Reducing Waste Streams through the 3R Strategy (Reduce, Reuse, Recycle): Advancing Sustainable Development Goals in India

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doi.org10.64643/IJIRTV12I8-190531-459

***Abstract*—Sustainable development has emerged as a central paradigm in global policy discourse, emphasizing the need to balance economic growth, social equity, and environmental protection. Rapid population growth, urbanization, and changing consumption patterns have intensified pressure on natural resources, particularly in developing countries such as India. Waste generation has become a critical challenge, threatening ecological stability and public health. This article examines the concept of sustainable development with a focused analysis of waste reduction strategies through the principles of Reduce, Reuse, and Recycle (3R). By situating the 3R approach within the framework of the United Nations Sustainable Development Goals (SDGs), the study highlights its significance as a practical and cost-effective tool for minimizing environmental degradation and promoting resource efficiency. The article further analyzes India's institutional mechanisms, policy initiatives, and national missions that support sustainable waste management. It argues that effective implementation of the 3R strategy, combined with technological innovation, public awareness, and participatory governance, is essential for achieving long-term sustainability. The study concludes by advocating behavioral change and policy integration as indispensable elements of sustainable development.**

***Keywords*—Sustainable Development; Waste Management; Reduce Reuse Recycle (3R); Sustainable Development Goals; Environmental Protection; India**

I. INTRODUCTION

"The Sustainable Development Goals (SDGs) are a group of 17 goals that were adopted by all 193 United Nations members during the historic summit that took place in New York on September 25, 2015". The Sustainable Development Goals (SDGs), "which went into effect on January 1st 2016", are anticipated to spur developmental actions in crucial areas until 2030, "including eradicating poverty and hunger, ensuring healthy lives and quality education, achieving gender equality, providing modern energy, fostering sustainable economic growth, and reducing inequality".

The "SDGs, also known as the 2030 Agenda for Sustainable Development, seek to drastically alter peoples' lives and means of subsistence". It is "commonly agreed that India's progress toward the SDGs will have a substantial impact on the 2030 Agenda's" overall success. It is not only due to the population's size, but also to the robustness and adaptability of the Indian economy. Additionally, "India has been a global leader in the fight against climate change. It is time to assess the nation's advancement on particular SDGs after four years since the adoption of the ambitious agenda". An "effort has been made to reflect the progress profile of India Goal-wise" based on the "SDG India Index: Baseline Report 2018 published by the NITI Aayog". It has become clear over the past few decades that we can no longer consider socioeconomic development in a vacuum from the environment. Countries must cooperate to set a sustainable course for development due to the complexity of the issues we face and the growing interdependence of all nations.

The "SDG India Index Baseline Report 2018" was released, indicating the development profile of India on several specific Goals, based on 62 priority indicators defined by the NITI Aayog and out of 306 national indicators established by the Ministry of Statistics and Programme Implementation. In actuality, it is an effort to gauge goal-specific development based mostly on the effects of the initiatives and programmes of the Government of India. However, only 13 of the 17 SDGs have been evaluated, leaving Goals 12, 13, 14, and 17. Since the necessary state-level data could not be processed by

the time the Report was written in December 2018, progress on SDGs 12, 13, and 14 could not be measured. SDG 17 was omitted since its emphasis is on global collaborations. "The United Nations Conference on Environment and Development (UNCED), which took place in Rio de Janeiro in June 1992", was a historic occasion that successfully brought attention to the environmental and development issues that the world faces as a whole.

DEFINITION

There are many various origins and definitions of the word sustainable development, but the Brundtland Report from the World Commission on Environment and Development in 1987 is by far the finest and is now one of the most commonly known definitions.

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".[1]

"Poverty and exclusion, unemployment, climate change, conflict and humanitarian relief, developing peaceful and inclusive societies, strong institutions of governance, and maintaining the rule of law are the major global obstacles to sustainable development".

II. GENESIS AND ADOPTION OF SUSTAINABLE DEVELOPMENT GOALS

The "2030 SDGs" originated from the "2015 Millennium Development Goals (MDGs)". The "Millennium Development Goals (MDGs) were a series of eight development goals established in the year 2000, with aims to be met by 2015". The MDGs are, in fact, the first worldwide attempt to define measurable goals and targets for critical global concerns. The "world saw enormous political and economic developments throughout a 15-year period (2000–2015). In order to continue the momentum produced by the MDGs and move the global development agenda ahead, projects to develop SDGs were launched in 2012". Based mostly on the "Rio plus 20 Outcome Document titled The Future" We Want, which was held in Rio de Jenairo, Brazil in 2012 to "commemorate the twentieth Anniversary of the Earth Summit In rio de held in 1992". To support a "comprehensive dialogue for the formation of SDGs, an innovative and constituency-based structure of representation was adopted".

As a result, "the UN General Assembly (UNGA) established a 30-member Outreach Working Group (OWG) in 2013 to prepare a proposal on SDGs".

India was a participant of the "OWG" as well. The final report produced by that of the OWG were adopted more by UNGA was at its 69th Session in September 2014, following thirteen sessions organized by the OWG spanning March 2013 to July 2014. "At the special UN Summit held in New York from September 25 to 27, 2015", world leaders formally endorsed the Resolution titled Transforming our World: The 2030 Agenda for Sustainable Development, which enunciates "17 SDGs and 169" related targets. India's Prime Minister likewise attended the UN Summit.

III. CONSTITUENTS OF SUSTAINABLE DEVELOPMENT GOALS

INTER-CONNECTEDNESS

The SDGs were developed with the growing realization that development problems are no longer limited to national borders, but are increasingly global in nature. What happens in one country has an impact on another, whether it's poverty or environmental destruction. All of these problems are growing transnational in character. Thus, the SDGs' fundamental premise is founded on the interconnection of global challenges.[2]

MULTI DIMENTIONAL APPROACH

The 17 SDGs are evenly distributed and balanced among the three pillars of sustainable development, with 6 largely social goals (Goals 1 to 6), 5 economic goals (Goals 7 to 11), and 4 environmental goals (Goals - 12 to 15). A separate objective (Goal - 16) on peaceful communities and effective institutions addresses the enablers of growth. "A separate objective (Goal - 17) on global collaboration has been added to provide financial, technological, and systemic support to developing countries".

MEANS OF IMPLEMENTATION

The SDGs' significant emphasis on methods of implementation – "mobilization of financial

[1] Peter. P. Rogers, '*An Introduction to sustainable development*', Routeledge, (2nd edn, 2012).

[2] Dr. Rajiv Kumar, '*Sustainable development index India*', (NITI Ayog 2021).

resources, capacity-building and transfer of ecologically sound technology", as well as data and institutions - is a key feature. As a result, each of the Goals has its own'means of implementation' aim.

MONITORING AND REVIEW

"In order to track the progress of the developmental objectives and targets, review and monitoring have been given significant significance in the SDGs". The UN Resolution emphasizes the significance of follow-up at the national, regional, and global levels. A Global Indicator Framework with 243 indicators has been established to assess SDG development. The High-Level Political Forum (HLPF) on Sustainable Development has also been established at the global level. It plays a critical role in the worldwide follow-up and review of the SDGs, as well as providing further direction.

VOLUNTARY NATIONAL REVIEW

Countries are urged to conduct regular reviews of progress at the national and sub-national levels as part of its follow-up and review systems. These reviews will be conducted on a voluntary, state-led basis by both developed and developing countries. "As a result, these are known as Voluntary National Reviews (VNRs)". The voluntary national reviews (VNRs) aim to accelerate the implementation of the 2030 Agenda by facilitating the sharing of experiences, including successes, problems, and lessons gained. In 2017, India submitted their VNR.

STATISTICS OF SUSTAINABLE DEVELOPMENT

India's overall SDG score increased by 6 points, from 60 in 2019 to 66 in 2020-21. There has been national progress in 'clean water and sanitation,' as well as 'cheap and clean electricity.' "Kerala ranked first on the Index, followed by Himachal Pradesh, Tamil Nadu, Andhra Pradesh, and Goa". The third edition of the Index emphasized the need of collaboration in attaining the bigger 2030 Agenda. India's ranking has dropped two places from last year to 117 on the 17 Sustainable Development Goals (SDGs) agreed by 193 United Nations member states in 2015 as part of the 2030 Agenda. Through economic progress and empowerment, "India has successfully pulled more than 271 million people out of multidimensional poverty. India has electrified all of its villages, reduced 38 million tonnes of CO2 emissions annually through energy-efficient appliances, provided clean cooking fuel to 80 million poor households, and set a target of installing 450GW of renewable energy and restoring 26 million hectares of degraded land by 2030". Ayushmaan Bharat, the world's largest health protection scheme, has institutionalized universal health coverage by providing an annual insurance of USD 7,000 to 100 million households and over 500 million individuals.[3]

IV. SDGS INDIA'S DEVELOPMENT OBJECTIVES

As previously stated, the Prime Minister of India attended the United Nations Summit in New York in 2015 to adopt the 2030 Agenda for Sustainable Development. One of the highlights of our Prime Minister's statement is that the SDGs reflect much of India's development strategy. This reflects the fact that, prior to the formulation and adoption of the SDGs, India had launched a number of developmental programs.

INDIA'S PARTICIPATION IN THE FORMULATION OF GOALS AND TARGET

"As a member of the Open Working Group (OWG) tasked with creating a proposal for the SDGs, India vociferously campaigned for poor countries' concerns". India emphasized the importance of quick and inclusive economic growth in bringing a large number of impoverished people out of poverty. "It has also stated that, while much work has already been done in terms of infrastructure development, bringing progress to all segments of society remains a tremendous issue". All developing countries around the world continue to face these issues. India asserted that the SDGs must serve as a development agenda. While poverty eradication and inclusive economic growth are the key development priorities, extra resources and capacity-building activities are required to tackle these massive responsibilities. As a result, India has stressed international cooperation to facilitate development, as well as suitable methods of implementation, such as "increased Official

[3] 'Sustainable development statistics' (United Nations Environment Development Programme) <https://www.unep.org/explore-topics/sustainable-development-goals/what-we-do/monitoring-progress/sdg-statistics> Accessed 25 May 2022.

Development Assistance (ODA) and technology transfer on favorable terms" to assist developing countries.[4]

INSTITUTIONAL SET-UP (NITI AAYOG)

The NITI Aayog has been in charge of managing SDG implementation at the national level. As part of the implementation process, "the NITI Aayog mapped all SDGs, Central Ministries, and Centrally-sponsored Schemes". It is also holding consultations at the national and regional levels with other stakeholders, including states and union territories. "NITI Aayog has also released the SDG India Index: Baseline Report 2018 (December 2018)" and Localizing SDGs: Early Lessons from India, 2019. (July 2019). NITI Aayog has not only classified States/UTs as Achievers, Front Runners, Performers, and Aspirants based on their performance, but has also designated more than 100 aspirational districts for targeted interventions.

INSTITUTIONAL SET-UP (MOSPI)

The Ministry of Statistics and Program Implementation is also a crucial actor in SDG implementation. As "indicators are critical for measuring progress and the extent to which targets and Goals are met in India, the MoSPI has created 306 national indicators in accordance with the 169 SDG targets and the Global Indicators Framework". Out of the 306 indicators, 62 priority indicators have been defined for measuring India's most significant developmental goals.

CHALLNEGES FOR SUSTAINABLE DEVELOPMENT

The problems and implications of sustainable development are readily obvious. It is only invisible if we choose not to see it. They are population, poverty, inequality, shortage of drinking water, Human health, Consumption of energy, Deforestation and petrol consumption.

POPULATION

Population growth is a crucial issue for long-term development. The Earth's population surpassed 6 billion at the start of the twenty-first century, and it is predicted to stabilize between 10 and 11 billion during the next 50 years. The primary obstacles will be a lack of potable water and fertile land for food production.

POVERTY

"End poverty in all its manifestations everywhere," "according to the first Sustainable Development Goal Its seven associated targets include, among other things, eradicating extreme poverty for all people everywhere, reducing the proportion of men, women, and children of all ages living in poverty by at least half, implementing nationally appropriate social protection systems and measures for all, including floors", and achieving substantial coverage of the poor and vulnerable by 2030.[5]

DRINKING WATER

Drinking water scarcity is a serious impediment to sustainable development in many parts of the world. "At the current rate of development, every second person is predicted to face a water crisis by 2025".

INEQALITY

With the amount of individuals suffering from malnutrition, inequality remains a major impediment to sustainable development. Food price declines during the last 30 years may have led to increased consumption, but arable land is scarce in many parts of the world, and creating new ones has a negative impact on the surviving ecosystems. "Food production should not increase at the expense of nature in the future". The current rate of biodiversity loss should be greatly halted by 2010.

HUMAN HEALTH

Human health is also a barrier to long-term development. Many deaths in underdeveloped countries are preventable. In the coming years, humanity should devote greater attention and resources to the fight against diseases. The immediate goal is to cut the death rate among children under the age of five in half and the death rate among young mothers in half by 2015.

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[4] S. Dhankar, 'India and Sustainable development' (International Journal of computing and corporate journal, 2016) < https://www.ijccr.com/March2016/89.pdf> Accessed 26th May 2022.

[5] Dr. Srinivasa Rao, 'Achieving sustainable development goals in India' (Devalt, 2021) < https://www.devalt.org/images/L3_ProjectPdfs/AchievingSDGsinIndia_DA_21Sept.pdf> accessed 27th May 2022.

ENERGY CONSUMPTION

Energy consumption is a critical barrier for sustainable development. “Energy use in all forms is steadily increasing and Improving access to reliable, sustainable, and environmentally friendly energy sources and services”, as well as developing national energy-efficiency programs, is a critical goal for the next 10-15 years.

DEFORESTATION

Deforestation is a significant impediment to long-term development. The loss of the world's forests is primarily due to agricultural growth. In the future years, it will be critical to improve forest recovery and management.

PETROL CONSUMPTION

Petrol consumption is steadily increasing. The Summit stressed the importance of implementing the Kyoto Protocol's decisions in order to establish an agreement on greenhouse gas emission norms in industrialized countries.[6]

The conceptual idea of sustainable development is not to obstruct the development process, but “rather to how we use our resources so that an inter-relationship can be built between present and future generations”. Many possible tactics can be used to achieve sustainable development.

STRATEGIES FOR SUSTAINABLE DEVELOPMENT

TECHNOLOGY

Adequate “technology is one that is regionally adaptive, eco-friendly, resource efficient, and culturally appropriate”. It mostly makes use of local resources and labor. “Indigenous technology are more practical, cost-effective, and long-lasting. Nature is frequently used as a model”, with the natural conditions of that place serving as its components. This is known as "design with nature." The technology should consume fewer resources and generate less waste.

“REDUCE, REUSE AND RECYLCE” APPROACH

The “3-R strategy”, which advocates “minimizing resource usage, reusing items rather than throwing them away, and recycling materials, goes a long way toward attaining sustainability goals”. It minimizes the strain on our resources while also lowering trash output and pollution.

V. PROMOTING ENVIRONMENTAL EDUCATION AND AWARENESS

“Making environmental education the focal point of all learning processes can significantly aid in transforming people's thinking patterns and attitudes about our planet and the environment”. “Introducing the subject from the beginning of school will instill in young children a sense of belonging to the land. 'Earth thinking' will gradually become ingrained in our thoughts and actions, considerably assisting in the transformation of our lifestyles to more sustainable ones”.

RESOURCE UTILIZATION AS PER CARRYING CAPACITY

The “carrying capacity of any system is the number of organisms that can be sustained on a long-term basis”. The question of human settlements becomes quite complicated when it comes to humans. It is because, in contrast to other organisms, humans require a number of other things to maintain their life quality. The “carrying capacity of a system is critical to its sustainability”. When a system's carrying capacity is exceeded (for example, by over-exploitation of a resource), environmental degradation begins and continues until it reaches a point of no return. There are two essential components to carrying capacity.[7]

(1) Supporting capacity, often known as the ability to regenerate.
(2) Assimilative capacity, or the ability to bear various pressures.

“It is critical to use resources based on the systems above two attributes in order to achieve sustainability and Consumption should not exceed regeneration, and alterations should not exceed the system's tolerance capability”.

IMPROVING QUALITY OF LIFE

Development should not be limited to a subset of the already wealthy. Rather, “it should incorporate benefits sharing between the rich and the poor and Tribal and ethnic peoples, as well as their cultural

[6] Alok Ranjan, ‘Populatiuon and sustainable development in India’, Springer, (2020).

[7] Bimal. N. patel, ‘Sustainable development and India’, Springer, (2018).

heritage, should be protected". In policy and practice, there should be strong community participation. Population growth should be limited.

STEPS TAKEN BY THE GOVERNMENT

On June 30, 2008, India announced its National Action Plan on Climate Change (NAPCC) to define its approach for dealing with the Climate Change challenge. The National Action Plan supports a strategy that promotes, first, adaptation to climate change and, second, further strengthening of India's development path's ecological sustainability. The National Action Plan of India emphasizes that maintaining a high growth rate is critical for raising the living conditions of the great majority of Indians and lowering their vulnerability to the effects of climate change. As a result, the Action Plan highlights policies that advance India's goals of sustainable development while simultaneously providing benefits for addressing climate change. The National Action Plan is built around eight National Missions that represent the multi-pronged long-term strategy. These missions were created by combining numerous ongoing initiatives with newly developed ones.[8]

NATIONAL SOLAR MISSION

The National Solar Mission is a major project of the Government of India and state governments to encourage environmentally friendly growth while also solving India's energy security concern. It will also represent a significant contribution by India to the global effort to address the concerns of climate change.

Solar is now more expensive in absolute terms than other power sources such as coal. "The Solar Mission's goal is to create circumstances for rapid capacity expansion and technology innovation to bring down costs approaching grid parity". The Mission expects to achieve grid parity by 2022 and parity with coal-based thermal power by 2030, but realizes that the cost trajectory will be determined by the extent of worldwide deployment as well as technology development and transfer. "Cost forecasts range from 22% for every doubling of capacity to a 60% reduction with global deployment growing 16 times the current level".[9]

Solar energy is environmentally benign because it produces no pollution when producing power or heat. "The National Solar Mission's goal is to position India as a global leader in solar energy by establishing the policy conditions for its rapid spread across the country". The Mission will take a three-pronged strategy, with "Phase 1 covering the remainder of the 11th Plan and the first year of the 12th Plan (up to 2012-13)", Phase 2 "covering the remaining four years of the 12th Plan (2013-17), and Phase 3 covering the 13th Plan (2017-22)".

V. NATIONAL MISSION FOR SUSTAINING THE HIMALAYAN ECO-SYSTEM

The Himalayan eco system is sensitive and susceptible to the impacts and consequences of changes caused by natural causes, climate change caused by anthropogenic emissions, and modern society's developmental paradigms.

The creation of a National Mission for Sustaining the Himalayan Ecosystem has been announced in the National Action Plan on Climate Change (NAPCC). "The Mission must give a deeper understanding of the relationship between the Himalayan environment and climate factors, as well as inputs for Himalayan sustainable development while also protecting a fragile ecosystem". This will necessitate the collaboration of climatologists, glaciologists, and other experts. It will also be necessary to exchange knowledge with South Asian countries and countries that share the Himalayan ecosystem. It is necessary to develop an observational and monitoring network for the Himalayan environment in order to assess freshwater resources and ecosystem health.

"The mission tries to address some important issues such as Himalayan Glaciers and their related hydrological consequences, Biodiversity conservation and protection, Wild life conservation and protection, Traditional knowledge societies and their livelihood", and Planning for the Sustainability of the Himalayan Ecosystem.[10]

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[8] Dr. Rajiv Kumar, '*Sustainable development index India*', (NITI Ayog 2021).

[9] Dr. Srinivasa Rao, 'Achieving sustainable development goals in India' (Devalt, 2021) < https://www.devalt.org/images/L3_ProjectPdfs/AchievingSDGsinIndia_DA_21Sept.pdf> accessed 27th May 2022.

[10] Dr. Rajiv Kumar, '*Sustainable development index India*', (NITI Ayog 2021).

NATIONAL MISSION ON ENHANCED ENERGY EFFICIENCY

The National Mission for Enhanced Energy Efficiency (NMEEE) consists of four efforts to improve energy efficiency in energy-intensive industries:

The "Perform, Achieve, and Trade (PAT) scheme aims to reduce Specific Energy Consumption (SEC), or energy use per unit of production, for Designated Consumers (DCs) in energy-intensive sectors, with an accompanying market mechanism to improve cost effectiveness through certification of excess energy savings that can be traded". The Annexure lists the "sector-specific Designated Consumers (DCs) under the PAT Scheme (from Cycle I to Cycle VI), as well as their energy-saving targets". Through incentives and new business models, Market Transformation for Energy Efficiency (MTEE) intends to accelerate the transition to energy-efficient equipment in specific areas. The following programs were implemented under MTEE to promote energy-efficient items in the market.

NATIONAL WATER MISSION

According to the "National Action Plan on Climate Change (NAPCC)", the National Water Mission will "guarantee integrated water resource management, helping to save water, decrease waste, and promote more equal distribution both across and within states." The Mission will take the principles of the National Water Policy into consideration and design a framework to optimize water use by increasing water consumption by 20% through control frameworks with differential entitlements and pricing. "It will seek to ensure that a significant portion of urban water needs are met through waste water recycling, as well as that the requirement of coastal cities with insufficient alternative sources of water are met through the adoption of new and appropriate technologies", such as low temperature desalination techniques that enable for the use of ocean water. "The National Water Policy would be reviewed in collaboration with states to ensure basin-level management techniques" to deal with variations in rainfall and river flows caused by climate change.[11]

NATIONAL MISSION FOR A GREEN INDIA

"The National Mission for a Green India, also known as the Green India Mission (GIM)", is one of eight Missions established by the National Action Plan on Climate Change (NAPCC). It was established in February 2014 with the goal of protecting our country's biological resources and associated livelihoods from the threat of adverse climate change, as well as to recognize the critical role of forestry in ecological sustainability, biodiversity conservation, and food, water, and livelihood security. "It aims to maintain, restore, and improve India's dwindling forest cover, as well as respond to climate change using adaptation and mitigation measures". It envisions a comprehensive approach to greening that goes beyond tree planting. GIM focuses on a variety of ecosystem services, including biodiversity, water, and biomass, the preservation of mangroves, wetlands, important habitats, and carbon sequestration. The Mission would work to improve carbon sinks in certified sustainable forest areas, adapt vulnerable species/ecosystems to climate change, and adapt forest-dependent communities.

REDUCING WASTE MANAGEMENT

The "3R (Reduce-Reuse-Recycle)" Concept is essentially a series of actions for properly managing waste. "The main objective is to reduce trash generation, followed by reuse and recycling to give waste materials a second chance before being disposed of in a landfill". The reversed triangle 3R (Reduce-Reuse-Recycle) concept shows how much waste volume should be managed in each process.[12] This means that the majority of waste creation should be reduced from the start. Only when the production of waste cannot be prevented are objects reused; one technique of reuse is through the upcycling process or the creation of handicrafts.

"When materials can no longer be reused, the trash is recycled and melted, diced, and shaped into a new product, which may have a lower quality". The loss in quality of recycled materials, as well as the energy and resources required to recycle garbage, are two of several reasons why recycling is not the primary priority of waste management. The primary goal is to

[11] Dr. Rajiv Kumar, '*Sustainable development index India*', (NITI Ayog 2021).

[12] Dr. Srinivasa Rao, 'Achieving sustainable development goals in India' (Devalt, 2021) < https://www.devalt.org/images/L3_ProjectPdfs/AchievingSDGsinIndia_DA_21Sept.pdf> accessed 27th May 2022.

reduce/prevent waste generation from the start (reduce).[13]

REDUCE

WHY REDUCE

“We live in an age of over consumption. Everything can be purchased. Everything has been monetized. Durable items are uncommon”. And all too frequently, “this consumption—goods manufacturing, transportation, packaging, and trash management—comes at the expense of the environment”. At the expense of one's life. At the expense of our children and grandchildren.

"On average, a six-month-old Canadian newborn will have consumed as many resources as a developing-country resident will in his or her lifetime". In other words, “if the 6.5 billion people on Earth consumed as much as we do, three to five planets would be required to suit our needs”. “An individual's lifelong waste output is 750 times his or her adult weight”.

WHAT CAN WE REDUCE

We need to cut waste creation at the source. This entails lowering the amount of garbage produced, distributed, purchased, used, and eliminated (which, by the way, you can avoid!).

Before you buy anything, ask yourself if you really need it. If yes, and if at all feasible, attempt to:

1. Use reusable things and products instead of disposable ones, such as “cloth napkins (washable) instead of paper napkins (disposable), and cloth or strainer coffee filters (washable) instead of paper filters (disposable)”, Get rid of disposable razors, lighters, and non-rechargeable batteries, among other things.
2. Purchase used things. (If feasible)
3. Purchase recycled or recyclable goods.
4. Purchase things that are not overly packed.
5. Purchase recyclable things.
6. Purchase things made from recyclable materials.[14]

PLASTIC BAGS

It takes 200-450 years for a plastic bag to disintegrate. “Plastic bags are mostly comprised of petroleum and Twelve million barrels of petroleum are required to produce 100 billion plastic bags (two billion bags are discarded in Quebec alone each year)”. Nine plastic bags have enough fossil fuel to power a car for one kilometer. Plastic bags are among the top ten objects found on beaches. When plastic bags clogged the capital city's sewer system, they caused massive flooding. “More than a million sea birds, 100,000 marine mammals, and an uncountable number of fish are drunk, strangled, infected, suffocated, or have their intestines obstructed by plastic bags each year”. Bags floating in the ocean confuse turtles, dolphins, and whales. When these animals consume bags, they suffocate and die because the plastic obstructs their digestive processes.[15]

Birds, turtles, and fish become entangled in sacks, becoming trapped and finally choking. “24,000 metric tonnes of plastic end up in the water each year. According to the Worldwide Home Environmentalists' Network, each km2 of ocean contains 120,000 particles of plastic of all sizes”. A small island of plastic garbage, nearly the size of Quebec, drifts lazily in the Pacific Ocean. As it continues to grow...

WHAT SHOULD WE DO

"The most environmentally friendly alternative after the reusable bag" is the traditional plastic bag, provided “it is reused at least once for kitchen trash because it is incinerated and According to these lifecycle evaluations, the production of a plastic bag uses 70% less energy and pollutes the air 70% less than the production of a paper bag”. Its overall environmental rating is higher than that of a biodegradable bag. Although biodegradable bags use less energy than standard bags, they require more raw materials. In terms of paper bags, “14 million trees are cut down each year to make enough paper bags for Americans alone, not to mention the energy required or the byproducts produced”. Furthermore, recycling one pound of paper consumes 91 percent more energy than recycling one pound of plastic. The best option is to use a reusable plastic or cotton bag.

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[13] Alok Ranjan, ‘Populatiuon and sustainable development in India’, Springer, (2020).

[14] S. Dhankar, ‘India and Sustainable development’ (International Journal of computing and corporate journal, 2016) < https://www.ijccr.com/March2016/89.pdf> Accessed 26th May 2022.

[15] Alok Ranjan, ‘Populatiuon and sustainable development in India’, Springer, (2020).

REUSE

What reuse implies is “thinking before deciding that we are missing a product/object”. Reusing a thing is contemplating it before destroying it; it is regaining it. Thus, reuse is about giving anything that was previously considered "waste" a second life or extending its life. "You reuse whenever you go to: libraries, lease stores (video, tools), service companies (shoe service tech, electronics help desk), estate sales, used apparel stores, used garments counters and stores, vintage dealers, home furnishing refinishers, used-book and compact disc stores, stores that sell goods in bulk and reuse bins, and desktop and home appliance stores."[16]

WHY REUSE

To cut back on your usage (“and therefore avoid unnecessary spending”). Reduce your trash generation and packaging disposal, “Do something kind and make others around you happy, Preserve the earth, its resources, and raw materials” "Reuse helps lower the content of your garbage cans as well as your recycling bin." It's easy, cheap, and available to everyone! All you need to do is use a thing more than once to extend its life or be inventive by giving a second life.

WHAT CAN WE REUSE

By purchasing old, recycled, and recyclable products, as well as things made from recycled materials, “you are reusing something that has already been consumed or used. For your purchases, use a reusable plastic or cotton bag”. 4. If the volume of your goods exceeds the volume of your bags, take the store's plastic bag and “reuse it at least once in your kitchen rubbish can”. This action is still "the most environmentally friendly, following the reusable bag"; buy family packs wherever possible.

“A family pack means a huge container of yoghurt rather than numerous tiny ones, or two litres of juice rather than eight 250-ounce bottles”. Family packs are significantly less expensive (you get more for your money) and generate far less waste (reusable, recyclable or not). Containers can also be repurposed for snacks, lunches, and keeping small objects. Using your family-pack containers to buy in bulk is both cost-effective (buying in bulk saves money) and environmentally friendly to everybody (“by reusing the same containers, you reduce the water, energy and raw-material consumption needed for the production of new containers, and you reduce your contribution to pollution and waste accumulation”). Use “both sides of a sheet of paper by printing on both sides or utilising them as memo pads” near the phone.

Plastic milk bags work well as freezer bags. Instead than buying new ones, repurpose them. Use dye and accessories to transform your outfits, or repurpose scraps of fabric to make appliqués. The possibilities are endless. “Your secondhand kitchen cabinets, bathroom fixtures, doors, and windows may be ideal for your hunting camp”. Your old clothes, jewellery, and other accessories can be donated to charitable organisations, or you can sell them at your annual garage sale. You can also utilise them to bring joy to your children and grandchildren during Halloween.[17]

RECYCLE

Recycle, like reuse, is the “process of reclaiming an object and giving it a new lease on life”. While reusing an object entails utilising it without making any changes and favouring multi-purpose objects and products over single-use ones, recycling entails returning an object to its original state of raw material: paper is pulped, plastics are melted and moulded into new products, and so on. The sequential extraction-production-consumption-destruction logic is broken when what was formerly deemed garbage becomes a resource.

“An environmentally friendly cycle and sustainable development are developed as a result of this new mindset, which minimises consumption and its negative impact”. Recovered items are taken to a recycling centre, where they are “sorted into paper, cardboard, plastics, glass, and metals”. After that, each material is compacted into a cubic tonne and supplied to companies who recycle these materials.

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[16] Dr. Srinivasa Rao, ‘Achieving sustainable development goals in India’ (Devalt, 2021) < https://www.devalt.org/images/L3_ProjectPdfs/AchievingSDGsinIndia_DA_21Sept.pdf> accessed 27th May 2022.

[17] Peter. P. Rogers, ‘*An Introduction to sustainable development*’, Routeledge, (2nd edn, 2012).

Recycling will-

- Minimizes forest and mining activities, preserving more and more of our irreplaceable natural resources;
- Preserves a significant amount of water;
- Lowers energy consumption during manufacturing;
- Avoids “contamination of air, water, and land during mining and disposal (dump sites, incinerators”);
- Supports environmental and ecosystem conservation and protection;
- It helps to reduce pollutants (“each tonne of recycled materials saves 2.8 tonnes greenhouse gases”).

WHAT ARE SOME OF THE THINGS YOU CAN RECYCLE?

This symbol is undoubtedly familiar to you. “It's the Möbius ribbon, a recycling logo. It ensures that a product and/or its packaging are totally composed of recycled materials. The product comprises recycled materials if the emblem is white on a black background”. Products made from post-consumer recycled materials are good because they have already been used (and will almost certainly be recycled again when the time comes!). In some cases, the percentage of recycled fibres is written in the logo's centre. These logos can be downloaded in a variety of common software formats from Industry Canada's website.[18]

Let's return to our original question: Is there anything you can recycle? You'll be shocked to learn that the majority of your "waste" may be recycled or reclaimed. A container constructed of many materials, on the other hand, “must be dismantled before being recycled”: A jam jar, for example, “is completely recyclable (if you don't require it for storage)”, but the container (glass) must be separated from the lid (metal). The two cardboard covers are recyclable, but the binder is not. “Remove the plastic spiral binding from a notebook, the metal papers from cigarette packs, the plastic bag from the cereal box, and so on”. There may be exceptions, so we urge that you study the portions that are relevant to these materials. It is not possible to recycle all forms of paper or plastic.

VI. CONCLUSION

To safeguard the resources and environment for our future generation, we must adopt a vision, a style of thinking, and a way of behaving called sustainable development. It won't happen only because of legislation; society as a whole needs to adopt it as a guiding principle for the daily decisions each individual makes as well as the significant political and economic choices that have a widespread impact. It is evident that future generations bear the brunt of the costs associated with environmental degradation. Future generations are disadvantageous in comparison to current generations because they may inherit a low quality of life, share a structural weakness in that they lack a voice and representation among the current generation, and as a result, their interests are frequently disregarded in decisions and planning at a time when it is critically important that we consider our generation. Only when sustainable development emphasises involving residents and stakeholders will it be improved. The vision will ultimately come to pass only if everyone works toward a society where economic freedom, social fairness, and environmental conservation go hand in hand, improving the lot of our own and future generations.

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