

Transforming Appliance Markets in India: Consumer Research Leads the Way

*Linda Dethman, Dethman & Tangora, LLC
Indira Unninayar, Taylor Nelson Sofres Mode
Mark Tribble, International Resources Group*

ABSTRACT

This paper describes how consumer research helped integrate consumer preferences with technical and political agendas to develop an appliance efficiency label for India. Countries around the world, including the United States, have often let other considerations interfere with consumer appeal and understanding. India has so far proved an exception. While standards development was stalled due to infrastructure and political reasons, the U.S. Agency for International Development/India (USAID/India) sponsored efforts to develop an appliance efficiency label based upon consumer preferences. Then, other stakeholders, such as government agencies and appliance industry representatives, were asked to honor these consumer preferences when providing their input. This has allowed the consumer to become the rallying point for label development.

To understand India's diverse consumers, and to develop an effective visual aid (the label) for consumers, USAID/India sponsored a three phase, two year consumer research project. Both the methods used and research results provide insights for every government interested in developing effective appliance labels.

Overview

Inadequate and inefficient power supply characterize India's power sector. Peak capacity and power shortages are large (around 20% and 15% respectively) and transmission and distribution (T&D) losses are substantial. T&D investments have lagged behind those in generation, resulting in an under-performing distribution network. Studies show that at least 1-2% of national GDP is lost due to poor quality or unavailable power. Demand side inefficiencies exacerbate the problem. USAID/India, under its bilateral agreement with Government of India, thus initiated efforts to help develop energy labels and to revise standards for household appliances. (Tandon 2000)

Most urban households in India do not yet have major appliances and our research revealed consumers have little experience with appliance efficiency. Yet several factors suggested it was time to develop an appliance labeling program in India, including:

- The number of appliances is large and growing. For instance, refrigerator penetration grew from 23% of urban households in 1997 to 28% in 1999 (Nelson Taylor Sofres Mode 1999).
- Efficiency levels of appliances vary widely and consumers have no way of determining appliance efficiency.

- Although consumers do not relate energy efficiency to appliance purchases, energy issues, including how to save electricity, its cost, the frequency of power outages, and air pollution were of high concern to many.
- Consumers said they would pay more for energy efficient appliances if it would lower their bills, and reduce power outages and air pollution.
- Consumers said they wanted ways to identify high quality, reliable appliances and associated – rightly or wrongly – a product labeled as energy efficient with a higher quality product.
- Consumers were receptive to appliance efficiency labels, would trust them, and rated them as very important.

However, as evidenced by a recent labeling and standards guidebook (Wiel and McMahon 2000), to be successful, energy labeling programs must consider a complex melange of political, technical, and consumer issues. At the heart of those issues, and of this paper, is how to effectively convey informative, comparative, and motivational information, through a label, to consumers.

duPont (1998) has suggested that technical completeness, instead of consumer insights and the tenets of sound visual design, have often driven label design. His research revealed that many consumers did not understand various aspects of the old U.S. EnergyGuide label (see below). For instance, they had problems interpreting the sliding scale and its end points, and understanding that the dollar figure represented annual savings rather than operating costs.

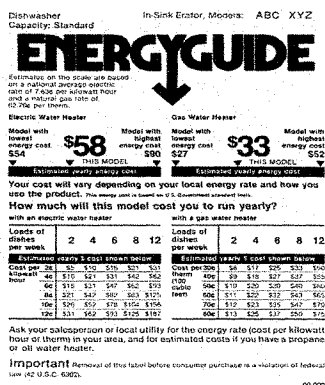


Figure 1: Original U.S. EnergyGuide Label for Dishwashers

This technical bent likely springs from the usual emphasis in developing standards and labeling programs: standards and testing first, labels second. The standards and testing process generates a huge amount of technical debate and information that is difficult to give up when it's time to develop the label. However, in India, at the time of this project, standards and testing were somewhat stilled due to infrastructure and political reasons. Thus, instead of stopping labeling program efforts, USAID/India decided to pursue label development, using extensive consumer research, coupled with the visual insights of an experienced graphic artist.

USAID/India's contractors, the International Resources Group (IRG) and Taylor Nelson Sofres Mode, a research firm in India, carried out research in three interrelated phases. This paper presents the story of how this sequence of research allowed a final label

design to be chosen that is supported by consumer research, sound visual principles, and government and industry stakeholders.

Phase I – Baseline Survey

Phase I research set the stage for many decisions that followed, including whether or not the label development should proceed. In all, we conducted 1,833 in-home interviews with urban consumers in New Delhi, Mumbai (Bombay), Chennai (Madras), Calcutta, Bangalore, and Ahmedabad, to:

- Gather information about the existing appliance stock
- Understand how consumers choose appliances and the role energy efficiency plays
- Pre-test the receptivity of consumers to the concept of efficiency labels

Households were screened for owning a refrigerator, geyser (water heater), and/or air conditioner. Interviews were conducted during December 1997 and January 1998. This sample size carries a +/- 2% margin of error in 95 samples out of 100.

Key Findings and Program Implications

- It was during the pretesting and revision process for this survey that we first documented that consumers typically used the term “power” instead of “energy.” This preference became more pronounced during subsequent research. (To accommodate the U.S. audience, in this paper we will use the term energy unless it interferes with the interpretation of findings.) **Implication:** Labeling programs need to discover and use the terms consumers are familiar with.
- Refrigerator ownership was much higher than that of geysers or air conditioners. Three national brands claimed 65% of the refrigerator market. On the other hand, air conditioners and geysers were often “assembled” from component parts, by small manufacturers, without brands or any obvious standards. **Implication:** Refrigerators, due to penetration and national brand dominance, would be the best appliance for initial standards and labeling.
- Members of the middle and upper socioeconomic classes dominate appliance buying. **Implication:** Those who buy appliances could be reached through a labeling regime.
- Husbands and wives often shop for appliances together (47%) – she attending to features, he to the price and economics. **Implication:** The label design needed to appeal to both men and women.
- When respondents were asked to name the three most important factors in buying each type of appliance, “brand” was, by far, the single most important factor. Consumers also considered capacity, reliability, features, and price very important. Only 3% mentioned energy efficiency. When specifically asked, most rated energy efficiency as “very important” (87%) and they were also very concerned about saving energy, reducing energy costs, power cuts, and air pollution. Most said they would pay more for energy efficient appliances if they were repaid through lower bills, better power, and less pollution. **Implication:** To be effective, a strong marketing and information campaign would need to be coupled with the labeling program.

- Purchasers trusted manufacturers and friends the most for appliance information, followed by advertising and consumer groups. Salespeople were not cited as sources. **Implication:** The support and involvement of manufacturers will be key to program success, and positive word of mouth is essential. The reasons for not relying on appliance salespeople need to be better understood and addressed.
- Most consumers (94%) understood the meaning of sample appliance labels using a star rating system, could select the one that indicated higher efficiency (84%), said they would use the label information when buying an appliance (70%), and welcomed efficiency labels (79%). **Implication:** Initial marketplace reactions favored an appliance labeling regime.

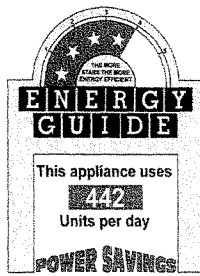
Phase II - Consumer Focus Groups

The goal of this phase of research was to develop understandable, appealing, and persuasive labels to reach Indian consumers. Although Phase I had encouraged us to continue label development, we had little guidance for label designs consumers would prefer. At first, the possibilities seemed endless. To winnow the possibilities, we:

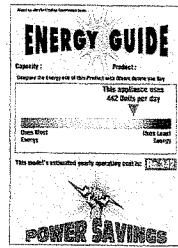
- Reviewed the design, content, and, to the extent available, the effectiveness of comparative labels, from the U.S., Europe, and Asia. This review revealed much variation in look and configuration, but offered some basic types of rating scales, suggested some common and variable elements, as well as some pros and cons of label design (duPont, 1998, Harrington, 1998a, 1998b, Waide, 1998).
- Developed prototype labels with an Indian graphic artist.
- Conducted interviews with 8 consumers to identify obvious label set problems.
- Revised the label set, resulting in 17 labels to be used in focus groups. As Table 1 and Figure 2 show, the final label set kept a few items static and varied the overall design, rating scale design, and other content.

Table 1: Static and Varied Elements in India’s Appliance Label Design Research

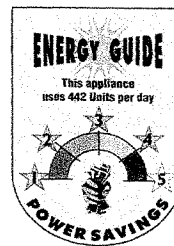
Elements In Common	Varied Elements
The terms: “Energy Guide” “Power Savings”	Overall Design , including shape of the label; typography; and arrangement of elements on the page. The two main color approaches were yellow/black and the colors of the Indian flag.
The energy consumption statement: (“This Appliance uses 442 units per day”)	Rating Scale Design , including the type of rating graphic (Stars; stars with numbers; sliding bar; and multiple stacked bars) and whether/how the end points of the scale were identified
	Other Content , including symbols and statements (e.g., fist holding a coin; “Based on standard Indian government tests”)



Label C



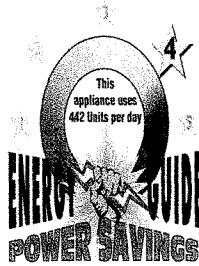
Label O



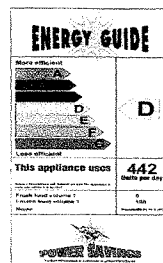
Label A



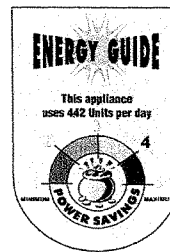
Label B



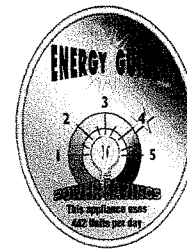
Label M



Label P



Label E



Label I

Figure 2: Key Labels (of 17 Label Designs) Used in the Focus Groups

Ten focus groups, each with 8-10 participants, were conducted by a trained facilitator in three major metropolitan areas: New Delhi, Mumbai, and Chennai. As in Phase I, participants were all appliance owners. The groups were separated by gender to detect any large preference differences. Overall, participants were guided in a discussion about energy terms, appliance buying, and the understandability, appeal, and persuasiveness of the 17 label choices. The facilitator spoke the language most common to the participants in each group, presented multiple visual stimuli, and had each group participate in “building” their own preferred label.

Participants first looked at three pairs of labels. The two labels in each pair were identical except they differed by the level of efficiency shown on the rating scale (e.g., one versus four stars) and by the consumption levels. However, each pair was different in terms of shape, color, symbols, etc. In addition to discussing their impressions of the labels, participants were asked to choose the one from each pair with the highest efficiency rating. Then, they sorted the pairs into three piles: good, so-so, and poor.

Each group then saw between 8 and 12 other single labels (some were abandoned early one due to being universally disliked) that had the same efficiency ratings and consumption levels, but which varied considerably by design elements. Again, they discussed their impressions of the labels and sorted them into the three piles.

Finally, each focus group was asked to “construct their own favorite label” from the individual label elements, which turned out to be the most powerful tool of the meetings because participants were given control over the label elements. The facilitator brought out a large board with paper cutouts of the elements from all the labels attached. The groups then worked together, physically arranging and rearranging pieces on the board, until they

constructed their first and second choice combinations. Groups were allowed to have majority and minority opinions.

Key Findings and Program Implications – Understanding of “Energy” and “Efficiency”

- Consistent with Phase I findings, consumers use “power” or “current” to mean electricity but not “energy.” **Implication:** Avoid using the term “energy;” combine “Energy Guide” and “Power Savings” into one term: “Power Savings Guide.”
- Consumers do not understand the term “efficiency” and do not generally associate “efficiency” with appliances. Most consumers, however, understood the term “power savings” and sometimes extended that to mean effective performance (perhaps incorrectly). In addition, most groups spontaneously mentioned the ISI mark (a government quality mark) and equated it with quality assurance from the government. **Implication:** Policy makers need to discuss the consequences of consumers connecting government sponsored appliance efficiency ratings with higher performance or quality. What happens if the appliance is not higher quality in other regards? How does these affect manufacturers? If this is not an appropriate or desirable connection, what should be done?
- Consumers tried to connect efficiency with concepts they knew about, such as comparing the lower wattage of “tube” lights to incandescent lights, or the lower gear on a scooter using more gas than higher gears. **Implication:** These types of “cultural” anecdotes could be useful for information and marketing campaigns.
- Most consumers track consumption through the speed of meters ticking and through bill changes when appliances are added or used more. (In this regard, some participants suggested sub-metering as a way to help them understand their power consumption.) **Implication:** As with the anecdotes above, these tracking methods could be used in public information/marketing efforts.

Key Findings and Program Implications – Appliance Buying Criteria

- Again, consistent with Phase I, brand name was the most important buying criterion. Participants were loyal to certain brands and associated the brand of their choice with quality standards and components (e.g., compressors), saying a brand was like having an “insurance policy.” Some thought branded appliances used less power than assembled appliances. **Implication:** The strength of brand is unlikely to be overcome by any efficiency label; thus, it will be extremely important to get top brands to buy into the labeling system. Still, experience in other countries has shown labels can have a strong effect on manufacturer behavior (Wiel and McMahon 2000).
- Consumers said they pay attention to brands offering different exchange or buying schemes. **Implication:** The labeling regime can be incorporated into the advertising for such schemes.
- Other important buying criteria included price, performance, reliability, durability, guarantee, warranty, and after purchase service. **Implication:** Again, how to separate efficiency from these other criteria requires policy level discussions.
- Energy efficiency was rarely important in buying appliances, but respondents were aware some appliances consumed more than others and, when prompted, said it was important. Respondents said it was important to have efficient appliances to save

power; save money; keep power from tripping off; to use more items for the same amount of power; and to help the nation (this was not routinely mentioned).
Implication: The “pull” of efficiency needs to be tied to these benefits.

Key Findings and Implications – Label Preferences (see labels above)

Overall, strong consensus emerged when the groups sorted their label piles into good, so-so, and poor groups, and when they constructed their own preferred labels. The results of these exercises are reflected in the findings below. Please refer to Figure 2 for graphics of the label designs.

- **Understandability:** 8 of 10 groups chose Label C with the star rating scale as the most understandable label. Two groups chose Label O with the sliding scale. Participants said the key to understanding each label was the clear explanation of how the scale worked: “the more stars the more energy efficient,” or “uses most energy, uses least energy.” If the scale was not explained (e.g., Labels A and B), or not clearly explained (e.g., Label P), participants rated it as less understandable. Consumers found the stacked bars of Label P confusing. **Implication:** Both the star and sliding scale rating designs should be further explored, although the star scale is the strongest candidate. Any scale needs a clear explanation.
- **Appeal:** Participants found Labels A and B attractive, but as described above, they were not the most understandable since they didn’t explain how the scale worked. Labels C and O were seen as somewhat less attractive but acceptable. In the label building effort, participants made “appeal” improvements on Labels C and O. Some groups liked the “action movie poster style” of Label M, but others rejected it. **Implication:** The final label set should rely on the group built designs.
- **Persuasiveness:** Some participants noted persuasive associations with stars, such as “five star hotels” and stars given for good work in school. **Implication:** This reinforces the star scale as the preferred rating scale approach.
- **Consumers also preferred:**
 - All stars being illuminated (up to the highest), rather than just the “highest” star (compare Labels A and E).
 - A direct relationship, not an inverse one, between the rating and savings statement (e.g., more stars, more savings,” not “more stars, less consumption.”)
 - Units/hour rather than units/per day for appliances not operating 24 hours/day
 - The fist of money over the pot of gold, which was seen as old fashioned
 - The “standard tests” statement (“Based on standard Indian Government tests”)
 - The estimated cost of operating the appliance on a yearly basis
- **Consumers rejected:**
 - The upside down triangle (Label O) because it suggested a family planning symbol
 - The light bulb in Label I (no one liked it)
 - The triangle shape in Label B (although B otherwise appealed)
- **Consumers liked, but didn’t include in the final cut of elements:**
 - The sun (usually seen behind the words “Energy Guide”)
 - The sun cupped by two hands, symbolizing the “power is under your control”
 - The lightning bolt in hand (again, controlling power)

- Preferences which needed more clarification included:
 - Color - many, but not all, liked the red/yellow combination of “C”, but some preferred the “tri-color” theme. Some saw “red” as a stop color and “green” as a go or environmentally favorable color.
 - Typography – some liked the “action movie” bold approach, others didn’t.
 - Shape – some liked the “meter” (C), some the U shape, some the rectangle.

Phase III – Expert Check-In and Final Consumer Research

Based upon all the research to date, the research team worked with the graphic artist to develop the draft “final four” labels. We depended on the results of the Phase II research, but also made some judgment calls to narrow the field. The label set, shown below, uses the two consumer preferred scale designs, shapes, and central symbols; the most strongly preferred color scheme; and the new “Power Savings Guide” title. Phase III used a focus group with experts, followed by quantitative survey research with consumers, to:

- Factor the opinions and preferences of key government and appliance industry experts into the label development process. This was essential to the “political” acceptance of the final label.
- Select the **single best** of the final four labels, using consumer ratings of their appeal, comprehensibility, and persuasiveness.

Expert Check-In

In February 1999, government and appliance industry experts participated in a focus group to review the four “draft” appliance labels (see below) before conducting the last phase of consumer research. Many of these experts had been regularly involved in and informed about prior phases of the research, were developing other aspects of the standards and labeling programs, and would be central to ensuring the success of an appliance labeling program. However, they hadn’t necessarily been at the same table to discuss labeling issues. During the session these experts were asked to comment on the strengths and weaknesses of the draft “final four” label options.

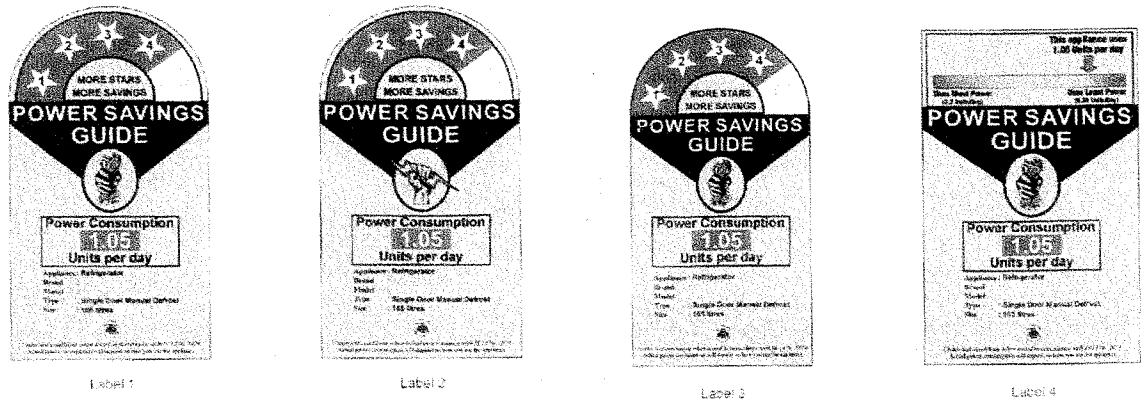


Figure 3: Draft “Final Four” Label Options Presented to Expert Review Panel

A trained facilitator led the group. While participants were told their expertise was crucial to the success of the labels, and that all viewpoints were welcome, they were reminded that it was important to remain faithful to the preferences and needs of consumers. At the same time, they were told we would try to accommodate the testing of some new elements if they felt it was needed. They were also told their role was not to “decide” on a final label design but to advise on the label set for the final phase of research. The strong findings from consumer research proved to be a powerful force against political and technical whims in this discussion. Still, the expert panel urged that:

- All labels should be changed to a blue and green color scheme, to better connect energy efficiency with the environment. The consumers preferred four labels with a yellow/black/red color scheme, even though other colors had been presented; however, a pure blue/green scheme had not been tested.
- The lightning bolt symbol should not be used because it seemed aggressive and highlighted consumption rather than conserving. Some panel members also felt the Bureau of Indian Standards “conservation” symbol (hands cupping the sun) should be substituted for the fist with currency, since it would better communicate conservation and avoid any connotations of “greediness.”
- A back up to the star rating scale should be developed. This reflected a minority concern from some manufacturers that consumers might confuse the star scale with the ISO “snowflake” labels in refrigerators that indicate freezing/chilling time.
- The expert group also devised a “dial” rating scale design that they liked better than the star rating, because it could show clear low and high end-points. (Such a design had not been previously tested with consumers). The panel did not recommend changing to the scale because they felt the dial was more difficult to understand.

Final Consumer Research

For the final research with consumers, we wanted to further test label choices that reflected top consumer preferences, but we also wanted to accommodate some of the expert panel recommendations. The following label set saved what consumers said they liked best (the upside down U-shape, the star scale, the fist of currency) and tried out expert panel suggestions: the blue and green color scheme, a dial rating scale, a diamond rating scale (an alternative to stars), and the hands cupping the sun as a central symbol.

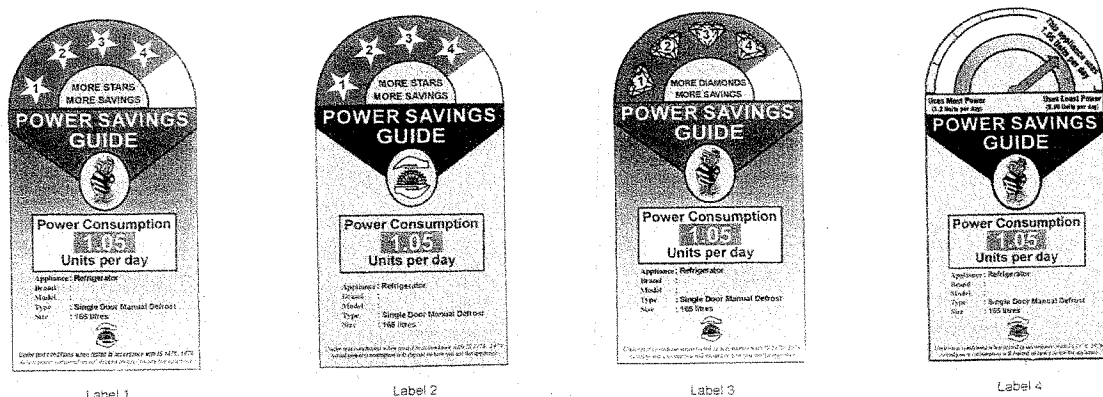


Figure 4: Final Four Labels Tested With Consumers

In March 1999 we conducted consumer research to further refine the labels. We recruited consumers who were refrigerator owners and brought them to a central “in-hall” location in New Delhi, Mumbai, Chennai, and Bangalore. To create a more realistic buying context, and to reduce the influence of brand, consumers viewed the labels attached to the front of the most common brand and size of refrigerator in India.

Each respondent evaluated only one of the four prototype labels, creating four panels of consumers, with about 160 in each panel, spread across the four cities. In all, 673 consumers participated in detailed interviews to assess three label dimensions: their **appeal**, their **comprehensibility**, and their **persuasiveness**. The research proceeded through four steps:

1. **First Impressions of Content and Appeal.** Respondents were asked a series of questions to gauge first impressions of a single label, displayed on one of two refrigerators in a room, including what they liked and disliked and its overall appeal.
2. **Overall Understandability.** Respondents then went to a second room, again with two refrigerators; each one had a label of the same design but with different efficiency ratings. Respondents answered questions about the meaning of the label.
3. **Evaluation of Specific Label Elements.** These questions asked respondents to evaluate the appeal and understandability of key label elements.
4. **Persuasiveness of the Label.** The final questions about the labels asked respondents to rate how useful the label would be in helping them buy a refrigerator and why.

Key Findings and Implications – Did Consumers Notice Key Label Elements?

- Overall, without prompting, the majority noticed the appliance specifications, the power consumption box, and the term “Power Savings Guide.” **Implication:** While these elements will need reinforcing through other communication channels, they appear grab consumer interest and focus it on the relevant topic.
- A third mentioned the comparative phrases (e.g., “More Stars, More Savings”) that link consumers to the rating scheme. **Implication:** It’s likely that through preparation and reinforcement, consumers can be trained to connect the star or diamond symbol to consumption and savings ideas.
- Consumers noticed the dial rating using “Uses Least Power/Uses More Power” much less often. **Implication:** The dial rating design is likely to be less effective for capturing customer attention.
- Fewer consumers noted the phrase “Actual power consumption will depend on how you use the appliance.” Consumers did not comment on the symbols of the fist holding currency or hands cupping the sun. **Implication:** These elements are less central to label use, but they are important; they will need ancillary reinforcement.

Key Findings and Implications – Did Consumers Find the Labels Appealing?

- Consumers found all four labels highly appealing overall, with average ratings over 4.0 on a 5-point scale. They were able to cite elements they especially liked and had few complaints. **Implication:** At the overall rating level, any of the four labels would likely work. To choose the best label, individual label components needed to be examined more thoroughly.

- While the overall appeal of the labels was similar, consumers strongly preferred the green and blue colors over the yellow-black color combination. **Implication:** The newly introduced color scheme should be used in the final label.
- Although consumers liked all three rating scales (stars, diamonds, dial) almost equally, they strongly preferred stars in the largest metropolitan areas of New Delhi and Mumbai, while respondents in Chennai preferred the dial. Consumers who preferred stars (and diamonds) said they were attractive and easy to see at a glance, while the dial garnered significantly fewer of these comments. **Implication:** Since the greatest appliance consumption is in New Delhi and Mumbai, the stars rating system is the most likely candidate.

Key Findings and Implications – Did Consumers Understand the Labels?

- Almost all consumers understood that the labels compared energy consumption between the two refrigerators. When asked to choose which of two identical refrigerators they would buy, where one had a higher energy savings rating (4 stars), and one had a lower savings rating (1 star), over 90% chose the label that indicated lower energy consumption. **Implication:** If consumers see side-by-side labels on appliances, it may encourage them to choose the one that uses less energy.
- When asked to choose the best rating when looking at the entire range of ratings (e.g., from 1 star to five stars), consumers more accurately understood the star and diamond ratings than the dial rating. **Implication:** Once again, the star/diamond type of scale communicated better than the dial and should be used.
- The fist holding currency suggested energy and money savings for many consumers, while the hands cupping the sun was not as well understood. **Implication:** The fist holding money should be the central symbol.
- Consumers more often connected the star and diamond rating scales to broader benefits, including energy savings and money savings, while they tended to see the dial rating scale more narrowly (as an indicator of energy consumption). **Implication:** The wider connections promise the label will be more persuasive for consumers.

Key Findings and Implications – Did Consumers Find the Labels Persuasive?

- Consumers found all four labels are equally and highly persuasive, saying they would use them as roadmaps to compare power consumption among appliances. They also said they would rather buy a refrigerator with a label than without one (note: if a voluntary label program is implemented, as currently planned, not all appliance models may be labeled). **Implication:** The final label design will depend more upon the ratings for appeal and understandability than on the ratings for persuasiveness.

Conclusions

The research process for the Indian label development produced four labels that consumers found almost equally and highly appealing, understandable, and persuasive.

Along the way we had learned a good deal about how consumers consider energy efficiency, how they buy appliances, and how they respond to the various ways that complex data can be transformed into an appliance label. Clearly, consumers found some of those ways more friendly, communicative, and visually appealing than others. The data show the final four labels drew “the viewer’s attention to the sense and substance of the data, not to something else. (Tufte 1990)”

We also learned that others who influence the labeling process – government and industry experts – can be rallied to the cause and perspective of consumers despite their own preferences, as long as good consumer research exists. We had begun with little consumer insight and many options. Consumers showed us what they preferred and narrowed the choices to a simple label with strong central elements, easy connections between the elements, and minimal distractions.

Through the back door we believe we met some of Tufte’s criteria for visual quality in displaying statistical information, including “having a properly chosen format and design; using words, numbers and drawing together; reflecting a sense of relevant scale; displaying an accessible complexity of detail, [having] a story to tell about the data; [drawing] in a professional manner; and avoid[ing] content free decoration. (Tufte 1983, 177).

We were now at the point of choosing one label design among four good ones. Three consumer insights guided us to recommend one final label design:

- Consumers and government/industry experts found the green and blue color combination more appealing than the yellow/black/red combination.
- Consumers understood the stars and diamonds rating system better than the dial and found them more appealing from a distance. Earlier research revealed that consumers associated the 5-star rating positively with other 5-star ratings for hotel quality and performance on exams.
- Consumers understood the fist of currency better than hands cupping the sun.

Based upon these factors, we recommended:

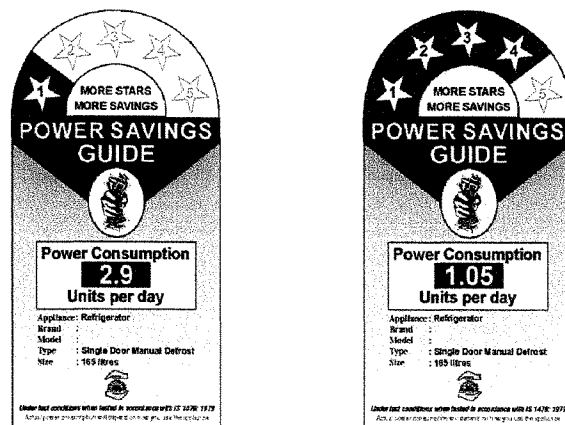


Figure 5: Recommended Label = Stars + Fist w/Currency + Green/Blue Color

However, if there were any difficulty with using the star symbols for the ratings, a close and acceptable alternative would be an identical label that uses diamonds instead of stars.

In observing the participants during the final phase of research, some label elements clearly had more impact, or were more immediately understood, than others. Consumers grasped the full meaning of the label gradually, as they progressed through the interview and as we directed their attention to specific label elements. This “over time” learning process suggests that labels will be much less effective unless consumers are encouraged to look for labels and are prepared for how to use them.

Thus, it will be extremely important to develop and implement a strong marketing and public information campaign to support the appliance efficiency labeling program before, during, and after its launch. This will greatly increase awareness, understanding, and use of the label.

The research undertaken to date has been an important step in any appliance labeling program: that is, to identify an effective label that is agreeable to both consumers and government and industry experts. However, experience elsewhere has shown that developing such a label, while essential to the success of a labeling program, is only one step in the process. Two types of research will help ensure the labeling program will succeed in reaching consumers and affecting their buying decisions.

1. **Research to develop an effective marketing and public information campaign.** This type of research would typically include message and format testing before the launch as well as tracking research to gauge the campaign’s impact on awareness, understanding, motivations, and buying behavior.
2. **Research to evaluate whether the labels are actually being noticed and used and if they are influencing buying decisions.** This type of research would include interviews with consumers who are or have been in the market for appliances to see if and how they used the label information. The perspectives of retailers and manufacturers would also be important to gather.

Overall, this study showed us the complexity and challenge of developing strong, effective visual images to convey technical information about appliance efficiency to consumers. We found it challenging, combining both quantitative and qualitative perspectives and a variety of disciplines. We hope this research has pointed out methods and insights that will be useful to others in determining that right intersection among many influences: consumer preference, government responsibility, manufacturer concerns, visual guidelines, and technical information.

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