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Scope of Eco-labelling to Promote Resilient and Sustainable Consumer Choices
A Case of India

Ms. Vaidehi Raut
Department of Economics,
SIES College of Arts, Science & Commerce (Empowered Autonomous), Mumbai – 400022
Email: vaidehir@sies.edu.in

ABSTRACT

Escalating human interventions have resulted in environmental impairment in the past and is projected that it would continue to happen if no steps are taken with immediate effect. The 17 Sustainable Development Goal (SDG) as defined by the United Nations, (SDG 12), one of it focuses on sustainable consumption and production. A potentially promising avenues to achieve this goal is the introduction of Environmentally sustainable labels, also termed as 'Ecolabels'- a tool to inform consumers about the sustainability performance of products and services, right from the production process until the disposal of the product. Eco-labelling is a technical market instrument as guided by the central agency which assists users in making correct choices by certifying and labelling the social environmental impact of purchased products Realising the importance ecolabels to attain sustainable practices as far as consumption and production activities are concerned, this paper aims to understand the future scope of ecolabels in a rapidly developing economy like India. The methodology followed to achieve this objective is the systematic review of the past available research literature in this area following the PRISMA guidelines. It aims to explain the relationship between behavioural biases and ecolabels, further, to reveals prevalent trends, research gaps, and the efficacy of current eco-labelling, current attitudes and knowledge among the consumers with respect to its adoption and how can the policies be redesigned to achieve a continuity in sustainable behaviour. Eventually it investigates into how can India be at par with the international standards, to achieve global uniformity, and the challenges that India might face in the process.

Keywords: *SDG 12, Sustainable consumption, Ecolabels, PRISMA Guidelines*

Introduction

The escalating human interventions has resulted in environmental impairment is the past and is anticipated to continue if no steps are taken with immediate effect. Particularly, the large scale non-biodegradable waste generation is identified as one of the biggest challenge for environment. With respect to the Municipal Solid waste generation, it is projected that by 2050

the global waste would pile up to 3.8 billion tonnes ('City to Sea' Facebook post, 2025). Various steps are taken at national and international level to curb the adverse effects of human activities on the environment. One of the 17 Sustainable Development Goal (SDG) as defined by the United Nations, focuses on sustainable consumption and production and also guides the policies at national and international level to ensure the same. The discussions surfaced about the need to shift the consumption to sustainable products and services, However, one of the key obstacle blocking this shift is the lack of clear and credible information which can aid consumers to assess the sustainability performance of alternative products and services (Girod et al., 2014; Ölander & Thøgersen, 2014, Thøgersen et al., 2024).

One potentially promising aspect to make this shift easy is the introduction of Environmentally sustainable labels, also termed as 'Ecolabels'. Ecolabelling is an increasingly popular tool to inform consumers about the sustainability performance of products and services, which is generally liked by consumers (e.g. Gadema & Oglethorpe, 2011; Schuitema et al., 2020) and, when designed well, used by producers and trusted by consumers, is effective to influence their choices (Majer et al., 2022).(Thøgersen et al., 2024)Eco-labelling is a technical market instrument that assists users in making correct choices by certifying and labelling the social environmental impact of purchased products (Sewwandi & Dinesha, 2022).

The strategic deployment of ecolabels presents a dual advantage, empowering consumers with informed choices via information symmetry and simultaneously benefiting producers. Through such labels the producers are also incentivised for adopting sustainable production practices. A recent review of the factors affecting consumer "green" purchasing behaviour highlights such ecolabels may have potential to change behaviour and increase demand for sustainable products (Joshi & Rahman, 2015)

Despite the growing attention to sustainable practices, few countries have implemented sustainable labels or eco-labels that could address economic, social and/or environmental concerns.(Tiboni-Oschilewski et al., 2024). Ecolabels facilitate sustainable consumption and production, contributing to long-term sustainability goals through their three core objectives: environmental protection, encouraging sustainable product innovation, and consumer engagement. (Potter et al., 2021). This evolution in the pattern of green purchases has pushed

most governments of different nations to actively participate in the establishment and certification of environmental label programs rather than depending on market forces (Zhang et al., 2022).

Realising the importance of ecolabels to attain sustainable practices as far as consumption and production activities are concerned, this paper aims to understand the future scope of ecolabels in a rapidly developing economy like India. Further it investigates the role of 'Eco-Mark 2024' to bring in uniformity in the practices between the nation and those adopted globally and the role of other global partnerships. The paper also discusses about the current challenges faced with respect the technological infrastructure, what credentials should be incorporated in the ecolabels to help achieve information symmetry and there by what shall lead to a smooth and successful implementation of ecolabels in India. As consumer's trust in the label is fundamental for behavioural change (Tiboni-Oschilewski et al., 2024) the role of government also remains critical in this discussion

Literature Review

The global push for sustainable consumption and production, as marked by Sustainable Development Goal 12 (SDG 12), call attention to the importance of consumer choice in supporting environmental care, ecolabels have thus become an essential tool for closing the information gap between producers and consumers with respect to environmentally sound production practises undertaken by the producers. They indicate a product's compliance with certain environmental standards. In this context, the past literature is reviewed as following.

In a paper titled Environmental concern: conceptual and measurement issues, Dunlap et. al. stated that environment is in danger and this degradation of the environment is caused by human activity. And thus, it must be combined with a willingness to contribute towards environmentally sustainable practices. (Dunlap& Jones 2002). In a study conducted by Franzen and Bahr, to understand the relation between the perception of environmental concerns among various individuals from different income groups, it was found that the economic concerns such as of income are often in competition with environmental concerns, and individuals under economic constraints tend to prioritize the former over the latter.(Franzen & Bahr, 2024)

In lieu of the literature focusing on the contribution of individuals as consumers towards environmental change, it is seen to constrain their time, money, opportunities and desires, thus people are rarely seen taking active steps in this direction. At the systemic level, it is found that environmental economics highlights the reciprocal interactions between individuals as consumers and their physical, social, economic, and political environments. Literature which aims to underline these relationships concludes that available infrastructure and public policies shape green behaviours, in turn informing contextual modifications to enable sustainability. (Gkargkavouzi & Halkos, 2024). It was also stated that, the traditional environmental policy largely relies on market-based instruments and technological solutions based on standard economic theory (Cardell, 2022).

In past few decades, Eco-labelling is seen as an important tool which has been adopted worldwide to achieve environmental conservation and environmental sustainability. Eco-labelling is a technical market instrument that assists users in making correct choices by certifying and labelling the social environmental impact of purchased products (Sewwandi & Dinesha, 2022). These labels give an overview of the sustainable practices adopted during the production process and thus any possible environmental impact can be evaluated by the consumer depending upon his/ her knowledge and understanding.

McDonald and Oates in 2006 identified that, in order to understand the implication of ecolabelling in the clothing industry, it was identified that it is difficult to increase the purchase of environment-friendly clothing, as consumers neither find it easy to make such purchase nor understand whether it makes any positive difference for the environment. This poses significant problem for marketers wishing to raise sale of such products. In a similar study conducted by (Goswami, 2008) about the textile ecolabelling in India. It was concluded that eco-labelled clothing do have a potential to create the necessary consumer pressure to ensure a cleaner environment.

Research further states that, product labelling, corrects ‘information asymmetries’ that exist along the value chain, especially between producers and consumers. The inability of consumers to evaluate certain sustainability features before or after purchasing, such as production

methods, increases the value of credence attributes. These features are then transformed into search attributes, often in the form of labels (Tiboni-Oschilewski et al., 2024). To support consumer rights, in case of food labelling fulfils a practical function: it is understood that having such information promotes a change in consumer purchase behaviour. (Cecchini M, Warin L). For producers, labelling policies ensures and stimulates a fair competition (Golan et al., 2001). Similar research conducted by Micu et al. concluded that when retailers highlight eco-labelled products, it escalates the level of competition among the chains, so the chains that are devoted to providing the eco-labelled products gain brand recognition as being sustainable to consumers. (Micu et al., 2018).

A systematic review done by Majer, identified a presence of strong evidence, across diverse labelling schemes and research designs, that sustainability labelling indeed affects consumer perception and behaviour in the intended way (Majer et al., 2022). However, this systematic review could not capture the impact of different kinds of ecolabels on the consumer behaviour. The systematic review conducted by V. Nagar, P. Verma discussed the relationship between eco-labels and green marketing approaches and consumer trust in purchasing choices. It was found that, products that receive eco-labels become more attractive to potential buyers when they are processed less often. Ecolabels were also found to work best when they offered simplified information. Further the paper also highlighted the technical barriers that ecolabelling might face in its deployment and a considerable impact it might have on the consumer price of the products. (Nagar & Verma, 2025)

Research Gap

Though a wealth of research has concluded that, ecolabels do offer a potential and an effective tool to nudge consumer and producer behaviour to promote environmentally sustainable actions, there remain a paucity of comprehensive research about how these environmentally sensitive decisions of consumers and producers can last longer. There is no enough evidence to ensure that these consumers would be classified as ‘loyal consumers’ by the producers, this happens to be important from the producers’ point of view as they must have a continued incentive in the form of loyal consumers to take up the costly sustainable production practices, thus research much also focus on how it can influence the willingness to pay among the consumers in this direction.

Past research has highlighted that, various kinds of ecolabelling practises have been adopted by central agencies world over, however it remains important from the global economics and environment point of view that, there must exist a set of standard norms as far as ecolabeling is concerned. In this context, the study of how India has performed in past few years, the recent steps taken, the potential global partnerships that India can have in order to achieve the global goal of sustainability remains an important area of research.

Objective

This research aims to focus on:

- To synthesize the key theoretical frameworks that explain the relationship between behavioural biases among the consumers which can be resolved using the Eco-labelling framework.
- The paper also aims to review the current status of literature to reveals prevalent trends, and the efficacy of current eco-labelling initiatives in influencing consumer behaviour in India.

Methodology

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure rigor and transparency in the synthesis of literature on eco-labelling in India.

The literature search was carried across online databases including Google Scholar and ResearchGate. The keywords used for the search and identify relevant documents “consumer choices", "eco labels", and "legally implied eco-labels".

A total of 25 studies were screened based on the presence of eco-labelling terms in their titles and abstracts. Studies meeting the inclusion criteria were then selected for full-text review, and others were excluded from the scope of the review. The inclusion and exclusion criteria followed are given in the table below:

Table 1:

Category	Inclusion Criteria	Exclusion Criteria
Study Focus	i) Impact of eco-labelling or green labelling on consumer behaviour ii) Identify consumer behaviour when responding to eco-labels iii) Mention of SDG 12	Studies that did not specifically address eco-labelling or green labelling
Study Design	Empirical studies (quantitative, qualitative, mixed-method research) Peer-reviewed journal articles	Editorials, opinion pieces, letters to the editor, non-peer-reviewed articles
Publication Date	Studies published between 2010 and 2024	Studies published before 2010
Language	Studies published in English	Studies published in languages other than English, unless translated
Availability	Full-text articles available for review	Abstract-only articles or inaccessible full-text

The set of 25 papers reviewed studied by classifying them under the following heads to conduct a thematic analysis of the papers, to identify the wide scope of the past literature on Eco-labels, and thus assess the analogy and evolution. The criterion used for classification of the literature reviewed is as following :

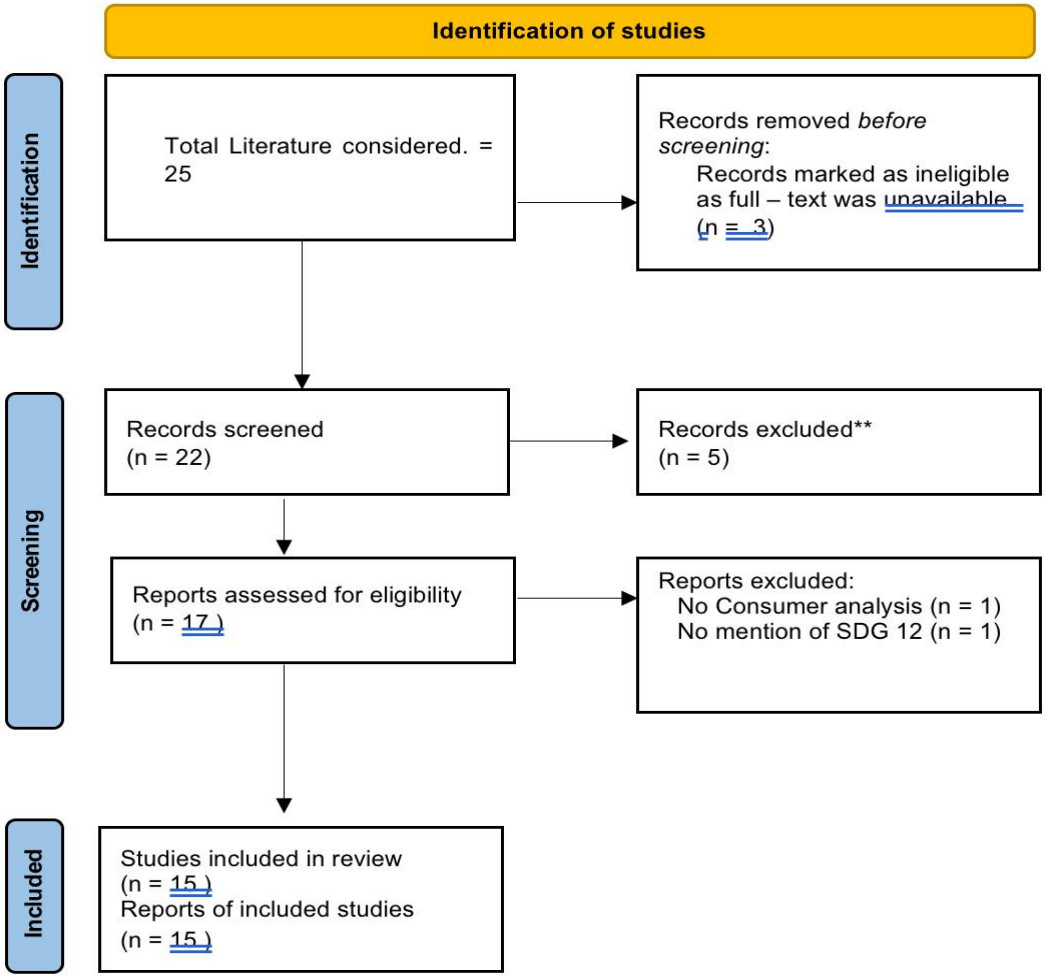
1) Target population: Consumers, Producers, Consumer and Producer
2) Theme of the study: legal implied eco-labels, Behavioural analysis, Climate change, Market Competition
3) Research type: Primary data analysis, Systematic review, Survey, Qualitative analysis
4) Methodology followed
5) Key Ideas and Results

Discussion

After following the exclusion criteria, the past papers which failed to fulfil even one aspect were omitted from the review process. A set of 17 papers were eligible for the study. Two papers were eliminated as it did not meet the conditions in the inclusion criteria and thus total

15 research papers studied in detail for the systematic review (A detailed list of these papers is attached in the appendix in Table 1.) The papers were studied to identify the key ideas contributed on the basis of the objectives of the study. The result of the systematic review is summarized under the three main heads as mentioned in the objective section.

Figure 1: PRISMA Flow chart (as per the guidelines)



Objective 1 : Behavioural biases among consumers.

Out of the 15 papers studied for the review, 8 had an objective mentioned to study the consumer behaviour. The papers which discussed about the behavioural biases, identified that, Individuals tend to give more importance to variables such as price, taste, and individual health than sustainability or environmental impacts prior to the application of eco-labels on these products. Environmental capabilities of eco-label products mediate consumers' tendency to pay for the eco-label. However, only some specific labels which mentioned "Locally produced",

"Sustainable" such simple labels (Binary labels) were found to be more effective. There is a considerable change in the consumption change in the consumer behaviour post application of ecolabels. However, all kinds of labels do not yield the impact with same intensity.

As different eco-labels yield different responses, the effect of the labelling is found to be strong when consumers are exposed to graded sustainability labels with information about the relative performance of all brands as compared to only a positive grade label or a negative grade label. The success of eco-label also depends on the simplicity of their information delivery to consumers. This highlights the ability of individuals to understand what each of the labels stand for and what action is desirable. People with the knowledge of eco-label naturally exhibit better environmental awareness, along with pro-environmental behaviour. It found that, other than the demographic factors, the eco-label knowledge, together with environmental concerns and consumer effectiveness and their related attitudes, serve as fundamental drivers of purchase intention.

An associated benefit of the ecolabel to target the consumption behaviour, where ecolabels are successful (to a certain extent) to extract an environmentally desirable behaviour under the influence of consumer demand and a competitive economic environment, manufacturers are compelled to meet the requirements of voluntary environmental standards and systematically work on improving the environmental characteristics of products, improving technology and modernizing production.

As identified by Gocer and Oflaç in 2017 the actualisation of eco-labelling schemes can assist in creating the necessary economic conditions for green economic development in outlined economic communities as it can nudge a desirable behaviour from the community, if used rightly.

Objective 2: Current eco-labelling Trends and initiatives in influencing consumer behaviour in India and future scope. In the past few decades, ‘Ecolabeling’ activities are gaining popularity, besides responsible production and consumption. The current state from the point of the producer’s behaviour, it can be said that price is only the third important factor influencing the buyer's choice. That is, as per the buyer's ideas, today it is the composition of

the product that can provide the consumer with the most reliable information about the quality of the selected product.

Indian companies like Reliance Industries Ltd., Arvind Mills, Alok Industries, Rajasthan Spinning and Weaving Mills, Tirupur Exporters' Association, and Gujarat Garment Manufacturers' Association are producing eco-friendly textiles for both export and domestic use (Mehta, 2008). Because green options can be costly, consumers are likely to trust manufacturers' claims about environmental friendliness only if these claims are supported by third-party certifications. D'Souza et al. (2007) highlighted this point, arguing that environmental labels gain credibility when backed by independent experts.

Given the current trends about the ecolabels which exist in India, it highlights the presence of strong institutional framework is imperative, which can compel the producers to revel the negative aspects of the products, leading to informed decisions on part of the producers.

To raise awareness, the Ministry of Environment and Forests launched a scheme in 1991 for labelling eco-friendly products (Challa, 2008). This initiative aims to identify products made, used, or disposed of in ways that significantly lessen their environmental impact, featuring the Earthen Pot as its logo. The Government of India has also developed voluntary eco standards for labelling textile items and established criteria for environmentally friendly textiles in consultation with the Indian Textile Trade and Industry, as announced in the Gazette on October 8, 1996, by the Ministry of Environment and Forests (3TS, 2008). While eco-labelling is becoming more popular in other countries, the efforts made by the Government of India are still awaiting a breakthrough (Chaturvedi and Nagpal, 2003).

Currently, eco-labels are a matter of great concern for the governments of the developing world, due to their location of origin (industrialised countries) and their potential discriminatory effects. Thus, the role of government in implementation of ecolabels remain important as it has an economy wide impact especially in a country like India, where government is looked upon to be a comparatively credible authority.

India, can thus consider ecolabels as one of the solution to materialise its desired success with respect to the achievement of SDG 12, but there still remain certain areas where India as a developing country must make certain improvements, especially to ensure how can India be at par with the international standards and Potential. The solution to this partially lies in Partnerships with the advanced economies. The developing countries like India must decide on the following when complying to international standards of ecolabelling: Domestic Bias: labelling standards sometimes ignore environmentally friendly alternatives available in developing countries such as natural dyes. Thus, the foremost step towards eliminating domestic bias is to increase transparency as much as possible during the eco-labelling process. Transparency contributes to the national and international credibility and acceptance of eco-labelling programmes.

Secondly, Regional conditions: In order for eco-labels to be effective in a global economy, eco-labelling criteria related to the various processing stages would have to take the regional variations in environmental priorities into consideration.

Limitations

The systematic review provides an overview of how the part literature about ecolabels as tool to yield an environmentally desirable consumer behaviour. However, there certain limitation which must be mentioned. As the research paper considered for the review primarily highlighted only full- text papers which were freely available on the open web only those papers which focused on the positive implication of ecolabels and no critical analysis was considered. This highlights the limitation of the search strategy. As publication were restricted only to English language other studies especially in the regional languages which gives the impact at the local levels were out of the domain of the review.

Conclusion

This systematic review of past literature deals with the aspect of consumer behaviour in ascertaining the success of eco-labels as a policy tool and also highlights the current trends and the future scope of ecolabels in a country like India. The early literature which focused only on the impact of demographic factors on the impact of ecolabels, is now experiencing a divergence towards the understanding of the consumer behaviour, the behavioural biases and how the

consumers can be nudged towards a desirable policy response by rightly using the ecolabels. The systematic review conducted, identified that in the past few years the application of ecolabels as a policy tool is gaining importance only marginally leaving enough scope to target ecolabels as a policy with a broader scope. In order to achieve this, the systematic literature helps to identify that, it is not merely the 'framing' of the labels which is sufficient, but a need of the creditable authority to back these labels also remain equally important. This is true especially in a developing country like India, as producers should not only introduce products with eco-labels, but also, it is necessary to guarantee the reliability of information provided through such labels, which is why it is essential to focus on government regulation in this aspect (Kumar et al., 2021).

As identified by Thaler and Sunstien, any kind of nudge may yield a desirable response if it is 'easy' for the people to adapt to. He also identified that nudges of any kind may remain only short lived or yield a desirable response only for a limited duration. The challenge lies in finding out 'how to ensure that this nudge lasts long enough and continue to lead a substantial and positive impact on the environment and also incentives the producers to take up a standard ecolabelling practice?'

This gives a starting point for dedicated research in this area, aiming to identify a set of parameters which can sustain the impact of nudges especially in the case of environmental aspects where the action needed is ubiquitous, urgent, uninterrupted and long term in nature.

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