GE-International Journal of Management Research
Vol. 3, Issue 9, Sep 2015 IF- 4.316 ISSN: (2321-1709)
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ENVIRONMENTAL ACCOUNTING : ITS ISSUES, PRACTICES AND CHALLENGES IN GOA

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ABSTRACT

Environmental accounting is the practice of incorporating principles of environmental management and conservation into reporting practices and cost/benefit analyses. Environmental accounting allows a business to see the impact of ecologically sustainable practices in everything from their supply chain to facility expansion. It allows accountants to report on the economic impact of those decisions to stakeholders so as to allow for proactive decision making about processes that simultaneously meet environmental regulations while adding to the bottom line.main objectives of this research paper are To ascertain the impact of industrial practices on our environment.To ascertain the measures taken by industries to prevent the harm caused to our environment.To measure how far industries are planning for sustainable environment.To verify the role of Government towards environment.

1.1 Introduction

Environmental accounting is the practice of incorporating principles of environmental management and conservation into reporting practices and cost/benefit analyses. Environmental accounting allows a business to see the impact of ecologically sustainable practices in everything from their supply chain to facility expansion. It allows accountants to report on the economic impact of those decisions to stakeholders so as to allow for proactive decision making about processes that simultaneously meet environmental regulations while adding to the bottom line.

Sustainability is the principle of engaging in practices that will not deplete a resource, and sustainability accounting and measurement is to engage in practices that allow a business to measure and assess the environmental impact of its activities. Sustainability measurement is a quantitative basis for management of sustainability practices. When a business makes a decision to use green packaging (a sustainable practice), it needs to know how that increased cost is offset with decreased waste disposal costs or increased consumer interest, in addition to the environmental implications (sustainability measurement).

Environmental accounting takes stock of conventional resources plus natural resources and environmental resources. Environmental resources are qualitative more than quantitative as a general role, with general acceptance due to increasing awareness and concern, environmental resources have begun to be treated as capital.

An Ecological Historian's Approach

Goa has changed radically in the 20th century. Four major environmental drivers--- mining (post 1945), urbanization (post-1961), industrialization (post-1971) and tourism (post-1972) have strongly impacted its ecology and economy in the past 60 years. Understanding the transformation of the ecology and environment of Goa needs an approach of an ecological historian. In this paper the focus is mostly on the developments of the post-second world war period (1945-2005). There are new approaches to present history from interdisciplinary angles. History can be studied from the hierarchical level of the biosphere (Ponting, 1991) to the molecular level of the Genes (Cavalli-sforza et al, 1996). In their path-breaking work, "History and Geography of Human Genes" these authors comments that "reconstruction of human evolution, including the fissions, the major migrations and the understanding of the roles of mutation, drift, and natural selection is often difficult and challenging. The credibility of our conclusions can be greatly strengthened if these conclusions can be confirmed in the light of an interdisciplinary approach.

Major issues in Environment accounting awaiting resolution

The following are the most urgent issues for resolution:

a) Accountants are not used to such an accounting. They are trained in measuring financial transactions, not the consumption of natural resources. Guidelines need to be formulated.

b) Accounting conventions and rules pinpoint departures from rules or deviations from normal practices for deviation, omission and commissions, penal provision exist.

There is no such provision for environment accounting: these needs to be provided and enforced.

c) Environmental accounting makes corporates it accountable to the public at large, both current and future generations. This aspect need to be reiterated and enforced.

d) Some natural resources are used up and not renewed at all. The extent of depletion causes deprivation to the current and future generation. A system of compensation has to be built up to integrate the same into conventional accounting.

e) Some activities cause pollution the pollutants are released into the environment / atmosphere and causes permanent damage. This damage has to be compensated. There are pollutants which can be treated to neutralize bad effects. There are anti-pollution or control equipment's /devices which are installed /used to treat such pollutants. Expenses incurred on such system should be distinguished in accounting system to satisfy the authorities, society and other as well as to give demonstrative effect to enhance further awareness.

Experience of other countries in environmental accounting

In the united states, securities and exchange commission makes it obligatory to disclose much more than conventionally required, about the current and potential environment liability on the part of the corporate apart from transparency, responsibilities towards environment is imposed to ensure truthful accounting, reporting and thereby to facilitate an assessment of impact of the activity through auditing. The European community by act of 1987,as provided for environmental protection ,preservation and compensation. In Canada, all the listed companies and those publicly owned once are required to include , in their annual financial statement, full information about effects of operation on environment, expenditure made for environmental protection, current earning/expenditure on environmental issues and impact on future as well as any remedial/supportive measures taken.

1.2 Objectives of Study

1. To ascertain the impact of industrial practices on our environment.
2. To ascertain the measures taken by industries to prevent the harm caused to our environment.
3. To measure how far industries are planning for sustainable environment.
4. To verify the role of Government towards environment.

1.3 Scope of study

The study is related to the geographical areas of Goa. The industries which are undertaken to conduct are analyses are packing, manufacturing, pharmaceutical, food and beverages, electronics, and electrical. It includes different talukas and industrial estates.

1.5 Research Methodology:

The methodology used in the study is explained below.

Data and sources of data: The study is based mainly on **primary data**. Primary data have been collected through the issues of questionnaire to the various industries. Personal observations and discussion with the various business houses.

Sample selected for the study: The questionnaire was circulated to 50 companies of various categories. the sample respondents are selected on the basis of the convenient sampling method.

Area of study: The study area is limited to Goa, and is identified as one of the fast developing state of India. It is poised for the spectacular growth in the near future. Goa being backward in industrial development ,sustainability and growth are the main concern for development.

Period of study: The study was undertaken during the period of 2014 – 2015.

Framework of analysis

Secondary data was collected from books, journals, magazines, newspapers and internet.

Limitation of the study

The only difficulty we faced while doing our project was that there was no co-operation from some companies to disclose their environmental status.

Global efforts for sustainable development

The foundation for a greater insight into global environment was laid at the 1972 conference on human environment held at Stockholm. Late Indira Gandhi, who was one of the very few heads of governments that participated in the deliberations, emphasized that poverty is the biggest polluter.one important outcome of the conference was a detailed action plan which led to the creation of the United Nations environmental programme (UNEP).

Sustainable development was defined as that which meets the needs of the present generation without sacrificing the welfare of the future. The concept of sustainable development leads us to new resource consumption strategies which are:

- Conservation or reduction of excessive resources use,

- Recycling and reuse of materials, and
- More use of renewable resources like solar energy rather than non-renewable resources such as oil and coal.

Sustainable development components

Conservation of basic resources: sustainable development must not endanger the natural systems that support life on earth; the atmosphere, the waters, the soils, and the living beings.

Retention of resources: sustainable development requires that the rate of depletion of non-renewable resources foreclose as few future options as possible.

Diversification of the species: sustainable development requires the conservation of plants and animals species.

Minimize adverse impacts: sustainable development requires that the adverse impacts on the quality of air, water and other natural elements are minimized so as to sustain the ecosystems overall integrity.

Environmental quality: corporate environmental policy is an extension of total quality management

Environmental audit: An effective environmental audit system is at the heart of good environmental management.

Pollution Discharged to Environment

pollutants	**Quantity of pollutants discharged (mass / day) Kg / Hr**	**Concentration of pollutants in discharge (mass / vol.) Mg / M3**	**Percentage of variation from prescribed standards with reasons**
(a) Water	NIL	NIL	N.A
(b) Air			
i) Particulate Matter from Prilling Tower – Urea plant	---	37.67	Less by 74.88%
ii) Particulate Matter from Dust Separator – Urea plant	---	41.23	Less by 72.51%
iii) Ammonia from Off Gas Absorber – Urea plant	2.28	---	Less by 77.20%
iv) Ammonia from Amm. Recovery Absorber – Urea plant	1.01	---	Less by 89.90%
v) Ammonia from Fumes Stack – NPK-A plant	1.43	---	Less by 85.70%
vi) Particulate Matter from Dryer Stack – NPK-A plant	---	41.73	Less by 72.18%
vii) Particulate Matter from Dedusting Stack – NPK-A plant	---	43.57	Less by 70.95%
viii) Ammonia from NPK-B Stack	3.98	---	Less by 60.20%
ix) Particulate Matter from NPK-B Stack	--	44.98	Less by 70.01%
x) SO2 from Boiler Stack	402.09	---	Less by 49.86%
xi) Particulate Matter from Boiler	---	124.02	Less by 17.32%

Hazardous waste

Hazardous Waste	Total Quantity	
	During the previous financial year 2011-12	**During the current financial year** 2012-13
(a) From Process		
(i) Used / Spent Oil under H.W.	16.9 MT	3.29 MT
Category No.5.1	NIL	23.26 MT
((ii) Spent Catalyst under H.W.Category No.18.1		
(iii) Furnace Oil Tank cleaning sludge under H.W.Category No.3.1	106.49 MT	37.58 MT
b) From pollution control facilities	35MT	40 MT
(i) ETP sludge under H.W.Category No.34.3		
(c)(i) Quantity recycled / reused within Unit	35 MT ETP Sludge	40 MT ETP Sludge
(ii) Sold (used/spent Oil)	16.9 MT	3.29 MT
(iii) Sold (Spent Catalyst)	NIL	23.26 MT
(iv) Sold (Furnace oil Tank cleaning residue)	106.49 MT	37.58 MT

Hazardous waste

Used / Spent Oil	Used Oil	Sold to CPCB registered and SPCB Authorized Vendors/Recyclers only for reprocessing.
Furnace Oil Tank sludge & cleaning residue	Oil sludge & cleaning residue	Sold to CPCB registered and SPCB Authorized Vendors/Recyclers only for reprocessing
Spent Catalyst	Spent catalyst containing metals/oxides like Ni, Cu, Zn, Fe, Co, Mo etc.in different composition	Sold to CPCB registered and SPCB Authorized Vendors/Recyclers only for reprocessing.
ETP Sludge	Amm./Urea nitrogen, Phosphate, Sulphate, KCl, Salts of Na, Ca, Mg & Suspended solids	Recovered into process as recycle along with filler material in NPK-A and NPK-B plants

Solid waste

DM plant resin material	Water insoluble co-polymers	Used along with backfilling material for structure / building foundation, road construction etc.
Sand from filters		Used along with backfilling material for structure / building foundation, road construction etc.
Activated carbon from filters	Carbon material	Used along with backfilling material for structure / building foundation, road construction etc.
STP Sludge	Organic matter	Used as bio-fertilizer for trees in our green belt

Role of the Government

Goa State Pollution Control Board (GSPCB)

The Goa State Pollution Board is an autonomous statutory organization constituted on 1st July 1988 under water (prevention and control pollution) act 1974. Prior to that, when Goa formed a part of the erstwhile Union territory of Goa, Daman and Diu, the central board for the prevention and control of water pollution was performing the function of the state board in Goa .the central pollution control board at Ponda Goa had established a section office for the purpose. The same arrangement continued till the constitution of the state board. In the meanwhile, the section office was re-constituted as west zonal office and shifted to Baroda on4th 12988. All the relevant records pertaining to Goa were transferred to the Goa state pollution control board on12th september1988.

MONITORING NETWORK FOR AIR AND WATER QUALITY

The Goa State pollution Control Board monitors the air and water quality under the central pollution Control Board sponsored projects National Air monitoring Programme (NAMP) and National Water Monitoring Programme (NWMP). The NAMP projects covers16 air quality monitoring locations within the state of Goa and the NWMP project covers 49 water quality monitoring locations within the state of Goa. The details of the project are given as under.

National Air Monitoring Programme (NAMP)

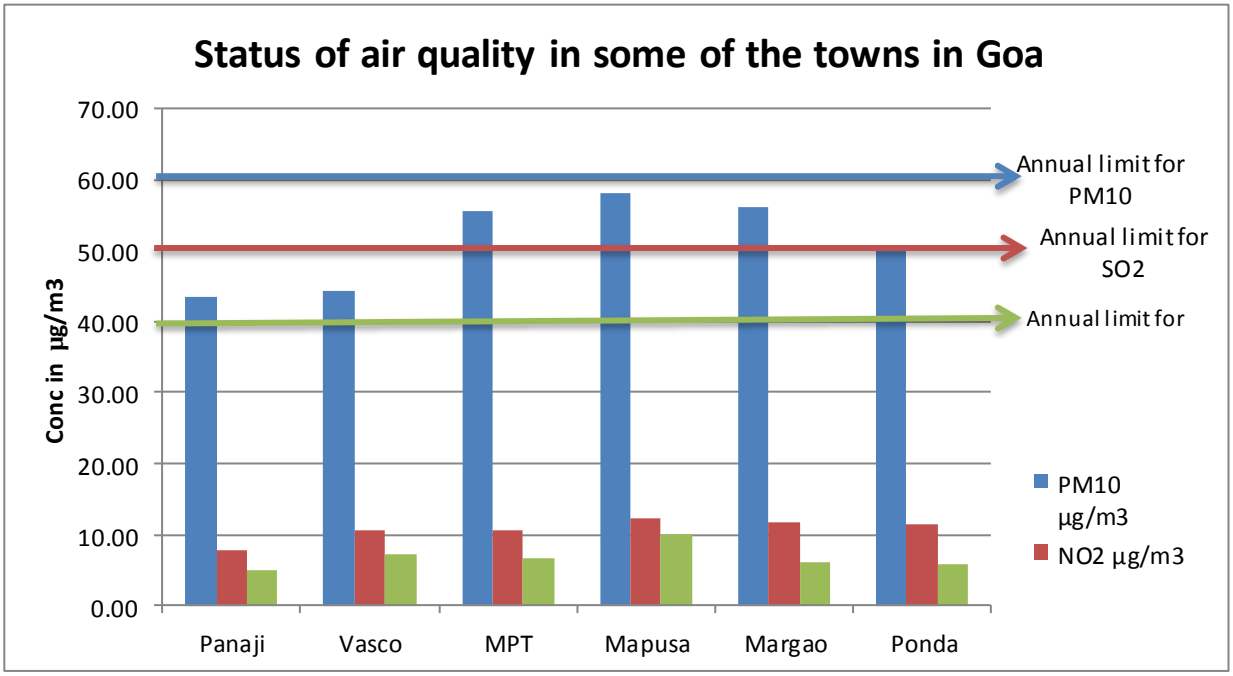
This is an ongoing activity funded by the Central Pollution Control Board, New Delhi under the national Air monitoring programme (NAMP).

Ambient air quality in some areas of goa

The board is conducting ambient air quality monitoring at the following locations; viz; panjim, Vasco, Mapusa, Ponda and kundaim industrial estate. The Panaji, Vasco, Ponda and kundaim industrial estate are monitored through MOEF approved laboratories. The annual averages of PM10, SO2 and NO2 at some of the towns is shown below in table the data indicates that the levels of SO_2, NO_2 are well within permissible limits

Trend status of air quality for the period April 2013-march 2014 in some of the towns of goa

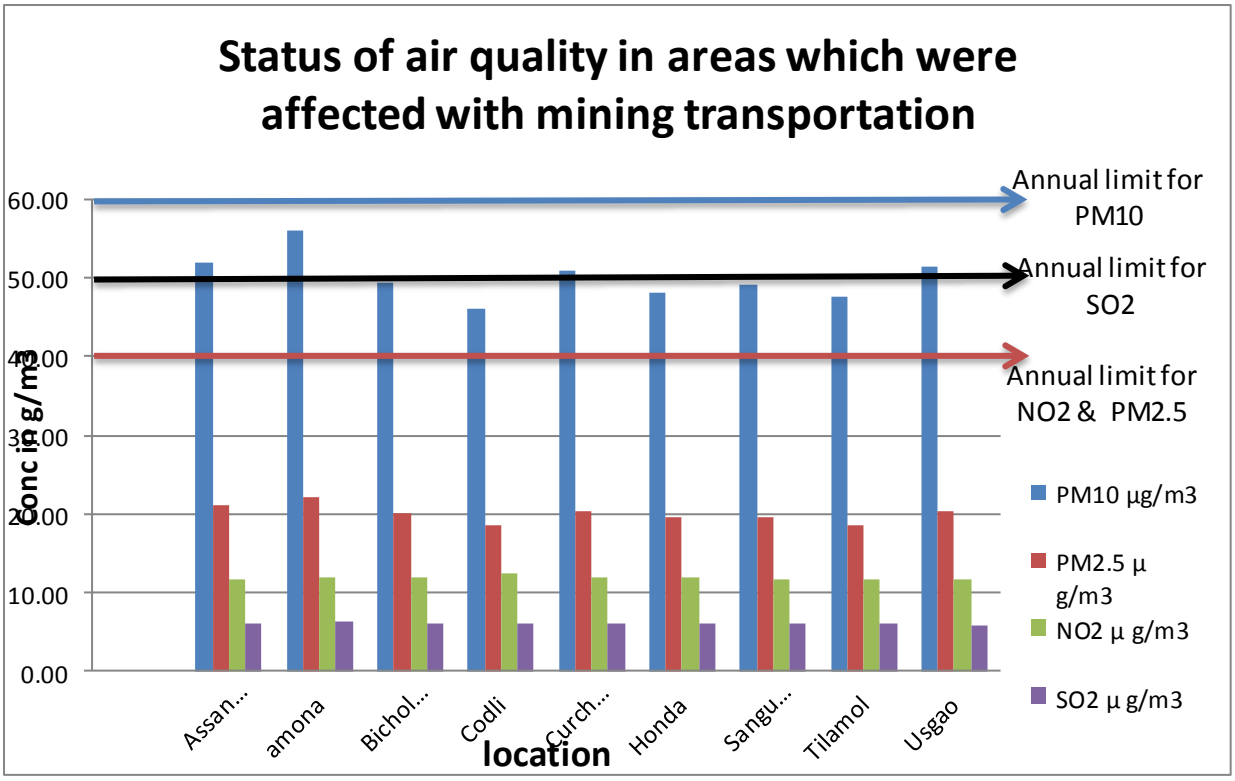
Parameter → / Location ↓	PM10 µg/m^3	NO_2 µg/m^3	SO_2 µg/m^3
Panaji	43.50	7.85	5.02
Vasco	44.48	10.67	7.33
MPT	55.48	10.67	6.52
Mapusa	58.08	12.28	10.14
Margao	56.30	11.71	6.03
Ponda	49.91	11.45	5.72



Trend status of air quality in areas which were affected with mining transportation during April 2012-March2013

Parameter → / Location ↓	PM10 µg/m^3	PM2.5 µg/m^3	NO_2 µg/m^3	SO_2 µg/m^3
Assanora	51.93	21.13	11.77	6.14
Amona	55.95	22.21	12.01	6.19
Bicholim	49.35	20.17	11.82	6.15
Codli	45.98	18.65	12.34	5.96

Curchorem	50.85	20.23	11.81	5.99
Honda	48.10	19.44	11.83	6.11
Sanguem	49.13	19.58	11.63	5.98
Tilamol	47.66	18.49	11.61	6.05
Usgao	51.50	20.37	11.58	5.92



National water quality monitoring programme

The Goa State Pollution Control Board monitors water quality at 52 locations throughout Goa under the Central Pollution Control Board sponsored project NWMP. The water bodies monitored include rivers, wells, canals, lake, reservoir and creek. Among the rivers ,the estuarine rivers as well the sweet water rivers, which form a part of the network for water intake points for water treatment plants for public water supply have been covered. Ground water sources located within the industrial estates are also part of this programme.

Management problems in the State of Goa

- The Government of Goa has constituted a Monitoring Cum Working Committee to support, consolidate and assist in the activities in the various Government

departments, local Panchayat Raj institution, NGO's / VGO's: who are working in the field of solid waste management and monitoring the enforcement of Goa non-biodegradable Garbage(control) Act 1966 & rules 1997 and the plastic waste (management and handling) rules, 2011 under the chairmanship of honorable minister for environment and the High Level Task Force (HLTF) to provide directions and implement various measures as announced in the budget speech, 2012-13, towards resolving the solid waste management problems affecting the state of Goa.

- The decisions taken by the committee as well as the HLTF are implemented through the Goa State Pollution Control Board.

Environment and industries are inter-related and interdependent. Environmental problems are an important concern for industries today. Industrial activities cause various impacts on the natural environment e.g. building an industry results in deterioration of place, lot of trees are being cut down, waste disposed of at the site, gases released by industries including CO2, smoke etc. This has caused disturbance in the people including the plants and animals.

The increasing number of industries has become a threat to the environment and the people. The industries consume energy, food, water, wood, plastics in the process of manufacturing and packaging of products. A lot of waste is being generated by these activities which requires disposal. Some companies are taking it seriously and are taking adequate measures to treat this waste while other companies are using other like burning the waste, disposing it in the water etc. The disposal of the waste in the water which includes mixture of harmful chemicals has disrupted the marine life. So also these activities have led to various pollutions like air, water, soil, noise etc.

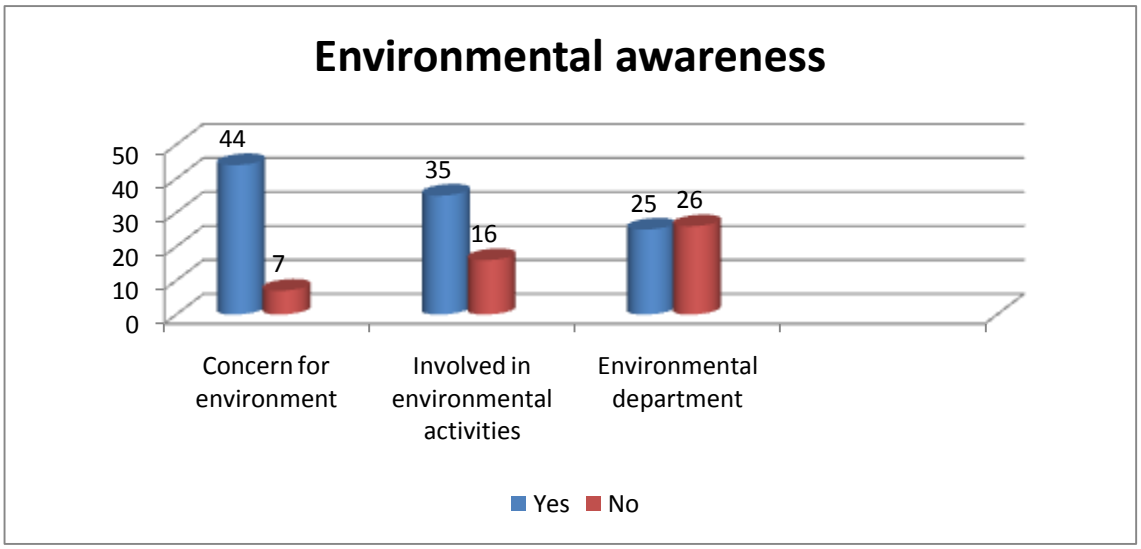
Table No. 1

Environmental awareness

	Yes	No	Percentage
Concern for environment	44	7	86.2%
Involved in environmental activities	35	16	68%
Environmental department	25	26	49%

Source: Questionnaire

Graph no.1



From the above table No. 1 and graph No.1 it shows very clearly that concern for the environment is highest i.e. 86% and it is good for the companies. And further only 68% of companies are involved in environmental activities. And only 49% of them has environmental department. Industries should also show it in more practical terms by showing concern about the environment and they also ought to have environmental department in their units so that they can be more aware about the environmental issues that are occurring in their industries.

Table No. 2

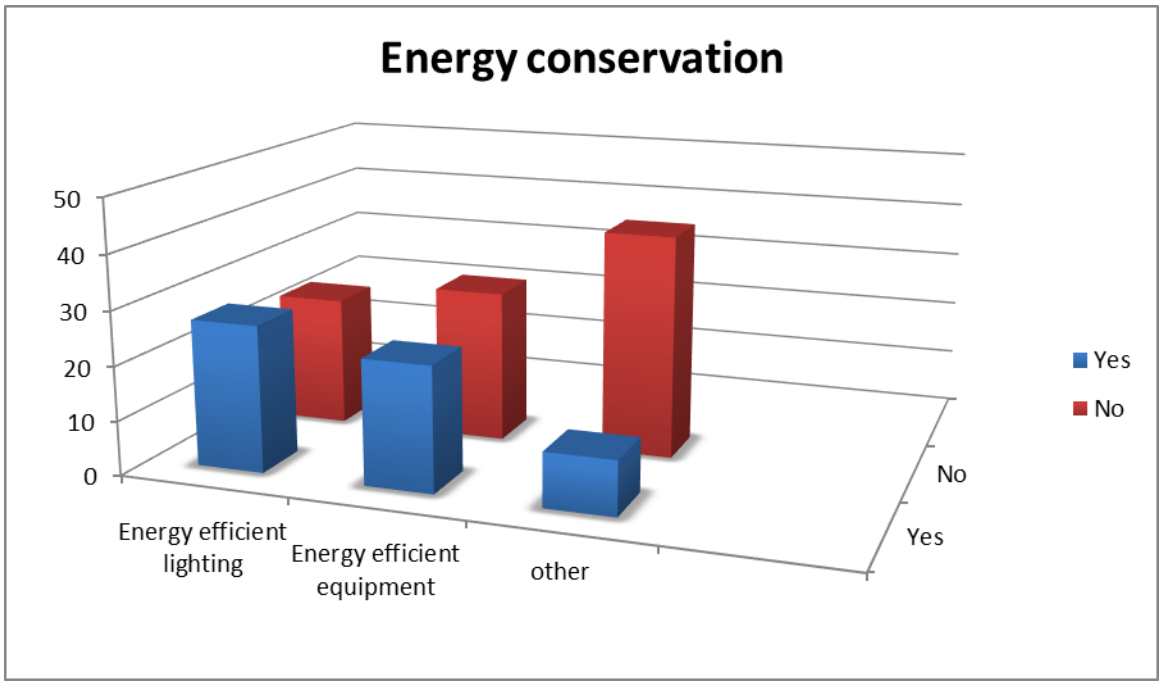
Energy conservation

	Yes	No	Percentage
Energy efficient lighting	27	24	52.94%
Energy efficient	23	28	45.09%

equipment			
other	10	41	19.6%

Source: Questionnaire

Graph no.2



From the above table No.2 and graph No.2 it shows steps taken for energy conservation. 52.94% of the industries are using energy efficient lighting. And further only 45.09% are using energy efficient equipment to conserve energy. Conservation of energy is very important because energy is short supply And our nation is also suffering from it.

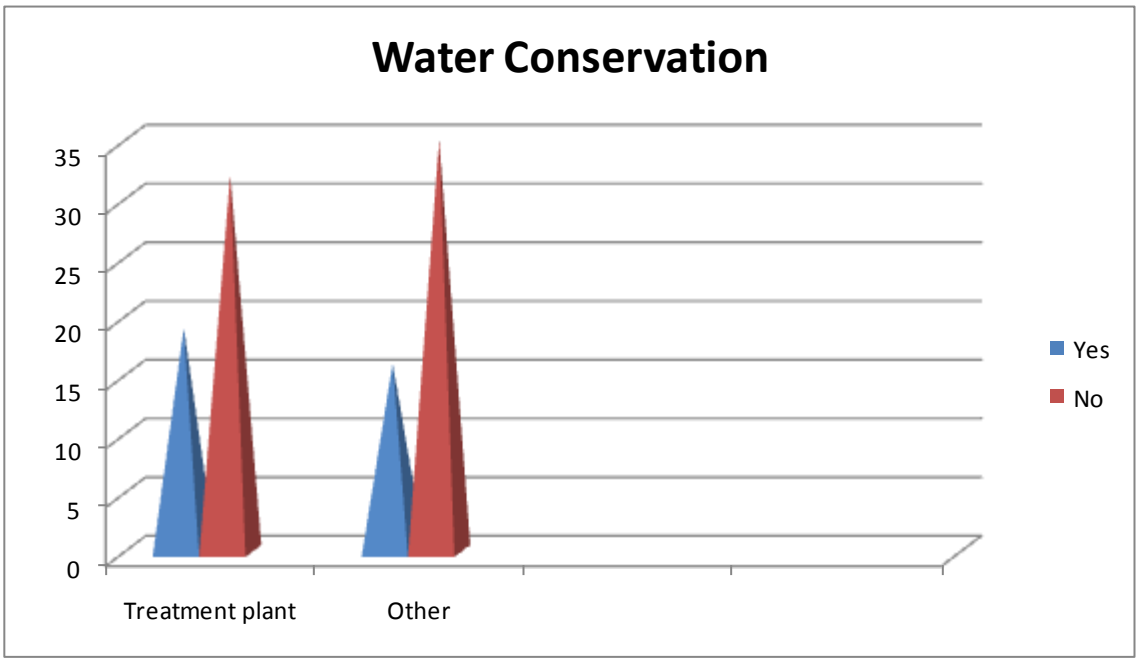
Table No. 3

Water conservation

	Yes	No	Percentage%
Treatment plant	19	32	37.25
Other	16	35	31.37

Source: Questionnaire

Graph no.3



From the above table No.3 and graph No.3 it shows steps taken for water conservation. 37.25% of industries have treatment plant in their unit and only 31.37% of them use other like water harvesting, recycling of waste water, reuse of waste water and etc. It is very important to conserve water because in Goa we are suffering from water scarcity especially in summers were well water goes dry and also supply from government is also less so there is a need to conserve water.

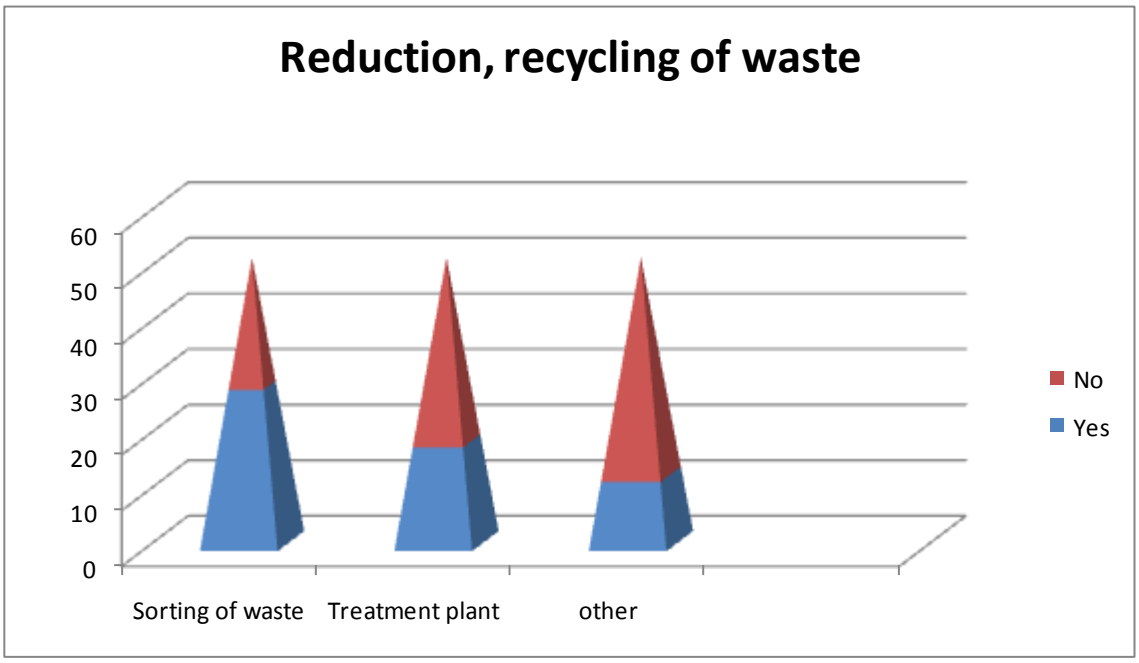
Table No. 4

Reduction, recycling of waste

	Yes	No	Percentage%
Sorting of waste	28	23	54.9
Treatment plant	18	33	35.3
other	12	39	23.52

Source: Questionnaire

Graph no.4



From the above table No.4 and graph No.4 it shows that 54.9% of industries are sorting their waste and further only 35.3% have treatment plant in their units. And only 23.52% use other reasons are like selling their waste to registered vendor or recycle. It is very important to recycle and reduce the waste because in future it will affect us in many ways like diseases, garbage problem and etc. And the waste which is biodegradable can be treated and used as manure in plants.

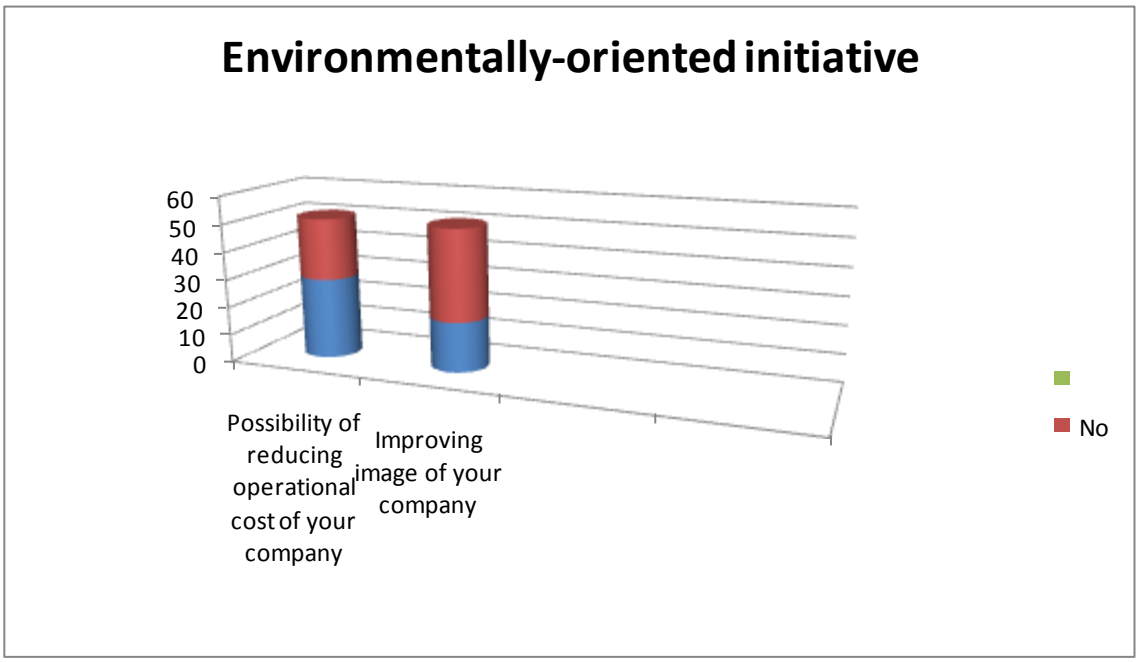
Table No. 5

Environmentally-oriented initiative

	Yes	**No**	**Percentage%**
Possibility of reducing operational cost of your company	29	22	56.86
Improving image of your company	18	33	35.29

Source: Questionnaire

Graph No.5



From the above table No.5 and graph No.5 it shows that industries are motivated to conduct environmental oriented activities .Possibility of reducing operational cost of their company is highest i.e. 56.86% and further only 35.25% of the industries are conducting environmental oriented activities to improving the image of their company. Environmental oriented activities play an important role in industrial units because it helps the industries to raise their goodwill high in the market.

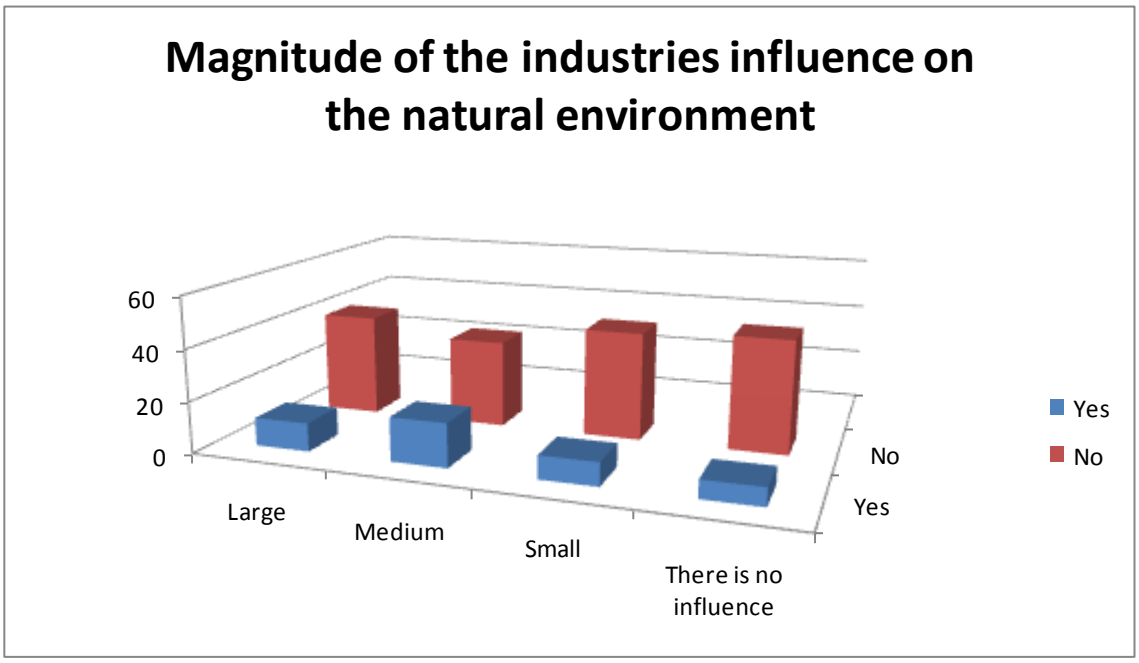
Table No. 6

Magnitude of the industry influence on the natural environment

	Yes	No	Percentage%
Large	11	40	27.5
Medium	17	34	33.33
Small	9	42	17.64
There is no influence	7	44	13.72

Source: Questionnaire

Graph No.6



From the above table No.6 and graph No.6 it shows that there is a medium i.e. 33.33% have influence on the natural environment by the industries which is higher. And 27.5 % of the industries has large magnitude of the industrial influence on the natural environment and further only 17.64% have small influence on the natural environment And 13.72% has No influence on the natural environment.

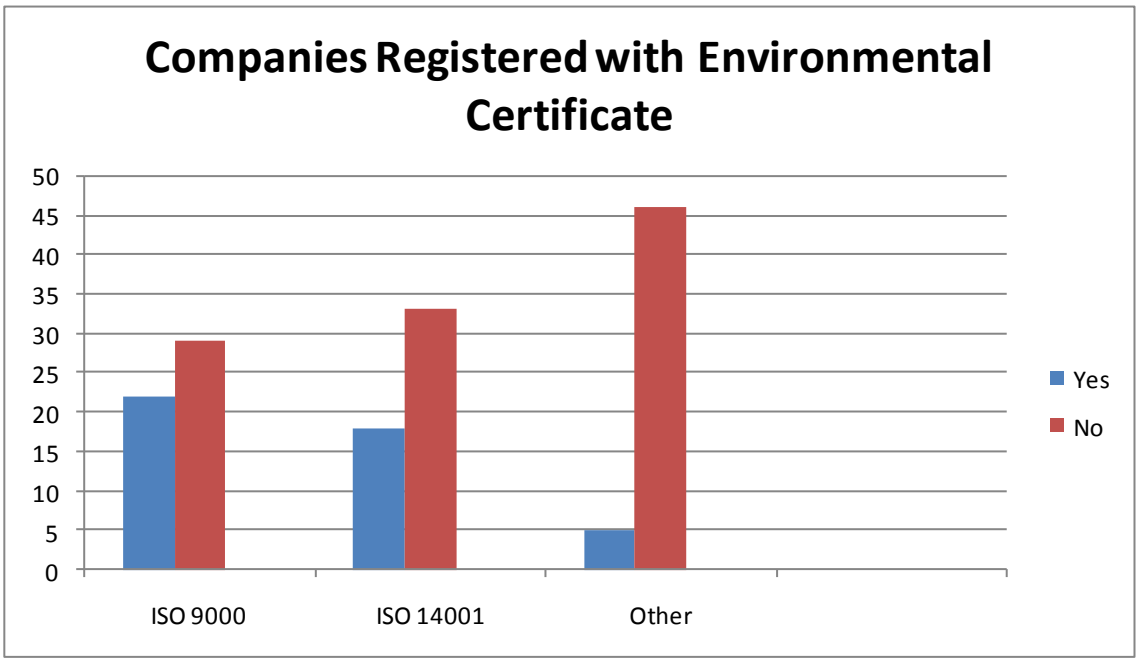
Table No.7

Companies registered with environmental certificate

	Yes	No	Percentage%
ISO 9000	22	29	43.13
ISO 14001	18	33	35.29
Other	5	46	9.8

Source: Questionnaire

Graph No.7



The above table No.7 and graph No.7 it shows that industries which are registered under environment certification. Around 43.13% of industries are registered with ISO 9000- a series of standards, developed and published by the International Organization for Standardization (ISO), that define, establish, and maintain an effective quality assurance system for manufacturing and service industries. And further 35.29% of industries are registered with ISO 14001: 2004 – it sets out the criteria for an environmental management system and can be certified to. It does not state requirement for environmental performance, but maps out a framework that a company or organization can follow to set up effective environmental management system. And other certifications are just 9.8%.ISO 9000 is more important to an organization's success and it provides a general framework for quality management and is targeted towards manufacturing organizations. And ISO 14001:2004 it minimize how their operations negatively affect the environment and it also comply with applicable laws, regulations and other environmentally oriented requirements, and continually improves.

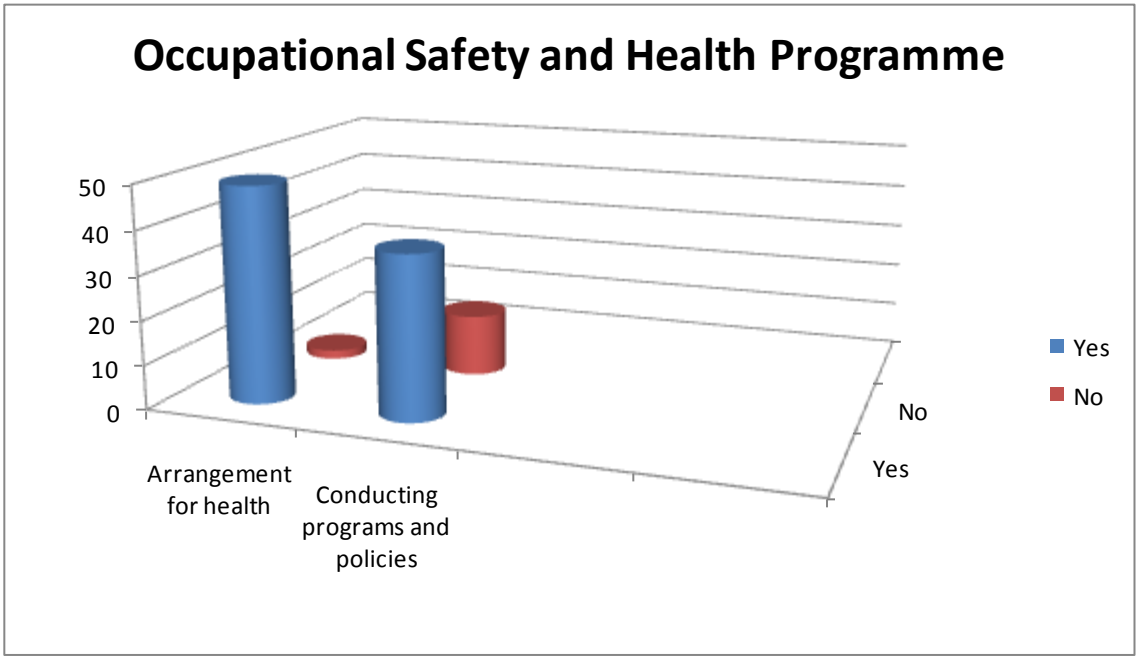
Table No. 8

Occupational safety and programme

	Yes	No	Percentage
Arrangement for health	49	2	96.07
Conducting programs and policies	37	14	72.54

Source: Questionnaire

Graph No.8



The graph no 8 and the table 8 show that 96.7% of companies are concerned for the health of workers and 72.54 % 0f the companies conduct programs and policies to look after workplace safety and health of workers .Health and safety programs are an important part of preventing injury and illness in the workplace. Health programs help employers and employees understand the potential hazards they are exposed to on a daily basis. Effective health and safety programs educate workers on the benefits of practicing proper workplace behaviors.

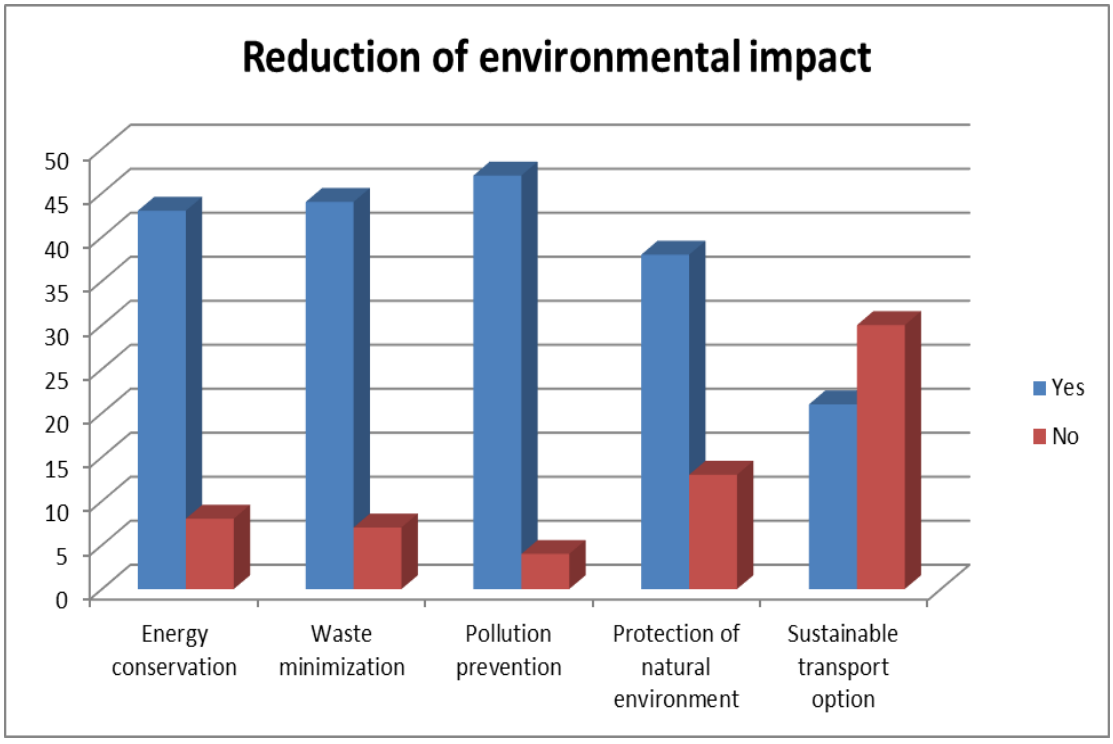
Table No. 9

Enterprise tried to reduce environmental impact in terms of the following

	Yes	No	Percentage
Energy conservation	43	8	84.31
Waste minimization	44	7	86.27
Pollution prevention	47	4	92.15
Protection of natural environment	38	13	74.5
Sustainable transport option	21	30	41.17

Source: Questionnaire

Graph no.9



From the graph no 9 and the table no 9 it is understood that 84.31 % of companies tried to reduce environmental impact in terms of energy conservation, 86.27 % in terms of waste minimization, 92.15 % in terms of pollution prevention,74.5 % in terms of protection of natural environment and 41.17 % in terms of sustainable transport option.

Conservation of energy is important because Most of the energy sources we use cannot be reused and renewed - Non renewable energy sources constitute 80% of the fuel use. It is said that our energy resources may last only for another 40 years or so. Waste minimization can help to reduce the risk of future liability associated with the

disposal of solid wastes. Pollution prevention and protection of natural environment will sustain environment for future generations to come and Sustainable transport systems make a positive contribution to the environmental.

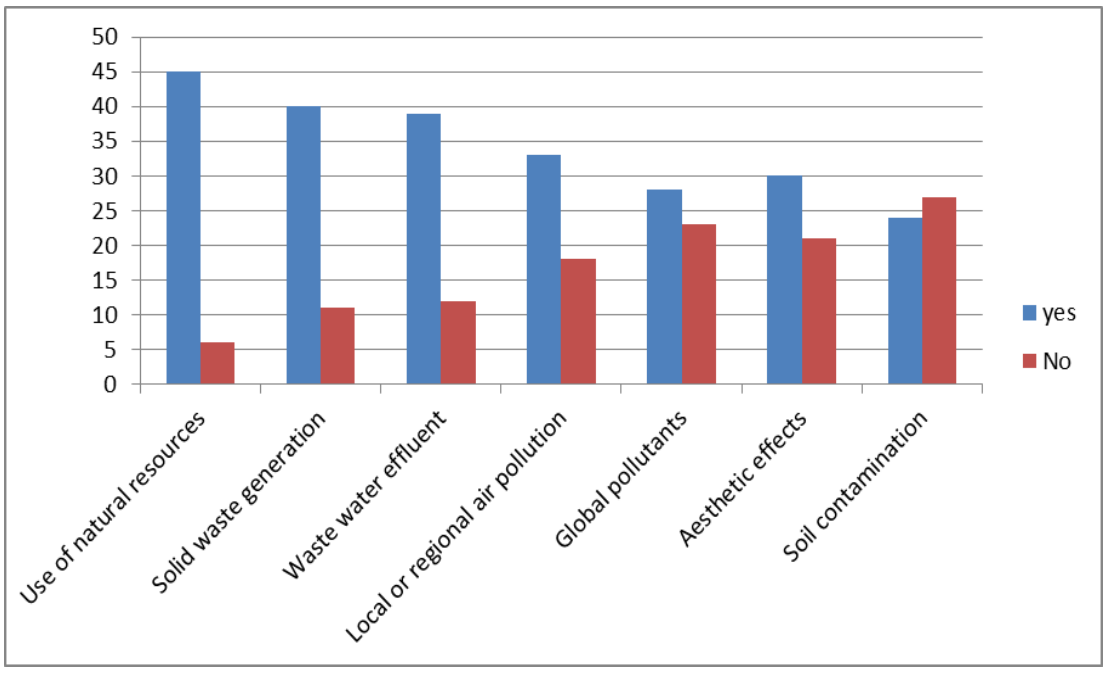
Table No. 10

Actions taken to reduce environmental impact associated with the following:

	Yes	No	Percentage
Use of natural resources	45	6	88.23
Solid waste generation	40	11	78.43
Waste water effluent	39	12	76.47
Local or regional air pollution	33	18	64.7
Global pollutants	28	23	54.9
Aesthetic effects	30	21	58.82
Soil contamination	24	27	47.05

Source: Questionnaire

Graph No.10



From the above table no 10 and the graph no 10 it can be seen that 88.23% of the companies make use of natural resources,78.43% tried to reduce solid waste form their production,76.47 are involved in treating effluent water ,64.7% tried to reduce local air

pollution,54.9% tried to reduce global pollutants,58.82 reduced their aesthetic effects,47.05 % reduced soil contamination by recycling and using safe disposal methods.

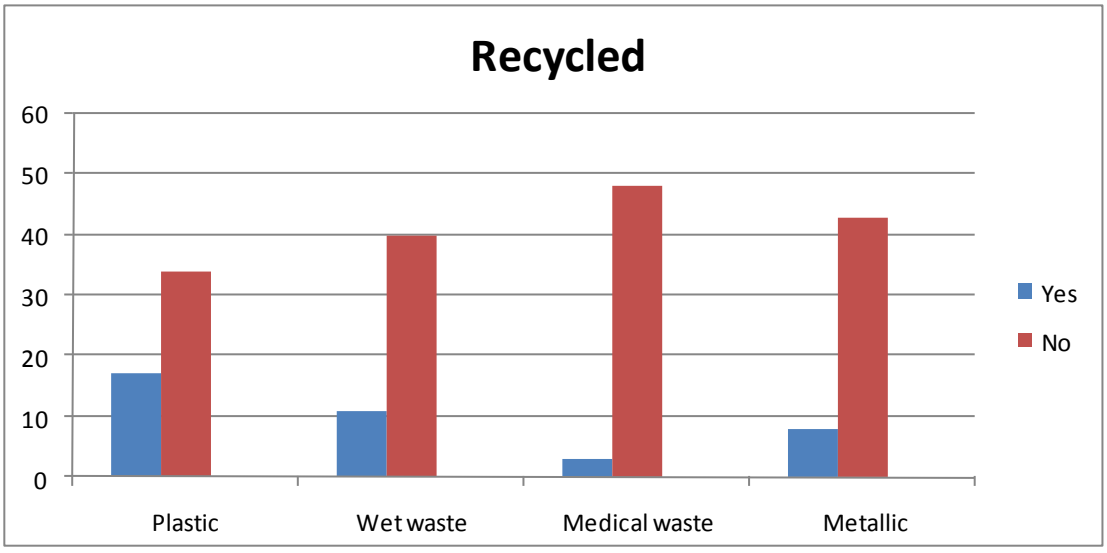
Table No. 11

Recycled

	Yes	No	Percentage%
Plastic	17	34	33.33
Wet waste	11	40	21.56
Medical waste	3	48	5.88
Metallic	8	43	15.68
Bottles	12	39	23.52
other	17	34	33.33

Source: Questionnaire

Graph no.11



From the above table no 11 and the graph no 11 it is seen that 33.3% of companies are involved in recycling of plastic, 21.26% involved in treating wet waste which can be used later for gardening ,5.88% treat medical waste,15.68% recycle metallic waste,23.52% recycle bottles and other 33.33% recycle other things such as paper, glass containers etc. Recycling is very important as waste has a huge negative impact on the natural environment. Recycling is important to both the natural environment and companies by recycling company can save its cost and can also earn. Some companies do not recycle because they don't have required machinery to do so, some dispose waste to authorized dealers and some send for recycling to authorized recycler.

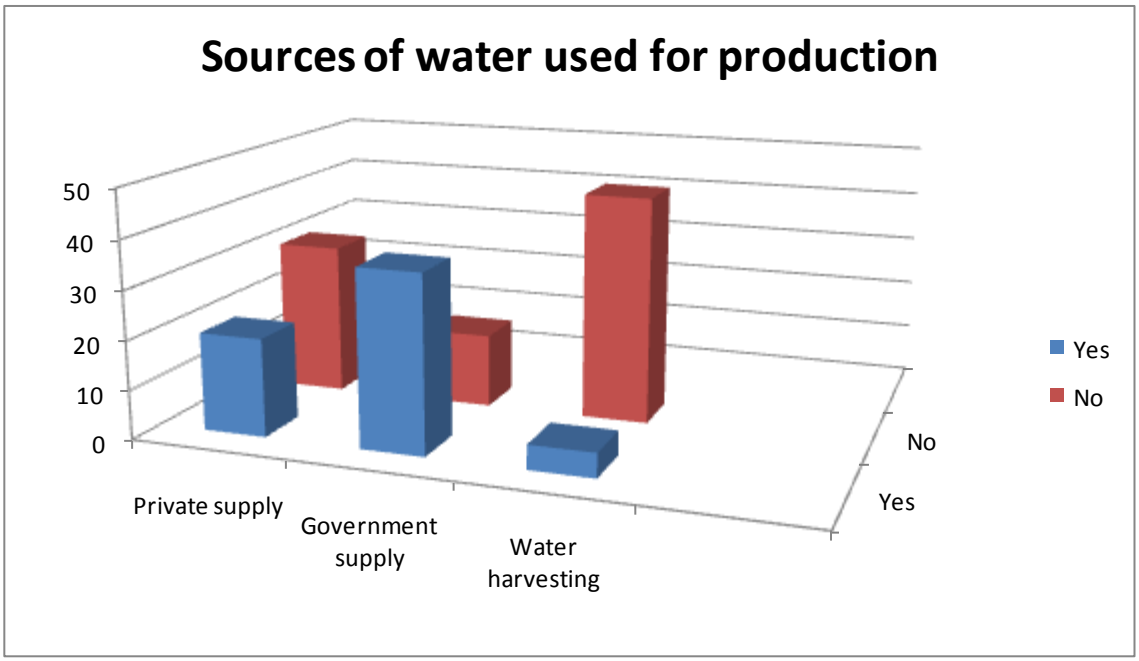
Table No. 12

Source of water used for production

	Yes	No	Percentage
Private supply	20	31	39.21
Government supply	36	15	70.58
Water harvesting	5	46	9.80

Source: Questionnaire

Graph No.12



The graph and the table No 12 shows that most of the companies use Government supply as a source of water for production followed by private supply and very little percent of companies are involved in water harvesting.Infact all companies should have water harvesting plan water is a scare resource and medium for life companies should preserve and make optimum use of this resource. Water harvesting saves cost by reducing water bills and can be used for several non-drinking purposes.

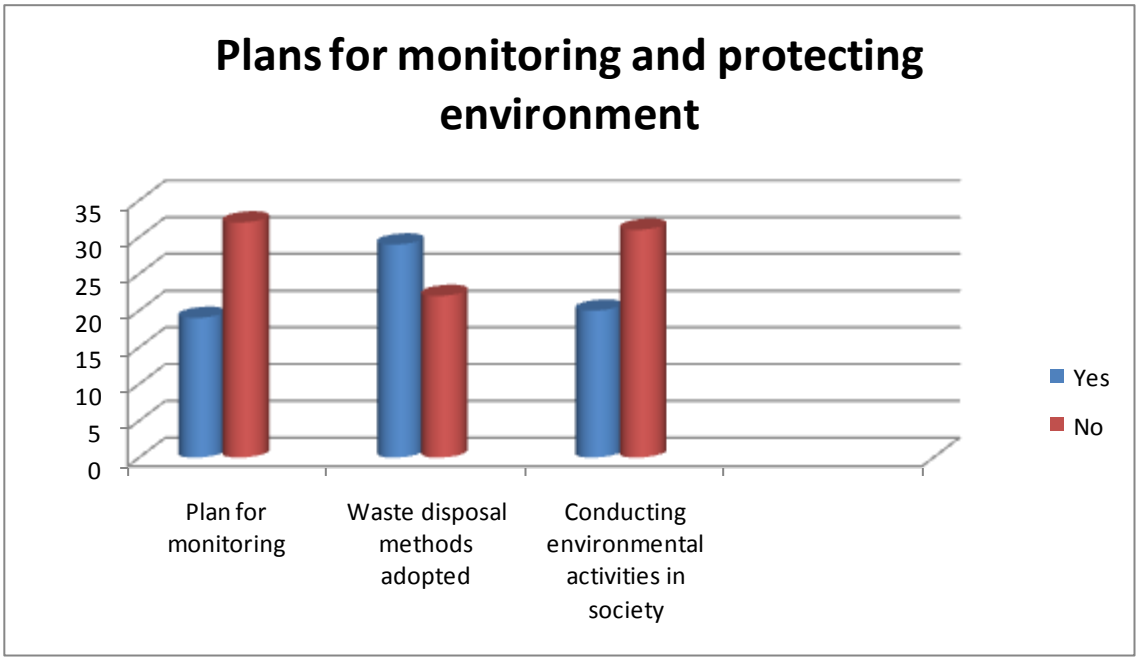
Table No. 13

Plan for monitoring and protecting environment

	Yes	No	Percentage
Plan for monitoring	19	32	37.25
Waste disposal methods adopted	29	22	56.86
Conducting environmental activities in society	20	31	39.21

Source: Questionnaire

Graph No.13



In this graph no 13 and table no 13 it can be seen that 37.25 %have a plan for monitoring and 56.86% have plan for waste disposal and 39.21% of companies conduct environmental activities in society by doing so they improve the image of their company and show their concern for the environment

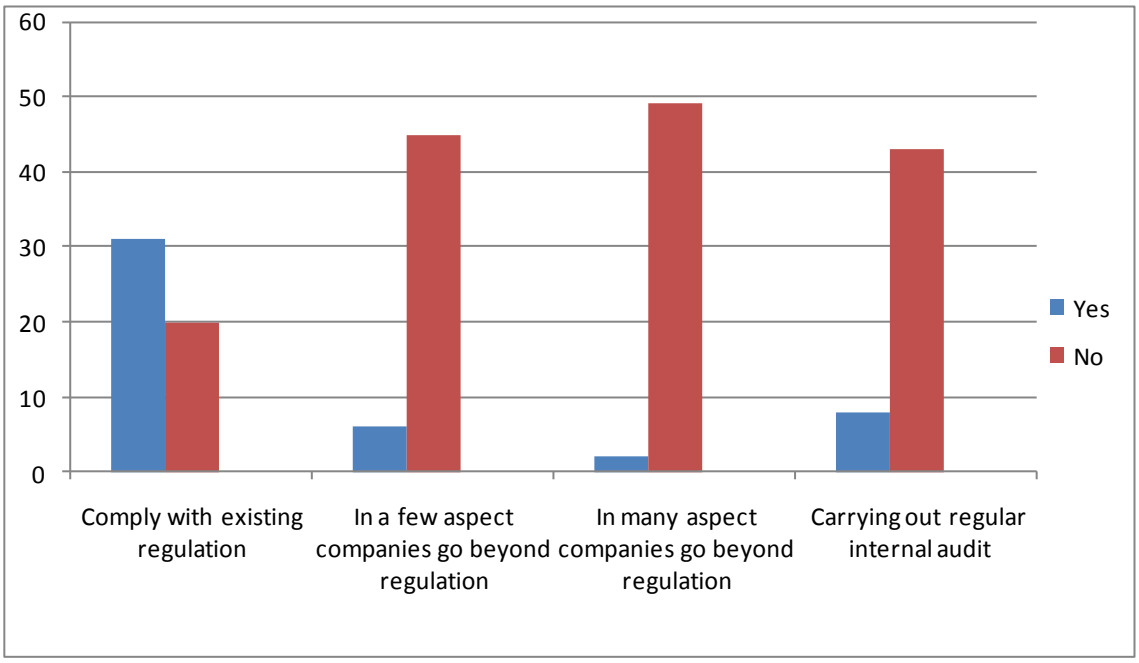
Table No. 14

Care for environment

	Yes	No	Percentage
Comply with existing regulation	31	20	60.78
In a few aspect companies go beyond regulation	6	45	11.76
In many aspect companies go beyond regulation	2	49	3.92
Carrying out regular internal audit	8	43	15.68

Source: Questionnaire

Graph No.14



From the table and the graph no 14 it can be seen that 60% of the companies comply with existing regulation while only 3.92% of the companies are going beyond regulation. About 11% of the companies are in few aspects going beyond regulation and some companies even carry out regular internal audit. so that they can make the required changes in the existing system. Companies comply with existing regulations such as ISO 14000, OHSAS 18000 as mentioned above

Conclusion

Concern for environment is not a luxury, and not at all avoidable heavy expenditure. The preservation of environment is not only an economic consideration but also moral duty because environment contains gifts of nature, some of which are non-renewable. Environmental concern obligation relates also closely to depletion, restoration and increase of resources. Policy decisions and their implementation must be an attempt to affect balance between present gains with lightly damage in near future. There has to be synthesizing act between environment and development which, at present, is a dilemma. There is as yet no consensus about the role of accounting in trying to account for the environment.

When disclosing information externally, companies must consider integrity and commonality that enable the system to be a social system for distribution of correct information to users. The challenge of environmental accounting is to deliver meaningful disclosure within accounting practices and standards. Further challenge of environmental accounting is to extend practices to include new accounting procedures for costing out and investigating possible recycling alternatives. Introducing environmental accounting and reporting the organization need to ascertain all environmental impacts from a cost benefit point of view and to measure eco-assets and liabilities for the organization. An accounting standard devoted for the purpose of measurement and reporting of environment must be pronounced. Although a global environmental accounting standard is under consideration by the international accounting standards committee, there is an urgent necessity of a generally accepted environmental accounting standard to keep pace with the sustainability.

A successful environmental management system should have a method for accounting for full environmental costs and should integrate private environmental costs into capital budgeting, cost allocation, process/product design and other forward-looking decisions.

The study reveals that awareness of environmental accounting needs to be implemented in every company. Though GSBPC monitors over production, functioning of different companies. It is found that most of the companies are being certified with the environmental certificate like ISO: 14001; ISO: 9000, OSHAS and others which show that they are very much concern about the environment and are taking various actions in order to reduce environmental pollution. Some companies are even conducting regular environmental audit.

The role played by the government in sustainability development is very comprehensive. There are various Acts like the Air (Prevention and Control of Pollution) Act, 1981; The Environment (Protection) Act, 1986 which laid down certain rules which the companies have

to follow while conducting industrial practices and strict actions are being taken by the Goa State Pollution Control Board (GSPCB) if the companies are violating this rules which are being laid down in these acts.

Analysis shows that few companies are motivated in conducting environmental oriented activities so as to improve the image of their company and to reduce the operational cost, but we feel that every company should engage themselves in conducting programs to spread environmental awareness and sustain the natural resources for future generations to come.

The data shows that many companies tried to reduce their company's environmental impact in terms of energy conservation, waste minimization and pollution prevention, so based on the information collected by us we can conclude that the magnitude of the industry influence on the natural environment is medium.

Suggestions/ Recommendations:

Healthy and hygienic environment is a pre-requisite of economic development of a country. The seventh Five years plan states that India is fortunate in the richness of its natural resources and better to say the abundance and diversity of its living resources.

The following are the recommendation for better performance and results.

1. The companies should not damage the environment at any stage of its life, including manufacture use and disposal.
2. The companies must consume disproportionate amount of energy and other resources during manufacturing use and disposal
3. Companies should not cause necessary waste, either as a result of excessive packaging or a short useful life.
4. Companies should be honest with consumers and not mislead them by over promising.
5. The industrial units using hazardous chemicals as raw materials in processes, products and wastes with inflammable, explosive, corrosive, toxic and noxious properties will be required to have on-site and off-site emergency plans in place and put them to test by organizing regular mock drills.
6. The Company should reuse and recycle this is one of the most obvious way to reduce pollution. When you reuse and recycle items, it goes a long way in preserving raw materials. Recycling also minimizes the landfill garbage and the environmental damage caused by manufacturing processes.
7. Companies should correctly dispose of hazardous materials in a proper way.

8. Should conserve energy when possible this can be done by replacing energy -sucking incandescent bulbs with fluorescent ones, install window fans instead of a/c units, and insulate the water heater, unplugging electrical devices when not in use
9. The analysis reports indicate that treatment facility is not adequate to treat the wastewater generated
10. The treatment plant should be upgraded to treat the waste water generated from the industry.

Key words: Goa State Pollution Control Board, National Air Monitoring Programme, National Water Monitoring Programme, Goa state pollution control board.

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NATIONALITY-WISE FOREIGN TOURIST ARRIVALS

DURING THE YEAR- 2012 & 2013

Â

Sr. No.	Countries	No. of tourist Arrived	%	No. of tourist Arrived	%
Â Â	Â Â	2012		2013	
1.	U.K.	119891	29.53	145431	29.53
2.	Russia	140100	33.05	162746	33.05
3.	Germany	31842	9.43	46472	9.43
4.	Finland	23787	5.20	25643	5.20
5.	France	19907	4.18	20618	4.19
6.	Switzerland	12951	2.76	13599	2.77
7.	Sweden	18222	3.80	18752	3.81
8.	U.S.A.	8970	1.93	9502	1.94
9.	Australia	6872	1.55	7635	1.56
10.	South Africa	1732	0.60	2972	0.61
11.	Brazil	1203	0.44	2204	0.45
12.	Italy	3952	0.90	4471	0.91
13.	Canada	4507	1.04	5122	1.04
14.	Japan	826	0.20	1001	0.21
15.	Denmark	1562	0.31	1570	0.32
16.	Austria	2201	0.34	1721	0.35
17.	Holland	1282	0.40	2001	0.40
18.	Portugal	1195	0.51	2559	0.52
19.	Ireland	1242	0.27	1360	0.28
20.	Belgium	280	0.07	384	0.07
21.	Norway	182	0.03	184	0.03

22.	**Iran**	882	**0.18**	892	**0.18**
23.	**U.A.E.**	1262	**0.40**	1999	**0.41**
24.	**New Zealand**	256	**0.05**	285	**0.06**
25.	**Greek**	72	**0.01**	90	**0.01**
26.	**Lithvania**	1252	**0.30**	1506	**0.31**
27.	**Czech**	852	**0.19**	942	**0.19**
28.	**Others**	43248	**2.16**	10661	**2.17**
Â Â	**Total**	**450530**	**100**	**492322**	**100**

Source:Goa tourism