



GREEN INSIGHTS

ISSN 2349-5596

Newsletter on "Environment Literacy - Eco-labelling and Eco-friendly Products"



Volume 17 No.2, July-September 2022



Sponsored by:

Ministry of Environment, Forest and Climate Change, Government of India

ENVIS Resource Partner on:

Environment Literacy - Eco-labelling and Eco-friendly Products

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A sustainable food system delivers food security without compromising social, economic or environmental criteria for our future generations. United Nations Sustainable Development Goals (SDGs) calls for environmentally sustainable transformations in the field of agriculture to end hunger, achieve food security and improve nutrition by 2030. To feed millions of people globally, many intensive farming practices have been adopted such as use of chemical fertilizers, pesticides, genetically modified Crops, intensive irrigation techniques etc. Over the years these practices have generated a negative environmental impact posing a threat to food security. The conventional farming techniques over-uses the farmlands resulting in loss of minerals and nutrients, reducing the water holding capacity of the soil, Soil erosion etc. Therefore, time has come to adopt sustainable and cost effective ways to feed the entire population globally.

The Food Safety and Standards Authority of India (FSSAI), encourages and supports responsible production and consumption of food to protect the environment. FSSAI is spearheading initiatives

such as Jaivik Bharat to promote authentic organic food, save food, share food to reduce food waste and promote food donation, safe and sustainable packaging in food and beverage sector to reduce the use of plastics and Repurpose Used Cooking Oil (RUCO) for safe and healthy use of cooking oil and repurposing used cooking oil to make biodiesel, soap or other useful products.

National schemes such as National Mission for Sustainable Agriculture (NMSA) has been formulated for enhancing agricultural productivity especially in rain fed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation. There are many other initiatives and schemes by the Gol to promote sustainable agro businesses.

This issue of Green Insights sheds light on the conventional farming, sustainable farming, eco-labels in food systems and some tips to promote sustainable food choices.

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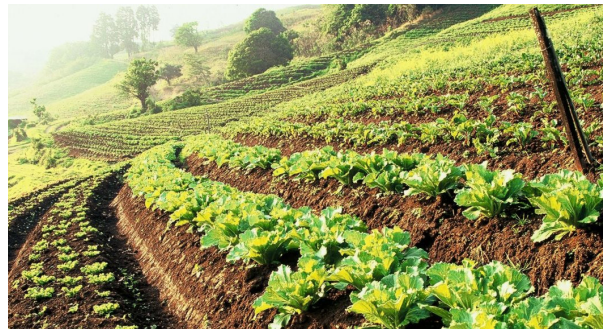


CONVENTIONAL AND SUSTAINABLE FOOD SYSTEMS

Agriculture is believed to have been developed at multiple times in multiple areas paving way to cultivation of processes for producing food, feed, fiber, fuel, and other goods by the systematic raising of plants and animals. To suffice the needs of the ever increasing population, agricultural practices and techniques got refined and perfected from time to time. Until recent centuries, crops produced were mostly organic. From the middle of the 19th century, a huge shift towards animal confinement and use of insecticides, pesticides, herbicides, fungicides and fertilizers in the farm lands were observed. This kind of farming came to be known as mechanization or industrialization of agriculture. This new system of farming replaced the traditional methods of nutrient recycling using crop rotation and organic fertilizers to produce food. These changes in the methods of farming and agriculture changed food production over the years whereby the yield is no longer quality and it has many health issues. Many agricultural techniques that exist today, are such that it tackles the food insecurity caused by rapid population growth. This has resulted in degradation and pollution of the natural environment. Hence, it has become necessary to have a global transition towards sustainable farming.

Sustainability is a multifaceted issue, in which the food production system and our diets play a crucial role. Achieving a healthy and sustainable food future is an urgent matter that depends on global collaborative efforts.

“Sustainable development [meets] the needs of the present without compromising the ability of future generations to meet their own needs.”



Sustainable Agriculture

Sustainable /organic farming aims to produce a number of crops, without the use of synthetic chemicals or fertilizers, while enhancing soil composition and promoting biodiversity. This is a traditional method that relies on ecosystem services to produce sufficient yields. Early farming techniques were dependent upon crop rotation and intercropping techniques.

Crop rotation is the **practice of growing different crops in succession on the same land chiefly to preserve the productive capacity of the soil.** They can be used to reduce the average rate of erosion from a field, including a grass or legume which in rotation can be very effective for reducing erosion and improving soil structure. When a legume is used in the rotation, it may eliminate the need for nitrogen fertilizer. Other crops accumulate phosphorus or potassium. Crop rotations can be used to improve or maintain good physical, chemical, and biological conditions of the soil fertility.

Intercropping is a multiple cropping practice that involves **growing two or more crops in proximity.** Here, the crops selected are such that their resource requirements are different. This ensures the maximum utilization of nutrients and also prevents the pests and diseases of one crop to spread across the field. Native Americans developed an intercropping technique over 5,000 years ago called the three sisters, where maize,

beans, and squash were grown together. Maize consumes a lot of nitrogen, while beans supply nitrogen to the soil, and squash benefits from a shady, moist climate. Intercropping is one of many early discoveries in agriculture still being implemented today that promotes biodiversity, maintains soil composition, and fortifies plant health.

Organic Farming Practices

Organic farming practices promise many ecological benefits like reduced soil erosion, minimized leaching of nutrients into groundwater, and waste recycling. Some of the organic farming practices are as below:

Eliminating genetic engineering:

Organic farming prohibits the usage of genetically modified organisms (GMO). The first step to ensuring food free of GMOs is using organic seeds. Farm owners may need easy accessibility to organic seeds to eliminate the usage of genetically modified components in their farms.

No synthetic agrochemical usage:

Organic farming restricts the usage of synthetic fertilizers. Instead, farmers use manure (plant and animal waste) and compost to improve soil fertility. Soil microbes are needed to ensure that the nutrients reach the ground and enrich the soil quality. Before every crop season, farmers employ other practices such as tilling in cover crops to minimize soil erosion and improve soil health by providing organic matter and nutrients.

Employing crop rotation:



As described earlier, incorporating crop variety is a way to enhance soil health, and soil fertility as different plants synthesize different nutrients which in turn reduces the requirement for artificial fertilizers.

Certifications and organic farming:

Farmers who produce and cultivate organically, contract farming and other food and beverage companies that use organic produce must adhere to guidelines, procedures, and practices documented and fleshed out by the regulatory bodies to get the products certified as “organic”. The certification protects consumers from false advertising and misleading claims. Moreover, it

provides assurance that eco-friendly agriculture practices that support a more sustainable and natural environment were adopted by the producers. The certification guidelines typically prohibit the use of synthetic fertilizers and crop protection products, genetically engineered seeds, and catalytic agents. They also have set standards for preparing the farmland for crop production and for the rearing and management of livestock and poultry.

Conservation agriculture underlines the focus of sustainable agriculture in that it focuses on producing high yields without compromising the integrity of the environment.

Conventional Farming:

Human population has grown drastically over the last two centuries. Many countries have brought about some radical changes in farming by shifting to conventional methods such as converting more landscapes to agricultural fields, increasing the farm sizes and mechanization of crop production by replacing the manual labour.

Conventional farming also known as industrial agriculture refers to farming systems which include the use of synthetic chemical fertilizers, pesticides, herbicides and other continual inputs, genetically modified organisms, concentrated animal feeding operations, heavy irrigation, intensive tillage, or concentrated monoculture production. Though these conventional methods are highly resource-demanding and energy-intensive, they result into high production yields. In conventional agriculture, farmers focus on commodity crops that are easy to transport, do not go bad during longer storage, and provide a variety of consumer and non-consumer products. For farmers conventional methods are most lucrative option available in the market as they achieve the maximum possible yield from the land. For farmers, the maintenance of single crop is much easier. Planning and caring of single crop with respect to planting, pest control and harvesting remains same across the land. By reducing diverse crops, farmers can optimize farm management more efficiently.

Conventional agriculture is practical and profit-driven. OR is it?

1. Though it produces maximum yields, it requires constant maintenance.

2. As it involves monocropping, it is very expensive
3. A uniform crop impacts biodiversity and becomes more susceptible to pathogens
4. Intensive farming of one crop over the year has a drastic negative impact on the ecosystem as it wipes out the nutrient rich topsoil.
5. The food we eat is laden with insecticides and pesticides which are harmful to our health. Some acute health effects include stinging eyes, rashes, blisters, blindness, nausea, dizziness, diarrhea and death. Examples of known chronic effects are cancers, birth defects, reproductive harm, immunotoxicity, neurological and developmental toxicity and disruption of the endocrine system.

Organic food is more expensive as they are more labour intensive and the cost of organic feeds is higher too. Any organic food to get its certification, it has to pass through tough certification processes. But organic food has more to offer when it comes to health and environment. Organic food are healthy as no harmful synthetic chemicals are used in the production. Buying local further re-instigates the idea of sustainability as it reduces the carbon foot print associated with transportation and preservation and packaging.

Conventional farming yields large amounts of products for our use, but it uses resources faster than they can recover, soils will get exhausted, water levels will be too low and our supplies of nutrients will be too poor. Compared to conventional agriculture, sustainable farming practices offer a combination of methods that regenerate soils, save water and energy, and provide greater diversity of nutrients for our consumption. Organically farmed soils have more water holding capacity than the conventionally farmed soils.

Conventional farming uses more fuel as it is based on mechanization i.e. use of agricultural machinery. Insecticides and pesticides use more fuel in its production and transportation. Even production of fertilizers rely heavily on energy. There is high dependency on non-renewable energy. Sustainable agriculture is different. Sustainable farming systems aim to reduce the dependency of farmers on external inputs. The system is designed to recycle a big part of energy on the farm.

Sustainable agriculture conserves resources and uses it with great efficiency. Farmers do not have to outsource synthetic fertilizers, instead naturally enrich soils using green manure and compost applications. Soil organic matter provides nutrients to crops, supports microbial activity, improves physical characteristics of soils, and enhances water retention which reduces the need for irrigation.

Since sustainable farms are often highly diverse with interconnected production units, crop residues or a part of the grain harvest goes to feeding the farm's livestock. This reduces the need to import feed, and at the same time supports manure production right on the farm. The cycle of energy continues when the manure is used as a fertilizer for cropland, allowing for crops to grow from this energy once again.

"Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved." (Gomiero, Pimentel, and Paoletti 2011).

Sources:

1. <https://www.hsph.harvard.edu/nutritionsource/sustainability/>
2. <https://you.stonybrook.edu/environment/sustainable-vs-conventional-agriculture/>
3. <https://ivypanda.com/essays/changes-in-food-production-over-time/>
4. <https://www.cropin.com/blogs/sustainable-agricultural-practices-vs-organic-practices>
5. <https://www.veteransoffgrid.org/blog/conventional-vs-sustainable-agriculture-can-sustainable-agriculture-feed-the-world>
6. <https://www.veteransoffgrid.org/blog/conventional-vs-sustainable-agriculture-can-sustainable-agriculture-feed-the-world>

SUSTAINABLE FOODS: ECO-LABELLING SCHEMES AND CERTIFICATIONS

Eco-labelling, certifications and accreditations are a set of voluntary method for environmental performance of a product. The product has to go through the eco-friendly criteria set by government, association or standards certification bodies. The criteria analyse the product's life cycle impact on the environment and deemed to have fewer impacts on the environment than functionally or competitively similar products. Basically, an Eco label identifies products or services proven to be environmentally preferable within a specific category.

With respect to foods, a variety of third-party (which undertakes an audit to determine if the producer has met set standards) programs certify growers whose practices support different aspects (production, processing, distribution and consumption) of sustainable food production.

Different eco-label certifications take different approaches to evaluate food products. Common sustainable food production issues addressed by Eco-labels are Soil and Water Conservation, Pesticides and Synthetic Fertilizers, Animal Welfare, Worker Health, fair trade and Safety etc.

National Mission for Sustainable Agriculture (NMSA)



NMSA has been formulated for enhancing agricultural productivity especially in rainfed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation. The focus of NMSA will be to infuse the judicious utilization of resources of commons through community based approach. NMSA will cater to key dimensions of 'Water use efficiency', 'Nutrient Management' and 'Livelihood diversification' through adoption of sustainable development pathway by progressively shifting to environmental friendly technologies, adoption of energy efficient equipments, conservation of natural resources, integrated farming, etc. Besides, NMSA aims at promoting location specific improved agronomic practices

through soil health management, enhanced water use efficiency, judicious use of chemicals, crop diversification, progressive adoption of crop-livestock farming systems and integrated approaches like crop-sericulture, agro-forestry, fish farming, etc. Source: <https://nmsa.dac.gov.in/>

Jaivik Bharat



Jaivik Bharat

Organic foods are products of holistic agricultural practices focusing on biodiversity, soil health, chemical free inputs etc., and produced in accordance with Organic Production Standards. The Jaivik Bharat logo for Organic Food is an identity mark to distinguish organic products from non-organic ones. The logo is supported with the tagline "Jaivik Bharat", at the bottom, which signifies Organic Food from India. The logo symbolizes nature along with articulating that these foods are produced in environment-friendly manner without using chemical fertilizers and pesticides. The logo showcases that the product bearing it has been authenticated as organic for the choice for consumption. Effectively intertwining all the elements of environment, the logo communicates adherence to the National Organic Standards.

Source: <https://jaivikbharat.fssai.gov.in/>

Marine Stewardship Council



Sustainable seafood comes from fisheries that catch fish in ways that ensure the long-term health of a stock or species and the wellbeing of the ocean. An MSC certificate covers a vessel, fleet or individual operator using a certain gear type, fishing on a particular target stock. The blue MSC label is only applied to wild fish or seafood from fisheries that have been certified to the MSC Fisheries Standard, a set of requirements for sustainable fishing. Fish and seafood with the blue label comes from a fishery that has been independently assessed on its impacts to wild fish populations and the ecosystems they're part of. All along the supply chain, MSC certified products are separated from non-certified.

MSC certified seafood is accurately labelled, ensuring that seafood with the blue tick comes from fisheries that are MSC certified as fishing sustainably.

Source: <https://www.msc.org/what-we-are-doing/our-approach/what-does-the-blue-msc-label-mean>

American Grassfed



The American Grassfed Association (AGA) certification identifies food and agriculture products which meet the standards as set forth in the AGA Grassfed Ruminant Standards and certified through a program approved by the AGA. The logo determines that animals were fed a lifetime diet of 100% forage; were raised on pasture, not in confinement; and were never treated with hormones or antibiotics. AGA Grassfed Standards for ruminant, pastured pork and dairy have been developed by a team of animal scientists, veterinarians, ranchers, and range management specialists. They concentrate on four main areas of production:

1. Animals are fed only grass and forage from weaning until harvest.
2. Animals are raised on pasture without confinement.
3. Animals are never treated with antibiotics or added growth hormones.
4. All animals are born and raised on American family farms.

Source: <https://www.americangrassfed.org/about-us/our-standards/>

USDA Organic



The labeling requirements of the National Organic Programme (NOP) apply to raw, fresh products and processed products that contain organic agricultural ingredients. Agricultural products that are sold, labeled, or represented as organic must be produced and processed in accordance with the NOP standards. The U.S. Department of Agriculture has put in place a set of national standards that food labeled must meet, whether it is grown in the United States or imported from other countries. Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones. Organic food is produced without using most conventional pesticides; fertilizers made with synthetic ingredients or sewage sludge; bioengineering; or ionizing radiation.

Source: <https://www.ams.usda.gov/about-ams/programs-offices/national-organic-program>

Aquaculture Stewardship Council



The Aquaculture Stewardship Council (ASC) is the certification scheme for farmed seafood, known as aquaculture and the ASC label only appears on food from farms that have been independently assessed and certified as being environmentally and socially responsible. ASC develops and manages the strictest standards in the industry. These standards include hundreds of requirements covering the potential impacts of aquaculture – including water quality, responsible sourcing of feed, disease prevention, animal welfare, the fair treatment and pay of workers and maintaining positive relationships with neighbouring communities.

Source: <https://www.asc-aqua.org/>

Indian Organic Certification



The Agricultural and Processed Food Products Export Development Authority (APEDA) is an export promotion organization under the Ministry of Commerce & Industries, Government of India. It is mandated with the responsibility of promotion and development of the export of its scheduled products. Indian National Standards for Organic Production & India Organic Logo is governed by APEDA, which provides national standards for organic products through a National Accreditation Policy and Programme. The aims of the National Programme for Organic Production (NPOP) is to provide the means of evaluation of certification programmes for organic agriculture & products as per internationally approved criteria and to accredit certification programmes. It also facilitates certification of organic products in conformity to the National Standards for Organic Products and encourages the development of organic farming and organic processing.

Sources:

1. <https://www.apeda.gov.in/apedawebsite/organic/index.htm>
2. <https://www.ecolabelindex.com/ecolabels/>
3. https://noharm.org/sites/default/files/lib/downloads/food/Food_Eco-Labels.pdf

WHAT CAN WE DO AS A CONSUMER?

Partaking in sustainable food practices ensures low environmental impact. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable, nutritionally adequate, safe & healthy and optimizes natural & human resources. It also minimizes the contribution to climate change. Whether it's a salad, a hamburger, every meal of yours has an impact on the environment, food system, animals and human health. Below are the few tips for sustainable eating and how to minimize environmental impact at household/ individual level:

1. Buy Local

Locally produced food is fresher and has a shorter time between harvest & your table. It has more nutritional value than the food which is imported from far away states/countries.

2. Minimize meat consumption



Farming animals for meat and dairy demands space and large amounts of water and feeds whereas plants based diets require lesser natural resources. Livestock industry also contributes to global greenhouse gas emissions. Reducing meat meal decreases the individual's carbon footprint. Cut down meat meals in a week.

3. Grow your own food



Growing your own food lessens the burden on the food system. It significantly reduces the household's greenhouse gas emissions.

4. Sustainable Sea foods



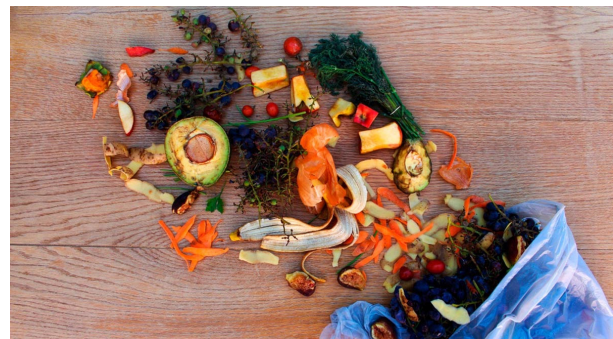
Unsustainable fishing habits lead to overfishing, harms wildlife, people and water. Opt for lower carbon emission seafood.

5. Eat more variety of foods.



Greater diversity in the diet is essential as the lack of variety in agriculture is both bad for nature and a threat to food security. Eat variety of whole grains.

6. Reduce food waste



Check your food needs and store them properly. Manage your food resources. Make a food plan for just enough food. Reducing food waste also saves your money. Eat your leftovers or share your leftovers with the needy ones.

7. Eat seasonally



Eating vegetables and fruits that are grown in-season needs low levels of artificial inputs like fertilizers, heating, storage and pesticides as compared at other times of the year.

8. Avoid excessively processed food



Processed foods have undergone many industrial processes and usually contain lots of added flavors, sugars, fats and chemical preservatives. Processed foods have a larger carbon footprint as compared to whole foods. It is always advisable to eat nutritious whole foods whenever possible.

9. Look for the food labels



Eco labels help you to choose the product that has minimum environmental impact. For example, Jaivik Bharat which ensures the food is organic and reproduced in environment-friendly manner without using chemical fertilizers and pesticides.

10. Don't waste uneaten food, Compost it!



One third of all produce is lost or wasted which is around 1.3 billion tonnes of food. Upto 10% of

global greenhouse gases come from food that is produced, but not eaten. (UNEP; Food Waste Index Report 2021). Set up a compost bin at home to avoid food wastage.

11. Avoid Packaging



Refuse food which is unnecessarily packed in plastic. Choose packaging-free fruit and vegetables wherever possible, carry your own reusable shopping bag, take your container for refilling, and carry your reusable cutlery.

12. Buy in bulk



Shop at bulk retailers to stock up on dry foods you use the most. It also reduces your shopping trips.

13. Eat mindfully

Practice mindful eating and focus on where your food came from & how much food you need. Seek out more sustainable food sources.

14. Ask Questions (Know what you are eating)

As a consumer it is your choice to eat sustainably and refuse the food which doesn't fit to the environmental standards. So, ask question on the food you purchase

Sources:

1. <https://www.nutrition.gov/topics/shopping-cooking-and-meal-planning/sustainable-eating>
2. <https://www.wwf.org.uk/betterbasket>
3. <https://www.msc.org/what-we-are-doing/our-approach/what-does-the-blue-msc-label-mean>

Events (April - June 2022)



Online Poster Making Competition on 'Your idea of Eco-friendly Lifestyle'



Infographic on '30 Green Routines towards Sustainability'



Celebration of International Yoga Day 2022



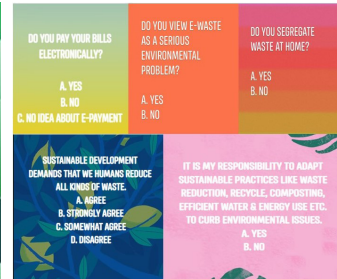
Webinar on 'Only One Earth: Promoting Sustainable Living'



Inaugural Ceremony of fifth batch of GSDP Certificate course on 'Laboratory Technicians/Technical Assistants for energy efficiency, star labelling and other electrical testing for environmental criteria'



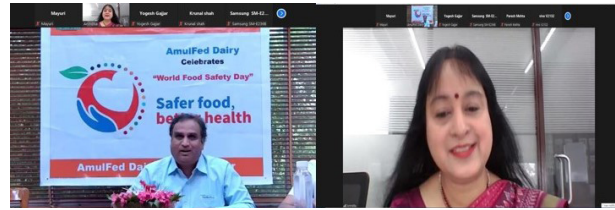
Online Survey



Quiz on World Earth Day 2022



Demonstration of Food Safety on Wheels Van and demonstration of iodine levels in salt using STK kits at Adani Vidya Mandir School



Webinar on Safer Food, Better Health



Quiz on World Environment Day 2022



Expert talk by Ms. Anindita Mehta, CERC-ENVIS Coordinator on safer food and sustainable foods/diets at Parul University



Awareness Programme on Eco-labelling, Eco-friendly products & Energy conservation at Blue Bell School, Ahmedabad



Posters on different environmental themes



Demonstration of FSW Van and talk on Safer Food, better health and sustainable foods conducted at Blind People's Association, Ahmedabad



Sustainable Foods

Sustainable are those foods with Low environmental impacts

Problems:

1. Food Wastage
2. Packaging
3. Food production in unsustainable ways
4. Use of pesticides and chemical fertilizers
5. Fatty, Sugary, Salty food : Unbalanced diet

Benefits:

- Contribution to environmental conservation
- Prevents pollution
- Reduces costs
- Keeps biodiversity
- Respects the environment
- Profits farmers economically
- Preserves social quality
- Nutritionally adequate, safe and healthy

What can we do as a consumer ?

1. Eat more fruits & vegetables
2. Eat locally, when in season
3. Novel agricultural technologies
4. Swap animal protein for plant-based ones
5. Choose Wholegrains
6. Choose sustainably sourced seafood
7. Avoid unnecessary packaging
8. Grow your own food
9. Ask business and policy makers to take action
10. Cut back on the white stuff (Sugar, Salt etc.)
11. Stay informed

Consumer Education & Research Centre - Environmental Information System (ENVIS) Resource Partner on "Environment Literacy - Eco-Labeling & Eco-friendly Products"


www.cercenvis.nic.in/
[@EcoProductsEcoLabeling](https://www.facebook.com/EcoProductsEcoLabeling)
[@cerc_envis](https://www.instagram.com/cerc_envis)
[@CERC - ENVIS](https://www.youtube.com/channel/UC8CER-ENVIS)


The Environmental Information System acronymed as ENVIS was implemented by the Ministry of Environment & Forests by end of 6th Five Year Plan as a Plan Scheme for environmental information collection, collation, storage, retrieval and dissemination to policy planners, decision makers, scientists and environmentalists, researchers, academicians and other stakeholders.

The Ministry of Environment and Forests has identified Consumer Education and Research Centre (CERC), Ahmedabad, as one of the Resource Partners to collect and disseminate information on "Environment Literacy - Eco-labelling and Eco-friendly Products". The main objective of this ENVIS Resource Partner is to disseminate information on Eco products, International, and National Eco labeling programmes.

Periodical Printed & Published By

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Write to us: We value your views and suggestions. Please send your feedback on this issue. We would also like to invite your contributions on the Eco Product and Eco Labelling.

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Printing

Print Express, Ahmedabad.