

Environmental And Green Trends

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Abstract- Sustainable development is an integrity of multidiscipline concept combining ecological, social and economic aspects to construct a liveable human living system. The sustainable development can be support through the development of green materials. Green materials offers a unique characteristic and properties including abundant in nature, less toxic, economically affordable and versatility in term of physical and chemical properties. Green materials can be applied for a numerous field in science and technology applications including for energy, building, construction and infrastructures, materials science and engineering applications and pollution management and technology. For instance, green materials can be developed as a source for energy production. Green materials including biomass-based source can be developed as a source for biodiesel and bio ethanol production. Biomass-based materials also can be transformed into advanced functionalized materials for advanced bio-applications such as the transformation of chitin into chitosan which further used for biomedicine, biomaterials and tissue engineering applications. Recently, cellulose-based material and lingo cellulose-based materials as a source for the developing functional materials attracted the potential prospect for biomaterials, reinforcing materials and nanotechnology. Furthermore, the development of pigment materials has gaining interest by using the green materials as a source due to their unique properties. Eventually, Indonesia as a large country with a large biodiversity can enhance the development of green material to strengthen our nation competitiveness and develop the materials technology for the future. Sustainably-sourced. Eco-friendly. Biodegradable. In 2019, it's hard to avoid these terms as consumers are urging businesses to take responsibility for their actions.

I. INTRODUCTION

Materials are the stuff of economic life in our industrial world. They include the resource inputs and the product outputs of industrial production. How we handle them is a major determinant of real economic efficiency, and also has a major impact on our health and the health of the natural environment. A green material is one that simultaneously does the most with the least, fits most harmoniously within ecosystem processes, helps eliminate the use of other materials

and energy, and contributes to the attainment of a service-based economy.

Unilever reports that a third of consumers are now buying from brands based on their social and environmental impact, and more than one in five will actively choose brands that are transparent about sustainability efforts in their packaging and marketing. With these statistics, it's not surprising that brands are shaping their marketing campaigns around environmentalism, sustainability and corporate social responsibility

Companies such as Starbucks are leading the pack, committing their environmental strategy on sustainable packaging, planning to eliminate all plastic straws by 2020. The coffeehouse chain is also using green materials to produce, package, and deliver its product to customers. Starbucks have made a big statement in getting the message out, helping to create the largest drinking straw sculpture (supported) made from reclaimed plastics. The company installed used straw collection bins at a number of their stores in Vietnam to create the sculpture which encouraged individuals to say no to single-use plastics, especially straws. Sometimes organisations simply don't have to knowledge or resources to successfully demonstrate sustainable practices. In this case, sustainability partnerships are the perfect way to enhance your message. These partnerships involve businesses and non-profits or charities coming together to achieve their sustainability and corporate fundraising goals.

II. UNDO THE DAMAGE

Many organisations shape their marketing campaigns on how they're preventing further damage to the environment, but what about taking matters into your own hands and undoing the damage already caused? Consumer can see through whether brands are being genuine about their environmental efforts, and actively helping to reverse pollution and waste is the ultimate act of sincerity.

Recently, local dive centres, the Professional Association of Diving Instructors (PADI) and Project Aware sponsored the most participants in an underwater clean-up (24 hours) at Deerfield Beach, Florida with 633 people participating in the clean-up. Large amounts of debris were

removed from waters surrounding the local pier including 9,000 items of marine debris and 3,200 pounds of fishing gear. Their efforts have not gone unnoticed, with leading news stations such as CNN and Forbes covering the event.



It's clear that a sustainable and environmental focus is not just nice to have for organisations, but a must-have in order to promote their brand and meet consumer expectations.

From no recycling to zero waste:

how Ljubljana rethought its rubbish

Fifteen years ago, all the Slovenian capital's waste went to landfill, but by 2025, at least 75% of its rubbish will be recycled. How did the city turn itself around?

Words and photographs by Luka Dakskobler

From the lush green hill you can see Ljubljana, the capital of Slovenia, in the distance. Populations of deer, rabbits and turtles live here. The air is clean and the only signs that we are standing above a 24-metre (79 feet) deep landfill are the methane gas pipes rising from the grass.

Ljubljana is the first European capital to commit to going zero-waste. But fifteen years ago, all of its refuse went straight to landfill. "And that is expensive," says Nina Sankovi of Voka Snaga, the city's waste management company. "It takes up space and you're throwing away resources."



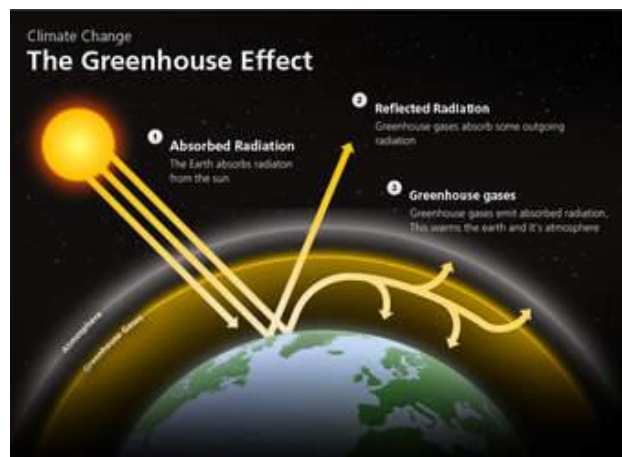
So the city decided to change course.

It began in 2002 with separate collection of paper, glass and packaging in roadside container stands. Four years later, the city began collecting biodegradable waste door to door; separate collection of biowaste is set to become mandatory across Europe in 2023, but Ljubljana was nearly two decades ahead of the curve. In 2013, every doorstep in the city received bins for packaging and paper waste. And, most controversially, scheduled collections of the residual waste were cut by half – forcing people to separate their rubbish more efficiently.

Greenhouse Effect

The Sun powers Earth's climate, radiating energy at very short wavelengths, predominately in the visible or near-visible (e.g., ultraviolet) part of the spectrum. Roughly one-third of the solar energy that reaches the top of Earth's atmosphere is reflected directly back to space. The remaining two-thirds is absorbed by the surface and, to a lesser extent, by the atmosphere. To balance the absorbed incoming energy, the Earth must, on average, radiate the same amount of energy back to space. Because the Earth is much colder than the Sun, it radiates at much longer wavelengths, primarily in the infrared part of the spectrum (see Figure 1). Much of this thermal radiation emitted by the land and ocean is absorbed by the atmosphere, including clouds, and reradiated back to Earth. This is called the greenhouse effect. The glass walls in a greenhouse reduce airflow and increase the temperature of the air inside. Analogously, but through a different physical process, the Earth's greenhouse effect warms the surface of the planet. Without the natural greenhouse effect, the average temperature at Earth's surface would be below the freezing point of water. Thus, Earth's natural greenhouse effect makes life as we know it possible. However, human activities, primarily the burning of fossil fuels and clearing of forests, have greatly intensified the natural greenhouse effect, causing global warming. The two most abundant gases in the atmosphere, nitrogen (comprising 78% of the dry atmosphere)

and oxygen (comprising 21%), exert almost no greenhouse effect. Instead, the greenhouse effect comes from molecules that are more complex and much less common. Water vapour is the most important greenhouse gas, and carbon dioxide (CO₂) is the second-most important one. Methane, nitrous oxide, ozone and several other gases present in the atmosphere in small amounts also contribute to the greenhouse effect. In the humid equatorial regions, where there is so much water vapour in the air that the greenhouse effect is very large, adding a small additional amount of CO₂ or water vapour has only a small direct impact on downward infrared radiation. However, in the cold, dry polar regions, the effect of a small increase in CO₂ or FAQ 1.3, Figure 1. An idealised model of the natural greenhouse effect. See text for explanation. (continued) Frequently Asked Questions water vapour is much greater. The same is true for the cold, dry upper atmosphere where a small increase in water vapour has a greater influence on the greenhouse effect than the same change in water vapour would have near the surface. Several components of the climate system, notably the oceans and living things, affect atmospheric concentrations of greenhouse gases. A prime example of this is plants taking CO₂ out of the atmosphere and converting it (and water) into carbohydrates via photosynthesis. In the industrial era, human activities have added greenhouse gases to the atmosphere, primarily through the burning of fossil fuels and clearing of forests. Adding more of a greenhouse gas, such as CO₂, to the atmosphere intensifies the greenhouse effect, thus warming Earth's climate. The amount of warming depends on various feedback mechanisms. For example, as the atmosphere warms due to rising levels of greenhouse gases, its concentration of water vapour increases, further intensifying the greenhouse effect. This in turn causes more warming, which causes an additional increase in water vapour, in a self-reinforcing cycle. This water vapour feedback may be strong enough to approximately double the increase in the greenhouse effect due to the added CO₂ alone. Additional important feedback mechanisms involve clouds. Clouds are effective at absorbing infrared radiation and therefore exert a large greenhouse effect, thus warming the Earth. Clouds are also effective at reflecting away incoming solar radiation, thus cooling the Earth. A change in almost any aspect of clouds, such as their type, location, water content, cloud altitude, particle size and shape, or lifetimes, affects the degree to which clouds warm or cool the Earth. Some changes amplify warming while others diminish it. Much research is in progress to better understand how clouds change in response to climate warming, and how these changes affect climate through various feedback mechanisms.



III. PRACTICAL APPLICATIONS

Application details:

Application name Kitchen utensils, Green Street™
 IndustryHouse / Garden
 Manufacturer Robinson Home Products
 Material name Valox IQ
 Material abbreviation PBT



Figure 2. View of several green kitchen utensils [2]

Kitchenware industry leader Robinson Home Products has tapped SABIC Innovative Plastics' eco-engineered ValoxiQ* resin for its new Green Street™ line of plastic kitchen utensils. A more sustainable, higher-performance material than traditional resins, ValoxiQ resin utilizes up-cycled polyethylene terephthalate (PET) water bottles, diverting them from already bulging landfills. Equally important, this innovative product delivers the exceptional performance and quality that consumers demand in kitchenware, including heat and chemical resistance, U.S. Food and Drug Administration (FDA) approval for food contact, and attractive appearance.

3.2. Housing, medical imaging system (Fig.3)

Application details:

Application name Housing, medical imaging system
 Industry Medical Engineering
 Manufacturer Grimm Brothers Plastics Corp.
 Material name RTP 300 Series
 Material abbreviation PC
 Cross-Functional Team of Engineering, Sheet, and Color Solve Challenges in Medical Housing. The housing was particularly challenging. The sheet product required a V-0 flame rating, coupled with translucency and a critical color match to the desired translucent mint green color. A custom RTP 300 Series polycarbonate flame retardant sheet was created for the housing that met all the application challenges. The Symbia Medical Imaging System went on to receive global recognition for its overall design, including winning a Gold Industrial Design Excellence Award in 2006. Siemens has since changed the Symbia system and the housing material has evolved away from this formulation.

3.3. Housing, lawnmower, Husqvarna(Fig.4)

Application details:

Application name Housing, lawnmower, Husqvarna
 Industry House / Garden
 Manufacturer Husqvarna
 Material name Luran® S
 Material abbreviation ASA 20



Fig:View of a green housing and medical imaging system [2]

powered Automower™ can mow lawns of up to 1800 square meters, needing about one hour for an area of 75 square meters. A housing made of Luran® S, a highly weather resistant material made by BASF on the basis of Acrylonitrile-styrene-acrylate copolymer (ASA), protects the robotic garden helper against heat and rain.

Automatic lawnmower made by Husqvarna shines with BASF's dark-green Luran®. The first automatic lawnmower made by the Swedish outdoor equipment manufacturer Husqvarna is designed for continuous operation. Once it has been programmed, the battery-

IV. CONCLUSION

1. The greening and dematerialization of building engage the whole economy. It must take place on every level—production, expenditure and regulation. Green plans have to begin everywhere, but the area of expenditure may be the place where fundamental initiatives have the utmost space for movement. Grassroots action is maybe the most complex since, by description, it is moving from the dominion of the marginalized and fragmented. But it also can request straight to real felt needs and also construct incrementally.
2. The dominion of expenditure is severely rooted in civil society. It not only includes voluntary presumption but is intimately linked to the dominion of small business. This level of business is where most environmental economic options are realized: eco-construction firms, community-supported agriculture networks, auto-sharing networks, green power co-ops.

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