CHAPTER - I

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Human developmental activity is the largest factor of the degradation of the Mother Nature. It is high time that man arrests this trend of indiscriminate exploitation of nature in favour of preservation and promotion of environment.

The Supreme Court has rightly observed in Rural Litigation Entitlement Kendra v. State of U.P. that, “The preservation of the environment and keeping the ecological balance unaffected is a task which not only the government but every citizen must also undertake. It is a social obligation and let every citizen be reminded that it is his “fundamental duty” as enshrined in Article 51A of the Constitution”.1

Man has been grappling with innumerable problems right from the day he was forced to tread on this Earth. The undaunted pursuit for survival has, no doubt, prodded him up but his vulnerability at the same time has increased manifold. The greatest challenge the man has ever faced which has enervated his might in the modern context is the environmental degradation in the form of global warming, ozone layer depletion, acid rain, famine, droughts, floods, pollution of air, water, land etc.2

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1 AIR 1987 SC 359.
Economic processes of a society need continuous flow of materials. Men take from the environment a wide variety of vegetable, mineral and animal materials; transform them into a very much wider variety of economic goods, consume these goods, a process during which they undergo physical or chemical transformation and become, in effect, garbage; and then discard these unwanted products of consumption into the environment. Unwanted materials, solid, liquid, or gaseous are also generated during the process and they too are discarded into the environment. Following industrialisation, generation of such unwanted materials or waste production accelerated proportionately with the production of goods. Rapid and unprecedented industrial development has thus brought many environmental and health problems. Though the industrial and technological advancements have helped to improve food product, raise living standards, solve time and space problems, yet they have adversely affected the natural environment and thereby disturbed ‘the balance of nature’. The capability of self-maintenance and self-regulation of our system has been disrupted by the continuous discharge of pollutants by the industries and their products. Moreover, improper treatment and discharge of the waste and its unhygienic disposal has created a serious problem for biotic and abiotic components of the environment.

The word ‘waste’ refers to useless, unused, unwanted or discarded material. It can be defined as, “something, which is not put into proper usage at a given

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Waste can be classified by multitude of schemes: by physical state (solid, liquid, gaseous), and then within solid waste by original use (packaging waste, food waste, etc), by material (glass, paper, etc), by physical properties (combustible, compostable, recyclable) by origin (domestic, commercial, agricultural, industrial etc) or by safety level (hazardous, non hazardous). In India, for regulatory purposes, wastes are generally classified into: solid and hazardous waste.

A waste can be termed as hazardous, if it poses substantial danger to human health or the environment. Thus, a waste can be hazardous if it exhibits any of the characteristics such as being ignitable, flammable, reactive, explosive, corrosive, radioactive, infectious, irritating, sensitising or bioaccumulative. Virtually all hazardous wastes are poisonous to a degree and some extremely so. Their toxic nature not only affects the biosphere, but also damages air, water and soil. Wastes that get into air can cause deterioration of air quality, either directly, or by the transformation of secondary pollutants. Hazardous waste compounds dissolved in, suspended in, or floating as surface films on the surface of water can render it unfit for use and for sustenance of aquatic organisms. Soil exposed to hazardous wastes can be severely damaged by alteration of its physical and chemical properties and ability to support plants. For example, soil exposed to concentrated brines from

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petroleum production may become unable to support plant growth, and become extremely susceptible to soil erosion. Apart from such dangerous effects upon the environment, exposure to hazardous wastes can also cause various health hazards. For example, lead is the most common type of hazardous waste. Exposure to lead affects human central nervous system. It is a carcinogen of lungs and kidneys. Even at low levels of exposure, lead can, cause behavioural disturbances, neurological damage and other developmental problems. Likewise, exposure to any type of hazardous waste can cause damage to stomach, lungs and increase risk of lung cancer. Thus to prevent and control the effects of hazardous wastes upon the environment and human health, in India, the Hazardous Waste (Management and Handling) Rules were made in the year 1989 under the enabling provisions of the Environment (Protection) Act 1986. The Rules deal with duties of Central Pollution and State Pollution Control Boards, duties of the Occupier for the safe disposal of hazardous wastes, power and functions of State Government, provisions relating to waste trade, etc.

In spite of passing the Hazardous Waste (Management and Handling) Rules, number of cases have been reported where hazardous wastes are not being disposed of safely, thus leading to deterioration of environment and causing health

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10 Under Section 6 of the Environment (Protection) Act, Central Government has the power to enact rules to regulate environmental pollution. These rules were amended in the years 2000 and 2003.
hazards to human beings. To quote some examples, even as the 20th anniversary of the Bhopal leak tragedy is observed, the toxic wastes stored in the ill-fated Union Carbide factory continue contaminating the site. Nearly 2000 tonnes of toxic waste litter the defunct plant at Bhopal. Although in November 2004, Greenpeace experts came up with plans on disposal of wastes, many feel that, these plans are dubious, since Greenpeace spent too little time in Bhopal and made major errors in estimating the extent of contamination.11

Similarly, the defunct Hema Chemicals in Gorwa area of Vadodara district, has dumped nearly 45,000 tonnes of hazardous wastes in the midst of the city. While Gujarat Pollution Control Board’s regional officer at Vadodara, denies that the Board gave a clean chit to Hema Chemicals, the other officials point out that no law regarding dumping of wastes existed when Hema Chemicals dumped its waste. The Apex Court, now, has appointed a monitoring Committee to look into the matter, and for the time being, the Committee has asked the state agencies to clean up the waste.12

The Central Pollution Control Board has recently declared Chattisgarh’s capital Raipur as the Country’s most polluted city. The main factor responsible for such pollution is due to toxic industrial waste, including domestic waste. Many sponge iron units have come up in the area and many others are in the

11 ‘Flawed Plan’, Down to Earth, vol.13, No.14, December 15, 2004, p.7. The plans of Greenpeace have been criticized because they have suggested to ship the waste to Europe since India does not possess facilities for such decontamination. They have also estimated that, the cleaning of toxic waste can take up at least 10 years.

process. Some small-scale industries, like nearly 50-60 brick kilns, are also mushrooming around Raipur. A study by Nadi Ghati Morha says that these industries and brick kilns don't follow the norms and their wastes cause respirable suspended particulate matter (RSPM) content to exceed the permissible limit by over four-five percent. Air pollution caused by their contaminants affects an area of upto 10 square kilometres during winters and monsoons and 25-30 sq km during summers. And still, no action is being taken against such industries.  

The red earth of Karnataka's Bellary district has become the symbol of the region's red-hot iron ore market, witnessing an unprecedented boom. However due to unplanned mining expansion, the entire area is covered with hazardous mine waste. Agriculture cultivation is affected and people are complaining of severe stomach pain, heart ailments and cancer due to accumulation of large quantity of waste around the area. The dumping of hazardous waste material has caused a loss of topsoil in Bellary forest by fragmenting them. Both the industries and the concerned authorities are silent about the disposal of waste.  

Researchers from the University of Calcutta and the National Bureau of Soil Survey and Land use Planning have found high levels of toxic heavy metals in an aquatic plant species in Tiljala wet lands on the eastern fringes of Kolkata. Spread over 250 square km, the Tiljala wetlands have become a virtual sink for hazardous industrial wastes. The top layers of the water bodies are totally trapped

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by heavy metals. The study has revealed that, in the long run heavy metals get concentrated in a species, which through the food chain can reach human and exhibit carcinogenic effects. The researchers opine that there is an urgent need to protect these wetlands from hazardous waste. These are some of the instances of damage caused by mindless disposal of waste.

In the recent past hazardous industries have grown in staggering proportions specially the chemical industries. There are already 45,000 known chemicals and 1000 new ones are added every year and thus, the generation of hazardous waste by these industries are also increasing. Thus, there is a need to minimise the harm caused by such waste and to take effective measures to control dumping of waste to protect the environment and health of people.

The most pressing problem faced by any urban centre in India today is Municipal Solid Waste Management. Rapid urbanization without the adequate infrastructure backup is commonly found in all Indian cities, towns, and disposal of waste is done indiscriminately, leading to stray animal menace, clogged drain and spread of diseases.

Municipal solid waste is a heterogeneous mixture of paper, plastic, cloth, metal, glass, organic matter, etc generated from households, commercial establishments, and markets. The proportion of different constituents of waste varies from season to season and place to place, depending on the life style, food

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16 Nidhi Jamwal, Check the Waste, Down to Earth, vol.15, No.11, October 31, 2006, p.53.
habits, standards of living, the extent of industrial and commercial activities in the area and so on. The insufficient collection and inappropriate disposal of solid waste cause water, land and air pollution, and pose risks to human health and the environment.¹⁷ To tackle the problems arising from municipal solid waste, the Municipal Solid Waste (Management and Handling) Rules were passed in the year 2000 under the enabling provisions of Environment Protection Act 1986. The Rules put the responsibility of the garbage management, collection, storage, segregation, transportation, processing and disposal on municipal authorities. The Central Pollution and State Pollution Control Boards are required to monitor implementation of provisions. Despite municipal solid waste management being major task for the local governments, typically accounting for a sizeable portion of the municipal budget about 20% to 50%, yet the Urban Local Bodies (ULBs) are unable to provide effective services. Most of the ULBs do not even have reliable municipal solid waste generation estimates. The process of collection, transportation and disposals of municipal solid waste is neglected in most of the cities/towns with garbage heaps remaining unattended until the severity reaches unmanageable proportions. Municipal Solid waste is also commonly deposited at dump yards without ascertaining the suitability of the land for waste disposal. The results of these are foul smell, breeding of flies and generation of liquid run off (leachate), which pose serious threat to the underground water reserves. Also, the

high organic content of Indian municipal solid waste, compounded by the hot and humid tropical climate leads to the rapid decomposition of the uncollected waste and is an ever-present health hazard.\textsuperscript{18}

A recent study conducted by NEERI on disposal of waste in the city of Mumbai reveals that, nearly 7,000 and 7,800 tonnes per day of waste is generated in the city. Nearly Rs.575 crore is spent on solid waste management every year. Still the waste is not disposed of properly. Only nine-percent of the Mumbai has a door-to-door waste collection system; the rest use community bins. Waste is collected from designated points, loaded on trucks and thrown on dumping sites without effective disposal.\textsuperscript{19}

About 5,000 metric tonnes of municipal solid waste is generated everyday in Delhi. Disposal is mainly done in landfills. Fourteen landfill sites have already been filled up. According to a recent study by NEERI, the expected quantity of solid waste generated in Delhi would be about 12,750 tonnes per day by 2015. Due to growing pressure on land in Delhi and the projected increase in the quantum of solid wastes, the scope for disposal through landfill sites is limited. Too much land is being consumed accompanied by increasing danger of ground and surface water contamination. Due to organisational deficiencies and financial

\textsuperscript{18} Karnataka State Policy on Integrated Solid Waste Management, http://www.kudifc.com/WEBSITE/bpage.nsf/6dflsl1e6e694920ff65265e2cc00360dla2/d7bb3f53bo81d57d65271bf001977 (1/FILE/5commanval%200n%state%20policy.dbf visited on 27.12.2006.
\textsuperscript{19} Dirty Deal, Down to Earth, vol.13, No.9, Sept 30, 2005, p.30.
constraints the municipal agencies have not been able to deliver satisfactory results.\textsuperscript{20}

The Chennai Metropolitan Area is about 1170 sq.km with a population of four million. Civil agencies on an average spend 10 to 20\% of their budget on solid waste management which works out to Rs. 60 to 80 per capita per year. Inspite of this large expenditure, of the 3,000 metric tonnes of garbage generated every day, only about 70\% to 80\% is transported to the dumping grounds by local authorities. Thus, very often-uncleared garbage is found accumulated along roadsides, and in rivers and canals, posing serious health hazards.\textsuperscript{21}

The solid waste generated in Bangalore is upwards of 1669 tonnes per day.\textsuperscript{22} The concerned authorities are not disposing the waste safely. The collection of waste is almost absent in outskirts and slums though the corporation levies all the charges on the outskirts. The corporation no longer has available landfill sites to dump waste. Only 80 tonnes of waste is composted everyday.\textsuperscript{23}

In India, waste generation is expected to increase to a mammoth figure of 300 million tonnes by 2047, \textit{i.e.}, from present 500 grams to 945 grams per capita. The estimated land requirement for disposal of such huge quantum of waste would be 169.6 sq.kms as compared to 27.2 sq.kms in 1997.\textsuperscript{24} India will have more than

\textsuperscript{22} 	extit{Pandora’s Garbage can, Down to Earth,} vol.15, No.20, March 15, 2007, p.23.
\textsuperscript{24} Solid Waste Management at Community Level, \textit{supra} note 17.
40 percent, i.e. over 400 million people, clustered in cities over the next thirty years. Modern urban living brings on the problem of waste, which increases in quantity, and changes in composition with each passing day. Thus, urban India is likely to face a massive waste disposal problem in the coming years. Until now, the problem of waste has been seen as one of cleaning and disposing of rubbish. But a closer look at the current and future scenario reveals that waste needs to be treated holistically, recognising its natural resources roots as well as health impacts.  

Bio-medical waste management is another area, which needs proper attention because of its ill-effects upon the environment and human beings.

Bio-medical waste means, “any solid and or liquid waste including its container and any intermediate products, which is generated during the diagnosis, treatment or immunization of human beings or animals”. Thus, medical wastes are generated through healthcare facilities wherever medical procedures are conducted. Bio-medical wastes need safe disposal, since it poses hazard due to two principal reasons: the first is intensity and other toxicity. It is dangerous than a chemical, since biomedical waste can cause serious infections and incurable

26 Rule 3 (v) BMW Rules Schedule I of BMW Rules gives the list of bio-medical wastes.
diseases. Most countries of the world, especially the developing nations, are facing the grim situation arising out of environmental pollution due to bio-medical waste arising from increasing populations and the consequent rapid growth in the number of health care centres. It is estimated that, in India, there are more than 15,000 small and private hospitals and nursing homes in the country. This is apart from clinics and pathological laboratories, which also generate sizeable amounts of medical waste. To regulate the medical waste, Bio-medical Waste (Management and Handling) Rules were passed in the year 1998 under the enabling provisions of Environment (Protection) Act 1986.

The medical waste is not being regulated satisfactorily in India. It is estimated that India generates around three million tonnes of medical waste every year and the amount is expected to grow at eight percent annually. Barring a few large hospitals in metros, most of the other smaller hospitals and nursing homes have no effective system to safely dispose of their wastes. With no care or caution, these health establishments have been dumping waste in local municipal bins or even worse, out in the open. Surveys carried out by various agencies show that health care establishments in India are not giving due attention to dispose the waste properly.

30 Ibid.
When the medical waste is thrown in bins, the worst affected are *safaikarmcharis*. They handle this waste without protection of gloves and proper shoes. Thus, there is a need to collect this waste separately from other wastes and ensure that it is collected from all hospitals, nursing homes and clinics and incinerating them scientifically and letting off burnt air and gases through high chimneys.\(^\text{31}\)

The present study aims to make a complete, comprehensive and critical analysis of problem of waste management and the laws including the rules and regulations to find out lacunae in them and to suggest remedial measures to evolve an effective system of waste management.

1.1 Problem

Waste management has become major concern in today's world. Human activities all over the world generate large amount of wastes. Rapid urbanisation, industrial and technological innovations, which are responsible for generating large quantities of waste has made the waste management a difficult issue. But the waste has to be handled effectively to prevent its effects upon environment and human health. In this regard, the Central Government has enacted various legislations and Rules to protect the environment and health of people. Still then there has not been any effective change. Wastes are not being handled and disposed of safely. In this context, it is hypothesized, that the existing laws, which deal with wastes, suffer from certain basic infirmities. As a result they have

\(^{31}\) *Environment in Karnataka, supra note 23, p.2743.*
become ineffective in protecting the environment and health of the people. The solution to the problem lies in removing basic infirmities in the existing rules, legal systems etc.

1.2 Objectives of the Study

The objectives of the Study were:

i) The primary objective of this study was to analyse the problem of waste management and investigate the adequacy of law and efficacy of administrative agencies in effective handling and proper disposal of wastes;

ii) To analyse the concept of sustainable development, its historical roots and evolution to know how in the present day waste needs to be managed so that objective of sustainable development is achieved;

iii) To analyse the concept of waste, different kinds of waste and the methods available to handle and dispose them and to have a comprehensive understanding of its nature and scope;

iv) To analyse the international efforts for the management of hazardous waste and the legal system of United Kingdom and United States with regard to handling of wastes with a view to have comparative perspective about waste management;

v) To critically analyse the various laws and rules promulgated in India relating to disposal of hazardous wastes;

vi) To study the faulty disposal of municipal wastes and efficacy of relevant rules;
vii) To critically analyse the legal provisions, which deal with the management of wastes, generated by hospitals;

viii) To survey the various remedies available to aggrieved citizens;

ix) To investigate and evaluate the deficiencies, present in the existing rules and regulations and to make suggestions for better protection of environment and health of the public.

1.3 Methodology

The methodology adopted for the study is completely doctrinal, involving content analysis. The documents analysed include international conventions, statutes and judicial decisions for which original sources were consulted and for critical appraisal secondary sources such as juristic writing were consulted. Relevant books, articles, empirical studies, reports, etc have been studied to get the true picture of problems arising from ineffective handling of wastes and to outline the remedial measures for it. The standard form of citation and reference are used in the work.

1.4 Importance of the Study

The importance of the study lies in the fact that it analyses the problems associated with wastes and suggests remedial measures to tackle the problem of waste management. It is believed that the study is going to be useful to legislators, administrators, academicians, lawyers and non-government organisations. The importance of the study lies in its purpose of making an original contribution to the discipline of the law.
1.5 Limitations

The study is conducted subject to following limitations.

The first limitation is that, since the area relating to waste management is very large, only the problems created by hazardous waste, municipal solid waste and biomedical waste are investigated with reference to relevant legal norms. Other types of wastes such as agricultural waste, radioactive waste, e-waste etc though equally important, have not been dealt in the present study.

The second limitation is that, it has focused only on the legislations of United Kingdom and United States and a comparison is made with Indian laws.

1.6 Scheme of the Study

The investigation into the problem pertaining to generation of waste and its management in India is planned and spreads in nine chapters which are as follows:

1.6.1 Introduction

This chapter is concerned with an elucidation of the problem, the objectives of the study, its importance and methodology adopted for the study.

1.6.2 Environment and Sustainable Development: An Analysis

The superiority of man over the environment has led to the maximum exploitation of the environment. It went so over enthusiastically that man won with the aid and assistance of the science and technology. But this victory proved to be his great defeat. The relationship between man and environment entered into
a stage full of newer dichotomies. Today, people live in the age where personal hygiene is regarded as almost sacred, yet people are surrounded with increasing quantities of undesirable waste discharge. People preserve the highest standards of order and space in their private space, yet tend to misuse and ill-treat public space. Development is needed, but not at the cost of exploiting the environment. Conservation and development are not conflicting goals. Development, which does not consider protecting and maintaining natural resources, cannot be sustained. There has to be sustainable use of the natural resources. In this chapter, the concept of Sustainable Development has been analysed. The analysis has traced the roots of the concept in the light of various religions viz., Hinduism, Zoroastrianism, Islam, Christianity, Buddhism, Jainism and Sikhism. In all these religions, it is postulated that, man's greed should not lead to exploitation of natural resources. The development of the concept of sustainable development started with the first International Conference on Human Environment held in Stockholm, Sweden, 1972. However, the official definition of the term appeared in the report 'Our Common Future' in the year 1987 published by World Commission on Environment and Development. After the Stockholm Declaration, to comply with its provisions, the Government of India, by the Constitution 42nd Amendment Act 1976 made express provisions for protection of environment by inserting Article 48A and 51 A (g) which deal with Directive Principles of State

Policy and Fundamental Duties

Both the articles are analysed in detail in light of various judicial decisions. The most remarkable contribution of the Supreme Court has been the adoption of right to sustainable development as the hardcore principle of environmental law. In this regard, the Supreme Court has adopted many norms in the application of concept of sustainable development. Important amongst them are (i) The Polluter pays principle (ii) The Precautionary Principle (iii) the Intergenerational equity principle; and (iv) the Doctrine of public trust. These principles have been discussed in detail along with various judicial decisions.

1.6.3 The concept of waste management, kinds of waste and their management

The word ‘waste’ refers to useless, unused, unwanted and discarded material. On a large extent, the producers and consumers generate waste. The larger and the more affluent the population, the greater the volume of wastes. It is however, a fact that the disposal of waste is creating a problem. If the waste is not disposed properly, it will not only degrade the environment, but will also have impact upon human health. Depending upon the nature of waste, it can be classified into solid, liquid and gaseous. For regulatory purposes, it is generally classified into (i) Solid and (ii) Hazardous Waste. In this chapter the analysis of Municipal Solid Waste, Biomedical Waste, Hazardous Waste and their disposal methods has been made in detail. The waste must be managed in such a way so as to meet the object of sustainable development.
1.6.4 International Efforts for the Management of Waste

At the Global level, many international conventions have been held in the area of hazardous waste to deal with the export of hazardous waste by developed countries to developing countries. The Basel Convention, which was held in the year 1989 mainly deals with the transboundary movements of hazardous waste and their disposal. The chapter deals in detail with the provisions of the convention. Some regional efforts have also been made for the management of hazardous waste, like Lome and Bamako Conventions, Waigani Convention, Organisation for Economic Co-operation and Development, United States Bilateral agreements and European Union Directives.

In this chapter, the legal framework for the management of waste in United Kingdom and United States of America has been discussed. In both these countries, there has been a remarkable development in the field of waste management.

1.6.5 Legal Regulation of Hazardous Waste Management in India

In India, the Hazardous Waste (Management and Handling) Rules were promulgated in the year 1989. The Rules mainly deal with the handling, management and safe disposal of hazardous wastes. The Rules were further amended in the year 2003. The Rules impose a duty upon the generator of the waste for the collection, storage, treatment, and disposal of hazardous waste. The state pollution control boards and central pollution committees are vested with various duties and responsibilities to monitor the implementation of the rules. The
State Government is vested with the responsibility of identifying the disposal sites for the purpose of disposing hazardous wastes. Further under the Rules, import of hazardous wastes is banned except with the prior permission from state pollution control boards for the purpose of recycling or reuse. All the provisions of the Rules have been critically analysed in the light of various judicial pronouncements.

1.6.6 Legal Regulation of Municipal Solid Waste Management in India

Management of municipal solid waste resulting from rapid urbanisation has become a serious concern in most of the developing countries. Rapid growth of population and industrialisation degrade the urban environment by posing serious threat upon the environment, thus undermining sustainable development. To tackle the issue, Municipal Solid Waste (Management and Handling) Rules were passed in the year 2000. The Rules are critically analysed under three broad categories (i) The powers and functions of municipal authorities in the disposal of waste (ii) The powers and functions of State Government and Union Government in Union Territories and (iii) The powers and functions of State and Central pollution control boards and Central Pollution Committees.

In the safe disposal of municipal solid waste, people’s participation is very important. This issue has been discussed in detail. Apart from this various non-government organizations are also playing a very vital role in creating awareness among people in disposing the waste properly. Various initiatives taken by different NGOs in safe disposal of waste has been dealt in detail. Further, the
critical issues concerning the inhuman 'manual-scavenging' have also been examined in the chapter from the perspective of human rights.

1.6.7 Legal Regulation of Bio-Medical Waste Management in India

To tackle the problems arising from indiscriminate disposal of bio-medical wastes, the Biomedical Waste (Management and Handling) Rules were made in the year 1998 and amended in the years 2000 and 2003. Under these Rules the occupier of the institution is responsible for effective handling, management and disposal of biomedical waste. Implementation of the Rules has been entrusted to the state pollution control boards in states and pollution control committees in the Union Territories. In this regard, the Boards and Committees have been vested with various powers and functions. All the provisions of the Rules are dealt in detail and are critically analysed.

1.6.8 Enforcement of remedies

Generally in cases concerning pollution, the citizen can avail the remedies and obtain the redress under (1) a common law tort action against the polluter (2) a writ petition to compel the agency to enforce the law and to recover clean up or remedial costs from the violator; and (3) remedies available under various environmental statutes. In addition, if the pollution amounts to 'public nuisance' a remedy is available under the criminal procedure code of 1973.

1.6.9 Conclusions and Suggestions

The major findings of the study are presented in this chapter and pertinent solutions have been offered.