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Lifestyle Material Footprint: A Measuring Tool for Sustainable Lifestyle

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Abstract:

The use of natural resources for human activities has been constantly growing in recent decades. The Total Material Consumption (TMC) which is between 40 and 50 tons per capita in a year for most industrialized countries is a factor of r four to five higher than the sustainable level. Lifestyle material footprint is to understand better our lifestyles impact the environment. Resource use over the complete life-cycle of products, services, and activities that shape lifestyles is measured by material footprint, e.g., food consumption mobility patterns, residential facilities, appliances used, and so on. Besides water consumption material consumption is another vital area that is putting heavy pressure on the environment. The term material footprint was established by Lettenmeier et al. in 2009 as a parallel term for the earlier coined term 'the ecological backpack' by Schmidt-Bleek. Studies show that lifestyle and material footprints vary in every region throughout the world. Researches show Rajasthan is reported to be one of those states facing environmental issues due to high resource-consuming economic activities (mining, industry, etc.). Population growth is responsible for declining per capita natural resource availability. The environment today demands a style of living in all walks of life that does not put unnecessary pressure on the environment. To reduce an individual's or society's use of the earth's natural resources and personal resources, sustainable living is a lifestyle.

Keywords: Material Footprints, Lifestyle, Sustainability

Introduction:

The use of natural resources for human activities has been constantly growing in recent decades. From 1980 to 2008, for example, the extraction and use of many raw materials on a global scale has grown on a scale of tens to hundreds of percent. Since 2000, global resource extraction has risen sharply and

with a stronger growth rate than in the previous decade. The Total Material Consumption (TMC) which is between 40 and 50 tons per capita in a year for most industrialized countries is a factor of four to five higher than the sustainable level suggested by Bringezu (2009).

Lifestyle material footprint is to understand better how our lifestyles impact the environment. Resource use over the complete life-cycle of products, services, and activities that shape lifestyles is measured by material footprint, e.g., food consumption mobility patterns, residential facilities, appliances used, and so on. An increasing number of consumers, especially in Western societies, are characterized by a medium or high resource consumption profile. After globalization, our urban population is also rapidly proceeding on the same path. Resource efficiency is an issue of increasing importance on different levels in growing cities worldwide due to these popular becoming lifestyles. The focus of the present discussion is lifestyle material utilized which includes the resource use over the complete life-cycle of products, services, and activities that shape lifestyles, e.g., food consumption and mobility patterns from different household activities (Lifestyle material Footprint).

However, not all households are equal in terms of how much they consume. Researches show a clear connection between income level and the environmental impacts of consumption: people with less financial resources use fewer natural resources and cause fewer carbon emissions (Kotakorpi et al. 2008 Tukker et al. 2010).

The footprint concept has become a popular tool to estimate environmental pressure arising directly and indirectly from the activities of individuals and households. It is important because households are ultimately the main consumers of land and water, food, and other goods and services that increase consumption. The choices individuals make in their households-indoor and outdoor, travel, the food they eat, buy and throw away; all influence households' carbon, water, and lifestyle footprints. The computation of footprints to see the level of consumption of these resources and then using them rationally can ensure understanding of a stable climate for future generations, since individual *habits influence decisions and actions in their daily life that lead to environmental pressure through their activities.*

Besides water consumption material consumption is another vital area that is putting heavy pressure on the environment. The term material footprint was established by Lettenmeier *et al*. in 2009 as a parallel term for the earlier coined term 'the ecological backpack' by Schmidt-Bleek way back in the

year 1993. The term material footprint has mostly been used to describe the life-cycle-wide resource use of products, services, activities, and households on a micro-level.

After the conceptualization, Lettenmeier himself with four others (2011) calculated the material footprint for different decent minimum reference budgets developed by the Finnish National Consumer Research Centre (Lehtinen *et al.*, 2011). The material footprints for these reference budgets, i.e., for the minimum living standard Finnish inhabitants should be able to achieve, ranging from 20 to 24 tons per person in a year, depending on the household type (Lettenmeier *et al*., 2011).

Thereafter a study on "Material footprint of low-income households in Finland- consequences for the sustainability debate by Lettenmeier *et al*. (2012) bring to a close that the low-income households have lower material footprints than average and most of the material footprints are below the socially sustainable level of consumption, which is based on decent minimum reference budgets. However, the number of resources used by most of the households studied here is still at least double that required for ecological sustainability. The simultaneous existence of both deprivation and overconsumption requires measures from both politicians and companies to make consumption sustainable.

In this chain of studies, Lettenmeire et al. (2014) concluded that a sustainable level of natural resource use by households is achievable and it can be roughly allocated to different consumption components to illustrate the need for a change in lifestyles. While the absolute material footprint of all the consumption components will have to decrease, the relative share of nutrition, the most basic human need, in the total material footprint is expected to rise, whereas much smaller shares than at present are proposed for housing and especially mobility. For reducing material resource use to the sustainable level suggested, both social innovations and technological developments are required.

Other than Lettenmeire, many other researchers also dug deep into the subject and a detailed Review of Studies named 'Environmental Impacts of Products' was done by Tukker and Jansen in 2008 said that environmental effects of economic activities are ultimately driven by consumption, via impacts of the production, use, and waste management phases of products and services ultimately consumed. The review study brought together the conclusions of 11 studies that analyze the life-cycle impacts of total societal consumption and the relative importance of different final consumption categories and concluded that the three main priorities, housing, transport, and food, are responsible for 70% of the environmental impacts in most categories, although covering only 55% of the final expenditure in the

25 countries that currently make up the EU. At a more detailed level, priorities are car and most probably air travel within transport, meat and dairy within food, and building structures, heating, and (electrical) energy-using products within the housing. Expenditures on clothing, communication, health care, and education are considerably less important.

Kuittinen *et al.* (2012) calculated the material footprints of 27 Finnish households from questionnaires and diaries of the actual consumption of these households. With an average material footprint of 39 tons per person in a year, the results show a huge diversity both in level (maximum difference of factor 9, from 13 to 118 tons) and composition of the material footprints. The consumption components studied were housing, mobility, foodstuffs, tourism, leisure time activities, and household goods and appliances. Differences of even ten-fold were found in the resource consumption of the households studied. The components that consumed the most were mobility, tourism, and housing.

Ivanova *et al.* assessed the environmental impact of household consumption in 2016 by analyzing the environmental impact of household consumption in terms of the material and land-use requirements, associated with the production and use of products and services consumed by the households. The study highlighted the importance of environmental pressure arising from households with their consumption contributing between 50 percent and 80 percent of material, land, and water use. with wealthier countries generating the most significant impacts per capita, the footprints are unevenly distributed across regions. Elasticities suggest a robust and significant relationship between households' expenditure and their environmental impacts, driven by the rising demand of nonprimary consumption items. Across the environmental footprint's mobility, shelter, and food are the most important consumption categories. Globally, food accounts for 48% and 70% of household impacts on land and water resources, respectively, with consumption of meat, dairy, and processed food rising fast with income. Shelter and mobility stand out with high material intensity.

Conclusion:

Studies show that lifestyle and material footprints vary in every region throughout the world. Researches show Rajasthan is reported to be one of those states facing environmental issues due to high resource-consuming economic activities (mining, industry, etc.). Population growth is responsible for declining per capita natural resource availability. The environment today demands a style of living in all walks of life that does not put unnecessary pressure on the environment. To reduce an individual's

or society's use of the earth's natural resources and personal resources, sustainable living is a lifestyle. To conduct one's life in such ways that are consistent with sustainability, in natural balance, and respectful of humanity's symbiotic relationship with the earth's natural ecology and cycles are the aims of sustainable living.

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