

GREEN INSIGHTS

NEWSLETTER ON
Eco-Labeling & Eco-Friendly Products



CERTIFYING A GREEN BUILDING



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Foreword

With growing concerns about climate change, healthy indoor environments, and energy and resource conservation, green buildings are quickly moving from being an emerging trend to a viable mainstream option.

A green building is one which uses less water, optimises energy efficiency, conserves natural resources, generates less waste and provides healthier spaces for occupants, as compared to a conventional building.

Green housing or eco-friendly homes are an integrated approach towards minimising the adverse effects of construction on the environment and promoting healthier living for people. Architectural and building contracting firms agree that to remain competitive they must shift toward green buildings, including the use of green building products.

A certification is a confirmation that a product meets defined criteria of a standard. ISO defines certification as: any activity concerned with determining directly or indirectly that relevant requirements are fulfilled. The process of getting green building certifications adds accountability and integrity to the product developer or building project team.

Even though green product standards and certification programmes offer helpful guidance and assurances, they have significant differences, which have lead to confusion in the marketplace. Building owners, contractors, home-builders and consumers need to be very clear about what each programme offers and what it means when a product sports a particular product certification.

In India, though the concept of green buildings has been around for almost a decade, it is gaining momentum now with more developers showing interest in offering eco-friendly options in residential as well as commercial segments. The construction industry in India is adopting green building solutions and the Indian government has been proactive in making green designs for buildings mandatory in many areas.

A developer offering a project that adheres to green building norms will usually charge a premium. So, check the authenticity of the claim. Ask for the specific certificates or seek information from the organisations.

The current issue covers the national as well as international certification systems adopted by different countries.

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The primary purpose of building certification is to ensure the health, safety and welfare of people in and around buildings. Certification is a formal process which involves a project using a rating tool to guide the design or construction process during which a documentation-based submission is collated as proof of this achievement.

The Building Council will commission a panel of third-party Certified Assessors to validate that the documentation for all claimed credits is in adherence with the Compliance Requirements as outlined in the Technical Manual that accompanies each rating tool.

CERTIFYING A GREEN BUILDING

There are a number of organisations - private and non-profit - which have developed green building certification programmes. They rate the design, construction and operation of green buildings. The standard/certification programmes are categorised as follows:

First Party

An individual or organisation offers a product, process or service that provides some type of verification of assurance, label or certification to a standard or set of criteria. This is self-declaration. There is typically no independent, third-party testing or auditing following a transparent, accredited process.

Second Party

An industry-based association, to which an individual or organisation belongs, provides the standard, label, or set of criteria for certification. The laboratory or organisation conducting any testing or auditing may be a third party or independent agent.

Third Party

Here verification is performed through a certifying body conducting independent data reviews, auditing, and/or testing in accordance with industry-independent standards or criteria.

INTERNATIONAL CERTIFICATIONS



LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN (LEED)

It is developed and administered by the US Green Building Council (USGBC), a non-profit coalition of building industry leaders. LEED Certification is a recognised standard for measuring building sustainability and approved by many countries around the world.

There are five rating systems that address multiple project types:

1. **Building Design and Construction;**
2. **Interior Design and Construction;**
3. **Building Operations and Maintenance;**
4. **Neighborhood Development and**
5. **Homes**

Each rating system is made up of a combination of credit categories. To earn points within each of the credit categories specific prerequisites must be satisfied. The number of points the project earns determines its level of LEED certification.

There are four certification levels - Certified (40-49 points), Silver (50-59 Points), Gold (60-79 Points) and Platinum (80+ Points). These levels correspond to the number of credits accrued in five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality.

This certification programme was launched in March 2000. Its standards apply to buildings that are being newly constructed or going through a major renovation. LEED is continuously evolving and improving. The most recent update to the rating systems (LEED v4) was launched in November 2013. Now it covers a wider range of building types and manufacturing industries, delivering the benefits of green building up and down the supply chain. Achieving LEED certification is a good way to demonstrate that the building project is truly "green."

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www.nrdc.org/buildinggreen/leed.asp
in.usgbc.org/home



BUILDING RESEARCH ESTABLISHMENT'S ENVIRONMENTAL ASSESSMENT METHOD [BREEAM]

This is a comprehensive green building rating system in the UK. Its assessment uses recognised measures of performance, which are set against established benchmarks, to evaluate a building's specification, design, construction and use. It represents a broad range of categories and criteria from energy to ecology. They include aspects related to energy and water use, the internal environment (health and well-being), pollution, transport, materials, waste, ecology and management processes.

It is internationally recognised and can be used in international projects anywhere in the world. It can also be adapted to local conditions and be used in a range of formats in country specific schemes.

London's PriceWaterhouseCooper office tower achieved a certification of BREEAM "outstanding" (the highest level that can be attained) in 2010.

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www.breeam.org
www.bre.co.uk/page.jsp?id=829



LIVING BUILDING CHALLENGE

It is an international building certification programme created in 2006 by the non-profit International Living Future Institute based in US. As mentioned by the company: "It is an advocacy tool and philosophy that defines the most advanced measure of sustainability in the built environment possible today..."

It involves seven performance categories called Petals: Place, Water, Energy, Health & Happiness, Materials, Equity and Beauty. Petals are subdivided into a total of 20 imperatives, each of which focuses on a specific sphere of influence. This compilation of imperatives can be applied to almost every conceivable building project, of any scale and any location—be it a new building or an existing structure.

There are three types of certification- Living Building Certification, Petal Recognition or Net Zero Energy Building Certification. If a project achieves full certification or Petal Recognition it signifies that the building/s is not only built using sustainable practices, but also demonstrates a progressive and necessary movement, in thought and design, towards a future where all construction becomes synonymous with sustainability.

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www.living-future.org/lbc/about



NATIONAL GREEN BUILDING STANDARD

It provides independent and third party verification that a home, apartment building, or land development is designed and built to achieve high performance in six key areas: Site Design, Resource Efficiency, Water Efficiency, Energy Efficiency, Indoor Environmental Quality, and Building Operation & Maintenance. US-based Home Innovation Research Labs certifies residential buildings as per ICC 700

National Green Building Standard (NGBS) norms. This rating system is approved as an American National Standard. The NGBS focuses on three main features - Healthy Homes, Lower Operating Costs and Sustainable Lifestyle.

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www.homeinnovation.com/services/certification/green_homes



GREEN BUILDING INITIATIVE

US-based Green Building Initiative (GBI) is a non-profit organisation that promotes credible and practical green building approaches for commercial construction. It provides sustainability assessment and certification services. GBI offers Green Globes - environmental assessment and certification programmes for commercial buildings. It is a web-based programme for green building guidance and certification that includes an onsite assessment by a third party with expertise in green building design, engineering, construction and facility operations. The programme has modules supporting new construction, existing buildings, existing healthcare buildings and interiors. There are four certification levels one, two, three, or four Green Globes.



BEAM

Hong Kong based BEAM Society Limited, a non-profit organisation is committed to promote and develop BEAM (Asian green building standard & certification) assessment tools and assess green buildings. It also provides training for professionals, the BEAM Professional credential. Since 1995 it has

GREEN GLOBES RATING SCALE

85% - 100%



Demonstrates national leadership and excellence in the practice of energy, water, and environmental efficiency to reduce environmental impacts.

70% - 84%



Demonstrates leadership in applying best practices regarding energy, water, and environmental efficiency.

55% - 69%



Demonstrates excellent progress in the reduction of environmental impacts and use of environmental efficiency practices.

35% - 54%



Demonstrates a commitment to environmental efficiency practices

>> www.thegbi.org/about-gbi/

>> www.thegbi.org/green-globes/

developed into a world recognised green building rating tool. BEAM assessment tools have certified green building developments encompassing over 140 million sq ft of space and over 50,000 residential units. On per capita basis, BEAM is one of the most widely used voluntary green building labelling schemes of its kind in the world.

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www.beamsociety.org.hk

green building rating tools for many markets and building types. Its rating systems are designed to analyse building performance at several stages in the building life cycle. It is composed of four assessment tools for commercial and industrial buildings. They are for pre-design, new construction, existing buildings and renovation. All the rating tools use two general categories of analysis. Q (quality) assessments are taken at the building level, while L (load) assessments look at the building's impact on the local environment or neighborhood. A number of other versions of the CASBEE rating systems exist for specific purposes, such as heat island minimisation, urban development and city planning.

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www.ibec.or.jp/CASBEE/english/overviewE.htm

Comprehensive Assessment System for Building Environmental Efficiency

CASBEE 静岡

COMPREHENSIVE ASSESSMENT SYSTEM FOR BUILT ENVIRONMENT EFFICIENCY (CASBEE)

CASBEE is the green building management system in Japan. The Japanese Green Building Council (JaGBC) has developed a comprehensive family of



GREEN MARK SCHEME

Singapore based Building and Construction Authority (BCA) launched BCA Green Mark Scheme in 2005 as an initiative to drive Singapore's construction industry towards more environment-friendly buildings. Its aims to promote environmental awareness among developers, designers and builders when they start project conceptualisation and design, as well as during construction. The scheme rates buildings according to five key criteria - energy efficiency, water efficiency, environmental protection, indoor environmental quality and other green and innovative features that contribute to better building performance. Certified Green Mark buildings are required to be re-assessed every three years to maintain the status.

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www.greenmark.sg



GREEN STAR SOUTH AFRICA

The Green Building Council of South Africa (GBCSA) is an independent, non-profit company that was formed in 2007 to lead the greening of South Africa's built environment. GBCSA is a full member of the World Green Building Council and the official certification body of buildings under the Green Star South Africa rating system based on the Australian system and customised for the South African context. GBCSA develops the Green Star SA rating tools to recognise and reward environmental leadership in

the property industry. Each Green Star SA rating tool reflects a different market sector including office, retail, multi-unit residential, public and education buildings, as well as interiors and existing buildings.

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www.gbcsa.org.za



إستدامة
estidama

PEARL RATING SYSTEM FOR ESTIDAMA (UAE)

Estidama, an Arabic word for sustainability, is an initiative developed and promoted by the Abu Dhabi Urban Planning Council (UPC). The Pearl Rating System is the green building rating system for the emirate of Abu Dhabi. Its aim is to create more sustainable communities, cities, and global enterprises and to balance the four pillars of Estidama: environmental, economic, cultural, and social. Achievement of a sustainable building requires the integration of the four pillars of Estidama together with a collaborative and inter-disciplinary approach to building development known as the Integrated Development Process.

The system encourages water, energy and waste minimisation, local material use and aims to improve supply chains for sustainable and recycled materials and products. Three rating stages have been established: Design, Construction, and Operational. Each section has both mandatory and optional credits. All the mandatory credit requirements should be achieved along with a minimum number of credit points to achieve a higher Pearl rating.

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www.estidama.upc.gov.ae/pearl-rating-system-v10/pearl-building-rating-system.aspx

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www.wbdg.org/resources/gbs.php

NATIONAL CERTIFICATIONS



GREEN RATING FOR INTEGRATED HABITAT ASSESSMENT (GRIHA)

Tata Energy Research Institute (TERI) has developed GRIHA (Green Rating for Integrated Habitat Assessment), which was adopted as the national rating system for green buildings by the Government of India in 2007. This rating system has been adopted by the Ministry of New and Renewable Energy. This tool, by its qualitative and quantitative assessment criteria, is able to 'rate' a building on the degree of its 'greenness'. The system has been developed to help 'design and evaluate' new buildings (buildings that are still at the inception stage). A building is assessed based on its predicted performance over its entire life cycle – inception through operation. The stages of the life cycle that have been identified for evaluation are: pre-construction stage, building planning and construction stages, and building operation and maintenance stages.

Association for Development and Research of Sustainable Habitats (ADaRSH) promotes GRIHA as a design and evaluation tool for green buildings and habitats. ADaRSH is an independent society for interaction on scientific and administrative issues related to sustainable habitats in India.

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www.grihaindia.org



INDIAN GREEN BUILDING COUNCIL (IGBC)

The Indian Green Building Council (IGBC) is a part of the Confederation of Indian Industry (CII). CII is a non-government, not-for-profit, industry-led and industry-managed organisation that works to create and sustain an environment conducive to the development of India, partnering industry, government, and civil society, through advisory and consultative processes.

The IGBC programme is voluntary and consensus based. It is primarily designed for new buildings to facilitate water and energy efficiency and efficient handling of waste. The rating system has been developed based on materials and technologies that are presently available. The rating system evaluates certain mandatory requirements and credit points using a prescriptive approach and others on a performance based approach. It has evolved to become comprehensive and user-friendly. The programme addresses national priorities and quality of life of occupants.

New Buildings include (but are not limited to) offices, IT parks, banks, shopping malls, hotels, airports, stadiums, convention centres, libraries and museums. Other building types like residential, factory buildings, schools and hospitals will be covered under respective IGBC rating programmes. This rating system is classified into two types and based on the scope of work projects can be classified under the following options.

Owner-occupied buildings: Projects include the complete design and construction of a building from design till occupancy. The owner must occupy more than 75% of the building's built-up area such as office buildings, airports, banks and convention centres.

Tenant-occupied buildings: Projects in which the developer designs and constructs only the structural shell, façade and envelope and common facilities, without interiors. The tenants must occupy more than 75% of the building's built-up area like IT parks and shopping malls.

The 'LEED India' projects are registered with IGBC which certifies projects as per LEED's standards. This policy is in accordance with understanding between IGBC and US Green Building Council (USGBC). It is available online also. www.usgbc.org/articles/leed-online-now-available-leed-india-projects.

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www.igbc.in/site/igbc/igbcarticle.jsp?artid=452675

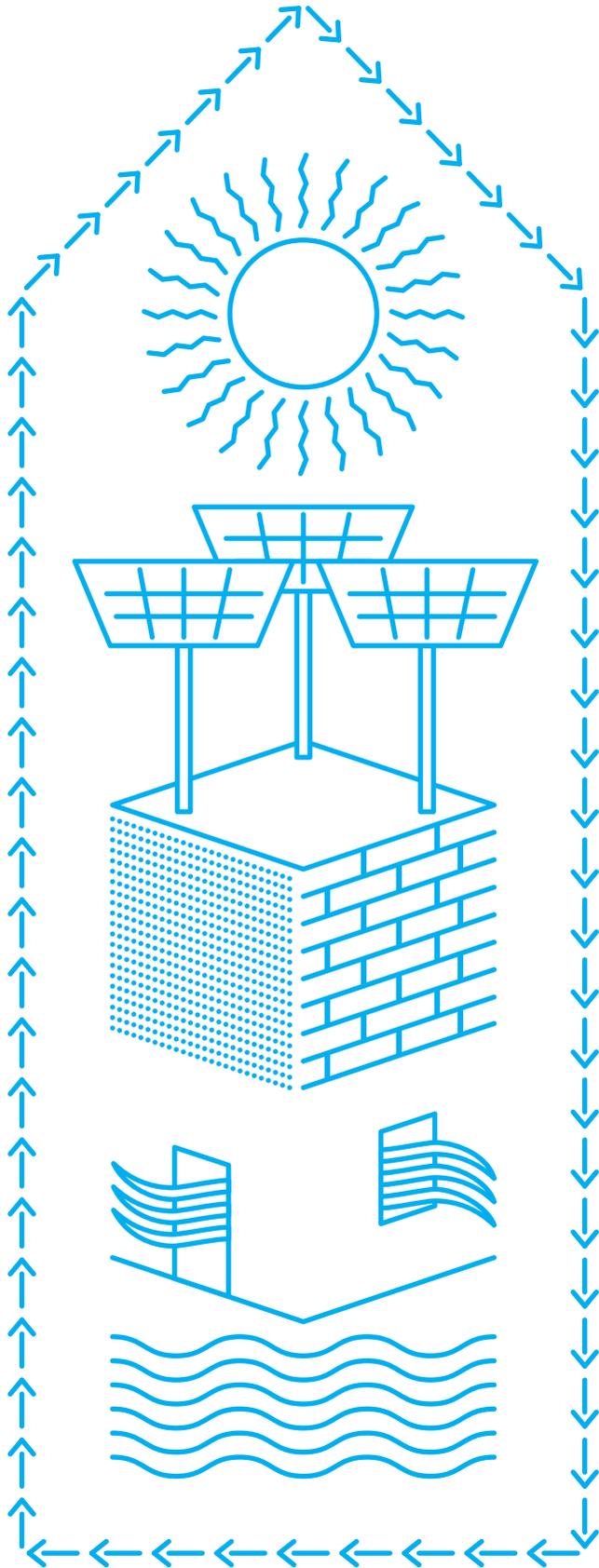
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www.greenguard.org/Libraries/GG_Documents/Reformat_WP_GreenProdCertProgCompare_FINAL_1.sflb.ashx

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www.wbdg.org/resources/gbs.php

SECRETS OF GREEN BUILDINGS



Eco-friendly buildings not only help to create a better outdoor environment, but also build a healthier indoor environment. Natural and non-toxic building materials that are safe, environmentally friendly and sustainable are used. Architects and designers are creating buildings in new, creative ways and finding solutions to problems like construction waste, energy consumption and water waste.

There are many things eco-friendly buildings are doing to reduce their carbon footprint. Though construction is costly, the money people spend initially could come back in the form of lower energy and water bills.

USING SOLAR ENERGY

More and more people are tapping into the unlimited solar energy for their homes and businesses. Solar power is becoming a positive energy source for those who are looking to reduce their carbon footprint. Solar energy is used not just on rooftops. Buildings are equipped with sensors that detect when a room is empty or when sunlight is adequate. In such cases, the sensors would trigger the lights to shut off. This technique is called solar harvesting. The skyscraper CIS Tower in Manchester, England is retrofitted with a façade of over 7,000 solar panels. In Chicago, the city's iconic Willis Tower (formerly the Sears Tower) installed photovoltaic glass panels to reduce the building's energy consumption.

Many Indian states are planning to launch programmes to cover 300 government buildings with rooftop solar power projects after the success of such projects in Gujarat.

RECYCLING/REUSE OF WATER

A growing interest in rational water use through the reuse and recycling of grey water in buildings is being shown in many countries. This water generally comes from the discharges of baths, sinks and showers in residential buildings but, in certain conditions, the discharges from washing machines or even waste water from kitchens can also be considered. The grey water is treated for reuse purposes.

Collection and recycling of rainwater also helps eco-friendly buildings slash their water consumption. Bank of America Tower in New York captures almost 70,000 gallons of rainwater from its rooftop tanks, which is then filtered and used to cool the building and flush the toilets.

In India, housing group Pearl Green Acres in Jaipur has taken water efficiency measures like setting up a sewage treatment plant for water recycling (used for irrigation and flushing of toilets) and rainwater harvesting. Centre for Environmental Science & Engineering, IIT Kanpur is the first GRIHA 5 star rated green building in India. It has taken water efficiency measures like waste water treatment and water recycling and reuse.

CREATING GREEN SPACES

To combat the effects of the concrete jungle, it is vital to increase integrated green spaces which can generate a more balanced view of the urban environment. California Academy of Sciences building's 2.5 acres of rooftop vegetation keeps the building several degrees cooler than standard asphalt. Three floors of elevated green space at Calgary's tallest building The Bow's 'Sky Gardens' offers abundant oxygen. In India, CII-Godrej complex, Devi Ahilya School of Energy and Environmental Studies building, India International Centre, New Delhi, Mirambika school buildings, New Delhi, Development Alternatives office complex and Suzlon One Earth, Pune are some well designed green buildings with green spaces.

USE OF RECYCLED BUILDING MATERIALS

Today's skyscrapers are using sustainable building materials during construction. The Bay Adelaide Centre in downtown Toronto not only used reused recycled

concrete, carpet and steel, but also the original building's heritage façade. In the construction of the 46-storeyed Hearst Tower in New York City, 90% of the steel was recycled. Builders across the world are experimenting with different varieties of reclaimed material in construction because of environmental and economic impact. The aesthetic aspect is also considered. In India, there are many building products available today which are manufactured from recycled material like bricks, glass, steel, fly ash concrete and tiles.

HARNESSING WIND POWER

Wind can be used to generate electricity. It is a clean and abundant source of renewable energy for buildings looking to go green. A house by the sea can use wind energy by using a small windmill to generate power for domestic needs. India has the fifth largest installed wind power capacity in the world.

The Tata Power Company has launched innovative clean energy technologies in rural areas by using a 2 kW wind turbine which would generate enough electricity to meet the basic demands of a small rural home.

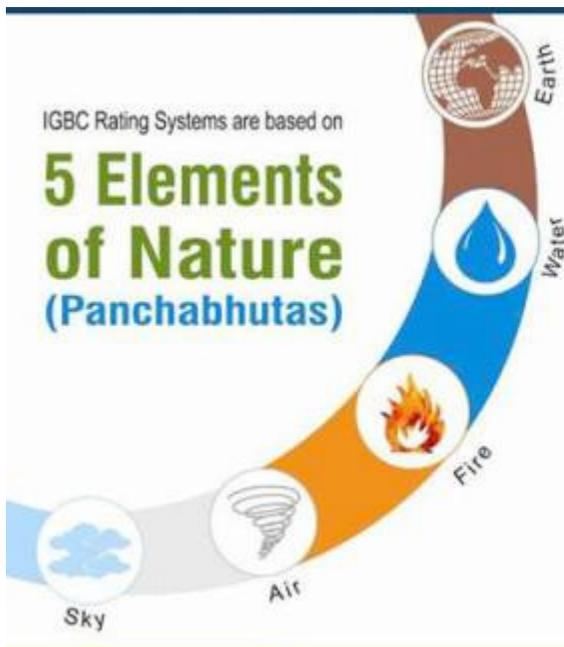
In Toronto's Direct Energy Centre, the 30-storeyed wind turbine generates electricity while reducing greenhouse gas emissions. Winnipeg's Manitoba Hydro Place uses natural ventilation to fill the building with 100% fresh air, drawn in through its atria. The innovative Pearl River Tower in China is designed with a pair of openings that push air through wind turbines to help power the building, while also reducing the toll the wind takes on the 71-storeyed skyscraper.

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www.huffingtonpost.ca/2013/10/07/5-eco-friendly-buildings_n_3963834.html

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www.drprem.com/green/secrets-of-eco-friendly-buildings



Green Building Movement in India

- 1.19 Billion Sq.ft of Registered Space in all
- 5 Climatic Zones
- 1,650+ Registered Projects
- 1,400+ IGBC Members
- 12 IGBC Local Chapters
- Launch of IGBC Student Chapters
- 800+ IGBC Accredited Professionals
- Over 16,000 Trained Professionals

IGBC Rating Systems

National by Choice 

 **Global in Performance**

The Environment information System acronymed as ENVIS was implemented by the Ministry of Environment & Forest by end of the 6th 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 Forest has identified Consumer Education and Research Center (CERC), Ahmedabad, as one of the centers to collect and disseminate information on Eco-labelling and Promotion of Eco friendly Products. The main objective of the ENVIS Centre is to disseminate information on Eco products and International and National Eco Labeling Programmes.



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