CHAPTER 4

REVIEW OF LITERATURE
As per Sharp and Howard, 1996 two major reasons exist for reviewing the literature the first, the preliminary search that helps you generate and refine our research ideas, the second, often referred to as the critical review, is part of our research project proper. It is believed that reviewing the literature is essential. Project assessment criteria usually require we to demonstrate awareness of the current state of knowledge in our subject, its limitations, and how our research fits in this wider context.

4.1 WORK AND FINDINGS:

We therefore need to establish what research has been published in our chosen area and try to identify any other research that might currently be in progress. The items we read and write about will enhance our subject knowledge and help us to clarify our research question(s) further. This progress is called critically reviewing the literature.

For this research project, our literature search was early activity. Despite this early start, it is usually necessary to continue searching throughout our project’s life. The process was be likened to an upward spiral, culminating in the final draft of a written critical could review. In the initial stage of our literature review, started to define the parameters to our research question(s) and objectiyes we after generating key words and conducting our first search we had a list references to authors who have published on these subjects. Once these have been obtained we could read and evaluate them, record the ideas and start drafting your review. After the initial search, we will be able to redefine our parameters more precisely and undertake further searches, keeping the mind our research question(s) and objectives. As our thoughts developed, each subsequent search focused more precisely on material that is likely to be relevant. At the same time, we were probably be refining our research question(s) and objectives in the light of our reading.

Unlike some academic disciplines, business and management research makes use of a wide range of literature. While our review is likely to include specific
business disciplines such as finance, marketing and human resource management, it is also likely to include other disciplines. Those most frequently consulted by our students include economics, psychology, sociology and geography. Given this, and the importance of the review to our research, it is vital for us to be aware of what a critical literature review is and the full range of literature available before us start the reviewing process. For these reasons, we start this chapter by outlining what our critical review of the literature needs to include and the literature resources available.

4.2 THE PURPOSE

Our critical literature review formed the foundation on which our research was built. As we gathered from the introduction, its main purpose was to help us to develop a good understanding and insight into relevant previous research and the trends that has emerged. Though it is not expected from a scientific researcher inquiring into the causes of cot death to start his or her research without first reading about the findings of other cot death research. We should not expect to start our research without first reading what other researchers in our area had already found out.

The precise purposes of our reading of our literature were depending on the approach we were intending to use our research. For this research projects we use the literature to help us to identify theories and ideas that we will test using data. This knows as a deductive approach in which we develop a theoretical or conceptual framework, which we subsequently test-using data.

Our review also has a number of other purposes. Some of these are given below.

- It helped to refine further our research question(s) and objectives;
- It helped to highlight research possibilities that have been overlooked implicitly in research to date;
• It helped to discover explicit recommendations for further research. These can provide us with a superb justification for our own research question(s) and objectives;
• It helped to avoid simply repeating work that has been done already;
• It helped to sample current opinions in newspaper, professional and trade journals, thereby gaining insight into the aspects of our research question(s) and objectives that are considered newsworthy;
• It helped to discover and provide an insight into research approaches, strategies and techniques that may be appropriate to our own research question(s) and objectives.

4.3 AVAILABLE LITERATURE SOURCES

The literature sources available were of great help, to develop a good understanding of and insight into previous researches. The same could be divided into three categories: primary, secondary, and tertiary in reality these categories often overlap; for example, primary literature sources including conference proceedings can appear in journals, and some books contain indexes to primary and secondary literature.

SECONDARY LITERATURE SOURCES

The numbers of secondary literature sources were to use is expanding rapidly, especially as new resources developed or made available via the Internet.

Journals

Journals are also know as periodicals, serials and magazines, and are published on a regular basis. At present, although most are printed, they are appearing increasingly in electronics form as well via the Internet. Journals are a vital literature source for this research.

Books

Books or monographs are written for a specific audience. Some are aimed at the academic market, with a theoretical slant. Others, aimed at practicing
professionals, may be more applied in their content. The material in books is usually presented in a more ordered and accessible manner than in journals, pulling together a wider range of topics. They are therefore particularly useful as introductory sources to help clarify our research question(s) and objectives or the research methods we intend to use.

**Newspapers**

Newspapers are a good source of topical events, developments with in business and government, and recent statistical information such as share prices. They also produce special reports such as the financial times industrial sector reports. The main broadsheet newspapers have web sights carrying the main stories and supporting information.

**Primary literature sources**

Primary literature sources were more difficult to locate the most accessible, and those most likely to be of use in showing how our research relates to that of other people, are reports, conference proceedings and theses, hence all such sources were accessed during this research work to collect the current, useful & important data.

**Reports**

Reports include market research reports such as government's reports and academic reports. Even we were able to locate these, we may find it difficult to gain access to them, as they are not as widely available as books reports are not well indexed in the tertiary literature.

**Conference proceedings**

Conference proceedings, sometimes referred to as symposia, are often published as unique titles within journals or as books. Most conferences will have a theme that is very specific, but some have a wide-ranging overview. Proceedings are not well indexed by tertiary literature so, as with reports, we may have to rely on specific search tools such as index to conference proceedings and the same has been done in this report.
Reviews

Unfortunately, they can be difficult to locate and, when found, difficult to access, as there may be only one copy at the awarding institutions hence this source could not be accessed very much in this research.

REVIEW OF LITERATURE – PART – 1

4.4 REVIEW OF INDIAN AIR-CONDITIONER INDUSTRY

This study provides an illustrative exercise on industry and competition analysis. Here it is an attempt to explain step by step how industry and competition analysis is to be carried out in the Indian air-conditioner industry.

i) GENERAL FEATURES/ BASIC FACTS

A COMPETITIVE INDUSTRY

Currently, the Indian air-conditioner industry has an annual turnover of approximately Rs 1,600 crore. A number of Indian companies in the original sector, a large number of assemblers in the unorganized sector, and quite a few multinational are operating in the industry. Though, there has been a boom in demand in recent years, only 0.67 million units of RACs were sold in last year as against an installed production capacity of 0.95 million. In other words, currently there is a substantial surplus capacity in the industry. As a result of the surplus capacity and the presence of a large number of players, competition in the industry is fierce.

A GROWING INDUSTRY

There has been a substantial growth in demand for air-conditioners in recent years. Growing industrialization, an expanding middle class with increasing disposable income, and reduction in prices consequent to reduction in excise duties have led to this growth in the industry, the five years between 1992 and
1997 initiated rapid growth in the industry, at a CARG of over 35 percent. This trend than continued with a greater pace in next 10 years.

Currently, environmental and energy concerns are influencing the industry significantly and the product range on offer is reflecting this reality.

**BROAD PRODUCT CATEGORIES**

There are many categories of air-conditioners, such as Windows, non-ducted (mini splits), ducted, splits, packaged air-conditioners, and chillers/central plants. These can be classified into three broad product categories:

i. Unitary products, which include window ACs and mini splits without ducts

ii. Packaged air-conditioners (PAC) and ducted splits and central plants

**Category-wise Shares**

Table gives category-wise approximate figures of shares in total sales of air conditioners

<table>
<thead>
<tr>
<th>Category</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>48.00</td>
</tr>
<tr>
<td>Mini splits</td>
<td>15.98</td>
</tr>
<tr>
<td>PAC and Ducted Splits</td>
<td>10.20</td>
</tr>
<tr>
<td>Central Plants</td>
<td>25.82</td>
</tr>
</tbody>
</table>

RAC, the major category: The RACs, which include the unitary products and ducted splits, constitute the largest category, with a market share of approximately 65 percent of the total AC market. It is also the fastest growing category. It accounts for a turnover of Rs 1,000 Crore. Table presents sales of RACs from 1994-95 to 2000-01.

Window ACs has improved in technology and aesthetics: In India, in recent years, window ACs, has improved significantly in terms of technology and aesthetics. They are now at par with international brands in terms of cooling capacity, noise levels and energy consumption. They are also marketed aggressively.
Table of Sales of RACs—1995-96 to 2005-06

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales (No. of units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-96</td>
<td>2,80,000</td>
</tr>
<tr>
<td>1996-97</td>
<td>3,25,000</td>
</tr>
<tr>
<td>1997-98</td>
<td>3,55,000</td>
</tr>
<tr>
<td>1998-99</td>
<td>4,50,000</td>
</tr>
<tr>
<td>1999-2000</td>
<td>5,20,000</td>
</tr>
<tr>
<td>2000-01</td>
<td>5,75,000</td>
</tr>
<tr>
<td>2001-02</td>
<td>6,60,000</td>
</tr>
<tr>
<td>2002-03</td>
<td>7,85,000</td>
</tr>
<tr>
<td>2003-04</td>
<td>8,05,000</td>
</tr>
<tr>
<td>2004-05</td>
<td>8,85,000</td>
</tr>
</tbody>
</table>

Central Plants: The central plant air-conditioner is more technology intensive and project oriented. It caters mainly to institutional clients, account for a turnover of around Rs 600 crore.

(ii) INDUSTRY ENVIRONMENT

The Indian air-conditioner industry can be classified as an emerging industry. It can also be classified as a growth Industry. It is actually under transition from an emerging industry to a growth industry. It can also be described, as a fragmented industry. For, there are now more than a dozen players in the organized sector and a large number of unorganized players. In contrast, in countries like the US or Japan, which are much bigger markets for air-conditioners, there are just four or five players accounting for the whole market.
iii) INDUSTRY STRUCTURE

Under industry structure, the structural features of the industry are to be discussed. These are:

- Number of players
- Total market size and relative shares of the players
- Change in industry structure in recent times, if any
- Demand-supply scenario
- Demand drives in the industry
- Barriers in the industry
- Differentiation practiced by the various players.
- Forces shaping competition in the industry (Discussed in the section on competition).

4.5 NO. OF PLAYERS/MAIN PLAYERS IN THE INDUSTRY

It is difficult to pinpoint the total number of players in the industry as countries players are operating in the unorganized sector. As for the organized sector to which the main players belong, currently, it consists of over a dozen players, as listed in the Chart.

Main Players in the Indian AC Industry (Organized Sector)

| Carrier Aircon | Fedders-Lloyd   |
| Volta           | Kirloskar       |
| Amtrex          | Godrej          |
| Blue Star       | Samsung         |
| Videocon        | LG              |
| Air Command     | Hitachi         |
| Sriram (SIEL)   | Matsushita (National) |
| Symphony Comfort Systems | Fujitsu (General) |
TOTAL MARKET SIZE

Currently, the total market size of the AC industry is of the order of Rs 1,900 crore, with RACs contributing to around Rs 1,200 crore and central plants, around Rs 700 crore. In terms of number of units, the market size is of the order of 8.85 lakh units in the case of RACs.

RELATIVE SHARES OF PLAYERS

Some significant changes as shown below have taken place in the structure of the AC industry in recent years.

- Shift from two-layer structure of four-layer structure.
- Organized sector overtakes unorganized sector in window ACs
- No single market leader.
- Many MNCs enter industry
- ACs becomes a normal consumer durable.

SHIFT FROM TWO-LAYER STRUCTURE TO FOUR-LAYER STRUCTURE

Earlier, the industry had a two-layer structure- the unorganized sector (small, local players) and the organized sector represented by Indian companies. In recent years, more players have come in- mainly MNCs- resulting in greater variety in terms of technology and product appeals. At present, the industry has a four-layer structure, with the small players in the unorganized sector at the bottom end, Indian companies in the organized sector at the next higher end, Korean companies such as LG and Samsung at a still higher level and American companies like GE and Whirlpool plus Japanese companies such as Hitachi and Matsushita (National) at the top end.
Organized Sector Overtakes Unorganized Sector

Table gives RAC sales in organized and unorganized sectors, from 1997-98 to 2004-05.

RAC Sales by organized and unorganized Sector-1998-99 to 2004-05

<table>
<thead>
<tr>
<th>Year</th>
<th>FY98</th>
<th>FY99</th>
<th>FY00</th>
<th>FY01</th>
<th>FY02</th>
<th>FY03</th>
<th>FY04</th>
<th>FY05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organised</td>
<td>180</td>
<td>225</td>
<td>286</td>
<td>345</td>
<td>435</td>
<td>540</td>
<td>686</td>
<td>845</td>
</tr>
<tr>
<td>Unorganised</td>
<td>176</td>
<td>225</td>
<td>234</td>
<td>230</td>
<td>225</td>
<td>240</td>
<td>215</td>
<td>245</td>
</tr>
<tr>
<td>Total</td>
<td>356</td>
<td>450</td>
<td>520</td>
<td>575</td>
<td>660</td>
<td>780</td>
<td>901</td>
<td>1090</td>
</tr>
</tbody>
</table>

It can be seen from the table that sale of the organized sector, has more than doubled between 1998 and 2003. It got tripled between 98 and 2005. It can be seen from the table that share of the organized sector, relative to the unorganized sector was 1:1 in 1998. It became 7:2 in 2005. In the post-liberation era, consistent reduction in excise duties has narrowed the price gap between the sectors. So, the organized sector asserted itself and eroded the share of the unorganized sector. The entry of more players/brands from the organized sector in recent years has also contributed to this development.

NO SINGLE MARKET LEADER

There is no single market leader in the industry, across all the product categories. In central plants Blue Star is the leader. Voltas had been the leader in the past, with a market share of over 30 percent. But it has been slipping from the position in recent years. L.G. is now emerging as a leader in RAC’s segment. The position is keep on changing.

MANY MNCS ENTER THE INDUSTRY

A significant factor in recent times is the aggressive entry of many MNCs into the industry. In view of the increasing attractive ness of the industry, Many MNCs including Japanese players- Hitachi and Matsushita (National), Korean – LG and sumsung, American-GE and Whirlpool, and Swedish-Electrolux, have entered the
industry. This has increased the competition and has also generated a lot of retail interest.

4.6 **DEMAND-SUPPLY SCENARIO**

- **Zone-wise demand:**
  Geographically the demand for ACs is concentrated in Maharashtra, a highly industrialized state Goa, a major tourist center, Mumbai alone accounts for 20% of the demand. Table gives zone wise shares in AC sales in 2005-2006.

<table>
<thead>
<tr>
<th>Zone</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>West</td>
<td>45</td>
</tr>
<tr>
<td>North</td>
<td>36</td>
</tr>
<tr>
<td>South</td>
<td>16</td>
</tr>
<tr>
<td>East</td>
<td>3</td>
</tr>
</tbody>
</table>

- **From a Luxury Product, ACs Become a Regular Consumer Durable**
  Another change that has occurred in the industry in recent years relates to the shift in the way the product is perceived and marketed. In the past, the government had labeled AC as a luxury item and levied high excise duty on it. This resulted in high prices of ACs. With a price tag of nearly Rs 40,000, AC did not find a place alongside other consumer durables like say a CTV, which cost Rs 15,000. In the post-reform era, the excise structure on ACs was rationalized and prices of ACs made by the organized sector started coming down. The reduced prices, coupled with factors like rise in incomes and easy availability of finance, made ACs more of a normal consumer durable. The entry of MNCs, especially the Korean ones, has also contributed to this development. These players have started marketing ACs as a regular consumer durable. They have offered attractive, Zero interest, finance packages. They have also harped heavily on the health theme, a relatively new selling point in the Indian market. And, newer and more efficient models have also hit the market.

- **Demand for RAC grows impressively:**
The demand for RACs has grown at an impressive rate over 20 percent compounded between 1992 and 1998. In terms of volume, it grew to 0.57 million units in 2000 from 0.13 million units in 2000 from 0.13 million units in 1992. This trend continues with the greater pace in next 5 years from 2001 to 2006.

- **Demand for RAC is concentrated in the cities:**
  Over 60 percent of the demand for RACs comes from eight major cities, including the four metros. Rural areas do not account for a sizeable share of the demand given the erratic power supply there.

- **Demand for RAC is largely from corporates:**
  The demand for RACs comes mainly from corporates, other institutions and the government, with corporates accounting for 80 percent. The government, which used to be a major buyer in the past, has shown a declining trend in recent times. The balance demand, i.e. 20 percent, from the household sector. The latter, however, is growing at a faster pace currently. If we take window air conditioners alone. The demand is twofold—commercial and household. Currently, around 35 percent of the demand is accounted for by the household category and 65 percent by commercial/industrial category.

- **Demand for RAC is skewed seasonally:**
  The demand for RACs is also skewed seasonally. A large portion of the demand is accounted for by the summer months, between March and June. It has its own implications for the players. All companies are required to maintain large stocks during this period. Inventory holding decides the company’s success in garnering market shares. At the same time, Inventory holding pushes up the costs.

- **Demand for central plants has been stagnant:**
  The demand for central plants has remained stagnant over the past couple of years due to the economic slow down and the resultant squeeze on the number of infrastructure projects requiring such huge cooling facilities. If the economy gets on revival path, the category may do better.
• **SUPPLY**
The installed capacity for RACs in the organized sector in 1997-98 was around 0.6 million units. Over the next two years, additional capacities to the tune of 0.25 million units were added, bringing the total installed capacity in the country to 0.85 million units by the year 2000. Supply has thus registered good increase in recent years. Existing players have expanded capacity and new entrants have brought in fresh capacity. And, as mentioned already, at present, supply is in excess of demand.

• **Demand drivers**
The major demand drivers for ACs are shown in Chart. Chart of Major Demand Drivers for ACs

- Performance of the economy, in general, and that of Industrial sector, in particular
- Growth in income level and change in lifestyle
- The deteriorating environmental conditions in cities
- Lower prices and lower excise duties
- Increased availability
- New investments in IT, telecom, and agricultural infrastructure

**Performance of the Economy as a Whole, and the Industrial Sector in Particular**
The performance of the economy in general, has an influence over sales of ACs. When the economy goes through a high-growth phase, demand for ACs increase substantially; the commercial sector, in particular, goes in more for air-conditioning systems

More than the performance of the economy as a whole, industrial performance, in particular, exerts great influence on the demand for air conditioners, as the demand for the product depends highly on the industrial sector. And, its influence is maximum in central plants, since demands in this category depend entirely on industries.
Growth in Income and change in lifestyle:
In India, demand for ACs is also driven by the rise in disposable income of people in the middle and high-income bracket. Change in their consumption pattern and lifestyle too impacts the demands for ACs significantly. With the change in lifestyle, air-conditioners have become not only an article of comfort, but also one of proud possession for these consumers. As per an NCAER estimate, the numbers of households with monthly incomes above Rs 10,000 in metros and above Rs 5,000 in non-metros is expected to rise to 57.2 million in 2005-06. It was 22.7 million in 1956-96. It means that inspirational buying will steadily increase in India. And, as that happens, demands for ACs are bound to go up.

The bad environmental conditions in cities:
The negative characterize of progressively deteriorating environmental conditions in the various cities of India also acts as a demand drivers for ACs. In recent years, air pollution has become a major problem in Indian cities. And, simultaneously, peoples concern about health has also gone up considerably.

Lower prices and lower excise duties:
We saw earlier that in the past, the AC industry reeled under a regime of high excise duties. This acted as a damper to growth, RACs. The scenario underwent a dramatic change in the 1990s, with the economic reforms and liberalization. Excise duties on ACs came down substantially and there was a spurt in demand for RACs. Historically, excise cuts have played a significant role in boosting demand for ACs, the ratio being a 2 percent increase in demand for every 1 percent cut excise duty.

Increased availability of hire-purchase facility:
Increased availability of the hire-purchase facility too stimulates demand for ACs up to a point. It has been demonstrated that by expanding the hire-purchase facility, one can induce the price-sensitive Indian consumers to buy durables. India has made substantial strides in hire-purchase in the 1990s. in the AC industry now. Several companies have introduced zero-interest, installment-
purchase schemes in recent years. Concurrently, during these years, a marketed change has also occurred in the attitude of consumers in favor of availing of hire-purchase facilities for purchasing household items.

**Investments in sectors like IT, telecom and agricultural infrastructure:**
It is seen that investments in sectors like IT, telecom and agricultural infrastructure has been another demand for ACs. The heavy investments that have been coming into IT and telecom sectors in recent years, and the government’s initiatives on strengthening agricultural infrastructure\cold storage have resulted in an appreciable increase in institutional demand for ACs.

### 4.7 BARRIERS IN THE INDUSTRY

The entry barriers operating in the industry are of average intensity – neither weak, nor too strong.

**Technology, one major barrier:**
Technology is a major entry barrier in the industry. Earlier we saw that many MNC shave entered the industry in recent years. They have able to enter without much fuss, because the technology barrier did not apply to them, as they already had technology with them. They have been global players in the industry and their entry into India was just a case of market enlargement. For those who are altogether new to the industry, technology is an entry barrier.

**Compressor:**
Technology in the context of the AC industry includes the technology in respect of compressor. The latter actually constitutes the more critical part of the technology factor. The compressor is the main component of an AC unit. It also constitutes about 40 percent of the total cost of the product. The reciprocating compressor is the most commonly used type in India this is well suited for the Indian conditions, where the just and ambient temperatures, and consequently the wear and tear are quite high however, rotary compressors which are technologically superior, are finding their way into the Indian AC industry in resent
times. In respect of both types of compressors, technology will pose a problem to new entrants.

All the three world leaders in compressor technology - Copeland, Bristol and Tecumseh - already have a presence in India. They have their associates - Kirloskar, Carrier Aircon, and SIEL, respectively. For the three Indian firms concerned, this means a competitive advantage in relation to the others in the industry. Besides using the compressors for their captive consumption, they also supply them to other air-conditioner manufacturers, who do not have compressor manufacturing facilities of their own. Tecumseh has also established its direct subsidiary in India and has become the leader in compressors.

**Dealer network:**
A large and efficient dealer network is necessary for achieving success in the AC industry. Without such network, it is not possible to secure the required geographical reach for the product. The network is needed for yet another purpose - for providing after sales service - a crucial requirement in marketing ACs.

Thus, dealer network acts as a barrier in the industry.

4.8 **DIFFERENTIATION PRACTISED BY THE PLAYERS**

We have seen that differentiation practiced by the players also forms an entry barrier in an industry. Though, practicing differentiation is not easy in the AC industry, the players do practice this to a considerable degree and use it as an element of their competitive strategy. Differentiation has actually become quite necessary in the industry with the intensification of competition.

The players use a variety of attributes in their differentiation effort, such as:

- Technology
- Compressor superiority
- Improved product features
- Logic temperature control
- Health ACs (Bacterial filters, etc)
Review of Literature

- Hire-purchase facility
- Specific products for specific markets.

Technology:
Quite a few players use technology as the differentiation attribute. Though the RAC category is not technology intensive, companies find it necessary to be one up in terms of technological features, even in RACs. Some players have gone in for technology tie-ups with well-known international companies. Voltas, for example, has secured technology from Toshiba and has adapted it for optimum performance in Indian conditions. Similarly, Amtrex has worked out a technology tie-up with Hitachi and Videocon with Matsushita.

Compressor superiority:
Many players use compressor superiority as the differentiation attribute. Blue Star, for example, uses its Matsushita rotary compressor, as a differentiation point. It describes it as a superior compressor and a power saver. Hitachi also highlights its highly energy-efficient rotary compressor.

Improved product features:
The players also upgrade their products at regular intervals with new and innovative features and use them as their differentiation plank. They put their R & D to use in this regard. Amtrex, for example, focuses on product features and gives its product. Blue Star tries to differentiate its air conditioners by z bunch of value-adding product features, such as electronic thermostat, programmable timer and sleep mode automatic adjustment.

Logic temperature control:
Many players use the logic temperature control system as their differentiation plank. They call it by different names such as, intelligent ACs, LogiCool, Fuzzy Logic, Sleep mode, automatic adjustment, etc.

Hitachi's LogiCool ACs:
Hitachi claims that its ACs can think.
It can monitor your personal cooling needs constantly and respond logically. You want your AC to greet you with a particular temperature, at a certain hour. No problem. Just preset it, well in advance.....

You want it to adjust through the night or the needs of your body. Once again, the LogiCool microprocessor will ensure that you don't miss your quilt while you sleep. Of course, all this, also means power save.....

Amtrex logic temperature control: Amtrex too has introduced the logic temperature control system for its RACs, Amtrex calls them 'Nidra', meaning sleep. They come with a logic temperature control system, which automatically adjusts the cooling as the outside ambient temperature drops, maintaining the inside temperature at comfort levels.

**Blue Star sleep mode facility:**
Blue Star too has introduced the logic temperature control system for its RACs. It calls it the sleep mode facility and highlights it in its ads.

**Health ACs:**
The Korean brands, LG and Samsung, have been using the health theme as the differentiation attribute. LG has positioned its ACs as Health ACs. This would be clear from its ad campaigns. A sample LG ad reads: "LG Air-conditioners come with the revolutionary plasma Air purifying Technology. So bacteria, smoke, unpleasant odors, microbes, allergens, and viruses all stay out.' Samsung too, sells it's RACs under the nomenclature 'Health air systems.'

**Hire-purchase facility:**
It is seen that quite a few players try to use availability of hire-purchase facility as a differentiation attribute. They highlight it in their promotion. Since most brands offer the facility, a differentiation advantage does not seem to accrue to any one player in particular, on account of this attribute. This facility seem to have become one of the 'taken the granted features' however many players are seen to emphasize the availability of the facility and highlight that it is available at zero interest. Some of them highlight even the low EMI as an added benefit.
Specific products for specific markets: Some players have gone in for custom-made AC systems; they supply custom-made units, depending on the type of application for which the customer uses the unit. For example, they offer specific products for applications like telecom, IT and automobile.

Godrej has also introduced a brand-new technological innovation called the "Ice Factor." This innovation is an answer to the Indian summer — a superior technology that promises really cool temperatures that stay that way.

Videocon is the first company to come out with ACs with the 'Quadra heat exchanger' technology with top discharge and waste condense recycling facility. These new ACs also reduce electric power consumption by 30 to 80 per cent. Company officials say over the past five years, Videocon had invested more than Rs 15 crore to come up with this AC technology which enables ACs to provide extraordinary cooling besides reducing the total cost of ownership.

Samsung Raw Condenser coils. Only in Samsung ACs. In other brands of ACs the refrigerant has only half the surface area to dissipate its heat resulting in inefficient cooling.

But Samsung Air conditioners have extra 2 rows of coils which provide double the surface area for the refrigerant to dissipate its heat. This results in faster chilling, thereby putting lesser strain on the compressor resulting in lower electricity bills.

- Memory restart
- Anti Rust
- Compressor Safety
- Bio-Components
- Washable Front grill
- Installation Flexibility
- Super quite operations
4.9 INDUSTRY ATTRACTIVENESS:

Actually forms part of industry structure. And we have also listed it as one of the items under industry structure, which we have just covered. With a view to providing a more focused treatment to the topic, we had reserved it for discussion under a separate section.

- Industry growth and potential
- Industry profitability
- Likely future pattern of the industry
- Industry barrier
- Forces shaping competition in the industry

We shall cover here the first three items. Industry barriers have been dealt with already under industry structure. Future pattern of the industry is discussed in the section on competition.

Industry growth and potential:
The air-conditioning industry has been growing at a good pace. It grew at a CAGR of 37 percent between 1992 and 1997, the years that immediately followed the generally going up. Sales of RACs amounted to over half-a-million units in 2000-01. Demand is expected to grow by 20 percent annum over the next 2-3 years. Packaged air-conditioning has also been projected as a growth category for the coming years.

In the matter of industry potential, the AC industry will get a high rating. A study conducted by IMRB points to an additional potential of 0.35 million AC units in the short term, if a unit with appropriate capacity is offered at a price of Rs 18,000. In the long term, about 20 million Indians with income of above Rs 5,000 per month in year 2000 are considered as potential customers for RACs. Demand from industrial users too is expected to grow at a handsome rate. In the coming years, more and more electronic gadgets will be used in industrial establishments. And, for these gadgets to work properly, precise atmospheric/temperature conditions will have to be maintained. Demand from this segment, will thus register a sizeable growth in the coming years.
Industry Profitability:
In profitability, the AC industry can be rated as reasonable attractive. Profit margins in the industry vary depending on the categories, models and sizes. Margins are the lowest in the window category. The margins, range between 10 and 20 percent, depending on the models and sizes. For players who have their own compressor manufacturing facilities, margins are higher. For example, carrier Aircon and Kirloskar with their own compressor manufacturing facility of their own, the margins range between 10 and 15 percent. Margins are the highest in the central and packaged air-conditioned categories, ranging between 20 to 25 per cent.

Factors deciding profitability:
In the window category, the main factors that govern profitability are volumes and backward integration (compressor manufacturing facility in particular). Since customers look for convenient access, reliable after-sales service and aesthetics in window ACs, by being strong in those aspects, a firm can enhance its profitability. Generally, it can be said that profitability in the window category is volume driven, while in the packaged and central AC categories, it is technology driven. Similarly, while distribution network is a big factor in the window category, after-sales service is a big factor in the packaged and central AC categories. Overall, technology will play an important role in profitability. So, companies that bring in technology innovations and expansion in distribution reach will by and large enjoy higher profitability.

Seasonal nature of the demand, a dampener of profitability:
We have already seen that demand in the window category is seasonal. 40 to 45 percent of sales arises during the first three months of the financial year (April to June). To this extent, profitability gets eroded in the industry. The players are required to carry high inventories in order to smoothen the seasonality factor. The seasonality factor, however, does not apply to the other categories of ACs.
INDUSTRY PERFORMANCE

In fiscal 1998 and fiscal 1999, the growth rate in RACs had slowed down considerably. The major reasons for the slow down were industrial and economic slow down, tight money supply and monsoon. The industrial segment had also been affected during the two years due to the slow down in industries. Capacity utilization was only around 60 percent.

Fiscal 2005 had been much better. During the year, the industry performed particularly well in RACs, selling far more then half a million RAC units. Sales had grown by over 35 percent compared to fiscal 1999. As for the central AC category, it has been performing reasonably well in a continuing basis recent times. Taking the industry as a whole, fiscal 2005 had been a reasonably good year.

INDUSTRY PRACTICES

In The Indian air-conditioner industry, the following may be cited as industry practices. Air-conditioners are now being marketed as a consumer durable, just like white goods and entertainment electronics. Unlike before, nowadays, most large electronics stores stock air-conditioners

In distribution, the industry relies on showrooms and authorized distribution. In pricing the industry follows a policy that is both cost-oriented and market-competition-oriented. As regards after-sale service, the industry practice is to provide free-of-cost service during the free service period usually one year. There afterwards, they provide service as per service contracts, charging the consumers for the service. Some companies subcontract the service function. New entrants could adopt this strategy to attain quick geographical spread.

Servicing ACs requires trained service technical and a widespread service network. All the main players in the industry seem to appreciate this fact. They maintain a trained technical, service network. Service maintenance contract income is emerging as a substantial part of the total income for many players in the industry. This is especially true of players who have a large installed base for machines. For example, for blue star carrier, it accounts for over 10 percent of total income.
As regards warranty, a five-year warranty scheme has emerged as the industry practice in recent years. CARRIERS LG, National, and Hitachi, all have put in place a five years-warranty scheme.

With ACs becoming a regular consumer durable, the players in the industry have started investing heavily in brand building. They are spending heavily on theme advertising. They are also trying to generate more visibility for their products.

**Foreign Collaborations**
Several players have gone in for technological arrangements with global leaders in air-conditioners. Chart provides the details of Foreign Collaborations in AC industry

<table>
<thead>
<tr>
<th>Indian company</th>
<th>Foreign Collaborate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier Aircon(cal)</td>
<td>Carrier Corporation, US (Cal) is a Subsidiary of carrier</td>
</tr>
<tr>
<td>Air Command</td>
<td>Mitsubishi, Japan</td>
</tr>
<tr>
<td>Videocon</td>
<td>Matsushita, Japan</td>
</tr>
<tr>
<td>Amtrex</td>
<td>Hitachi, Japan</td>
</tr>
<tr>
<td>Godrej-GE</td>
<td>General Electric USA</td>
</tr>
<tr>
<td>Kirloskar</td>
<td>Tecumseh</td>
</tr>
<tr>
<td>Blue star</td>
<td>York, USA</td>
</tr>
<tr>
<td>Voltas</td>
<td>Toshiba, Japan, Standard Refrigeration, USA and Sigma, Australia</td>
</tr>
</tbody>
</table>

**THE MAJOR PLAYERS**

Unorganized players still continue to form a major portion of the Indian AC market. However, as the difference between the prices quoted by unorganized and the organized player is on a decline, the switch towards brands is more visible. Reasons like quality and trust are also responsible for this shift. The share of the unorganized sector has fallen and is likely to decline further to about 18-20% in 2004.
LG ELECTRONICS is the market leader in the segment with a 25-per cent market-share.

In a time span of just 48 since its inception in May 1997, the brand has attained a brand awareness level of about 90% in the consumer durable Indian market. Considering the fact that LG electronics is a Korean multinational, entering the Indian market meant establishing itself in a different market altogether with varied culture and consumer tastes and preferences. Also that so many multinationals are sweeping into the country, it is evident that each and every company has a cutting edge over another. These global corporations are deviating from their international methodologies and improvising their strategies for local markets. Before launching itself in the market in 1997, it carried out an extensive research study to understand consumer motivations to create.

- Magnetic products
- Price them strategically
- Position them sharply and
- Keep making the magnetism more potent.

In a broad perspective, LG's sales and marketing success can be attributed to its 7Ps of marketing. In addition to the products, price, place and promotion, the key factors that have contributed to LG's success are the following 3 additional Ps.

**Pace, People and Passion**
The most important winning factor of the sales and marketing has been its 'Passion'. It is this attribute within all the workers that drives the other 6Ps. However LG's marketing strategy is based on 3Ps, apart from the conventional 4Ps of marketing.

- Premium pricing to maintain margins
- Breathtaking pace to create riches
- Deep penetration to increase volumes
Premium Pricing

LG electronics was one of the late entrants, the 18th player. While other companies were jostling to play the low price high volumes, game, LG decided to concentrate on the high end of all the product segments. Also premium image precluded the company from offering discounts or resorting offers. The strategy to offer value propositions to the customer through honesty pricing is that of a long term player. Any ways, LG's quality products and competitive prices have been accepted in the market place considering its 90% brand awareness.

Pace

However, to keep pace with the competitive market place it will have to launch models with innovative features at regular intervals. For eg: many digital products is a step towards its direction.

GLOBALISATION STRATEGY

Secure a sustainable competitive edge by developing locally differentiated market strategies and optimizing the use of resources through integrated management activities.

MARKET RESPONSES

- Understand customer needs
- Differentiate products
- Differentiate market activities

Management activities to take root as part of the local culture (corporate citizen)

Localization Networking
<table>
<thead>
<tr>
<th>Business Resource Investment</th>
<th>Internal Affairs</th>
<th>Business Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal use of Worldwide resources</td>
<td>Global wealth skill information network</td>
<td>Generate LG Brand profit worldwide</td>
</tr>
<tr>
<td>Effective utilisation of local employees</td>
<td>LG product supply network utilizes facilities in all regions worldwide</td>
<td>Enhance brand image recognition</td>
</tr>
<tr>
<td>Generate and use global funds</td>
<td>Manufacturing supplies network</td>
<td>Increase sales profits from overseas operation by 3%</td>
</tr>
<tr>
<td>Utilize external resources effectively: Strategic cooperation with other enterprises</td>
<td>Create a regionally focused operating system in sales, CSS production, production planning, etc to enhance localization</td>
<td>Increase overseas production by 30%</td>
</tr>
<tr>
<td></td>
<td>Create a global information network</td>
<td></td>
</tr>
</tbody>
</table>

SAMSUNG is second in the in window Acs’ race with a 21% share. Its market share in split ACs is about 35%.

Samsung India, a leading provider of high tech consumer electronics products in the country, has been operating in INDIA since December 1995. The company has high tech manufacturing facilities for colour television and microwave ovens at Noida they commenced the domestic production of
washing machines in the country in November 2001 and begin manufacturing Air Conditioners in country in the last week of January 2002. The Samsung India product portfolio comprises of colour televisions in the range 14”~53” projection TVs, 'Bio-Fresh' Refrigerators in the capacity 310 liters 670 liters, 'Bio-cool' conventional refrigerators in the 175 litres~200 liters capacity, Air-conditioners including both Windows & split type, semi-automatic and fully automatic washing machines (capacity 5 kg ~ 6 kg), including front loading type and microwave ovens (18 liters ~ 37 liters).

Samsung operations in India include in consumer electronics and home appliances company Samsung India Electronics Ltd. formed in 1995, its R&D center in Bangalore, Samsung India Software operations unit (SISO) and its wholly owned subsidiary for IT/Telecom products, Samsung Electronics India International and Telecommunications (SEIT). Samsung Electronics Co. Ltd., the parent company with a Sales turnover of US$27 billion in 2000, is a world leader in electronics. It has operations in 50 countries and employs 54,000 people worldwide. The company consists of 4 main business units: Digital media, home appliances, semi-conductors, and Information technology and telecommunications businesses.

Samsung has won the prestigious Rajiv Gandhi National Quality Award Commendation Certificate for Best Quality in the Electrical and Electronics Industry for the year 1999. The company in the year 2001, achieved sales of Rs. 1350 crores, thereby achieving a growth of 12% achieved by Samsung India in year 2001 in all the more significant because it was achieved in a period of slowdown, when all major product categories were showing very minimal or flat growth trends. The company is targeting sales of Rs. 1520 crores in the year 2002.

Having built significant volumes in the washing machines and air conditioners categories in India, Samsung India has set up production units for both these categories in the country, at Noida. The company in manufacturing both window and split ACs at the 1.0 lace capacity Nodia plant the washing Machine plant too has capacity of 1.0 lace units per annum.
To take an aggressive position in the market place the new range of ACs will be supported by an aggressive marketing plan, a high profile advertising and marketing campaign which will be additionally strengthened with new for over half a century. The largest number of trained engineers, technicians and computerized response system supports the company’s service with its highly developed nation-wide network. Samsung India’s vision entails helping people improve the quality of their lines by providing them with superior quality, state-of-the-art technology products at the right-time and the right place.

Samsung presents a complete new range of world class technologically sophisticated air conditioners. Keeping in mind the needs of an increasingly demanding market Samsung has incorporated the new R41A & RY07C refrigerant gas; Samsung Air Conditioners ensure environmental stability without any harmful effects on the earth? Ozone layer. Restrictions have been imposed on HCFC, which contains Ozone-depleting chlorine, since the refrigerant R-2 currently in use still contains Freon gas. The refrigerant will be phased out under international agreements. In order to help the environment, Samsung has long been working in advance of the deadlines to switch to alternative CFC-Free refrigerants.

**Raw Condenser coils. Only in Samsung ACs**
In other brands of ACs the refrigerant has only halt the surface area to dissipate its heat resulting in inefficient cooling.
But Samsung Air conditioners have extra 2 rows of coils which provide double the surface area for the refrigerant to dissipate its heat. This results in faster chilling, thereby putting lesser strain on the compressor resulting in lower electricity bills.

- **Memory restart**
The Samsung Air-conditioners memorize the current setting. Even after a power failure it resets itself automatically.
Review of Literature

- **Anti Rust**
  Samsung Air conditioners are specially treated, to prevent rusting, they are well adapted for hot and humid conditions prevalent in India's coastal cities.

- **Compressor safety**
  A unique time delay safety circuit prevents restarts after 3 minutes after a power failure. This avoids direct strain on the compressor.

- **Bio-components**
  The components are molded with special antibacterial material that prevents fungi and bacteria from harboring inside the AC.

- **Washable Front Grill**
  Removable grill allow easy maintenance and convenient cleaning as comparable to conventional grills.

- **Installation Flexibility**
  The Samsung Air conditioners features a slide out chassis that facilities easy installation.

**Super Quite Operations**

The Samsung Air Conditioners are designed to operate quietly to maximize your comfort. At Samsung, they strive to contribute to the development of the electronics and components industry in India by enhancing the knowledge level of our workforce through the introduction of their advanced management systems and production know how in their manufacturing facilities, by introducing their Indian vendors to their world class quality systems and helping them improve their own quality systems and production processes, and setting benchmarks for the industry be it in terms of after sales service for their products, quality systems and management techniques at their facilities or their products themselves.

Samsung does not view them as an MNC operating in India, but as an Indian company operating here, confronting to the laws of the country and committed to working for the Indian community. They want to be and be seen as the most respected Indian company.
VOLTAS LIMITED The Tata-controlled Voltas has edged out multinational white goods majors like Samsung, Hitachi, Whirlpool, National, Carrier and Daikin in the domestic air-conditioner segment and grabbed the No 2 position with an 11-per cent market-share in fiscal 2003-04.

VOLTAS LIMITED is India’s premier engineering company of the rupees 400 billion TATA GROUP, one of India’s largest and best–known conglomerates. In this capacity, Volta’s has been an important resource for India’s industrializing economy, in a rich variety of business field. Voltas has been actively engaged in a series of leadership building efforts, which have earned Voltas a coveted “leadership trust ” position. Trust has been built through efficient handling of project, concern for customer & timely back up as well as series of leadership activities.

Over almost decade Voltas has established a strong leadership presence as India’s premier air-conditioning company & as a provider of engineering & back up services. The company’s strengths lie in design & manufacture of industrial equipment, management & execution of electro-mechanical project, sourcing installation & servicing of technology based system & representation of global technology leader, serving diverse industrial, sectors & application.

The Product

The products range of Voltas

- Room Air—Conditioners & Refrigeration Equipment
- Water Cooler
- Fork lift trucks
- Cranes
- Pumps
- Modular & Office Furniture System

All products bear the symbol of state-of-the-art automated manufacturing plants bearing ISO 9002 certification, resulting in consistent high quality & reduced costs.
The company's sourcing & marketing operation cover textile machinery tools, mining tools & construction equipment & industrial chemicals. In these sectors, Voltas demonstrates its specialized engineering expertise, as well as its extension network of global sources.

THE TIE-UPS

In its purists of fastest world class technologies, Voltas has entered into numerous intention tie-up with HITACHI for absorption machine & chillers, standard refrigeration for direct expansion chillers & Dunham Bush for screw chillers, Sulzer for pumps, Hista for Office Furniture. It also has joint venture FANUC LIMITED (JAPAN), GENERAL ELECTRIC (USA), & AIR - INTERNATIONAL GROUP (AUSTRALIA).

The company's global extension is Voltas International Limited, a wholly owned subsidiary & a government recognized export house. Its multiple technology capabilities are brought to bear in projects civil construction, electrical, mechanical & public health services, air & water pollution control systems & land scalping & agro development.

VOLTAS ACCOUNT LIMITED

VOLTAS cooling appliances business division group has an impressive on going record of pioneering. The room air-condition in India where manufactured by this group. Its factory in Thana was national's first intergraded plant, manufacturing hermetic compressor, room air conditioner & water cooler as well as India's first split ceiling & wall mounted air-conditioners.

Recognizing that a wide range was the key to market success, the largest line of room air-conditioner was launched as single exercise based on the success of its 1.5 Ton vectra model. The new range includes the rotary compressor. It features optional microprocessor control & other state of the art technology for efficient cooling, power saving & silent operation keeping the varied needs of the large existing Voltas customer population in mind. Voltas has developed & promoted services package are customized according to the needs & preferences of the customer ensuring value for money.
VOLTAS cooling appliances are manufactured at the thane & the dadra patents. The dadra plant is just three years young & is making news. the plant receives the ISO-9000 certificate from 'RWJUV' Germany. Recently indrawn dhanushya quality circle team won best of the season award in the 12th national convection on quality circle.

Heavy equipment & packaged systems divisions of half century pioneering experiences enjoys the position of recognized leadership industrial & commercial air conditioning. Voltas also has distinction of begins the only company in this field that offers a life time support for its product.

Over the year voltas has set up air-conditioning & refrigeration installation for naval warship & mercantile ships, synthetic fiber plants, pharmaceutical production, chemical & fertilizer, electronics, telecommunication computer facilities, ordinances factories, research laboratories, atomic energy plant, power plants, hospitals, hotel, information technology park, in fact practically every convicavle application. It’s a key asset are it accumulated knowledge best in designed, system engineering, project management & in satiation expertise as well as its well established reputation in every sector of its market.

That competitive advantage is meantime by in-cooperating the most advanced technologies through alliance with global leader.

BLUESTAR PVT LTD. is the market leader in central air-conditioning and commercial refrigeration. It also markets a wide range of products, systems and services in the field of professional electronics. Blue Star has completed 60 years in September 2003, and the company is celebrating FY 2003-04 as its Diamond Jubilee year. Blue Star has launched new turbo Rotary Remote ACs & Hi-wall Split ACs.

With consistent, excellent performance over the past many decades, BLUESTAR LTD. Has created for itself the unique position of being the largest centrally air conditioning in India. This has been made possible by its commitment to acquiring and developing contemporary technologies awareness in
environmental and energy conversation requirement investment in new plant people.

The late MOHAN T. ADVANI founded Blue Star Limited in 1934. It was grown from a small air-conditioning outfit into a multidivisional, multi-product manufacturing, contracting and marketing organization.

From the very beginning, it has been an engineering company since 1950 the company has concerted on activities involving high technology and has devolved with international and national manufacture to bring new product that have provide a vitally needed input in the nation's various development programs backing the product through specialized value added services prior to and after sales. Consolidation and complete refinement of customer services have been giving the utmost importance. The company today is the market leader in the air-conditioning filed and launched and aggressive thrust into new growth areas involving high technology.

The company is a public corporation with yearly turnover RS 517 cores. It has factories in Thane, Baruch, Dadar & sales and services office in 23 major cities in India serving wide markets, including public utility undertaking, commercials & financial institution, education & research institution, medical center & hospital, nuclear & space research organization, defiance, telecommunication industries, transport industry to name a few.

Today the company has collaboration with many reputed international organization, as uplift the quality and provide the best product and services in optimum price.

Blue Star Limited. Strength lies in its resource of over 800 trained and experience technical personal. Specialized in deferent aspect of the job are given advance training and many are sent to foreign business associates for specialization skills. Blue Star Limited. Has a training school at thane provides expertise to its engineers Covering all facets of air-conditioning & refrigeration. When critical parameters are of paramount, when innovative solutions are sought, when
sophisticated technology is required Blue Star Limited. Expertise in various air-conditioning & refrigeration application is clearly unmatched.

**PRODUCT PROFILE OF BLUE STAR PVT LTD.**

Blue Star Limited is India’s leading air-conditioning ‘refrigeration, ventilation and heating company. In over five decades of excellence, the blue star has acquired a strong brand equity for superior state-of –art air-conditioning and refrigeration technology and engineering capability BlueStar Limited. Offer the widest available range of air conditioning & refrigeration product, system and services.

**CARRIER AIRCON LTD (CAL)** is engaged in the manufacturing and sales of the full range of air conditioners in India. Carrier has provided technology support for air conditioners since 1990 through a series of collaboration arrangements. After its equity participation in 1999, it had reinforced carrier with technical & brand support including deputing Japanese expatriates in design, manufacturing and quality assurance. Carrier has recently launched a new digital range of split & window ACs called ‘Logicool’. With highly innovative and constantly evolving products like the Logicool i range, Carrier has consistently outperformed the air conditioner industry growth in the last two years, largely due to its technology driven marketing strategy. The success of the Logicool i range has helped the company maintain this trend and achieve an impressive volume growth of more than 40% during summer of 2002. Carrier with a market share of 14%, has emerged among the top 3 players and one of the fastest growing companies in the high growth RAC market in India.

CAL is a 51 percent subsidiary of carrier corporation, US, a part of united Technologies Corporation, a world leader in air-conditioning, around 60 percent of CALs revenue is derived from room air-conditioners (RACs), compressors and chillers, while the remaining 25 percent is derived through the servicing of installed ACs and trading.

**Strengths-Weakness and competitive Advantages**

(163)
Largest air-conditions company of India: CAL manufactures a wide range of air-conditioners, Which include window of split ACs. Its effective capacity at present is 1,50,000 units, window and splits combined. As for compressors, Its capacity is 3 lakhs units. It started making chillers (central air-conditions units ) in 1994-95 with a small capacity of 50 units. This was increased to 150 units by 1996-97. CAL ie now the largest air-conditions company in India. It is the leading player in RACs—in every sub-category within RACs, in window ACs ducted splits and non-ducted splits. Only in central plants, it does not hold the leadership. It is no expanding its presence in the central air-conditioning category as well overall, it commands a 30 percent share in the Indian AC market.

A part of carrier Corporation, world leader in ACs:
CAL drives its main competitive advantage from its being a part of carrier corporation, USA, the undisputed leader in air-conditioners worldwide. Carrier corporation, USA, promotes CAL. CAL can secure a steady stream of air conditioning products from Carrier's worldwide product portfolio. In India, CAL already has the widest product range-window units, splits, ducted as well as non-duct, packaged unit, heavy flooded chillers, absorption chillers, etc. Carrier, USA, earlier had only a 40 per cent holding in CAL and was reluctant to 51 per cent, the parent company is now fully committed to its Indian subsidiary. More recently. The parent company has been making moves to acquire 100 per cent owner ship of CAL.

Large, in house facility, for compressors: The in-house facility for the manufacture of compressors CAL's second major competitive advantage. This has ensured that CAL's cost of room ACs will be lesser than that of its competitors by about Rs 1,000 per-unit. And, with this, CAL has been able to improve its margins. Secondly compressors now make up an additional business for CAL. CAL could capitalize on the growing demand for compressors from AC manufactures, who do not have compressor production facilities of their own.

Strong distribution network: The strong distribution network serves as another competitive advantage for CAL. CAL has 17 marketing offices, (branches) 22 service stations and 360 strong dealer network, spread all over the country,
selling CAL air-conditioners exclusively. As an innovative step, the company has also set up showrooms in selected cities, where it demonstrates carrier products in 'real' working environments. These are called carrier comfort showrooms. Customers can walk into these showrooms and see and feel the products they purpose to use. CAL has 13 company managed carrier comfort points. This has helped CAL, especially at the upper and of split air conditioners.

**After-sales service:** CAL has also invested significantly in its after-sales service network. It places high emphasis on technical training of service personnel. It has set up a training institute in Gurgaon, Haryana, to train company and dealer service items. In order to build an image professionalism, the company has provided their service personnel, uniforms, pagers and cell phones, besides tool kits and hand gloves. The company has also begun providing round-the-clock service in selected locations.

**Amtrex Appliances Ltd**

Started in 1984 by the Sanjay Lalbhai group, the Ahmedabad-based. Amtrex Appliances Ltd, concentrates on window and split ACs. It is also present to an extent in the packaged air-conditioners and chillers. Amtrex has two plants, one at Kadi, Gujarat, and the other at Silvassa. Between 1992-93 and 1994-95, Amtrex registered a CAGR of over 84 per cent in sales, compared to the industry growth of 35 percent. The sales turnover increased from Rs 15 crore in 1992-93 to Rs 53 crore in 1994-95 and market share from 13 to 15 percent. Its market share increased still further to 19 per cent by 1995-96 in the window plus split category. In the packaged category, its market share was 8 percent in 1995-96. The company has been steadily expanding its capacities and has now an installed capacity of 1,20,000 AC units. In the next phase, it will expand the capacity further to two lakh units at an investment of Rs 13 crore. The company holds the number three position in the window plus split categories.

**Strengths-Weakness and Competitive Advantages**

**Pioneered split air-conditioners:** Amtrex pioneered split air-conditioners in India and was the first to launch wall mounted split air-conditioners.
Forays into the export market: In recent years, Amtrex has been seriously targeting the export market. It seeks to exploit its strength in tropical airconditioning and is targeting regions, which have climate conditions similar to that of India. It already has a presence in the Middle East. It is in the process of setting up assembly lines in Bangladesh, Sri Lanka, Mauritius and Oman.

Large Distribution network: Amtrex has established a large distribution network consisting of 362 distribution in 116 towns across the length and breadth of the country. It further plans to cover 300 towns (mainly Class C towns) through 1,035 dealers in the next few years. Amtrex’s policy is to create separate distribution channels for different categories/segments, to facilitate customized approach.

Collaboration with Hitachi: Amtrex has a technical collaboration with Hitachi of Japan for the manufacture of room ACs. More recently, it has gone in for a strategic alliance/joint venture with Hitachi and has launched a new range of airconditioners under the ‘Amtrex-Hitachi’ brand name. After the launch of its JV with Hitachi, Amtrex has been following a dual brand strategy. Hitachi is positioned as a technically superior, high-end brand, while Amtrex is positioned as a technically superior, high-end brand, while Amtrex is positioned as a mass-market brand.

Hitachi has picked up 35.2 per cent of the stake in Amtrex. The alliance with Hitachi will help Amtrex to upgrade its technology, especially, in the manufacture of compressors. Hitachi will also share with Amtrex all its know-how on manufacturing and marketing of air conditioners. It will also lend its brand name to the ACs made by Amtrex. Amtrex has already launched two models under the brand name Amtrex-Hitachi and has plans to launch many more. It will slowly phase out the Amtrex brand.

No in-house compressors: The company does not have in-house compressor manufacturing facilities; it outsources them.

VIDEOCON is the first company to come out with ACs with the ‘Quadra heat exchanger’ technology with top discharge and waste condense recycling facility. These new ACs also reduce electric power consumption by 30 to 80 per cent.
Review of Literature

Company officials say over the past five years, Videocon had invested more than Rs 15 crore to come up with this AC technology which enables ACs to provide extraordinary cooling besides reducing the total cost of ownership. Videocon is planning to promote its new range through its existing distribution network, which includes 3,800 direct dealers across India.

Videocon is another significant player in the AC industry. It is one of the later entrants. It has a technical/DandD cooperation with Matsushita of Japan. It makes 1, 1.5 and 2-tonne air conditioners, based on the technologically advanced ‘rotary compressors’ and free of the environmentally hazardous ochloro-flouroo carbon (CFC) gases. It experience in consumer durables like CTV and refrigerators. It has a network of 2000 dealers across the country. It uses thenetwork for marketing its room ACs.

Videocon has adopted a penetration pricing strategy and is trying too achieve high volumes. It is the first to offer an exchange scheme to consumers in air-conditioners. Like Voltas, Videocon too has been expanding its range, so as to tap every need and every pocket.

Like Amtrex, Videocon too follows a dual brand strategy. The air-conditioners are marketed under Matsushita National brand and Videocon brand. In respect of Matsushita brand ACs, Matsushita would be the original equipment supplier to the Videocon group, which will market the product. Videocon already owns an AC manufacturing unit at Aurangabad in Maharashtra, with technical support from Matsushita. It has another unit at Sriperumbudur, Tamil Nadu, which will become the major supplier of rotary compressor-based AC units for both the Japanese and Indian-partners. The two projects co-exist. There will be no technology transfer from Matsushita to the Aurangabad facility.

HITACHI

As already mentioned, Hitachi of japan has also established its presence in the Indian AC market. Hitachi has been working with Amtrex since 1990 through its technical collaboration arrangement. Subsequently, the relationship was further strengthened with a licensing arrangement. And later still, Hitachi went in for the JV. The JV with Amtrex now forms the core of Hitachi’s strategy for India. The Japanese company invested about Rs 16 crore and acquired preferential shares of Amtrex to the tune of 35.2 percent in the joint venture company. The Hitachi
and Amtrex hold an equal stake of 35.2 per cent in the joint venture company. The new company would introduce new models of window and split air-conditioners. For some time to come, the Hitachi brand will co-exist with the existing Amtrex brand. The dual brand time to come, the Hitachi brand will co-exist with the existing Amtrex brand. The dual brand strategy will help the joint venture company to offer a comprehensive range of products.

Godrej-- the home appliances major, now has a complete range of 11 models of air-conditioners. The company offers small to large and split to window models, which makes it a very comprehensive range in the market. Godrej will now be visible in different models, price and sub-segments of ACs which makes it a serious and competitive player in this category. Additionally, Godrej has also introduced a brand-new technological innovation called the 'Ice Factor.' This innovation is an answer to the Indian summer — a superior technology that promises really cool temperatures that stay that way.

Daikin Industries Ltd. has stepped in India with a joint venture between Daikin Industries Ltd. and Siddharth Shriram Group Company 'SIEL'. The $4.5 billion Daikin Industries is a multi-product company with the air-conditioning business comprising 74 per cent of its business. Daikin Shriram is eyeing a 20 per cent share of the 5.6 lakh unit air-conditioner market by year 2007 in India and acquired market share of 5-7 percent in the first year of operations.

Thus the struggle to prove "Who is the coolest one?" is taking a big proportion. It has opened a hilarious market for the people giving them a wider choice of selection. More than buying assembled products people have realized the worth of the brand names & their better performances.

Today as have already said, LG is the market leader followed by Voltas, a close second with a market share of 11%. During 2002-03, the market share of Samsung increased by 2 per cent while Hitachi’s market-share dropped to 10 per cent from the earlier 11 per cent. The other brands like National registered 0-per cent growth in market-share while Carrier's share dipped by 2 per cent.
4.10 WATER IS LIFE: NEED FOR PURE WATER

In fact, the human body itself consists of 65% water. One can live without food for more than a month but it is impossible to survive without water for more than a few days.

On an average, we consume approximately 2.5 litres of water a day. This may be in other form of water or beverages we drink, or in the food we eat. Drinking the required quantity of water keeps the body healthy, by flushing out harmful toxins. Making you stay fit and looks fit.

Unfortunately, the water we consume can be polluted. Polluted water may look clean, and even taste okay, but may contain germs and other impurities that cause water bond diseases.

That’s why it extremely important to ensure that these impurities are removed before the water can be safely used for consumption.

COMPANY PROFILE:

EUREKA FORBES:

EUREKA FORBES LTD have a business mission of providing our valued customers with healthy, hygienic & pollution free environment. All our products are under this umbrella & we have been taking giant steps since our inception in the year 1982. We have employee strength of more than 5000 ‘EUROCHAMPS’ spread in 90 cities having 140 offices.

Eureka Forbes has a customer base of more than 4.2 million & has been showing a remarkable growth of approx 20% consistently over last 5 years. Our last year turnover was Rs.725 Crores with a PAT of Rs.49 Crores. For the financial year 2006-07, we are well on our way towards achieving the objective of Rs.1000 Crores. We have been able to achieve this remarkable performance due to high market share we enjoy of 80% in both vacuum cleaner & water purifier segments. Our manufacturing facilities are located at Bangalore, Bhimtal & Hyderabad & each one of them is having state of the art R & D facilities.
Our major sales departments are Direct (selling vacuum cleaners, water purifiers & air purifiers direct to customers), Dealer Sales (with 3000 strong dealer network), and Security Systems (in collaboration with Digital security Controls of Canada, Industrial Sales Division & Exports. We have been making continual efforts to provide best after sales assistance to our customer & have more than 2,500 service engineers for the same. Another step towards this continuing exercise has been setting up our 24 hour customer response center at all the metros with a common number 9628-333 333.

CORPORATE CARE DIVISION

Corporate Care Division, of Eureka Forbes Limited was formed in the year 1987 to provide our institutional & industrial customers with specialized products, services & consultancy. We have 80 specialists all over India to provide consultancy to our various customers in all major industrial & institutional cities/towns. Industrial sales Divisions customer are further catered to by over 200 distributors across the country for all their product & service needs for all house-keeping & pure water needs. We have 48 % market share in the segments present & currently have 80% growth rate.

We have a very wide range of customers from all segments. Like Soft Ware, Hospitals, Hotels, Automobile industry, Engineering Industries and many more. In fact we are in some of the most prestigious accounts of India like the Parliament House, Indian Railways & India Air Force.

EUREKA FORBES LTD.

- Joint venture between Forbs Gokak (part of the shapoorji pallon Group) and Electrolux AB of Sweden.
- Ret up in 1982 to market health and hygiene products to Indian Consumers.
- revolutionized the Indian market by introducing products lie Home cleaning system (in 1984) and Air purification system (in 1994).
- Pioneered the concept of direct sales in health and hygiene products.
Review of Literature

- Started from a single office, ten field representative’s organization in 1982, today operates from 140 offices covering 90 cities with over 5,000 plus Euro champs.
- Expended distribution channel to cover the retail, industrial and commercial segment and households not only in India but in other countries too.
- Manufacturing facilities at Bimetal, Hyderabad, and Bangalore together with an advance Research & Development centre at Bangalore.
- Customer service network of over 500 response centers to provide prompt and efficient after sales service.

Asia’s largest Direct Sales Organization.

The key sales divisions:
- Direct Sales
- Industrial Sales
- Dealer Sales
- Export division

RELATIONSHIP

- It begins with listening to the customers & addressing their priorities and inhibitions
- 140 customer response centers across 98 cities ensure that customers are never left out in the cold
- A 4000 strong dealer network distributing the Forbes range of water purification systems and tornado home cleaning systems
- An industrial sales division which distributes the Milkfish range of cleaning equipment
- 4 manufacturing facilities at Hyderabad, Bimetal, Magalia and Bommasandra with ISO 9002 Certification.
- A network of water testing laboratories across the country.
- A government recognized R&D centre at Bommasandra, Alliances With global leaders.
• They have certification from prestigious independent water labs in India & abroad for their range of water purification systems. Plus, a growing exports market.
• Market leaders in augured water purification system, euro clean home cleaning system, and euro air purification system and euro vigil electronic security solution.

MISSION
To build sustainable relationship with customers, as their
Friend for life
By standing their evolving health, hygiene, safety and life style need through our people Whose entrepreneurial sprit and ambition is fuelled by the culture of pride, learning earning and fun
Our products and services
That reflects innovation, become quality bench marks, and provides real value for money
Our policies and practices
That is fair, transparent and constantly improved to maximize stakeholder satisfaction inductive market leadership.

About KENT
Pure Water House is a 15 yr old company, dedicated to the purification of drinking water and keeping the citizens of Bangalore /Karnataka safeguarded from water-borne diseases. This is our mission. The cornerstone of the Pure Water House success is its commitment to the best technology backed by the most efficient customer support. For e.g., the phone is answered before the 4th ring and breakdown calls are answered within 24 working hours.
We have over 12,000 installations in Bangalore, with some satisfied customers -using the same purifier for more than 10 years.
Pure Water House offers three technologies, RO, UF and UV, for residential and commercial purposes.

Kent **Mineral R.O.** water purifier, (RO + UV with essential minerals)
Kent **R.O** water purifier
Kent **Smart Ultra Filters (U.F)** works without electricity
Alfaa **Ultra Violet (U.V.)** Water Purifiers, (Domestic and Commercial)
Blue Star **Water Coolers, Ice Cubers, & Mineral Water Dispensers,**
**100 LPH R.O. System** from **G.E.** for Commercial Applications

**A Brief Note ON Water Purification**

Kind Of Impurities In Different Water Sources

<table>
<thead>
<tr>
<th></th>
<th>Physical</th>
<th>Chemical</th>
<th>Organic</th>
<th>Microbiological</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Municipal Water</strong></td>
<td>✔ ✔ ✔</td>
<td>✔</td>
<td>✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td><em>(Bangalore)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bore well</strong></td>
<td>✔</td>
<td>✔ ✔ ✔ ✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td><strong>Open Well</strong></td>
<td>✔ ✔ ✔ ✔</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔</td>
<td>✔ ✔ ✔</td>
</tr>
</tbody>
</table>

- Physical Impurities includes visible particulate matter like sand, silt, dust and dirt
- Chemical includes heavy metals like Lead, Mercury, dissolved salts like Arsenic, Fluoride, Nitrates etc, and pesticides
- Organic Impurities includes dead and decaying plant and animal matte from mosses, algae, tadpoles, fish, etc, as well as their waste products.
- Microbiological Impurities includes disease causing bacteria and viruses responsible for diarrhea, dysentery, cholera, typhoid, jaundice, polio etc
### Review of Literature

#### Relative Strengths Of Different Technologies In Eliminating Varying Impurities In Water

<table>
<thead>
<tr>
<th>IMPURITY</th>
<th>UV</th>
<th>RO</th>
<th>UF</th>
<th>Boiling (for 20 mins.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>✓✓ ✓</td>
<td>✓✓✓✓</td>
<td>✓✓✓</td>
<td>---</td>
</tr>
<tr>
<td>Chemical</td>
<td>---</td>
<td>✓✓✓✓</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Organic</td>
<td>✓✓ ✓</td>
<td>✓✓✓✓</td>
<td>✓✓✓✓</td>
<td>---</td>
</tr>
<tr>
<td>Microbiological</td>
<td>✓✓ ✓</td>
<td>✓✓✓✓</td>
<td>✓✓✓✓</td>
<td>✓✓✓✓</td>
</tr>
</tbody>
</table>

- This is why Kent RO is best for Bore well water
- Kent Mineral RO (which combines RO + UV) for mixed water sources, or when you are not sure of your water source as you move houses/cities.
- Kent UF where electricity supply is erratic, or the water has a lot of colour, especially after the rains
- UV is ideal when you require large volumes of drinking water, such as for schools, hostels, hotels, etc, provided the water is free from chemical impurities, or is from a municipal source.

#### Kent R-O Water Purification System

Reverse Osmosis is a process wherein water is forced through a semi-permeable Membrane by applying strong pressure, thereby allowing only fine water molecules to pass through it. All contaminants such as bacteria, viruses, herbicides, heavy metals and chemical poisons are removed. With added special features, pure water is then collected in a container and dirty water with impurities is discharged separately.
The diameter is less than 0.0001 micron (which is 500,000 times less than the diameter of our hair.)

R-O Membrane is able to filter harmful substances like suspended particles, viruses, bacteria, heavy metals etc.
A Broad Profile of the Indian Consumer
When we attempt to draw a profile of the Indian consumer, we tread on difficult territory. No comprehensive study of the Indian consumer has been undertaken so far. We have to rely on the fragmented studies that have been conducted by different agencies.

DEMOGRAPHICS

Size of population:
According to the census 2001, as of May 2001, the population of India stood at 1,027 million of which 742 million lived in rural areas and 285 million in urban areas.

Literacy and education:
According to the census 2001, the nation’s average literacy rate is 65.4 percent.

<table>
<thead>
<tr>
<th>Year</th>
<th>Literacy rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>18.3</td>
</tr>
<tr>
<td>1961</td>
<td>28.3</td>
</tr>
<tr>
<td>1971</td>
<td>34.4</td>
</tr>
<tr>
<td>1981</td>
<td>43.7</td>
</tr>
<tr>
<td>1991</td>
<td>52.2</td>
</tr>
<tr>
<td>2001</td>
<td>65.4</td>
</tr>
</tbody>
</table>

(Source: Census 2001)

In the coming years, there will be faster progress in checking literacy as the proportion of youngsters enrolled in schools is going up and more & more neo-literates are also emerging from among the adults.
The Government has targeted to achieve 80% literacy on a nationwide basis in the next 10 years.

A vast educated manpower:
It is a paradox on one hand, India has the highest concentration of illiterates in the world; and on the other, it has the second highest concentration of literates and the third largest pool of educated technically trained manpower in the world. India has the strong pool of engineers, Scientists and technically trained persons. India has been displaying its strength & power in recent years.

Diversity, the Hallmark
Indian consumers are not a homogeneous lot. They are marked by great diversity. It is this diversity that strikes us first when we look at Indian consumers – diversity in religion, language, culture, tradition, social customs, dress and food habits.

Religious diversity
the one billion plus people of India belong to seven different religious groups – Hindus, Muslims, Christians, Sikhs, Buddhists, jains and Zoroastrians.

Linguistic diversity
The same diversity is seen in the matter of language. Sixteen languages have been specified in the constitution of India as national languages. In addition, there are hundreds of dialects. To a marketing man who has to approach the entire national market of India, this linguistic diversity is a big challenge.

Diversity in dress and food habits
As far as dress is concerned, India holds out the picture of widely varying styles. Almost every state, or religious community, has its own traditional styles of dress. The same is the case with ornaments and Jewellery. As regards food, rice is the staple food in the south and wheat in the North
Geographic spread

We mentioned earlier that as of May 2001, the population of India stood at 1,027 million, with 742 million people living in rural areas and 285 million in urban areas. In terms of percentage, 73 percent of the population is in rural areas and 27 percent in urban areas.

The consumer Basket

We shall now devote some attention to the consumption pattern of the Indian consumer. Studies by the center for monitoring Indian economy (CMIE) reveal that structural shifts have been taking place in the consumption pattern of Indian consumers in recent years and the shifts have gained greater momentum since the launch of economic reforms.

Changes in Lifestyle and buying habits

Currently, one is also witnessing significant changes in lifestyles and buying habits of Indian consumers. Convenience foods and ready-to-eat foods are now popular; modern gadgets like vacuum cleaners and cooking ranges have gained entry into households.

Personal Final consumption Expenditure: 1998-99

<table>
<thead>
<tr>
<th>Item</th>
<th>Expenditure (constant price) (Rs Crore)</th>
<th>% Share of different items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>347319</td>
<td>45.68</td>
</tr>
<tr>
<td>Cereals</td>
<td>77967</td>
<td></td>
</tr>
<tr>
<td>Pulses</td>
<td>12995</td>
<td></td>
</tr>
<tr>
<td>Sugar and</td>
<td>25011</td>
<td></td>
</tr>
<tr>
<td>Oils and Oilseeds</td>
<td>29521</td>
<td></td>
</tr>
<tr>
<td>Fruit and Vegetable</td>
<td>78494</td>
<td></td>
</tr>
<tr>
<td>Potatoes and other tubers</td>
<td>7613</td>
<td></td>
</tr>
<tr>
<td>Milk and milk products</td>
<td>64906</td>
<td></td>
</tr>
<tr>
<td>Meat, egg and fish</td>
<td>27537</td>
<td></td>
</tr>
<tr>
<td>Coffee, tea and cocoa</td>
<td>5764</td>
<td></td>
</tr>
<tr>
<td>Spices</td>
<td>12521</td>
<td></td>
</tr>
<tr>
<td>Other food</td>
<td>5026</td>
<td></td>
</tr>
<tr>
<td>Beverages, pan and</td>
<td>6099</td>
<td>0.8</td>
</tr>
<tr>
<td>Tobacco and its products</td>
<td>22397</td>
<td>2.94</td>
</tr>
<tr>
<td>Hotel and restaurants</td>
<td>10029</td>
<td>1.32</td>
</tr>
<tr>
<td>Clothing and footwear</td>
<td>42012</td>
<td>5053</td>
</tr>
</tbody>
</table>
Review of Literature

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross rent, fuel and power</td>
<td>83346</td>
<td>10.96</td>
</tr>
<tr>
<td>Furniture, appliances and repair services</td>
<td>25211</td>
<td>3.32</td>
</tr>
<tr>
<td>Medical care and health Services</td>
<td>32293</td>
<td>4.25</td>
</tr>
<tr>
<td>Transport and communication</td>
<td>110362</td>
<td>14.51</td>
</tr>
<tr>
<td>Recreation, education and cultural services</td>
<td>27921</td>
<td>3.67</td>
</tr>
<tr>
<td>Misc. goods and services</td>
<td>53365</td>
<td>7.02</td>
</tr>
</tbody>
</table>

Source: CMIE/ECONOMIC TIMES.

The average Indian is now spending his money more liberally than ever before. Yesterday’s luxuries are fast becoming today’s necessities. Data from the NCAER National survey of household expenditure on consumer durables and consumer softs pointedly suggests that conventional notions of what is a luxury good and what is an essential commodity are fast changing. The change has been stimulated to an extent by exposure to media, especially TV. The media gives him exposure to the lifestyles of the well-to-do, as well as the modern product that are used by them.

Classification of Indian consumer based on Economic status

A fourfold classification of the Indian consumer based on economic status, as shown below, emerges as a natural and ready categorization.

- The affluent group
- The middle class.
- The relatively poorer section
- The BPL section.

The Affluent Group

Numerically, this group is small. It does not form a large enough demand base in itself for most products. Yet, it has a good deal of marketing significance. This is because firstly, it is a useful segment for luxury product. Secondly, in respect of other products too, super premium brands depend on it that is why it is sometimes described as the ‘image segment’.
NCAER has estimated the affluent population in India with an income of over Rs 10 lakh per annum to be in the range of one million households. It means that a target audience of 5.6 million individuals is available for products priced at the top-most end of the scale. That is certainly not a small segment. This segment is looking out for 'something new' to buy; it is constantly upgrading to the styles set by the affluent in the west. Such individuals happily buy Air conditioner worth Rs. 1 lakh

The middle class
It is the middle class that constitutes the largest segment of consumers for manufactured goods in the country. It constitutes the real consuming populace. Accordingly, it has great marketing sign significance.

The relatively poorer section
The third category, viz, the relatively poorer sections, also account for a good-sized demand base for certain products. Though their purchasing power is very low, their size is very large. NCEAR has found that over 75 percent of the purchase in categories like cooking oil, tea, detergent cake, bath soap, tooth powder transistor radios and certain kinds of footwear, came from people with income levels below Rs 25,000 per annum.

The BPL Section
The 'below the poverty line' section is the fourth category. It is also large in size. It does not form part of the demand base for most branded Consumer products. The category is, however, projected to shrink substantially in the coming years.

The Middle class explosion
In the past few years, a virtual explosion has been taking place in the Indian middle class. In fact, the emergence and growth of this class has been the most significant development in the country's marketing scenario in the last decade.

The size of the middle class is now placed at around 300 million. India's middle class thus exceeds the total population of the US. Also, the market potential represented by the class is almost on par with total market potential of major
Review of Literature

European countries like the UK, France, or Germany. Any analysis of the Indian consumer has to necessarily pay maximum attention to this class.

The consumption community
The middle class is now emerging as the ‘consumption community’ of the country. As the members of the class are better educated and better exposed to global lifestyles, their aspirations have been constantly growing. Their spending is steadily on the increase. They often spend more than what they earn at any given point in time in order to cope with their new social image. Their expenditure on non-food items is continuously on the increase. Toiletries and cosmetics, including premium brands, have become common items of consumption for them. Instant coffee and soft drinks find a place on their daily menu. Costly fabrics, ready-mades, furniture, fans, stereo-music systems, TVs, refrigerators, electric mixers and grinders, pressure cookers and gas stoves have become essential items for the class. Modern household appliances like washing machines dishwashers and vacuum cleaners, are gaining a rapid entry into the homes of the upper segment of this class.

Not confined to the big cities
The middle class is not confined to the metros and other big cities. An analysis of penetration of select FMCGs and durables shows that there is now respectable product penetration even in small towns.

Constructive discontentment
The most interesting aspect about the middle class seems to be their constructive discontentment. Their needs seem to be on the increase constantly and what we come across is almost a no-satisfaction situation. And it is this ‘constructive discontentment’ of this class that makes it the consumption community of the country and the main demand base for most product categories.

The phenomenon of ‘The Second’
The phenomenon of ‘the second’ is worth highlighting here. The top end of the middle class consumers is now aspiring for a second TV and a second refrigerator. This second phenomena is an indication of the Indian consumer's
Review of Literature

growing needs and his willingness to spend the required amount of money to meeting his needs.
(source:'Indian Market Demographics Report (1998), published by NCAER)

Indian consumer market-NCAER study

- The 'consuming class,' households with an annual income of Rs 45,000-2,15000 at 1994-95 prices, which is normally considered as the middle class, now totals 53.5 million. About 27.5 million of these middle-income households are in urban areas and 25.9 million in rural areas.

- Granting an average 5.56 people per household, the size of the middle class consumers can be pegged at about 297 million.

- As a proportion of the population, the consuming class has doubled from 14 percent of total households in 1989-90 to 30 percent in 1998-99.

- This proportion will rise to 40 percent by 2006-07, when there will be 80 million middle class household with 445 million people.

- The percentage of very poor households is shrinking. It has dropped by almost half in the past decade — from 25 percent in 1989-90 to 13.2 percent 1998-99. and the figure is expected to fall further to 7.7 percent, by 2006-07.

- 'the destitute'(income range : Rs 16,000 per annum) and 'the aspirants' (income range: Rs16000 - 22,000 per annum) will shrink significantly.

- In other words, the poorest class will roll back from more than 51 percent of the total population to about 14 percent by 2006-07.

- At the other end of the income spectrum, the very rich will account for 2.6 percent of all households in 2006-07 up from 1.6 percent in 1998-99 and 0.3 percent in 1989-90.

- In term of numbers, the affluent will jump from a mere 4 million in 1994-95 to 35 million by 2006-07.

- 'the consuming class' will grow the fastest.

- Economic liberalization has had a positive impact on Indian households, pushing up their incomes and expenditures.
Voting for credit purchase

Though India has not yet become a totally credit-oriented society like the West, consumer credit is gaining ground. The middle class is in the vanguard in this regard. Compulsion on the social and economic fronts is driving him towards consumer credit. Basically, he lives on a fixed income and manages within a rigid budget.

In fact, the middle class is the target of all consumer credit facilities extended by manufactures, marketing firms, banks and other financing agencies in the country. Even the credit card system in the country depends heavily on middle class numbers. In credit cards, India is expected to soon become the second largest in the world, next only to the US.

The New Middle Class

- The most striking feature of contemporary India is the rise of a confident new middle class. It is full of energy and drive, and it is making things happen.
- The middle class is at the center of the socio-economic upheaval now taking place in India.
- India is passing from an inward-looking, predominantly rural society to an increasingly integrated and important player in the world economy; opportunities are opening up to the middle class as never before. Whether in the workplace or in their personal lives, the young have more chance to shape their future than their parents ever had.
- Indian entrepreneurs from the middle class are seizing key slots in the global information and media industries.
- They demonstrate that there is a way up from the bottom to the top—a message that has been the driving force behind the dynamism of the US and which could have the same impact here.
- The middle class is by far the fastest growing segment of Indian society;
- The new middle class is street smart and focused on increasing their income. It is non-ideological, pragmatic and result oriented. It is here to stay.
Review of Literature

In the grip of big change
On the whole, the Indian consumer is in the grip of big change. Our understanding of the Indian consumer is getting outdated fast. This is because the country and its environment have become more complex in recent times. They are also currently going through a major change phase. The well-off segments are becoming more cosmopolitan in work culture, food habits, entertainment and lifestyle in general. A fusion of the east and the west is taking place. In fact, one can say that some kind of an internationalization of the Indian upper middle class society is on.

The Main Segments within the middle class

- The middle class male
- The middle class woman
- The middle class teenager

The middle class male

- Basically a security seeking class
- A blend of the traditional and the non-traditional
- Middle class men prefer ready-mades today
- Travel on the increase
- Prestige conscious
- Strong family ties
- He is not the sole decision maker in purchase
- Enterprise Nexus study
The Middle class woman

- Cautious, but not avers to change:
- Quality-conscious as well as cost-conscious:
- Leisure seeking:
- Aware of new developments:
- Good sense of grooming:
- New self-concept, new yearning:

The Middle class Teenager

The teenagers form another distinct and sizable segment within the middle class. Currently, there are more than 150 million 13 to 19-year olds in India. An IRS study shows that 28 to 32 percent of the every day-mainstream-products are consumed by this group.

They are certainly more modern and adventurous than their elders. In them, we see the blend of the western and Indian lifestyles. They care less for 'religion and tradition'.

'New Look'; 'variety' interests them; and most of them are quick in adopting 'fashions'. They are more receptive to change than their elders. Their tastes and preferences can be influenced relatively more easily. It is of course, not easy to dupe them, but it is easy to motivate them. Many manufacturers are now compelled to make distinct offers to suit the teenager target the 'Teenager market' is of special
importance to certain product categories like garments, cosmetics, personal care products, fast foods and soft drinks.

The New Age Indian Woman – McCann Erickson Study

The Indian woman’s traditional life roles encompassed:

- The dutiful daughter
- The homely bahu
- The adjusting wife
- The sacrificing mother-in-law
- The Unworldly widow

The yearning of the new age Indian woman

- Need for personal achievement and achievement as parent
- Need for recognition
- Yearning for romance
- Need for personal leisure
- Need for emotional support
- Need to reconcile personal ambition with traditional roles
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REVIEW OF LITERATURE : PART –3

4.12 TECHNICAL ASPECT IN AIR & WATER CONDITIONING DEVICES

TYPES OF ACs

The air conditioner industry is now growing at over 20%. Air conditioning products are divided into Non Ducted products & Ducted systems. The Non Ducted products are divided into two parts: window ACs & the mini splits. The ducted systems are divided into central plants, packaged ACs, and ducted ACs. Window ACs account for about 54% of the total market for ACs with an estimated market size of about Rs20bn.

Room air conditioners operate on electricity or gas and are enclosed in a single cabinet. They blow the conditioned air directly into the room and do not have air ducts leading to and from them. The three chief types are window air conditioners, consoles and self-contained air conditioners.

Window air conditioners fit into the lower part of a window and can be moved from window to window and thus the name, Window ACs. Self-contained air conditioners are the large room air conditioners.

Central air conditioners also use electricity or gas. They can supply conditioned air to a number of rooms or to an entire building from one central source. Fans blow the conditioned air through air ducts from the air conditioner to the rooms. Central conditioners have a number of advantages over other kinds. For example, all the equipment for air conditioning a large area is located in one place. This reduces the cost of cleaning and repairing. Central conditioners can also be zoned i.e. they can supply air of different temperature to different parts of a building.

Combination of room and central air conditioners are used in large buildings. The demand for non-ducted products grew steadily in the latter half of the 1990s. The demand for mini-split ACs has grown at a higher rate as against window ACs mainly because of a lower base. The demand switch from mid sized ducted products, such as packaged ACs or ducted splits to mini splits is also one of the larger growth rates in the latter segment. The demand for non-ducted
products i.e. the window air conditioners & mini splits come from both households & corporate while the demand for ducted products comprising of the central plants & packaged air conditioners & ducted splits come only from corporate. With CFCs being phased out, there is also growing potential for replacement and conversions of ACs and chillers.

(A) SCIENTIFIC ASPECT OF AIR-CONDITIONING:
Some of the important information about A/C. The whole thing is based on technology & scientific aspect. The definition of these product are given in detail

AIR-CONDITIONER
An air-conditioner transfer the heat from the building where it is not wanted, to the outside, refrigerant in the system absorbed the excess heat & is pumped through a closed system of piping to an outside coil. A fan flows outside air —over the hot coil, transferring heat from refrigerant to the out door air because the heat is removed from indoor air, the indoor air is cool.

AIR-HANDLER
The indoor section of an air-conditioning system, that circulates and delivers the conditioned air. The air handler often is called unit and contain the evaporator coil, indoor fan motor and something heat strips.

COMPRESSOR
This is the heat of an air conditioner. It is the pumping that causes the refrigerant to flow and that produces cooling. It draws a low pressure on the cooling side of the refrigerant cycle, and compressor the gas in the high pressure or condensing side of the cycle, the compressor allows for the transfer of heat from inside the home to the outside.

CONDENSING UNIT
This section of an air-conditioning system pumps vapourised refrigerant (freon) from air handler, compressor it, liquefies it and return it. Often called “the out door unit”, it contains the compressor, condenser coil a roof top package unit, the condensing unit and air-handling are contained in the same package.
COIL
A network of tubing filed with refrigerant, the coil inside the home takes the heat and moisture out of the air as liquids refrigerant evaporative. The indoor coil is often called the cooling or the evaporator coil.

PACKAGE UNIT
A self contended A/C unit that include both the evaporator & condenser section with in a single cabinet. Its advantage includes simplicity of installation, which leads to lower installation cost, no need take up the potential indoor storage space & animation of the condensing unit on the ground. However a packaged unit can create more noise & may be consider an eye sore on a roof.

REFRIGERANT
The real name for what you might call" feron" this is the fluid that evaporates at relative low temperature sucking heat & humidity out of the air as it dose. Refrigerant dose not bear out & there fore last will forever, if there are no leaks in the system.

THERMOSTAT
This is the control devise that automatically adjusts the system operation to meet your temperature range.

(B) SCIENTIFIC/TECHNICAL ASPECTS OF WATER-PURIFIERS:

PRODUCT PROFILE -EUREKA MODEL RANGE

AQUARD COOLER CUM PURIFIER
Only Aqua guard cooler cum purifier has the technology to ensure that your drinking water is not just cool but also 100% safe. It comes with the ISO 9001 certification and a purification capacity of 40 litters per hour.
FEATURES:

- Naturally wholesome water.
- Advanced 3-stage purification process.
- Last point purification.
- International Technology.
- Aqua guard's 2 money-saving features.
- Instant cooling.
- Choice of room temperature water.
- Built-in safety features.
- In-built voltage stabilizer.
- Sleek design and tough body.
- Efficient after sales service at your doorstep

AQUAGAURD COMMERCIAL WATER PURIFIER
Aquaguard 200 is designed to purify water no matter what the source of water supply. One look at its advanced features and you know you can trust Aquaguard to protect you and your employees from all waterborne diseases.

- Retains natural quality of water
- Effective 3-stage purification process
- International technology
- Special power-saving feature
- High volume. Low cost
• Built-in voltage stabilizer
• Built-in safety mechanism
• User-friendly features
• Sleek design and tough body
• Water control sensor
• Unique flow of water

PUREGAURD MULTI-FUNCTIONAL WATER PURIFIER:
EurekaForbes the makers of Aquaguard now brings you the New Multi-functional Water Purifier - the only product of its kind that assures you of Safe Drinking Water even when there is power failure and it's Bubble-top facility guarantees safe water supply even when there is no running water.

FEATURES:
• 5-stage online water purification
• Round-the-clock safe drinking water
• Bubble-top attachment option
• Cold water
• Hot water
• Normal water
• Saves money
• User-friendly digital display and sound
• 2-way use of dispensing taps
• In-built storage tank
AQUAGURD CLASSIC
It is an advance water purifier system, which ensures that you get only pure drinking water, because that's what you and your family deserve.
Price: Rs. 6,490/- (INR)
FEATURES
- Special multi layered 10" yarn candle
- Voltage stabilizer from 160v - 260v AC
- Electronic monitoring system
- choice of three colors – Blue, red, & Burgundy

Water flow rate 1 l/pm
Ultra violate lamp 8 watt
Power rating 30 watt
Net weight 4.5 kg
AQUAGUARD CLASSIC – PUMP MODEL
It is a product that is designed specially for area with no running water.
Its unique pump is equipped to pump water from a storage container.
Price: Rs. 7,240/

FEATURES
# Unique inbuilt pump
# Voltage Stabilizer
# Decalcification System
# Electronic Monitoring System

TECHNICAL SPECIFICATIONS
Dimensions : 395*100*300(mm)(H*D*W)
Net weight : 5.5 kg.
Ultra violet lamp : 8 Watts
Power rating : 50 Watts
Rated voltage : 230 V 50 Hz.
Water flow rate : 11.p.m.
Fuse : 1.5mA
Suction height : 1.5 meters (max.)
AQUAGUARD HI-FLO
Aqua guard Hi-Flo is specifically designed to cater, to commercial establishment, schools, offices, hospitals, restaurants, etc. With Aqua guard Hi-Flo; you extend the meticulous care and health of the home to the office environment.

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>470<em>100</em>300(mm) (H<em>D</em>D)</td>
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<tr>
<td>Net Weight</td>
<td>6.5 Kegs</td>
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<tr>
<td>UV Lamp</td>
<td>20 waltz</td>
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<td>Voltage</td>
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<td>Power rating</td>
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<tr>
<td>Water Flow Rate</td>
<td>3.0 liters/min.</td>
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<tr>
<td>Water Pressure:</td>
<td>Minimum 0.4 kg/sq. cm</td>
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<tr>
<td></td>
<td>Maximum 2.0 kg/esq.</td>
</tr>
<tr>
<td>Fuse</td>
<td>2A</td>
</tr>
</tbody>
</table>

UNIQUE FEATURES OF AQUAGUARD HI-FLO

- **International Technology:** Aqua guard Hi –Flo uses ultraviolet technology which is internally proven and documented as a method for eliminating water borne disease causing bacteria and viruses.
- **Complete Purification Process:** The complete 3-stage purification process ensures the elimination of all known disease causing bacteria and viruses.
- **Built –in- Safety Mechanisms:** A unique Electronic Monitoring System monitors the purification process and stops the flow of water if the purification is inadequate.
- **Superior Electronics:**
- **Built –in Voltage Stabilizer:** Protects the unit from voltage fluctuations.
- **Auto Shut-off System**: Switches off the UV lamp if water is not drawn for around 10 minutes. This saves on power consumption.

- **Higher Capacity**: It is designed to give a flow rate of 3 liters of purified water (around 15 glasses) a minute. This saves time and caters to high drinking water requirements.

- **Durability**: Aquaguard Hi-Flo is built to last, with an anodized aluminum body which is rust proof and has a tough polycarbonate profiler to withstand rough handling.

- **Retains Natural Quality of Water**: It retains all natural minerals and salts present in water and further, does not add any chemicals.

- **Convenience At Your Finger Tips**: Being an on-line process, it eliminates the need for storage. You get purified drinking water at the flick of a switch. It is compact and elegant and can be wall mounted near any convenient source of water.

- **Easy Maintenance and After Sales Service**: Aqua guard Hi-Flo is designed to require minimum maintenance. Also, an expert service team to provide prompt service at your doorstep backs it.

- **Water Control Sensor**: An optional accessory in case you wish to connect your Aquaguard Hi-Flo to a cooler. It continuously monitors the water level in your cooler, saving you the bother of manually checking the water level throughout the day. It saves on energy and time by automatically switching on your Aquaguard Hi-Flo whenever your cooler runs out of water and switching it off when it fills up again. It thus prevents your purifier from being overworked.
REVIVA

Reviva is designed for areas with hard water. Equipped with unique Reverse Osmosis Technology and a 5-stage purification process, Reviva reduces hardness and revives the taste of water. While making water chemically and microbiologically potables as well as reducing TDS, heavy metal contaminants and pesticides. In fact, this water even ensures that there is no scaling on cooking vessels.

FEATURES:

- The Unique Reverse Osmosis Purification
- 5 stage purification
- 8 liter capacity
- Reduce hardness, TDS, heavy metal contaminants
- Automatic storage tank level controller
- Auto pump shut off
- Sealed Storage tank
- Pressure Regulating valve

TECHNICAL SPECIFICATIONS

Model: Reviva
Reservoir Tank Capacity: 8 liters
Production Capacity: 8 liters/hr
Membrane: Thin Film Composite
Purifying Technology: Reverse Osmosis
Filter Cartridges: Pre-Filter, Sediment Filter, Pre-RO Carbon, RO Membrane, Post-RO Carbon
**AQUAGUARD I-NOVA**

You can trust only Aquaguard to take you into internet age. Introducing the Aquaguard I-Nova, a hi-tech water purification system that delivers much more than safe drinking water. It's sleek, good looking and comes with Micro Controller Scan System or a mini brain that constantly monitors the electronics of the purifier and detects when it needs attention. What's more the Aquaguard I-Nova is so simple to maintain that you can even service it yourself. Not surprisingly then, over 11 million people trust only Aquaguard.

**FEATURES:**

- The Micro Controller Scan System or the Mini
- Intelligence Quotient Alert System or the IQA
- Auto Shut-off
- Improved Filtration
- LED Indicators
- The unique Electronic Monitoring System or EMS
- Low Voltage Cut-off

**TECHNICAL SPECIFICATIONS**

- Dimensions: 415*300*232(mm) (H*W*D)
- Net Weight: 6 Kgs
- UV Lamp: 8 waltz
- Input power: 25 Watts
- Rated Voltage: 230 volts, 50Hz
- Voltage Range: 160-260 V AC
- Operating Input water pressure: 0.4Kg/sq. cm (min)-2.0kg/sqcm. (Max)
FORBES AQUA FLO

Forbes Aquaflo: The Forbes Aquaflo Water Purifier based on UV technology. Encased in scratch resistant ABS body, the system offers you a 3 stage filtrations—cum-purification process that delivers safe drinking water.

Price: Rs. 5,250/- (INR)

FEATURES:
- ABS Plastic body
- Superior Flow rate of 1Lt/min
- 3 stage filtration
- Electronic monitoring system

TECHNICAL SPECIFICATIONS
- Dimensions: 377*105*210 (mm) (H*W*D)
- Net Weight: 2.5 Kgs (Dry)
- Power rating: 19 watts
- Rated Voltage: 230 volts, 0Hz
- Fuse: 250mA
- Operating Voltage: 160~270V
- Water Pressure: 0.3kg/sq. cm (minimum)
- 2.0 kg/sq. cm (maximum)
- Water Outlet: 1 Liter per minute
AQUA FILO DESIGNA

Technology. Encased in scratch resistant, abs body, the system offers you a 3 stage filtration-cum-purification process that delivers safe drinking water.

Price: Rs. 5,250/-)(INR)

FEATURES:
- ABS plastic body
- Superior flow rate of 1 l/min
- 3 stage filtration
- Electronic monitoring system

TECHNICAL SPECIFICATIONS

Dimensions 377 x 105 x 210 (mm)

(H x W x D)

Net weight 2.5kg

Power rating 19 watts

Range voltage 230v, 50 Hz

Fuse 250ma

Operating voltage 160~270v

Water outlet 1 liter per minute
KENT MODELS RANGE

KENTGRAND MINERAL RO

FEATURES:

- Suitable for all types of raw water like tap water, bore-well water and stored tank water
- Purified water of bottled quality standards yet made at home
- T.D.S of purified water is adjustable on site to ensure minimum mineral contents in purified water.
- Double purification by RO followed by UV along with Mineral RO technology.
- Fully automatic operations with auto-start and auto-off with storage tank to give pure water on demand.
- Built with SMPS to operate from 100-300V AC power supply.
- Incorporates push-in fitting for leak-free performance and long life.
- 11W UV lamp with fail-safe buzzer
- Incorporates FILMTECH membrane of DOW-U.S.A
- High quality sediment and carbon filter exhibiting long life.
**KENT GRAND Super**

**FEATURES:**

- Wall mounted with inbuilt water storage tank. No space wasted on kitchen counter/under counter.
- Elegant transparent cover to protect from dust and moisture. Cappable of 15 Ltrs./Hr. purified water production and a Duty cycle of 75Ltrs./Hr.
- 8 Ltrs. purified water storage capacity and Purified water available on demand even if case of power failure.

  Fully automatic, auto start & auto off.

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Kent Grand Super</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>L375 W175 H525</td>
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<tr>
<td>Water Storage Tank</td>
<td>8Ltrs.</td>
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<tr>
<td>Purified Water Production Capacity</td>
<td>Kent Grand 10Ltrs./Hr.</td>
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<tr>
<td></td>
<td>Kent Grand Super 15Ltrs./Hr.</td>
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<td>Duty Cycle</td>
<td>Kent Grand: 50Ltrs./Day</td>
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<td></td>
<td>Kent Grand Super :75 Ltrs./Day</td>
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<tr>
<td>Inlet Water Pressure (min)</td>
<td>0.3 Kg./cm²</td>
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<tr>
<td>Voltage</td>
<td>230VAC 50Hz</td>
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<tr>
<td>Booster Pump</td>
<td>24V DC (Inbuilt Transformer)</td>
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<tr>
<td>Filter Cartridge</td>
<td>Sediments, Pre Carbon and Post Carbon</td>
</tr>
<tr>
<td>Membrane</td>
<td>Thin film composite R/O - 1No.</td>
</tr>
</tbody>
</table>
KENT EXCELL Super

FEATURES:

- Ideal for installation under kitchen counter with the faucet mounted on sink. Perfect for water coolers too.
- Capable of 1.5 ltrs./hr. purified water production and a Duty cycle of 75 ltrs./day.
- 7 litres R-O water storage capacity in hydrostatic tank.
- Dimension: 480 x 210 x 540 mm
KENT WONDER

FEATURES:

- Best for installation on kitchen counter.
- Elegant body, machine fully covered in a plastic cabinet.
- Makes purest water by removing both dissolved & soluble impurities.
- Enhances taste of water.
- Fully automatic with auto start & auto off.
- 5 Ltrs., purified water storage capacity.
- High purifying capacity of 15 ltrs / hr with a duty cycle of 75 ltrs / day.
KENT ELITE

- High purifying capacity of 30lttrs./Hr. and a Duty cycle of 150 ltrs./day
- High capacity R/O purifier perfect for offices/ commercial establishments.
- Best suited for attachment to coolers.
- Optional 40 Ltrs. Hydrostatic tank.
- Elite II Model has capacity of 50lttrs./hr. and Duty cycle 250 ltrs./day.

Advantage KENT

Features

- Most reliable and trouble free operation.
- Largest R-O purifier installations in NCR.
- Widest range of models to choose from.
- Highest level of purification.
- Low consumable cost.

Services

- Free Water Test
- Free Demonstration
- Free Installation
- One year warranty
Certification

Purified water tested for IS specifications number IS:13428-92. Reports confirm that water purified by Kent R-O meets bottled water specification.

Certified by FLUOROSIS RESEARCH & RURAL DEVELOPMENT FOUNDATION that water purified by Kent R-O reduces Flourides and meets specifications

Certified by laboratories that water purified by Kent R-O reduces pesticides & insoluble impurities, and meets IS specifications.