



Bureau of Energy Efficiency



सत्यमेव जयते
Government of India
Ministry of Power



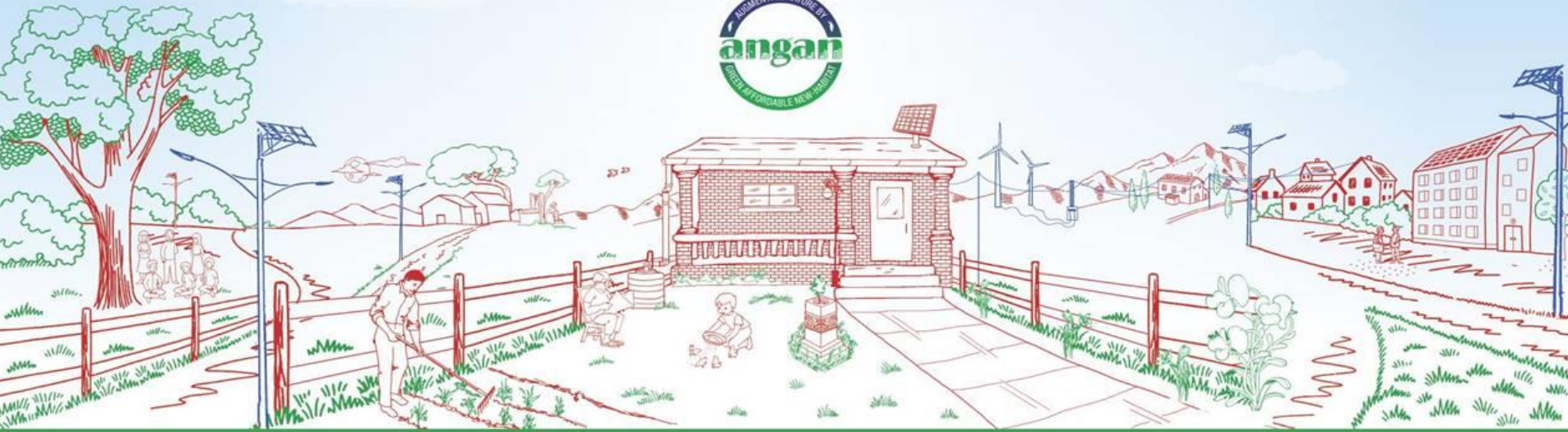
giz Deutsche Gesellschaft
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Zusammenarbeit (GIZ) GmbH

ANGAN

Augmenting Nature by Green Affordable New-habitat

A Courtyard for Revolutionary Change in Building Energy Efficiency
An International Conference on Building Energy Efficiency

9th-11th September, 2019 | Hotel The LaLIT, New Delhi





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THIS PRESENTATION WAS SHARED BY

Mr. Cesare Saccani

Managing Director, ICMQ Certification India Pvt. Ltd., Mumbai

FOR THE SESSION:

“Embodied Energy and the Life Cycle Approach”

DURING ANGAN 2019

Knowledge Partner

teri | THE ENERGY AND
RESOURCES INSTITUTE
Creating Innovative Solutions for a Sustainable Future

Event Partner

TEC INDIA 
EVENT & BRAND MANAGEMENT CO.



I wish sustainable, therefore EPD

Cesare Sacconi – ICMQ India MD

EPD India - Director

The need

“There is a need to **develop certification and eco-labelling** with emphasis on RE & SRM addressing product reuse, durability as well as secondary resource usage and to include provisions for preferential procurement of eco-labelled products through **Green Procurement Policies**.

“In order to increase demand and consumption of green products, four factors need to be addressed:

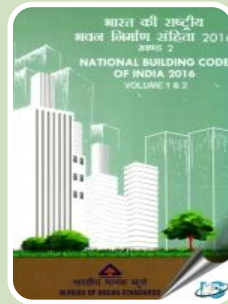
- Strengthen awareness regarding green products**
- Improve availability of green products in the markets**
- Clear certification for green claims made by producers**
- Lowering costs of green products**

A stronger regime of standards, certifications and labels is imperative as a first step towards engendering greater trust in the claims of the green products.

It will aid consumers to assess the authenticity of claims by manufacturers”

Niti Aayog “Strategy Paper on Resource Efficiency” – June 2017

Demand for EPD in building materials



NITI Aayog Strategy Paper on Resource efficiency

Recommendations
for

- a) Use eco-labelling in design
- b) Green Public Procurement
- c) Disclosure of LCA analysis information

BIS National Building Code 2016

Section 11:
Sustainability in
construction
9.1.4 Life Cycle
Assessment (LCA)
of building materials

USGBC LEED v4

Criterion: Building
Product Disclosure and
optimization

At least 20 products
sourced from at least 5
different manufacturers

- a) Industry wide EPD
(Sector EPD):
 $\frac{1}{2}$ point x product
- b) Product specific
EPD: 1 point x product

TERI – GRIHA GRIHA 2016

Criterion 21: Use of
low environmental
impact materials in
building interior
Maximum points: 4
Products with EPD
Cradle to Gate
analyzed and
published as per ISO
14025




The need

Environmental labels and declarations

provide information about a product or service in terms of its overall **environmental character**, a **specific environmental aspect** or any number of aspects

The overall objective of environmental labels and declarations is **to encourage the market of product and service that cause less stress on the environment**, through communication of **verifiable** and **accurate information**, thereby stimulating the potential for market – driven continuous environmental improvement

Eco labelling comparison

14020 ISO norms			
Environmental claims and declarations	ISO 14020	Environmental labels and declarations - General Principles	
	Type-I ISO 14024	Environmental labels (e.g. EU-Flower, Blue Engel, White Swan)	
	Type-II ISO 14021	Self-declared environmental claims	
	Type-III ISO 14025	Environmental declarations (e.g. EPD[®], Eco-leaf)	

Eco-labelling: comparison

	ISO 14021	ISO 14024	ISO 14025
Type	2	1	3
Name	Self declared environmental claims	Environmental labels	Environmental Product Declaration
Criteria	One criteria	Multi-criteria	LCA according to ISO 14040
Scheme Owner	Manufacturer	Third Party	Third Party
Verification	First Party	Third Party	Third Party
Type	Voluntary	Voluntary	Voluntary
Intended use	B2C	B2B	B2B (B2C non excluded)



Technically an EPD is

Definition

“Quantified environmental data for a product,
with pre-determined parameters
(based on the ISO 14040 series of standards),
which may be supplemented by other
qualitative and quantitative environmental information”

EN ISO 14025:2010 (E)

Environmental labels and declarations — Type III environmental declarations — Principles and procedures

Practically EPS is



an objective and credible
COMMUNICATION TOOL
that enables decision making
on the basis of the products'
Environmental performances



Comparison?

WITHOUT

Environmental Product Declaration
you can not compare different products ...



because

There are NO guidelines and methods
on how to conduct the assessment

Comparison!

WITH

Environmental Product Declaration
you can compare products ...



because

There are **common rules** and methods
to conduct the assessment
of products in the same category

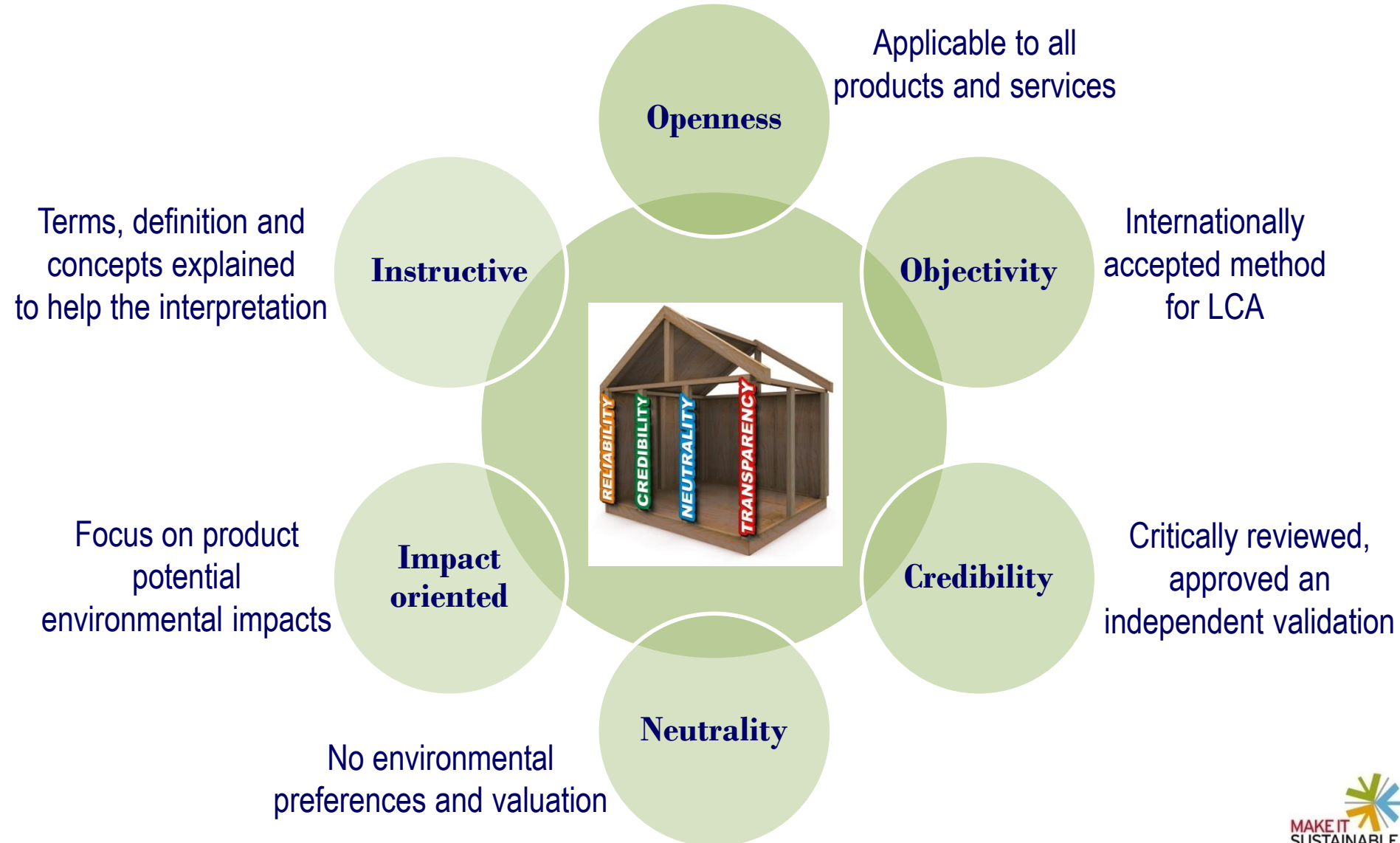


Purpose

EPD is a powerful enabler for product related strategies and different Stakeholders

Processes	EPD purpose
Supply Chain Management	To enable product designers, manufactures and purchasers to improve environmental performance by monitoring and analysing the product data
Marketing & communication	To provide external Stakeholders with reliable and verified environmental impacts of a product while improving their environmental awareness
Evaluation/ Assessment	To support professionals, specifiers, contractors and buyers in benchmarking the environmental performances of different products with the same function (and gain credits in Green Building rating schemes)
Procurement	To support government, commercial and institutional buyers in implementing green procurement strategies
Consumers' actions	To enable consumers and groups in asking for disclosure of environmental features of products

Characteristics



EPD Types

Individual Product EPD

Declaration of a specific product from a single manufacturing unit

E.g. Type of EPS insulation board

Average EPD

Declaration of a specific product averaged from multiple factories of the same manufacturer

E.g. grade of concrete in RMC group

EPD Types

Template EPD

Declaration of a typical product within a group of similar products with common functions and identical manufacturing process

Sector EPD

Declaration of a product averaged from multiple factories and multiple manufacturers
e.g. Representative tiles manufacturers cluster

EPD Types

Individual EPD

Insulation Panel
Expanded sintered polystyrene panel



Isolconfort S.r.l.



ENVIRONMENTAL PRODUCT DECLARATION

Product name: **ECO ESPANSO® 100** Site Plant: **Cologna Veneta (VR)**

in compliance with **ISO 14025** and **EN 15804**

Program Operator	EPD Italy
Publisher	ISOLCONFORT
Declaration Number	EPD2017-02-01
Registration Number	EPDITALY0013
Issue Date	10/06/2017
Valid to	10/06/2022



Sector EPD

76 tile manufacturers – 84 plants
82,6% of the Italian ceramic tiles production

CONFINDUSTRIA CERAMICA




ENVIRONMENTAL PRODUCT DECLARATION

in accordance with **ISO 14025** and **EN 15804**

Italian Ceramic Tiles

Program Operator	Institut Bauen und Umwelt e.V. (IBU)
Publisher	EPD Italy

Declaration Number	EPD-COI-2016/0202-ICCI-EN
Registration Number	MR - EPDITALY001

Issue Date	26/09/2016
Valid to	25/09/2021



Registered under the mutual recognition between EPD Italy and Institut Bauen und Umwelt e.V. (IBU).
www.epditaly.it

EPD Benefits

Material Manufacturers	<ul style="list-style-type: none"> <input type="checkbox"/> Competitive advantage in Green Procurement specification <input type="checkbox"/> Marketing Tool to provide credible and comparable information about environmental performances <input type="checkbox"/> Assessment tool for process improvement and financial savings <input type="checkbox"/> Evidence of commitment to scientific disclosure of environmental information <input type="checkbox"/> Substantial contribution to Sustainability Reporting <input type="checkbox"/> Safeguard against Green Washing
Architects and Planners	<ul style="list-style-type: none"> <input type="checkbox"/> Recognition in green building certification schemes (LEED) <input type="checkbox"/> Support in eco-design
Developers and Real Estate	<ul style="list-style-type: none"> <input type="checkbox"/> Increasing marketability of projects and properties
Retailers	<ul style="list-style-type: none"> <input type="checkbox"/> Verified source of environmentally relevant product information

EPD Programme Operator Role

Stakeholders involvement

EPD Programme Rules
(Communication – Transparency – Consistency)

Procedures for PCR

Procedures for EPD

Preparing
PCR

Publishing
PCR

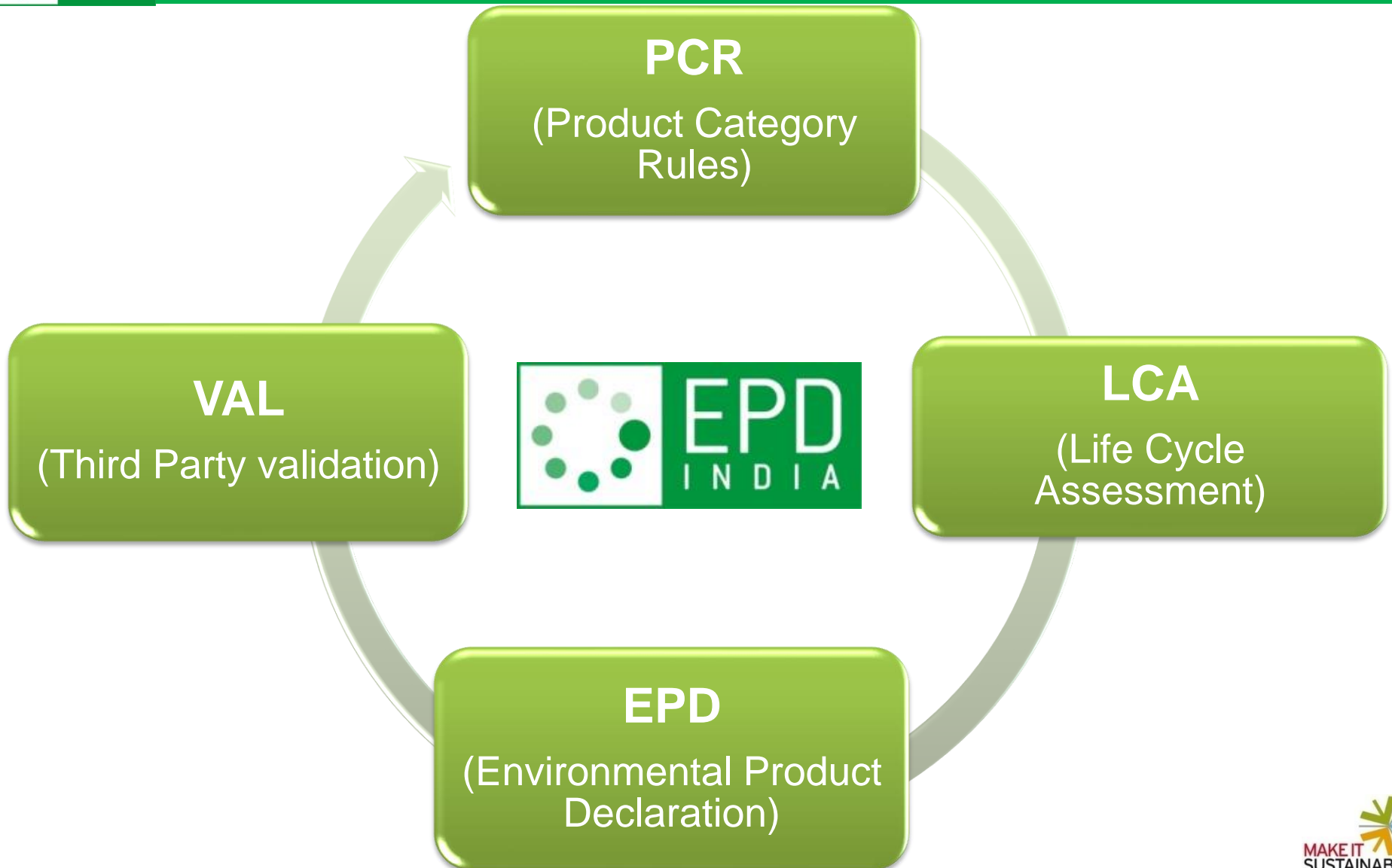
Updating
PCR

Independent
LCA
verification

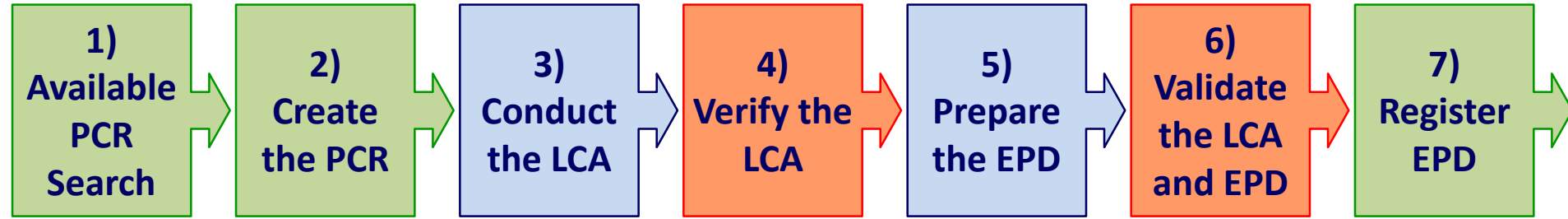
Verifying
EPD

Publishing
EPD

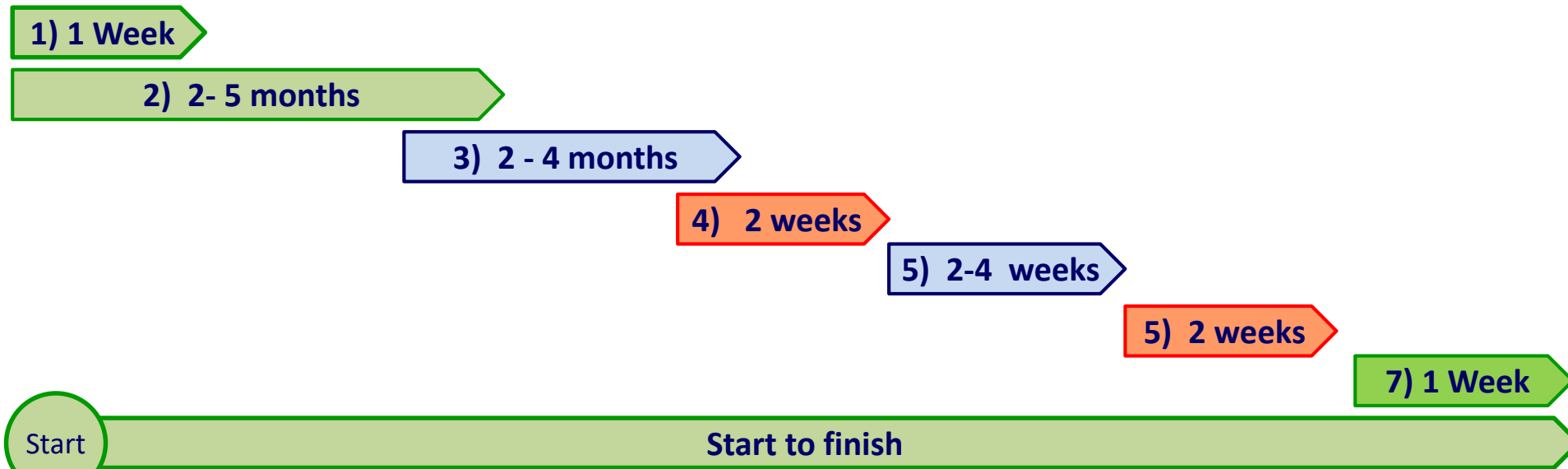
How EPD works



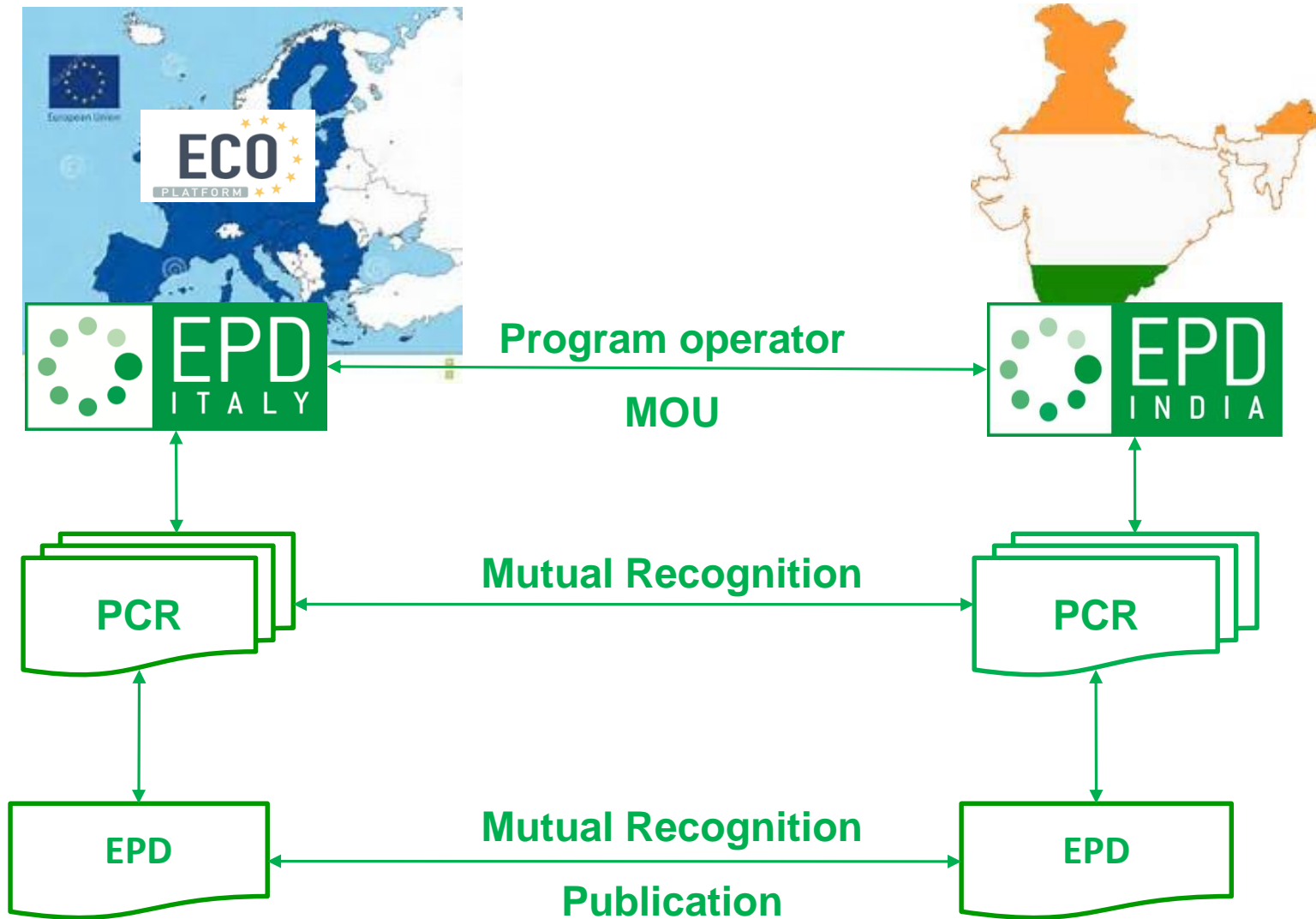
EPD - Timeline



Responsible party



EPD India: gate to international markets



EPD India – International recognition

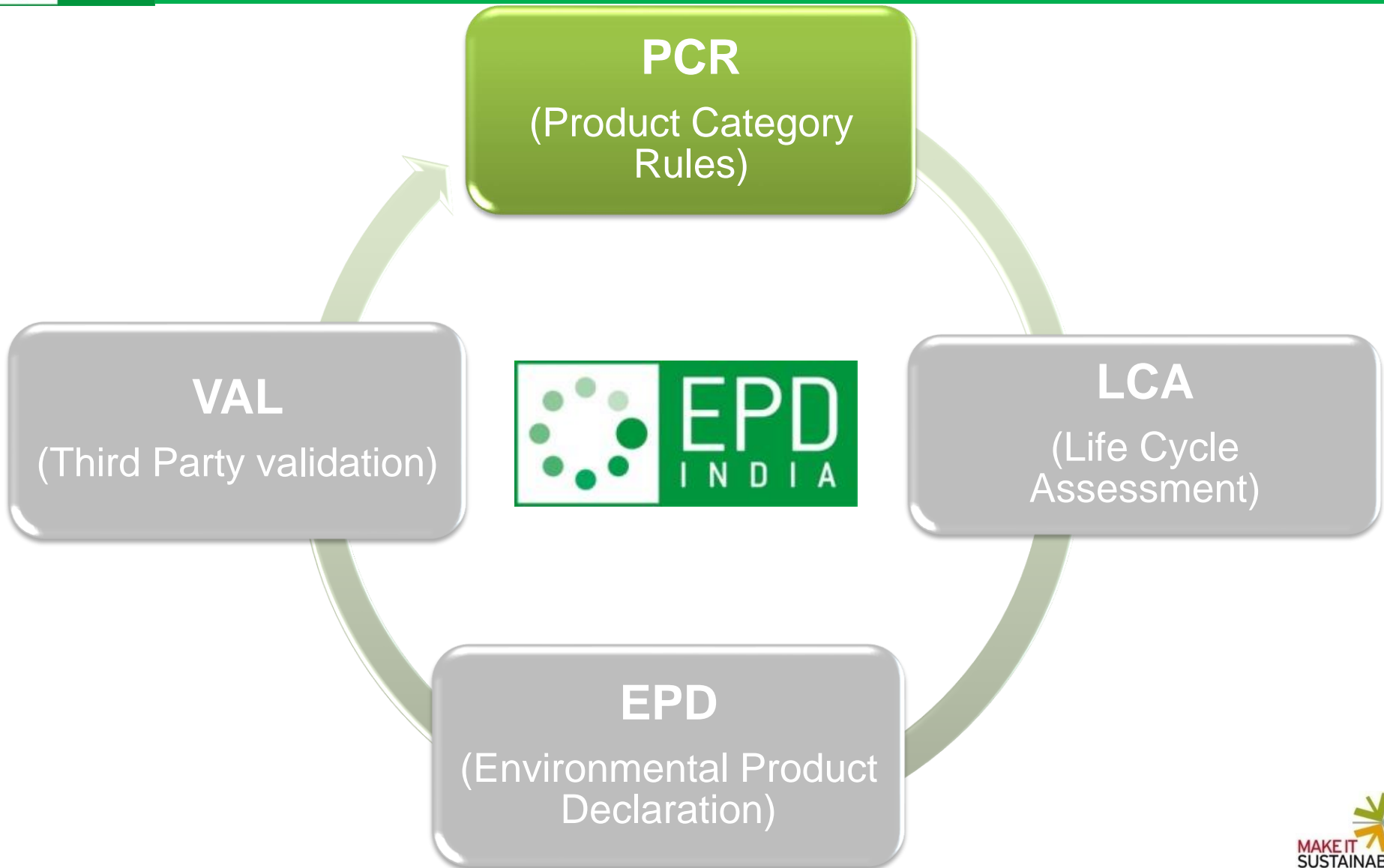


ECO Platform is an International Non-Profit Association established by European EPD Program Operators registering ECO Platform EPD, European Trade Associations in the construction sector and LCA Practitioners.

ICMQ Spa is managing EPD Italy, the Italian EPD program operator recognized by Eco-platform

ICMQ India runs EPD India Program Operator based on know how and experience gained in Italy by EPD Italy and aligned with Eco-platform rules and practices.

How EPD works



Product Category Rules (PCR)

WHAT IS A PCR

“a set of specific rules requirements and guidelines for developing Type III environmental declaration for one or more product categories (ISO 14025)

PCR for Building Materials (ISO EN 15804)

Sets out the Product Category Rules for all construction products.

A PCR determines what information should be gathered and how that information should be evaluated for an environmental declaration.

PCR “Building materials”

Core PCR (EN 15804) “Building Materials”



PRODUCT
CATEGORY
RULE



Product Category Rules for preparing an EPD for:

BUILDINGS MATERIALS AND SERVICES FOR CONSTRUCTION

Version	1.0
Dated	2017-06-15
Valid through	2022-06-15

EPDIndia
A511 Sagar Tech Plaza Sakinaka Junction
Andheri Kuria Road – Andheri East 400072 Mumbai

Approved by EPD Italy

Product Specific PCR

EN 16757:2017

Environmental product declarations -
Product Category Rules for
concrete and concrete elements

Product Specific PCR

.....
Sustainability of construction works -
Environmental product declarations -
Product Category Rules for
...

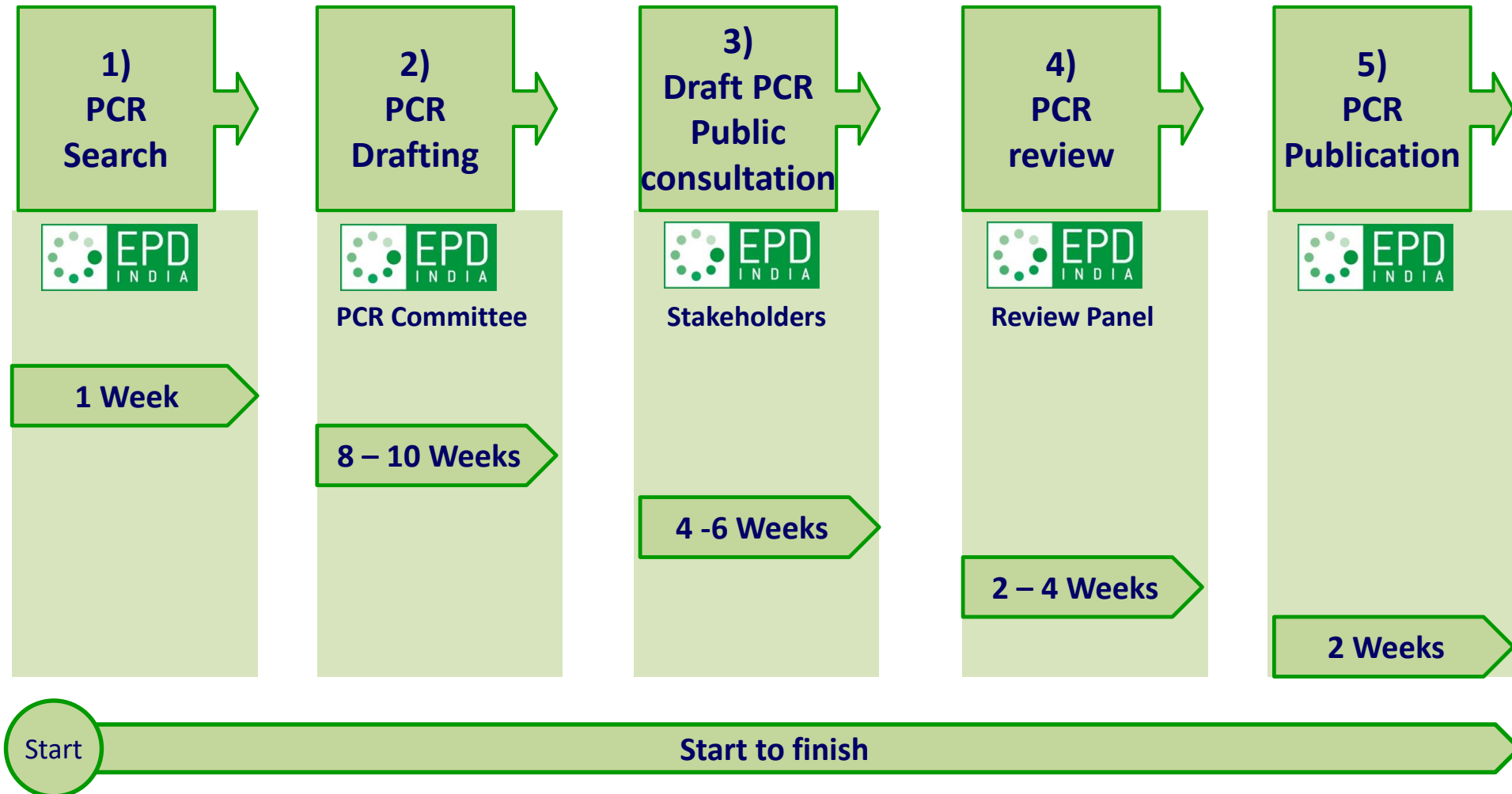
Product Category Rules (PCR)

The core PCR defines:

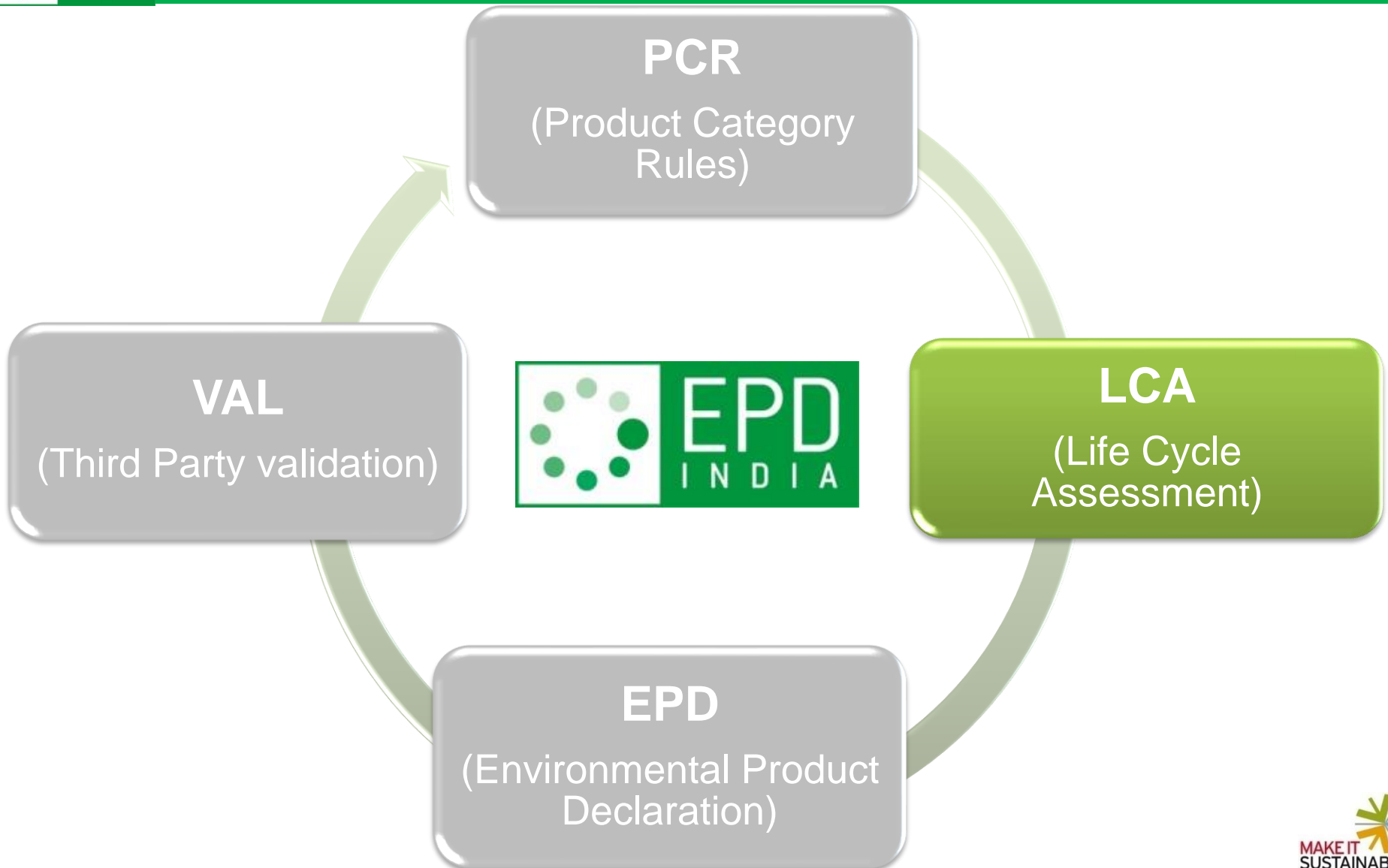
- ❑ the parameters to be declared
- ❑ the way in which such parameters are collated and reported
- ❑ which stages of a product's life cycle are considered in the EPD
- ❑ which processes are to be included in the life cycle stages
- ❑ the rules for the development of scenarios
- ❑ the rules for calculating the LCA and LCIA underlying the EPD, including the specification of the data quality to be applied
- ❑ the rules for reporting predetermined, environmental and health information, that is not covered by LCA for a product, construction process and construction service where necessary
- ❑ the conditions under which construction products can be compared based on the information provided by EPD.

For the EPD of construction services the same rules and requirements apply as for the EPD of construction products.

PCR - Timeline



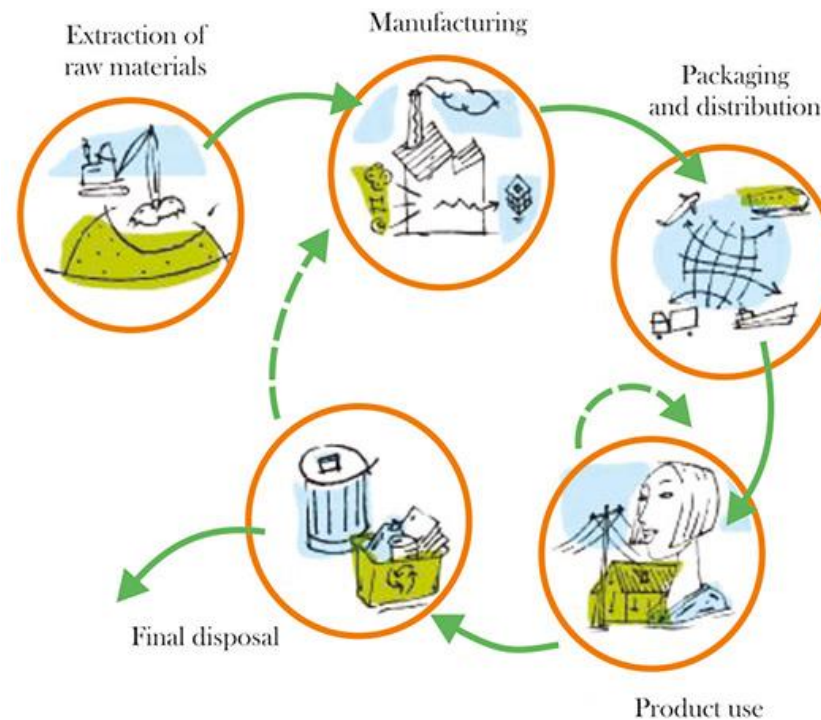
How EPD works



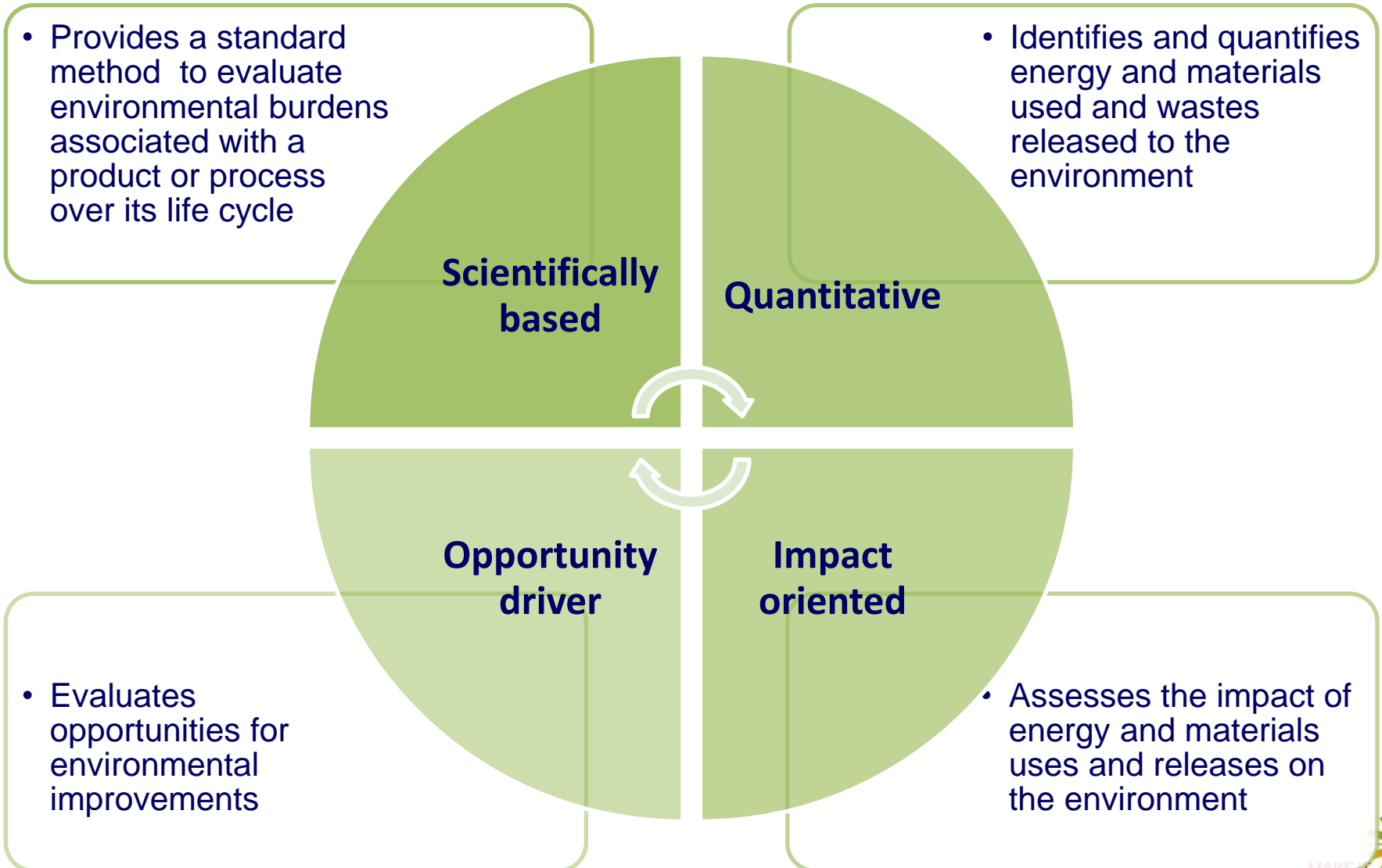
What is the LCA?

LCA (Life Cycle Assessment) – (ISO 14040)

“a compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle”



Why LCA is important?



LCA Framework

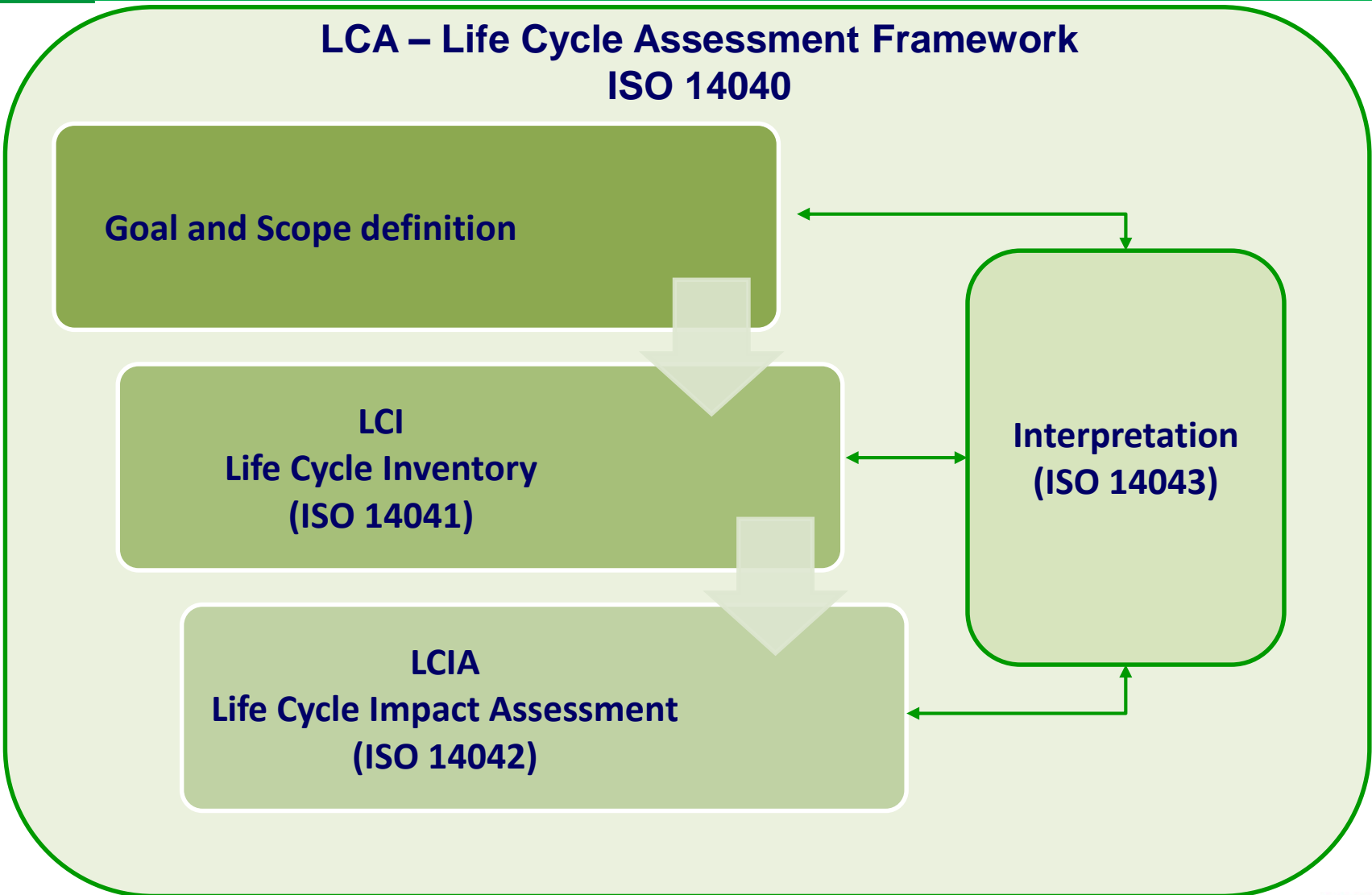
LCA – Life Cycle Assessment Framework ISO 14040

Goal and Scope definition

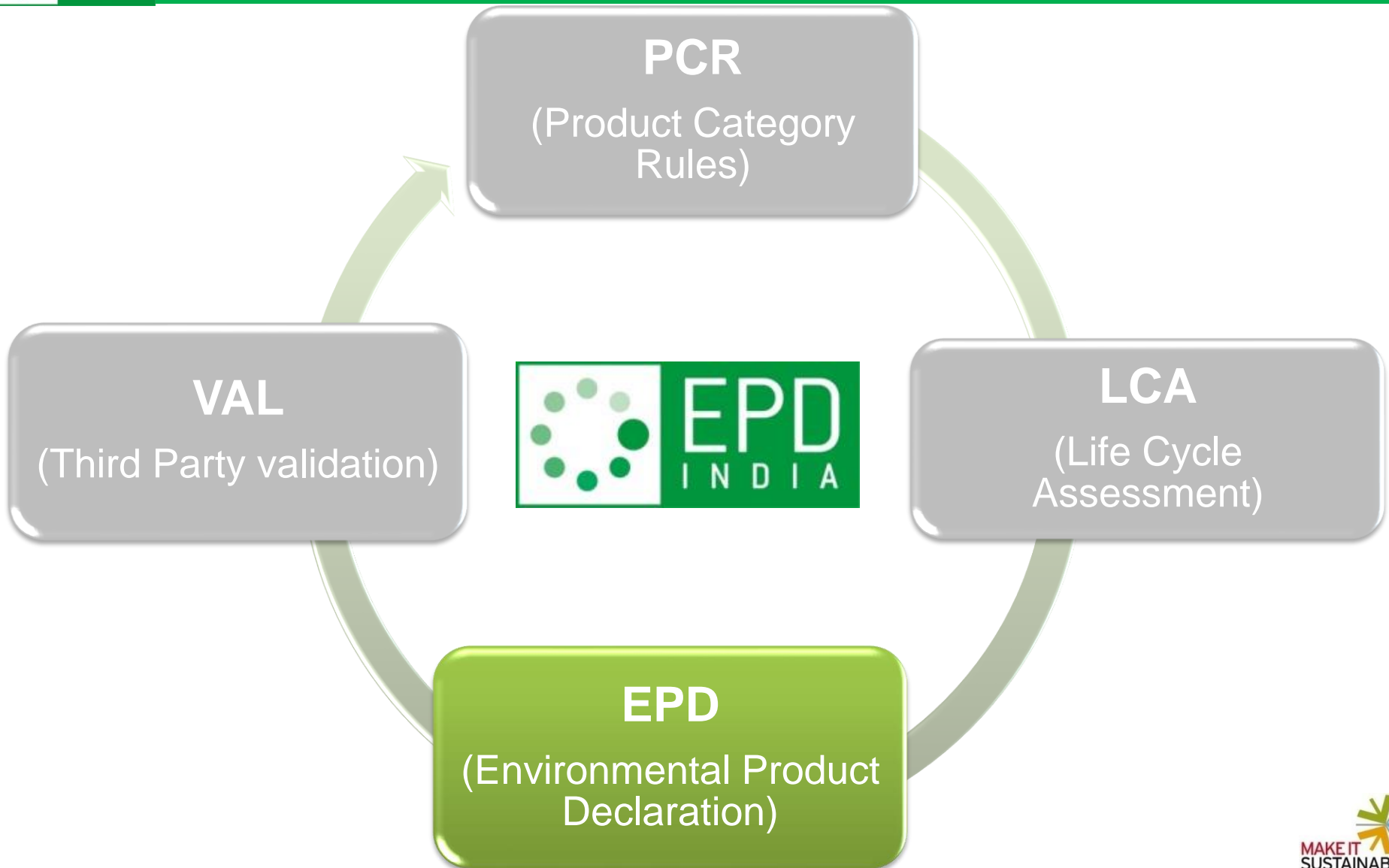
LCI
Life Cycle Inventory
(ISO 14041)

LCIA
Life Cycle Impact Assessment
(ISO 14042)

Interpretation
(ISO 14043)



How EPD works



Environmental Product Declaration

The Type III EPD shall include the following information according to the PCR:

Organization/ Product	<ul style="list-style-type: none"> ➤ Identification and description of the organization making the declaration ➤ Description of product ➤ Product identification (e.g. Model Number)
Program Operator	<ul style="list-style-type: none"> ➤ Name of the scheme and the scheme operator's address, ➤ Logo ➤ website
PCR	<ul style="list-style-type: none"> ➤ PCR identification ➤ Date of publication and period of validity ➤ Data from LCA, LCI or information modules
General Information	<ul style="list-style-type: none"> ➤ Additional environmental information ➤ Content declaration covering materials and substances to be declared ➤ Information on which stages are not considered ➤ Statement that environmental declaration from different programmes may not be comparable ➤ Information on where explanatory material may be obtained ➤ Information about the review process

Environmental Product Declaration

Data from LCI

- Consumption of resources (energy, water, renewable sources, etc.)
- Emissions to air, water and soil

Indicator from LCIA

- Climate change
- Depletion of the stratospheric ozone layer
- Acidification of land and water sources
- Eutrophication
- Formation of photochemical oxidants
- Depletion of fossil energy resources and
- Depletion of mineral resources

Other information

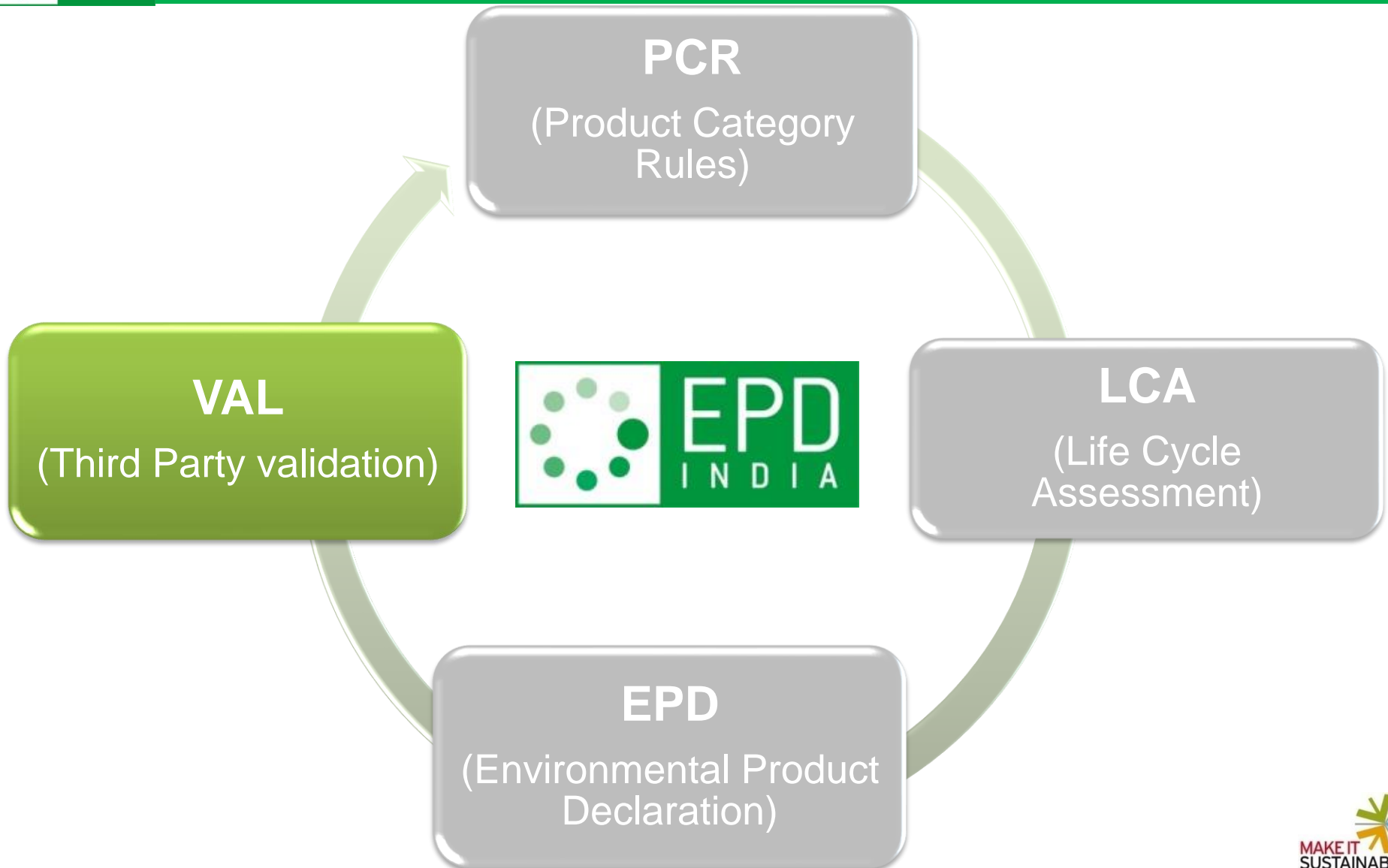
- Quantities and types of waste produced (hazardous and non hazardous)
- Impact(s) and potential impact(s) on biodiversity
- Toxicity related to human health and/or environment
- Geographical aspects relating to any stages of the life cycle

Environmental Product Declaration

Additional environmental information

- Data on product performance, if environmentally significant
- Organization's compliance with EMS with a statement on where interested party may find details of the system
- Any other environmental certification program applied to the product and a statement on where an interested party may find details of the certification programme
- Other environmental activities of the organization, such as recycling or recovery programmes, provided details of these programmes are readily available to the purchaser or user
- Information that is derived from LCA but not communicated in the typical LCI or LCIA based formats
- Instruction and limits for efficient use
- Hazard and risk assessment on human health and the environment
- Information on absence or level of presence of a material in the product that is considered of environmental significance in certain areas
- Preferred waste management option for used products
- Potential for incidents that can have impact(s) on the environment.

How EPD works



Third Party Validation



LCA Verification/Validation

- a) conformance with the PCR
- b) conformance with the ISO 14040
- c) conformance with program rules
- d) coverage, precision, completeness
- e) consistency & reproducibility of data
- f) quality & accuracy of the LCA-based data
- g) quality & accuracy of additional environmental information.
- h) quality & accuracy of the supporting information

Type III EPD verification

- a) ISO 14020 and the relevant requirements of this International Standard
- b) general programme instructions *and* current and relevant PCR

Thank you

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Thank you for your attention

