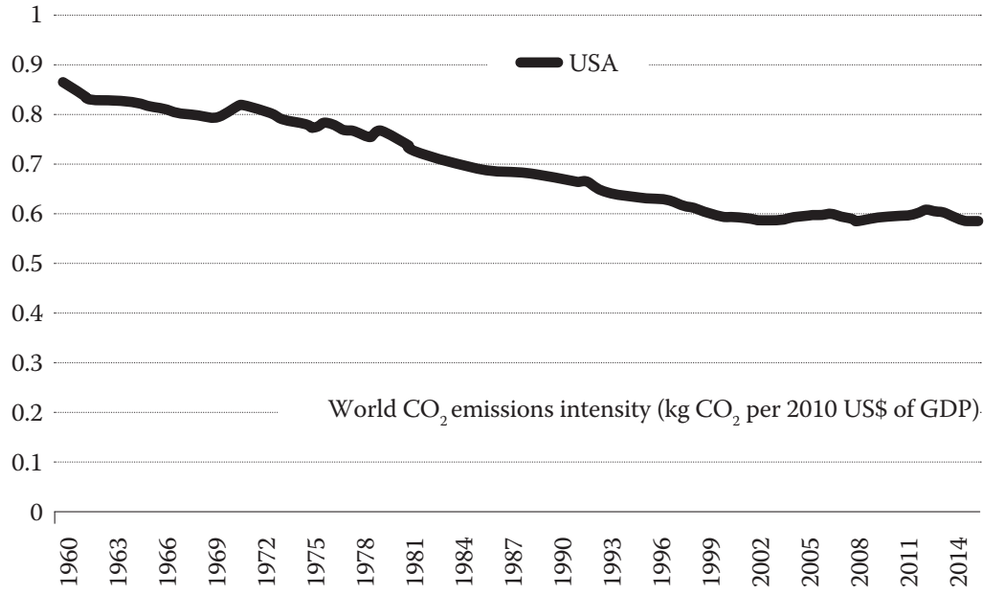
$$P_{2050} = 1.4\ P_{2010} \quad \text{——— (4)}$$

In the above scenario of population and per capita GDP growth, to reduce GHG emissions in 2050 by 55 per cent compared to 2010 levels, the emissions intensity of GDP in 2050 has to be about one seventh of the emissions intensity of GDP in 2050.

$$Ei_{2050} = 1/7\ Ei_{2010} \quad \text{——— (5)}$$

This means that the emissions intensity of GDP has to be reduced by about 5 per cent annually between 2010 and 2050. However, in the past 50 years, the CO_2 emissions intensity of GDP has reduced by a mere 0.95 per cent annually (see *Figure 8: World CO_2 emissions intensity*). In fact, since 2000, the world CO_2 emissions intensity has actually plateaued.

Figure 8: World CO_2 emissions intensity



Source: World CO_2 emissions intensity, World Development Indicators, The World Bank.

If we rely only on efficiency improvements, it is near impossible to meet the 2°C goal. Efficiency is not sufficiency—without addressing consumption it would be near impossible to meet the climate target.

The idea of an ultimate win-win—to consume but not pollute is a mirage. The question the world faces today is not whether consumption should be curtailed, but how. The definition of sustainable consumption and production must reflect this.

[10] *World Population Prospects: The 2015 Revision*, UN DESA.

ANNEXURE

1. About NSSO Consumer Expenditure Survey

The NSSO Consumer Expenditure Survey aims at generating estimates of average household monthly per capita consumer expenditure (MPCE), the distribution of households and persons over the MPCE range, and the breakup of average MPCE by commodity group, separately for rural and urban sectors of the country. These indicators are amongst the most important measures of the level of living of the relevant domains of population. The survey breaks up per capita consumer expenditure by 32 broad groups (14 food groups and 18 non-food groups) of items of consumption.

We have used Schedule Type 2 data. Schedule Type 2 uses 'last 365 days' (only) for infrequently purchased categories, 'last 7 days' for some categories of food items, as well as pan, tobacco and intoxicants, and 'last 30 days' for other food items, fuel and the rest.

- Clothing, bedding, footwear, education, medical (institutional), durable goods—last 365 days
- Edible oil; egg, fish and meat; vegetables, fruits, spices, beverages and processed foods; pan, tobacco and intoxicants—last seven days
- All other food, fuel and light, miscellaneous goods and services including non-institutional medical; rents and taxes—last 30 days

The household consumer expenditure is defined as the expenditure incurred by a household on domestic consumption during the reference period. Expenditure incurred towards productive enterprises of households is excluded from household consumer expenditure. Also excluded are expenditure on purchase and construction of residential land and building, interest payments, insurance premium payments, payments of fines and penalties, and expenditure on gambling including lottery tickets. Money given as remittance, charity, gift, etc. is not consumer expenditure. However, self-consumed produce of own farm or other household enterprise is valued and included in household consumer expenditure. So are goods and services received as payment in kind or free from employer, such as accommodation and medical care, and travelling allowance excluding allowance for business trips.

2. About Consumer Expenditure Survey, US Bureau of Labor Statistics

The Consumer Expenditure Survey (CE) program consists of two surveys—the Quarterly Interview Survey and the Diary Survey—that provide information on the buying habits of American consumers, including data on their expenditures, income and consumer unit(families and single consumers) characteristics.

Expenditures consist of the transaction costs, including excise and sales taxes of goods and services acquired during the interview or record-keeping period. Expenditure estimates include expenditures on gifts, but exclude purchases or portions of purchases directly assignable to business purposes. Periodic credit or installment payments on goods or services already acquired are also excluded. The full cost of each purchase is recorded, even though full payment may not have been made at the date of purchase. The order of the expenditures listed here follows the order of presentation in published CE tables. The major expenditure categories are:

- Food
- Housing
- Apparel and services
- Transportation
- Healthcare
- Entertainment
- Other expenditures

Centre for Science and Environment is a public-interest research and advocacy organization, which promotes environmentally sound and equitable development strategies. The Centre's work since its establishment in 1980 has led it to believe and argue, both nationally and internationally, that participation, equity and community-based natural resource management systems alone will lead the nations of the world towards durable peace and development.

As a public-interest organization, the Centre supports and organizes information flow in a way that the better organized sections of the world get to hear the problems and perspectives of the less organized. Environmental issues are seen in an anthropocentric perspective that seeks to bring about changes in the behaviour of human societies through appropriate governance systems, human–nature interactions and the use of science and technology.

Though the public awareness programmes of the Centre have been its key strength and focus of work, it has endeavoured to move into associated areas of work like policy research and advocacy. Learning from the people and from the innovations of the committed has helped the Centre spread the message regarding environment without its normal association with doom and gloom. Rather, the effort of the Centre is to constantly search for people-based solutions and create a climate of hope.

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