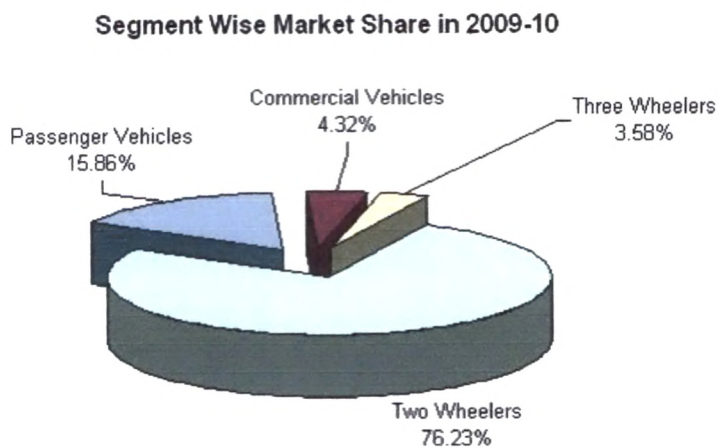


## CHAPTER-4 Rationale for Study

If we take a case of ever growing two wheeler industry in India, it is seen that its sales is steadily increasing and has registered 14.3% growth in sales during last five years.

### 4.1 Two-wheeler usage, its sales and market share of various brands:

**Figure-4.1**



Source: [www.siamindia.com/scripts/market-share.aspx](http://www.siamindia.com/scripts/market-share.aspx): Society of Indian Automobile Manufacturers.

Data indicates that 76.23% Indians bought two-wheelers during the year 2009-10. Thus, two-wheeler is the most preferred mode of transportation in India as evident from the above figure.

Table-4.1

Automobile Domestic sales Trends							
(Number of Vehicles)							
Category	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Passenger Vehicles	902,096	1,061,572	1,143,076	1,379,979	1,549,882	1,552,703	1,949,776
Commercial Vehicles	260,114	318,430	351,041	467,765	490,494	384,194	531,395
Three Wheelers	284,078	307,862	359,920	403,910	364,781	349,727	440,368
Two Wheelers	5,364,249	6,209,765	7,052,391	7,872,334	7,249,278	7,437,619	9,371,231
Grand Total	6,810,537	7,897,629	8,906,428	10,123,988	9,654,435	9,724,243	12,292,770

Source: [www.siamindia.com/scripts/market-share.aspx](http://www.siamindia.com/scripts/market-share.aspx); Society of Indian Automobile Manufacturers.

Further, as per SIAM's annual forecast, two-wheeler sales are expected to be up 9-10% at 10,287,837 units from 9,368,230 units in 2009-10. (Source: *Business Standard*, 8<sup>th</sup> July, 2010, Thursday)

Against this, during the year 2008-09, 95,000 electric scooters were sold in India and the industry is expected to grow by 10% this fiscal year. (Source: *Business Standard*, 5<sup>th</sup> January, 2010, Tuesday)

It means that per 100 petrol driven two-wheelers, 1 electric two-wheeler is being sold in India.

Table-4.2

Trends in Market Share (%)

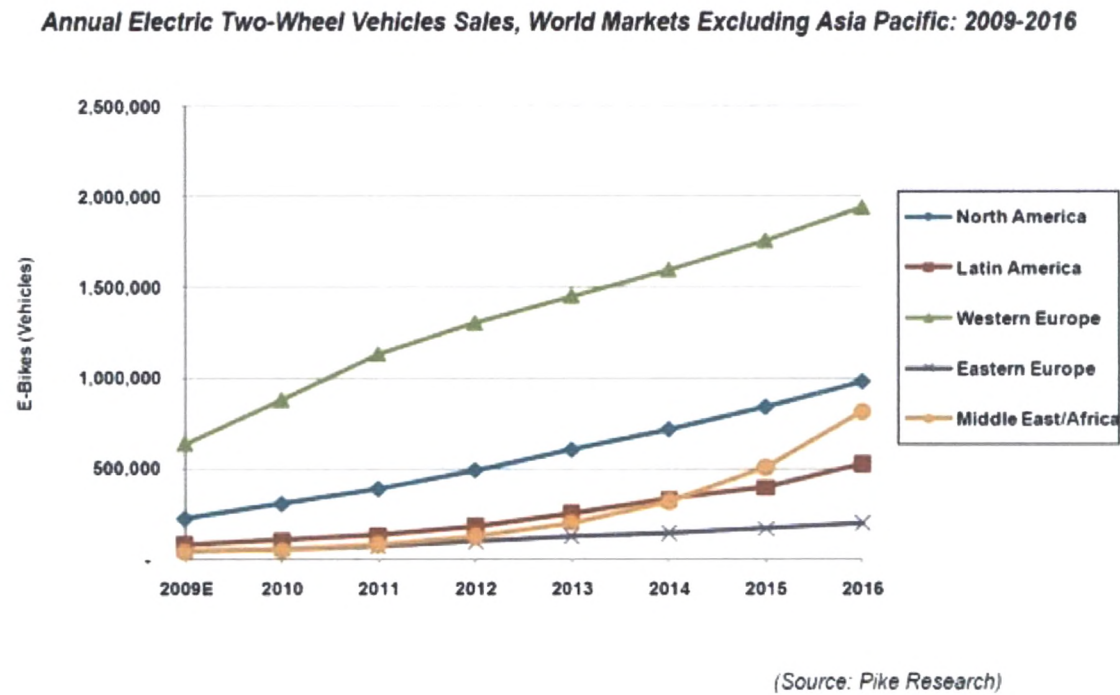
	2005-06	2006-07	2007-08
Honda Motorcycle & Scooter India (Pvt.)	56.48	55.89	63.00
TVS Motor Company	22.06	21.55	20.51
Hero Honda Motors	1.40	8.07	8.77
Kinetic Motor Company	5.43	7.34	2.60
Bajaj Auto	--	--	1-87
LML	3.10	2.74	1.84
Electrotherm (India)	0.07	2.33	1.41
Bajaj Holdings & Invst.	10.62	1.89	--

(Source: CMIE, Industry Market Size & Shares, April 2009)

4.2 Battery-operated/Electric two-wheeler

Battery-operated /Electric two-wheelers can be defined as bikes that have pedals and can be human-powered as well as powered by a low-powered motor with limited speed capabilities. The classification of e-bikes, e-scooters, and e-motorcycles varies substantially across the globe. The demographics of those using electric two-wheeler align with key socioeconomic, demographic, and behavioral trends in a given country or region. In advanced countries it is more of life style choice rather than a basic mode of transportation. For health conscious people it is a fitness tool cum mode for personal mobility. Additionally, people increasingly accept battery-operated two -wheeler as capable forms of transportation, particularly in densely populated and polluted urban areas.

Figure-4.2



(Source: <http://electriccarsreport.com/2010/02/electric-two-wheelers-poised-for-strong-growth-worldwide/>)

More and more Indians use two-wheelers in the absence of adequate public transport system. Several studies have indicated that vehicular traffic is the most important source of air pollution. In fact, air pollution has become a growing problem in megacities and large urban areas throughout the globe and India is not an exception. Contribution of two-wheeler in air pollution is reported more than 50% of the total pollution.

### 4.3 Air Pollution and its Adverse Effects

In simple words, pollution means contamination of atmosphere. Pollution has been defined as 'something present in the wrong place, at the wrong time, and in the wrong quantity'. This may be rather imprecise, but it conveys the basic fact that it is not necessarily the pollutant itself which is the problem but the quantity of it in relation to the environment's ability to cope with it. Unwanted and potentially harmful changes are the result.

Along with economic growth pollution is also increasing. It is observed that in last two decades there is a massive discharge of harmful gases like sulphur dioxide ( $\text{SO}_2$ ), nitrogen oxides ( $\text{NO}_x$ ), and hydrocarbon compounds into the atmosphere. The main sources of these pollutants have been power stations, various industries and motor vehicles. These pollutants do result into acid rain, acidification of lakes and destroy the forests.

Air pollutants, such as those emitted by motor vehicles, can directly affect human health.  $\text{SO}_2$ ,  $\text{NO}_x$  and ozone ( $\text{O}_3$ ) can cause breathing difficulties and many hydrocarbons are carcinogenic. Lead pollution has been linked with impaired brain function in children--emissions from vehicles using leaded petrol are a major source.<sup>50</sup>

It was noted in a book titled "*The Leapfrog Factor: Cleaning the Air in Asian Cities*" -- by CSE associate director Anumita Roychowdhury, that each year air pollution accounts for 0.8 million deaths and 4.6 million lost life years worldwide; two-third of this occurs in developing Asian countries and India alone accounts for more than 0.1 million premature deaths. The book uncovers the national crisis: a growing number of cities -- many of them non-metro smaller cities -- are turning into pollution hotspots. In 57% of

the cities monitored in India, respirable particulates are at critical levels (more than 1.5 times the standards). The challenge facing mega cities is how to reduce the adverse environmental impacts and other negative effects of transportation without giving up the benefits of mobility. The dilemma becomes most pressing under conditions of rapid urban growth, which is likely to increase the demand of vehicles significantly.

Environment protection is a serious concern and a challenge for two-wheeler marketers as two-wheelers alone contribute more than 50% of the pollution. Pollution has an adverse impact on sustainable development as well as human health. Since two-wheeler industry is characterized as an oligopoly market, non-price competition is used as a weapon in the industry. Therefore, product differentiation can be used as a strategic tool by introducing Eco-friendly two-wheelers and green competitive advantage can be taken to build unique image in the market profitably.

Further, usage of electric/battery-operated two wheelers against the petrol driven two-wheeler definitely reduces pollution. At the same time, it reduces oil consumption and thereby less dependency on oil exporting countries. At present, Battery-operated two-wheelers are available in India which is environmental friendly. However, battery-operated two wheelers are just in the introductory stage of product life cycle in India. It is facing teething troubles at present, in terms of relatively weak performance against petrol driven vehicles.

Hence, careful investigation about this new offering can definitely provide greater insight with reference to important features consumers consider while buying a two-wheeler, to know their awareness level and knowledge with reference to two-wheeler pollution and its adverse effect on health, their concern for environment and willingness to pay more for eco-friendly two-wheelers, consumer's critical opinions regarding features of battery-operated two wheeler etc. After taking these inputs from the customers, market size for green two-wheelers can be known, potential segments can be identified, performance of battery-operated two wheeler can be improved and effective marketing strategies can be formulated.