

**Strategies for Sustainable Design**  
**Professor Doctor Shiva Ji**  
**Indian Institute of Technology, Hyderabad**  
**Lecture 20**

**Consumption and Consumerist Lifestyle**

Hello, everyone. In today's lecture we will discuss about consumption and consumerist lifestyle.

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Week 1: Definitions and Perspectives on Sustainability in Industrial Design and Built Environments  
Lecture 3: The Role of Technology and Consumerist Lifestyle  
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*The issue at a glance...*

- 1. Global drivers of consumption**  
Global consumption levels and patterns are driven at the most fundamental level by:
  - Rapid global population growth – Population of 9 billion expected by 2050
  - The rise in global affluence and associated consumption – Global middle class expected to triple by 2030, low-income consumers represent a market of US\$5 trillion
  - A culture of “consumerism” among higher income groups, who account for the greatest per capita share of global consumption.
- 2. Global consumption patterns & impacts**  
Global consumption is putting unsustainable and increasing stress on:
  - The Earth’s ecosystems – 70% of the earth’s ecosystem services have been degraded in the past 50 years
  - The supply of energy and material resources, needed for industrial growth – Natural resource consumption is expected to rise to 170% of the earth’s bio-capacity by 2040
  - Human social systems and wellbeing – Human wellbeing does not necessarily rely on high levels of consumption.
- 3. The role of the consumer**  
Consumer attitudes and behaviors:
  - Consumers are increasingly concerned about environmental, social and economic issues, and increasingly willing to act on those concerns
  - Consumer willingness often does not translate into sustainable consumer behavior because of a variety of factors – such as availability, affordability, convenience, product performance, conflicting priorities, skepticism and force of habit.
- 4. The role of business – Mainstreaming sustainable consumption**  
The business case: Business approaches to sustainable consumption can be grouped into three broad categories:
  - Innovation: Business processes for the development of new and improved products, services and business are shifting to incorporate provisions for maximizing social value and minimizing environmental cost
  - Choice-influencing: the use of marketing communications and business strategy campaigns to enable and encourage consumers to choose and use products more efficiently and sustainably
  - Choice-eliminating: the removal of “unsustainable” products and services from the marketplace.
- 5. The challenge ahead and options for change**
  - To be able to lead sustainable lifestyles based on informed purchasing decisions, and changes in behavior consumers need the support of all actors in society, business, governments, and civil society
  - Business also need to further engage with stakeholders (such as consumers, media, regulators, policy makers, NGOs) and between businesses to define sustainable products and lifestyles and to formulate actionable responses
  - Stakeholders consulted in the development of this document all us that leading businesses have the capacity to mainstream sustainable consumption and welcome the opportunity to work alongside businesscommunity forward.

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So, let us understand this issue at a glance. So, what are the drivers of consumption? The global consumption levels and patterns are driven at the most fundamental level by rapid global population growth.

Well, population of 9 billion is expected by year 2050. The rise in global affluence and associated consumption, the global middle class expected to triple by 2030. Low-income consumers represent a market of U.S dollar 5 trillion. A culture of consumerism among higher income groups who account for the greatest per capita share of global consumption. So, this is about related with the global drivers of consumption.

Let us see the global consumption patterns and impacts. Global consumption is putting unsustainable and increasing stress on the Earth's ecosystem. 70 percent of the Earth's ecosystem services have been degraded in the past 50 years. The supply of energy and material resources needed for industry growth, natural resource consumption is expected to rise to 170 percent of the Earth's bio-capacity by 2040. That means, this is

going to exceed, exceed by 70 percent of what on earth can apply, what, what Earth can supply.

The human social systems and well being, human well being does not necessarily rely on high levels of consumption. Well, it is a proven fact that the human well being is not necessarily related with the high consumption of like material or the resources. Third, the role of the consumer. The consumer attitude and behavior, consumers are increasingly concerned about environmental, social and economic issues, and increasingly willing to act on those concerns. Consumer willingness often does not translate into sustainable consumer behavior because of a variety of factors such as availability, affordability, convenience, product performance, conflicting priorities, skepticism and force of habit.

So, these are relations with the consumer. So, how the consumer is going to drive this whole consumeristic approach is lot depends on the consumer itself. Let us see the fourth one. The role of business is mainstreaming like sustainable consumption. The business case, the business approaches to sustainable consumption can be grouped into 3 broad categories, innovation, choice-influencing and choice-editing.

Let us see, innovation, like a business processes is for the development of new and improved products, services and businesses are shift into incorporate provisions for maximizing societal value and minimizing environmental costs. Choice-influencing, the use of marketing communications and awareness raising campaigns to enable and encourage consumers to choose and use products more efficiently and sustainably.

Choice-editing, the removal of unsustainable products and services from the marketplace. Let us go to the fifth point, the challenge ahead and options for change. To be able to lead sustainable lifestyle based on informed purchasing decisions and changes in behavior consumer needs the support of all actors in society, business, government and civil society. Business sees a need for further dialogue with stakeholders such as like consumers, retailers, marketers, policymakers, NGOs, and between businesses to define sustainable products and lifestyle and to formulate actionable responses.

The last one, stakeholders consulted in development of this document tell us that leading businesses have the capacity to mainstream sustainable consumption and

welcome the opportunity to work alongside business moving forward. So, let us see these points in detail.

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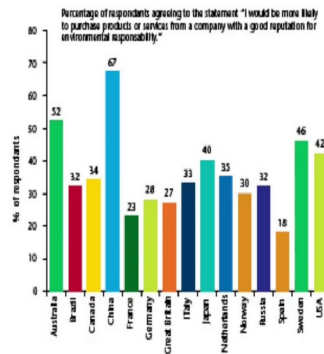


Figure 12: Consumers globally report greater propensity to buy from companies with a reputation for environmental responsibility  
Source: Tanberg, 2007.<sup>16</sup>



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There was a study of consumers globally report greater propensity to buy from companies with a reputation for environmental responsibility. So, these are percentages of the respondents who agreed to buy the companies who work in the response to the environmentally conscious design and products.

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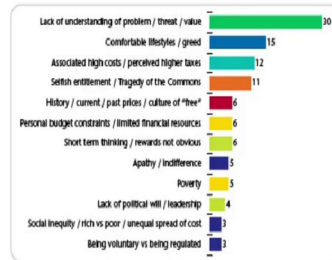


Figure 13: Why consumers are sometimes unwilling to pay more for environmental performance. Source: National Geographic Society/ClobeScan, Cromden: 2008. Consumer Choice and the Environment – A Worldwide Tracking Survey, 2008.



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In this slide, you can see why consumers are sometimes unwilling to pay more for environmental performances. Well, the reasons are given on the left side, you can see the first and foremost with the biggest contribution actually comes from the lack of understanding of problem threat or value.

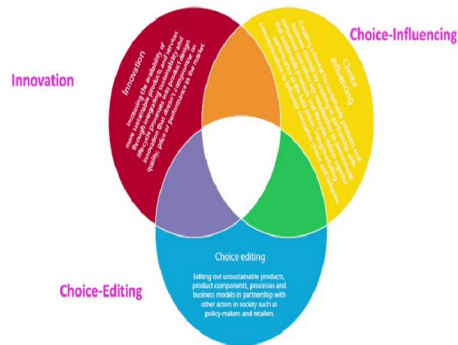
The next one, comfortable lifestyle and greed. The third one talks about associated high costs, perceived higher taxes. Then selfish entitlement, tragedy of the commons. History current past prices, culture of free. So, these are traits, these are features which are associated with why consumers are sometimes unwilling to pay more for the environmental performances, because they are simply not aware of the consequences, which the products are causing in general.

Well, there are several other reasons also you can see, short term thinking, rewards like not obvious, apathy, indifference, poverty, lack of political leadership, social inequality, rich versus poor, unequal spread of cost, being voluntary versus being like regulated. So, these are the few like our insights are drawn from the public, which helps us how we can strategize our efforts in countering these kind of like perceptions and inhibitions from the mindset of the consumers, because this is the one of the opportunities areas where we can strategize and formulate our action points to rework our products and our manufacturing sector.

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## More Sustainable Consumption: Business Approaches



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So, for most, more suitable consumption there is, this is the business approach, it is divided into 3 major components of innovation, choice, choice-influencing and choice-editing. Let us see one of 1 by 1. So, innovation says like increasing the availability of more sustainable products and services, through integrating sustainability and lifecycle processes into the product design innovation, that does not compromise on quality, price or performance in the market.

Choice-influencing it says, creating market of sustainable products and business models by working in partnership with the consumers and other key stakeholders to demonstrate that the sustainable products and lifecycle deliver superior performance at the best prices, using marketing communications to influence consumer choice and behavior. The third one, choice-editing, it says, editing out unsustainable products, product components processes and business model in partnership with other actors in society such as like policymakers and retailers.

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#### Sustainable Consumption in Poland

• One good example here is the consumer education campaign "Buy responsibly – your money shapes the world", targeting young people, and conducted by the Polish Green Network and Gaia Club. In ten of the country's 16 voivodships (regions), it offered school lessons in eco-friendly and society-friendly consumer behaviour, covering these subjects:

- marketing basics, with emphasis on manipulation techniques
- sustainable products and their marking (eco-labelling)
- local and organic food
- water saving and consumption rationalisation
- waste products (types of packaging and their environmental impact, segregation and recovery)
- energy and its impact on climate
- fair trade and corporate social responsibility ([http://www.klubgaja.pl/projekty/kupuj\\_odpowiedzialnie/](http://www.klubgaja.pl/projekty/kupuj_odpowiedzialnie/)).



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So, here, I have taken case example from the country of Poland. so how they are driving the sustainable consumption in Poland, let us have a look. One good example over here is the consumer education campaign, "Buy responsibly - your money shapes the world". So, this was tagline given for this campaign targeting young people and conducted by the Polish Green Network and Gaia Club. In 10 of the countries like 16 voivodships, like regions, it offered school lessons in eco-friendly and socially-friendly consumer behavior, covering these subjects, these are the following subjects which they offered in the school as lessons.

Marketing basics, with emphasis on manipulation techniques, because marketing we know, marketing is a science of like, understanding the market at the same time, they manipulate also, they use manipulative techniques also to influence to exert influence in the mindset of the consumers. Like advertising is one of the tools which marketing companies use to entice consumers to buy products.

The next one sustainable products and their marketing, like eco-labelling, local and organic food, water saving and consumption rationalization, waste products, like types of packaging and their environmental impact, segregation and recovery, etc, energy and its impact on climate, fair trade and corporate social responsibility, etc. So, these are the topics which the Polish agencies this, this agency, this Polish Green Network tried delivering in the schools and like other places for better awareness.

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- “We are jeopardizing our future by not reining in our intense but geographically and demographically uneven material consumption...By failing to adequately limit population growth, reassess the role of an economy rooted in growth, reduce greenhouse gases, incentivize renewable energy, protect habitat, restore ecosystems, curb pollution, halt defaunation, and constrain invasive alien species, humanity is not taking the urgent steps needed to safeguard our imperilled biosphere.
- World Scientists' Warning to Humanity: A Second Notice (Ripple et al. 2017)



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Let us see, what are, the other researchers talk about these aspect. So, here one of this is, his talks about, we are jeopardizing our future by not reining in our intense but geographically and demographically uneven material consumption...By failing to adequately limit population growth, reassess the low role of an economy rooted in growth, reduce greenhouse gases, incentivize renewable energy, protect habitat, restore ecosystems, curb pollution, halt defaunation, and constraint invasive alien species, humanity is not taking the urgent steps needed to safeguard our imperialist biosphere.

For example, it is mentioned over here like even containing the invasive species because what happens, sometimes like the animal species is sometimes like plant species, they move to the unknown unative like location and they start going over there in a huge quantity. In turn, they end up killing or disturbing the local balance of the species which are existing prior to that arrival of this alien species. So, it is very important to curb such, such moments also of different species to the alien worlds.

So, this was actually said in the World Scientists Warning to the Humanity, this was actually a second notice. So, this can be, this article can be referred at this location, it is given here.

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## Shifting Consumers to Behave Sustainably

•At first glance, it might appear that the goals and assumptions of marketing are incompatible with the goals and assumptions of sustainability. Traditional marketing encourages growth, promotes an endless quest for satisfying needs and wants, and seems to view resources as ever abundant (Csikszentmihalyi 2000; Swim, Clayton, and Howard 2011). In contrast, a sustainability focus suggests that utilized resources can be renewed by mimicking the circular flows of resources in nature, and it respects the fact that capacity of both resources and the environment are limited (McDonough and Braungart 2002; Mont and Heiskanen 2015). We argue that, because of this apparent contradiction, marketing and sustainability are inextricably intertwined.



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So, how the consumerism is being driven in the society, there are some more examples I would like to bring to you. Shifting consumer to behave sustainably is one of the approaches where we can start bringing some change in the mindset of the people. So, here in this slide I would like to mention, t the first glance, it might appear that the goals and assumptions of marketing are incomplete with the goals and assumptions of sustainability. Traditional marketing encourages growth, promotes the endless quest for satisfying needs and wants and seem to view resources as ever abundant.

In contrast, a sustainability focus suggests that utilized resources can be renewed by mimicking the circular flows of resources in nature, and it represents the fact that capacity of both resources and the environment are limited. We argue that, because of this apparent contradiction, marketing and sustainability are inextricably intertwined.



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## Eco-labeling

Eco-labeling is one means of conveying information about the sustainable attributes of a product (Parguel, Benoit-Moreau, and Larceneux 2011). Labels that are attention-grabbing, easily understandable, and consistent across categories can enable consumers to make better informed eco-friendly decisions (Borin, Cerf, and Krishnan 2011; Taufique, Vocino, and Polonsky 2017; Thøgersen 2000). It has been suggested that eco-labels would be more effective if they were contrasted against negative labels that highlight products with environmentally harmful attributes (Borin, Cerf, and Krishnan 2011). Eco-labeling can seem more transparent and unbiased if it is certified by a third party that validates the sustainability claims (Manget, Roche, and Münnich 2009). However, it is important to note that some work suggests eco-labels do not play a strong role in predicting consumer food selections (Grunert, Hieke, and Wills 2014).



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What is Eco-labelling? Let us see. Eco-labelling is one of the means of conveying information about the sustainable attributes of a product. Labels that are attention grabbing easily understandable and consistent across categories can enable consumers to make better informed eco-friendly decisions.

It has been suggested that eco-label would be more effective if they, they were contrasted against negative labels that highlight products with environmentally harmful attributes. Eco-labelling can see more transparent and unbiased if it is certified by a third party that validates the sustainability claims.

However, it is important to note that some work suggests eco-labels do not play a strong role in predicting consumer food selections. Well, so, these are the some observations, these are some reserved, research outputs by several researchers. So, this is how eco-labelling can be taken into the market.

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Conscious consumerism is a lie.  
Here's a better way to help save the world... Alden Wicker

- Instead of buying expensive organic sheets, donate that money to organizations that are fighting to keep agricultural runoff out of our rivers.
- Instead of driving to an organic apple orchard to pick your own fruit, use that time to volunteer for an organization that combats food deserts (and skip the fuel emissions, too).
- Instead of buying a \$200 air purifier, donate to politicians who support policies that keep our air and water clean.
- Instead of signing a petition demanding that Subway remove one obscure chemical from its sandwich bread, call your local representatives to demand they overhaul the approval process for the estimated 80,000 untested chemicals in our products.
- Instead of taking yourself out to dinner at a farm-to-table restaurant, you could take an interest in the Farm Bill and how it incentivizes unhealthy eating.

<https://qz.com/920561/conscious-consumerism-is-a-lie-heres-a-better-way-to-help-save-the-world/>



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So here this, another researcher, he says, conscious consumerism is a lie. Here is a better way to help save the world. Let us see, what he says. Instead of buying expensive organic sheets, donate that money to organizations that are fighting to keep agriculture runoff to our rivers. Next, instead of driving to organic apple orchard to pick your own fruit, use that time to volunteer for an organization that combats food deserts.

Instead of buying a 200 dollar air purifier, donate to politicians who support policies that keep our air and water clean. Instead of signing a petition demanding that Subway remove one obscure chemical from its sandwich bread, call your local representatives to demand they overhaul the approval process for the estimated 80,000 untested chemicals in our products.

Instead of taking yourself out to dinner at a farm to table restaurant, you could take an interest in the Farm Bill and how to incentivize unhealthy eating. So, well there are several ways through which you can channel your intentions, you can strategize to rework the prevalent model of this consumerism, which is happening across the world right now. So, how you and me can put our efforts that is where our the whole goal lies.

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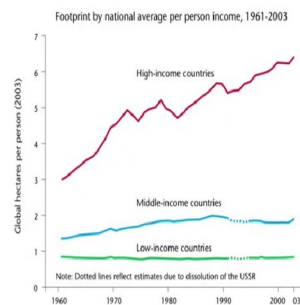


Figure 4: Consumers in wealthy countries account for the greatest per-capita environmental footprint.  
Source: WWF, Living Planet Report, 2006.

### Consumption and wealth: A culture of consumerism

Relatively wealthy consumers account for by far the greatest per-capita share of consumption expenditure and environmental footprint. According to estimates by World Wildlife Fund (WWF), three planets would be required were everyone to adopt the consumption patterns and lifestyles of the average citizen from the United Kingdom; five planets, were they to live like the average North American.<sup>12</sup>

The United Nations Development Programme (UNDP) describes conspicuous consumption as places where there is heavy societal pressure to maintain high consumption patterns and where competitive spending and displays of wealth are encouraged by society.



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In this particular slide, if you see, this talks about consumption and wealth, culture of consumerism. So, here if you see, this graph on the left side, it talks about footprint by national average per person income. So, this is a chart between the data is between year 1961 to 2003. So, here this red line shows high income countries, blue line by, blue line for middle income countries and green line for low-income countries.

So, there if you see, the global hectare per person, this is a data from year 2003. So, for low income countries it is less than 1, for middle income, middle income countries it is between 1 to 2, but not above 2. And for high income countries it is between a range of 3 to 6 which is very high. So, this is the consumers in wealthy countries account for the greatest per capita environmental footprint. So, this is very, very, like direct and evident that the wealthy countries they exert a higher global, per person environmental footprint.

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Well-being is not necessarily correlated with high levels of consumption

- The New Economics Foundation's Happy Planet Index ranks a nation's progress based on the amount of the Earth's resources its inhabitants use and the length and happiness of people's lives. Although this is a contentious area of research, it yields some interesting insights. According to the study, a high consumption level does not necessarily guarantee happiness. It claims that people can live long, happy lives without using more than their "fair share" of the Earth's resources. While no country combines high GDP with low life satisfaction, many poorer countries achieve levels of life satisfaction just as high as
- Exceeds Earth's average capacity per person, high development their wealthier neighbors.
- Above a minimum level, there is no apparent correlation between per capita GDP and life satisfaction.



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So how this we can relate it with the well-being. So, well, well-being is not necessarily correlated with high levels of consumption. Because these countries, that is high income countries, that is high spending countries they suffer also, with the several lifestyle diseases these days.

So, how this, article says over here let us see. The New Economics Foundation's Happy Planet Index ranks a nation's progress based on the amount of the Earth's resources, its inhabitants to use and the length and happiness of people's lives. Although this is a contentious area of research, it yields some interesting insights.

According to the study, a high consumption level does not necessarily guarantee happiness. Well, we have seen these studies in our previous lectures like how happiness is more important than the GDP per person. Because in the overall like purpose of the life What does anyone want is the happiness and satisfaction.

So, it, this research claims that people can live long happy without using more than their fair share of the Earth's resources. While no country combines high GDP with the low life satisfaction, many poorer countries achieve levels of life satisfaction, just as high as a, if you see that there are two like observations points given over here:

It exceeds Earth's average capacity per person, high development, their wealthier labors, neighbors; and the second one talks about, above a minimum level, there is no

apparent correlation between per capita GDP and life satisfaction. So, this gives us this a direct insight that a higher GDP does not necessarily means like happiness is more or the satisfaction levels are more. So, that in terms like relates to this, to this hypothesis, that the higher consumption rates are not going to give the desired happiness.

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Key areas	Expectations in industrial countries	Expectations in emerging economies
Economic development	Remain competitive and offer development opportunities to emerging economies	Contribute to the country's development, especially in structurally weak regions
Ethics and management	Promote the adoption of environmental and social standards, throughout the value chain, especially among suppliers Create transparency, regarding economic, ecological and social aspects of corporate activities, especially in emerging economies Support human rights	Act ethically and legally Establish high environmental and social standards, and set an example for suppliers and competitors Help to build management competencies and institutions
Employees and jobs	Promote job security through employee training and development Proactively address challenges like equal opportunity and population aging	Create jobs and train employees Ensure occupational safety and health protection Promote and raise employee awareness of environmental protection
Products and marketing	Ensure product safety Offer quality products at fair prices Promote sustainable consumption through ethically and ecologically sound products, and by informing consumers and raising their awareness	Develop and market quality products for those at the bottom of the affluence pyramid Ensure that products are safe and environmentally compatible Consider the cultural and social context
Resource efficiency and climate protection	Stronger focus on products: dematerialization of the economy by moving from product- to service-oriented business models Help to reduce greenhouse gas emissions	Transfer know-how and modern energy- and resource-saving technologies Safely growing consumer needs with products that use limited resources efficiently
Social commitment	Work toward meeting the United Nations' Millennium Development Goals Help to solve social problems, also by encouraging employee volunteering	Support and promote, in particular, disadvantaged children and young people Raise public awareness of environmental protection Promote education and research for sustainable development

Figure 12: Expectations of business in industrialized and emerging economies.  
Source: Helm, 2001

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So, in this slide, we will discuss like expectation of businesses industrialized, in industrialized and emerging economies. So, there are key areas given on the left side and expectations in the industrial countries and expectations in the emerging economies. So, what are those things? Let us see 1 by 1.

On the economic development area, the industrial countries, they should remain competitive and offer development opportunities to the emerging economies. And what these emerging economies should do is to contribute to the country's development especially in structurally like weak regions.

On the ethics and management area, promote the adopt, adoption of environmental and social standards, throughout the value chain, especially among suppliers. Create transparency regarding economic, ecological and social aspects of corporate activities, especially in emerging economies, support human rights. In the emerging economies, it, it works out as act ethically and legally, establish high environmental and social standards and set an example for suppliers and competitors. Help to build management competencies and institutions.

On the, in the area of like employees and jobs, promote job security through employee training and development proactively address challenges like equal opportunity and population ageing. For the emerging economies, create jobs and train employees, ensure occupational safety and health protection, promote and raise employee awareness of environmental protection.

In the next key, key area of products and marketing, ensure product safety. Offer quality products at fair prices. Promote sustainable consumption through ethically and ecologically sound products and by, by informing consumers and raising the awareness. For the emerging economies, it is said that develop and market quality products for those at the bottom of the affluence pyramid. Ensure that products are safe and environmentally compatible. Consider the cultural and social context. Well, these are the traits which are necessary for any sustainable practices. Let us go to the next one.

The key, this key area of resource efficiency and climate protection talks about for the industrial economies as a stronger focus on products, dematerialization of the economy by moving from product-to-service oriented business models. This we will discuss in more detail in the License chapter. Further point, help to reduce greenhouse gas emissions. For the emerging economies it talks about transfer know-how and modern energy and resource conserving technologies. Satisfy growing consumer needs with products that use limited resources efficiently.

The last one, social commitment key area, so this is main for like industrial countries that work toward meeting the United Nations' Millennium Development Goals (( ))(19:49) help to solve social problems, also by encouraging employee volunteering. Support and promote in particular disadvantaged children and young people. Raise public awareness of environmental protection, promote education and research for sustainable development.

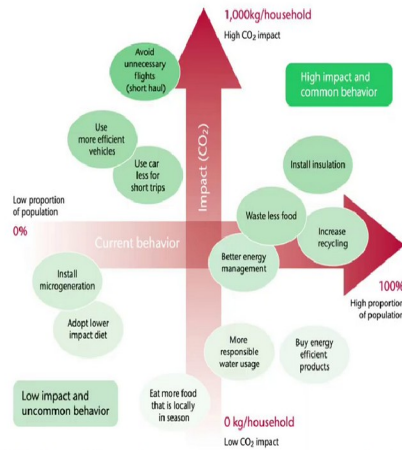
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In the UK, where the government provides financial and practical help to install insulation and recycle rubbish, consumers are more likely to take those actions than to purchase fewer short-haul flights (the costs of which have fallen dramatically) or to abandon their cars in favor of public transport (which is among the most expensive in the world) (Figure 17). More effective ways to reduce carbon emissions, such as avoiding unnecessary flights, using more efficient vehicles and using the car less for short trips, were less widely adopted.

Figure 17: Consumers favor cost-efficient or convenient behavior changes over others that would save more carbon, but require a sacrifice.  
Source: SERA, UK, A Framework for Pro-Environmental Behaviours, 2007.

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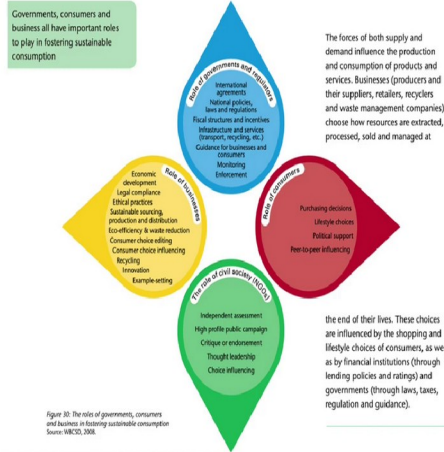
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This slide talks about the consumers favor cost-efficient or convenient behavior changes over others that would see more carbon, but requires a sacrifice. So, here we will see like there is a comparison chart given on the X and Y axis. It ranges from low CO2 impact to very high CO2 impact, 0 kg per household to 1000 kg per household. And on the left and right side, it talks about low, low proportion of population like 0 percent to 100 percent high proportion of the population.

So, let us see which are those, those corners and which are these bubbles which are going to affect. So, on the left bottom corner, if you see, this is the low impact and uncommon behavior. On the right top bottom if you see, right top corner, if you see that is the high impact and common behavior. So, in this one, there are re these bubbles given if we eat more food that is like locally incision. So, obviously, there will be very little CO2 impact, CO2 emission.

If we install micro-generation, that will be comparatively lower CO2 emission, but will be very little number of population, is going for that. Adopt lower impact diet, well, there are very fewer number of population, is doing that. Well, it has also respectable mount of CO2 emissions causing due to this. On the top portion, if you see, avoid unnecessary for flights. So, these are flights and high efficient vehicles and these are the major impacting entities as far as the impact of CO2 is concerned.

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In this slide, we will talk about the role of the government, consumers and businesses in fostering sustainable consumption. So, the first one if you see on the, in the blue, this drop, this talks about international agreements, national policies, framing laws and regulations, planning fiscal structures and incentives, infrastructure and services, such as like transport recycling, etc., guidance for businesses and consumers, monitoring enforcement. So, these are the tasks majorly designed for governments and regulators.

On the left side, if you see, the what is, what could be the role of the businesses? Economic development, legal compliance, ethical practices, sustainable sourcing, production and distribution, eco-efficiency and waste reduction, consumer choice-editing, consumer choice-influencing, recycling, innovation, example sitting.

At the bottom, if you see, what, what could be the role of the civil society, NGOs, etc.? Independent assessment, high profile public campaign, critique or endorsement, thought leadership choice-influencing. On the right side, if you see in the red color, what could be the role of the consumers? Purchasing decisions, lifestyle choices, political support, peer-to-peer influences. So, these are the probable rules which these stakeholders can adopt for better workmanship for this moving towards sustainable development goals. With this, we are coming to the end of this lecture. Thank you, everyone.