

# LABELING DESIGN EFFORT IN INDIA: LESSONS LEARNED

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## 1. INTRODUCTION

Confronted as we are with the climate change and global warming phenomenon, an unfettered expansion of the energy supply base to meet the rising demand for energy is no longer feasible. Energy Efficiency is not only an environmentally benign option to meet the rising energy demand, but is also a more economic option.<sup>1</sup> Governments the world over have generally relied on the following policy instruments to enhance energy efficiency in their respective economies.

- Energy pricing and tariff structures
- Fiscal/tax and monetary incentives
- Information and training
- Research and development
- Demonstration programs
- Procurement policies, and
- Standards and Labeling

While the conditions prevalent in each country determine what mix of policy instruments is chosen, today, Standards and Labeling (S&L) form an integral part of the energy efficiency policies of European Union as well as more than two dozen other countries around the world. The evidence from these countries, where S&L initiatives have now been in place for some time, shows that S&L initiatives have been effective and have not only resulted in substantial improvements in appliance efficiency, but have also resulted in pushing markets towards buying and producing higher efficiency appliances.

### 1.1 THE CONTEXT IN INDIA

India does not have an established S&L program, but, like several other countries, it is currently in the process of doing the necessary preparatory work for the introduction of full-fledged S&L program within the next two to three years. The impetus for the introduction of a S&L program in India mainly comes from the fact that India faces severe shortages and in-efficiencies in its power generation and distribution sectors. Today the power system faces both acute and chronic peak (14.5 per cent) and energy (7.6 per cent) deficits, and while transmission and distribution losses are in the region of 23 per cent. The use of electricity for various end-uses in all sectors of the economy is equally inefficient.

With the advent of economic liberalization of the early nineties, India witnessed a steep increase in the sale of several energy consuming appliances. While the ownership of refrigerators has witnessed a compounded growth rate of 14.2 per cent per annum over the period 1989-90 and 1995-96, the compound rate of growth of ownership of some of the other residential appliances has been 29.7 per cent per annum for washing machines, 17.1 per cent per annum for storage type water heaters, and about 40 per cent per annum for air-conditioners, during the same period. Presently, India produces about 2.6-2.8 million refrigerators, about

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1 It costs substantially less to save one unit of energy at point of use than to produce one unit of energy through additional generation. Moreover, one unit of electrical energy saved at point of use, in India, is equivalent to about 2.5 units saved at the point of generation.

550,000 air-conditioners, about 1.2-1.4 million washing machines, about 350-400,000 storage type water heaters, and about 8-8.5 million ceiling and table fans, every year<sup>2</sup>. The rapidly rising rate of appliance ownership has also meant rapidly rising electricity consumption in both residential and commercial sectors, as is evident from following Table 1.

Table 1<sup>3</sup> : Electricity Consumption in India

SECTOR	Demand growth between 1992-93 and 1999-00	Share of the Sector in Total Consumption in:	
		1992-93	1999-00
Residential	9.5 per cent per annum	16	20
Commercial	9.7 per cent per annum	4	5
Industrial	5.2 per cent per annum	36	32
Agricultural	6.5 per cent per annum	30	30
Others	5.4 per cent per annum	14	13
Total	6.6 per cent per annum	100	100

In addition to having rapidly rising energy consumption, residential and commercial sectors are also the sectors where energy efficiency is the lowest. The saving potential is estimated to be as high as 35-40 per cent of the present consumption. Several audits have revealed that much of the inefficiency in these two sectors are a result of the inherently low efficiency of the majority of the appliances available on the Indian domestic market.

The rapidly rising share of residential and commercial sectors in the total electricity consumption, coupled with the fact that the average efficiency of most of the electricity consuming appliances in India is inherently low, has resulted in the government initiating preparatory activities for the introduction of standards and labeling program in India. USAID, through its bi-lateral development co-operation projects<sup>4</sup>, has provided substantial assistance to the Indian Government<sup>5</sup> and the Bureau of Indian Standards (BIS – National Standards Body) in their efforts towards introduction of S&L programs in India.

The present paper discusses the work done in India in the area of energy efficiency label design under the USAID assisted EMCAT project, during the period November 1997 to March 2000<sup>6</sup>.

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- 2 The stock penetration of some of the consumer durables like refrigerators, washing machines and storage type water heaters for 1995-96 have been estimated to be 25 percent (urban) & two per cent (rural); 11 per cent (urban) & 0.5 per cent (rural); and 3.5 per cent (urban) & 0.05 per cent (rural), respectively. These figures have been derived from basic data available from – I. Natarajan, 1998. *India Market Demographics Report, 1998*. (National Council of Applied Economic Research, New Delhi), Tables 24.1-24.3, pp163-165. [Report]
  - 3 Figures derived from basic data available from – Planning Commission, 2000. *Annual Report on the working of State Electricity Boards and Electricity Departments –1999-00*. (Planning Commission, Government of India, New Delhi), [Report].
  - 4 Energy Management Consultation and Training (EMCAT) project during the period May 1997- March 2000, and the on-going Energy Conservation and Commercialization (ECO) project (May 2000 – December 2003)
  - 5 USAID is working with Ministry of Power (MOP), which is the nodal ministry responsible for energy efficiency policy formulation in India.
  - 6 The work under USAID's EMCAT project was done by a team: Mr. Mark Tribble and Mr. Vijay M. Deshpande, then with International Resources Group (IRG); Ms. Indira Unninnayar from the Indian Market research firm Taylor-Nelson-Sofres-Mode; Mr. Lloyd Harrington, International expert in the energy labeling area; Ms. Linda Dethman, US based Consultant who led the research. The work was carried out under the over-all supervision of Mr. Sandeep Tandon of the E-Cube Office of the USAID Mission in India.

## 2. LABEL DESIGN

Label design efforts in India involved consumer and stakeholder<sup>7</sup> surveys spread over three phases. The basic approach followed was to:

- Listen to consumers and stakeholders
- Reflect their needs and wants
- Develop labels accordingly

Phase 1 involved a survey of Indian consumers views on appliance energy efficiency and labeling. Phase 2 involved the conduct of focus group discussions to arrive at a set of label formats and label design elements which Indian consumers found understandable, appealing and persuasive. Phase 3 involved conduct of further consumer research to arrive at a final label design.

Lessons learned from the work carried out in India are detailed below.

## 3. LESSON LEARNED

The label design work carried out in India leads to three lessons for other countries:

### 3.1 FOCUS ON CONSUMER RESEARCH

Most important lesson emerging out of the label design work carried out in India is that extensive consumer research is essential in the development of a good label design.

In the introductory section, it was mentioned that governments use policy instruments like pricing, incentives, promotion, demonstration programs, information, etc. to enhance energy efficiency in their respective economies. In the context of energy consuming appliances, governments use these instruments to establish energy efficiency as an important criteria in consumer's appliance purchase decision process. Policy maker involvement, however, does not end here, as energy efficiency, unlike other product features such as size, color and shape, is not visible. Establishing energy efficiency as an important appliance purchase criteria in the minds of the population at large, therefore, is not sufficient. Policy makers and governments have to go further and think of a way to provide information about the relative energy efficiency of various appliances to the consumers in a manner the consumers can easily understand. Energy labels have/are being used as a policy instrument to provide this information. For such a program to be effective, it is necessary that consumers look at energy labels and use them. Consumers, however, will only look at energy labels and use them if this is perceived as meeting their needs – particularly their need for getting quick and reliable information about the relative energy efficiency of various appliances *in an easily understandable, uncomplicated and simple manner*.

Consumer research has a major role to play here as it provides insight into consumer needs and perceptions and helps in the design of an attractive, comprehensible and motivating energy label that has better chances of being used by the consumers. The three-phase research in India amply demonstrates this point. Research findings (see Insert box 1: Some Significant Observation from Consumer Research) clearly indicates how consumer research helped shape many important elements of final label design in India. The work carried out in India, thus, clearly brings out the need for and efficacy of consumer research.

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<sup>7</sup> Stakeholders here connotes policy and decision makers within the government, the national standards setting body (BIS), appliance manufacturers, research and academic institutions, and consumer organizations.

There are many elements to a successful labeling program; while it is extremely important to pay attention to issues concerning energy standards, test procedures, test laboratories, accreditation bodies, certification procedures, post certification management, consumer awareness and information campaigns, etc.; it is equally or perhaps more important to ensure that the energy label design is based on extensive consumer research, as that alone can ensure that consumers understand and use the label. The energy label is the interface between the consumer and all the elements of the energy labeling program – a poor label will almost ensure an ineffective program despite the efforts made in other parts of the program.

### 3.2 ADOPTION OF A PHASED APPROACH

There is significant value in the phased approach adopted in India to arrive at the final label design in which there was a progression from (1) pre-testing the concept of efficiency-grading labels to (2) initial research to arrive at consumer preferred basic label formats and elements to (3) final research to arrive at final label design. This incremental approach helped in arriving at the final label design through sequential and logical steps and provided an opportunity to put to consumer and stakeholder scrutiny, large numbers of label designs that were based on systematic permutations and combinations of various label design elements and formats. Phase 1 research helped in answering fundamental questions like: Would the consumers in India like to have information on the energy efficiency of an appliance and in what form would they like to have this information? Would they appreciate having this information provided to them in the form of a label pasted on the appliance? A positive response to these questions during the phase 1 research paved the way for undertaking further research to arrive at preferred label design. Phase 2, an intermediate step, basically provided an opportunity to distill a large number of options to a small set of basic label formats and design elements that consumers preferred. At the beginning of Phase 2, one could think in terms of several label designs, each incorporating different combination of successful label formats being used elsewhere in the world <sup>8</sup> and design elements like symbols, color, shape, rating scale, manner of depiction of comparison, etc. The main purpose of Phase 2 was to put to consumer scrutiny several different labels designs and then to arrive at narrow set of preferred formats and design elements. Phase 2 accomplished this and arrived at a narrow choice comprising two basic formats and three/four design elements.

The outcome of phase 2 - a narrow set of preferred formats and design elements – meant that only a few label designs were now needed to arrive at a single set of preferred formats and design elements. Accordingly, in Phase 3, a set of four label designs (incorporating various combinations of formats and design elements) were created and subjected to expert group review and consumer scrutiny. Only four possible designs during the final phase of the research also meant that a large sample size could be used and consumer response to four label designs could be obtained under a simulated buying situation. The narrow set of preferred formats and design elements identified under Phase 2, thus, provided an opportunity to enhance the reliability and confidence of the final result.

### 3.3 CO-OPERATION WITH STAKEHOLDERS

Co-operation with stakeholders not only helped to prove the value of consumer research to stakeholders themselves, but also helped in getting stakeholder “buy-in” or support into the entire label design effort.

Constant interaction with stakeholders and conscious efforts to foster their co-operation helped to prove the value of consumer research to stakeholders. Stakeholder appreciation of the value of consumer research is important because consumer research is expensive and unless stakeholders are convinced about its value, it is unlikely that they would make available the necessary funding for conducting the needed consumer research<sup>9</sup>.

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8 Basic formats considered were the Australian star based format, European union’s bar based format, North American sliding scale format, and Thai or Korean Number based format.

9 In India, the entire consumer research was funded by USAID under the EMCAT project

Left to themselves, the stakeholders would have introduced certain design elements or certain wording that would not have necessarily been consumer friendly. Stakeholders tend to take an engineering approach to these types of issues – many proposed solutions are not always consumer friendly. An example will make this point explicit. Final label design uses the word “units” in place of “kWh”. Since kWh is a technically more correct word to use to describe energy consumption, stakeholders, particularly the policy makers and personnel from the national Standards body, wanted kWh used instead of units. Similarly, in the final label design, energy consumption figure (units per day) has been depicted in the box immediately below the symbol of fist holding the currency. The wording used here is “power consumption 2.9 units per day”. Since we are referring to energy consumption, the words “power consumption” need to be replaced by words “energy consumption”, if we are to be technically correct. Here too the stakeholders wanted this correction carried out. Considering the spoken language, however, it was very clear from focus group discussions that consumers preferred “units” to “kWh” or preferred “power consumption” to “energy consumption”. A live telecast of actual focus group discussion organized for the stakeholders as part of the stakeholder co-operation and confidence building efforts resulted in stakeholders seeing for themselves the consumer preference for words like “units” and “power consumption” as well as the confusion words like energy efficiency were causing in consumers mind. This made the stakeholders to agree to go along with the consumer preferred wording, although the consumer preferred wording was- “technically” - incorrect.

Similar efforts to keep the stakeholders fully involved and informed during all phases of the consumer research, helped in getting their “buy-in” into the label design effort. The insert box 2 provides examples of the interactions with stakeholders which helped foster their co-operation, which ultimately resulted in stakeholders embracing and endorsing the label design that emerged at the end of Phase 3 research.

#### **4. CONCLUSIONS**

Consumers and stakeholders are the two main entities who ultimately determine whether market pull strategies such as energy labeling of appliances will be successful. Consumers are important because they are the ones that will have to use the energy label; it will be used if it reflects their wants and needs. On the other hand, stakeholders are important too because they have the ultimate authority and power to administer labeling program and thus have the power and authority to either accept or reject the suggested label design.

Researching target consumers’ wants and needs and reflecting them in the final energy label design, therefore, becomes as critical as getting a stakeholder “buy-in” into the label design research effort. Label design efforts in India have relied on this maxim. Consumer research and stakeholder consultation and participation have been the critical elements of the energy label design efforts in India. This has not only resulted in the proposed label design receiving stakeholder endorsement and widespread exposure and acceptance within government and industry circles, but has also resulted in having a label design that has better chances of being used by target consumers as it reflects their wants and needs.

As has been mentioned, the energy label design in India was undertaken in a phased manner. The phased approach allowed a large number of possible label designs to be put to consumers and stakeholders for scrutiny and review. This, in turn, has meant enhanced reliability and confidence in the energy label design that has emerged out of consumer research and stakeholder consultative process.

Following important conclusions thus emerge out of energy label design work in India:

- Extensive consumer research is essential in the development of a good label design.
- Co-operation with stakeholders is essential to get their:
  - “Buy-in” or endorsement of the label design emerging out of consumer research
  - Support to conduct consumer research

- Phased approach helps in the development of a better label design as it enhances the reliability and confidence of the consumer research and stakeholder consultative process.

## 5. FINAL ENERGY LABEL DESIGN

Final energy label design emerging out of consumer research and stakeholder consultative process is shown below.



### **Insert box 1: Some Significant Observation from Consumer Research**

#### *Focus Group Research*

- Focus group discussions revealed that consumers generally have preferences for label formats that are similar to Australian “star” label or North American sliding scale label
- Focus group discussions revealed that consumers had preference for following elements:
  - The word “power” preferred to word “energy”
  - The word “savings” preferred to word “efficient”
  - Endorsement – “Based on Standard Indian Government Tests” - is preferred
  - A fist holding currency was found to be appealing
  - A hand cupping the Sun was found to be attractive
  - A hand holding the bolt was found to be attractive
  - Yellow color preferred
- Focus group discussions revealed that consumers did not like the following elements:
  - Inverted red triangle – it reminded them of the family planning symbol used in India
  - Triangular or circular shaped labels
  - Pot of money
  - Light bulb
  - Label with staked bars (similar to EU label)

#### *Recommendations of the expert group were:*

- Modify the color to an ‘environment-cueing’ green and blue combination rather than yellow and black.
- Not to use the ‘lighting bolt’. It was seen as too aggressive and highlighting consumption rather than saving.
- To have a back-up option to ‘stars’ in the case that they are confused with the ISO refrigerator freezer rating
- To use the BIS symbol of hands cupping the sun, and do away with the fist of currency. The former, it was felt, would be more effective in communicating conservation rather than the latter, which according to a few, had a grasping/greedy aspect to it.
- The dial was appreciated as a ‘complete scale’ with clear minima and maxima specified; however, it was acknowledged as difficult to understand.

## Insert box 2: Examples of Stakeholder Interaction

IN THE INDIAN CONTEXT, MAIN STAKEHOLDERS ARE MINISTRY OF POWER (MOP), ENERGY MANAGEMENT CENTRE (EMC) OF THE GOVERNMENT OF INDIA, BUREAU OF INDIAN STANDARDS (BIS) AND APPLIANCE MANUFACTURERS AND CONSUMER ORGANIZATIONS. CONSCIOUS EFFORTS WERE MADE THROUGHOUT THE LABEL DESIGN WORK TO FOSTER STAKEHOLDER CO-OPERATION THROUGH FOLLOWING MEANS

- December 1997, New Delhi. Presentation on Energy Labeling by IRG to the Standards Committee of BIS (Product: Storage type Water Heaters)
- January 2-3, 1998, Mumbai. Presentation on Energy Labeling by IRG to the Standards Committee of BIS (Products: Refrigerators and Air-conditioners)
- January 22 –24, 1998, Ahmedabad. First Workshop on Labeling, Held in Ahmedabad in collaboration with Consumer Education and Research Centre (CERC – a consumer organization) where results of Phase 1 research were shared with workshop participants (stakeholders)
- April 27, 1998, New Delhi. Focus Group Discussions Held at Taj Palace New Delhi; Live Telecast of Focus Group In Action specifically arranged for stakeholders
- September 22, 1998, New Delhi. Hands-on interactive sessions on energy efficiency labeling of appliances. Exclusive session with Mr. Lloyd Harrington and Ms. Linda Dethman for EMC and BIS Officers.
- September 23-24, 1998, New Delhi. Second Workshop on Energy Labeling, Held in New Delhi in collaboration with CII where results of Phase 2 (Focus Group) research were shared with Stakeholders
- October 1998, New Delhi. Formation of CII Working Group on Energy Efficiency Labeling in October 1998 (All stakeholders are members of this working group)
- November 27, 1998, New Delhi. Participation by IRG in the First Meeting of the CII Working Group on Energy Efficiency Labeling. Provided up-date on Label Research
- *February 16, 1999: Review of Labels by Expert Group (stakeholders), held at Taj Palace, New Delhi.*
- March 12, 1999, New Delhi. Participation by IRG in the Second Meeting of the CII Working Group on Energy Efficiency Labeling. Provided up-date on Label Research.
- June 11, 1999, Ahmedabad. Dissemination of Phase 3 results in CII organized Seminar
- June 25, 1999; Meeting on Energy Labeling held with Mr. Vasudevan of MOP where results of Phase 3 research were shared with MOP
- July 1 1999: Meeting on Energy Labeling held with BIS where results of Phase 3 research were shared with BIS
- July 5, 1999, New Delhi. Participation by IRG in the Third Meeting of the CII Working Group on Energy Efficiency Labeling. Presentation of Phase 3 results.
- September 27, Pune. Dissemination of Phase 3 results in CII organized Seminar
- October 5-7, 1999, New Delhi. Presentation on Energy Labeling by IRG on Phase 3 research to the