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**FEASIBILITY STUDY ON THE IMPLEMENTATION OF THE
INTERNATIONAL STANDARD ISO 14001:2004 ENVIRONMENTAL
MANAGEMENT IN “PLANETA AZUL” WATER PARK BASED ON ITS
ENVIRONMENTAL IMPACT STUDY**

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the degree of International Studies
with bilingual honors in Foreign Trade

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DEDICATORY

To you, my parents, that gave me everything so I could realize my dreams and achieve my goals. Thank you for your help and support in these hard months of handling work and study. I dedicate this thesis to you with all my love,

Wilson and Magdalena

GRATITUDE

I am grateful to my thesis director, Dr. Raffaella Ansaloni, for guiding me during the preparation of this work, because she had always the right words to carry out a good job. To the president of the company Planeta Azul, Ing. Marisabel Perez, for providing me the necessary information for this project. To my dear husband Miguel, for motivating me to finish this project with his support and encouragement.

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ABSTRACT

In the Feasibility Study on the Implementation of the International Standard ISO 14001:2004 Environmental Management in “Planeta Azul” Water Park based on its Environmental Impact Study, research on the International Organization for Standardization (ISO) in order to know its history, its structure, and most importantly, know how to achieve an International Certification is shown first. Then, a study of the company “Planeta Azul” in all its phases and, the environmental aspects generated by its commercial activities is shown. Finally, all the ISO 14001:2004 requirements are applied to the Environmental Management Manual so an analysis of the possibility of the company to achieve an International Environmental Management Certification is made. Research and interview methods were used in order to obtain reliable and true information for this work. Furthermore, the business processes were researched to obtain positive conclusions to implement an Environmental Management System in the company.

INTRODUCTION

In recent times, there is evidence as to how the commercial sector of entertainment services is growing due to the need for cities to generate tourism to achieve economic development. Currently, consumers have different options to choose from when they are looking for a place of recreation; among them is the Aquatic Park Planeta Azul, a growing company in Ecuador with a significant financial investment that offers services in aquatic entertainment, a reception salon and a restaurant.

This company belongs to a highly competitive sector, so it is necessary to take additional measures to add value to their services and cover the entire domestic and international market by publicizing its corporate image in order to attract more customers. For this reason, a Feasibility Study for the Implementation of International Environmental Management Standard was applied because their activities are developed in an interactive plan with the environment. This issue is even more interesting because it is a company that offers services, not products, thus this is a sector that should also be motivated to get this type of International Certifications that removes barriers in order to enter to the international market.

The main objective of this study was to apply the ISO 14001:2004 requirements to the water park activities and, from that point, analyze their feasibility. All this has been achieved through research and interviews with the company executives that provided reliable and appropriate information.

CHAPTER 1

1 THE INTERNATIONAL ORGANIZATION FOR STANDARDIZATION AND THE ENVIRONMENTAL MANAGEMENT STANDARD ISO 14001:2004

This chapter provides detail about the International Organization for Standardization since its foundation and how it is structured and directed today. This information will give a better understanding and a clear concept of an international standard. Then we will study what an International Certification means and involves and the ways to reach it. Finally, the fundamental standard of this study, the Environmental Management ISO 14001:2004 its history, development benefits and its application requirements will be reviewed.

1.1 The International Organization for Standardization

1.1.1 History

According to the official website of ISO, international standardization was conceived in the electrical field in the year 1906 with the creation of the International Electrotechnical Commission (IEC). Later in 1926, the International Federation of National Associations for Standardization (ISA) developed standards in new fields such as mechanical engineering in order to promote international trade in products and production processes. The ISA was dissolved in 1942, so it is the previous official organization to the International Organization for Standardization (www.iso.org).

The international standardization was seen more than 100 years ago as an absolute necessity for industries to increase international trade, so that each one of the industrial fields could develop standards to become more competitive and to provide a better quality to consumers.

The International Standardization could not be stopped with the dissolution of the ISA. Four years later, in 1946, at the Institute of Civil Engineers in London sixty-five (65) delegates from twenty-five (25) countries around the world gathered and discussed the future of international standardization. They founded the International Organization for Standardization (ISO) and started their official duties on February 23, 1947 with the purpose of facilitating international coordination and a unification for industry standards. (www.iso.org).

1.1.2 What is the International Organization for Standardization?

The International Organization for Standardization (ISO) is an international non-governmental organization based in Geneva which comprises a total of 169 members responsible for promoting the development of international standards of manufacturing, trade and communication, and to help industries be more effective, efficient and eliminate barriers to international trade. Because it is a non-governmental organization, the ISO standards are not mandatory, but voluntary; this means that any company, of any type and size may decide to implement the ISO standards without being forced by their national government. However, companies must know that intentionally, and by their own incentive, they will be developing competitiveness in the market and will be offering a product or service of quality certification at an international level.

The ISO is a network of National Standardization Bodies. These national standards bodies form the ISO membership and represent the organization within its country. The Ecuadorian agency representative in the ISO is the Ecuadorian Institute for Standardization (INEN). These organisms generate industrial and commercial international standards which must align with the national regulations of each member country and be mainly consistent with the Final Act of the World Trade Organization, so as to facilitate trade, exchange information and contribute to the development and transfer of technologies with common standards.

Therefore, a country that is a member of the ISO can participate according to their needs, in the creation of standards, which apply to the whole world. The degree of

access and influence on the ISO system of the member bodies will be explained at a further point in this thesis.

The ISO also acts as an intermediary between the public and private sectors. On the one hand, many of its member institutions are part of the governmental structure of their countries or act as mandated their governments. On the other hand, other members reside in the private sector and they have been selected by the national associations of industries. Therefore, the ISO allows a consensus to be reached between both sectors based on the needs and demands of the particular business and the broader needs of the national society.

1.1.3 ISO members

The ISO is made up of three types of members, which differ from one to another by the degree of access and influence on the system. In this way, the Organization recognizes the different needs and capacities of each national standardization body. The different types of member are described below:

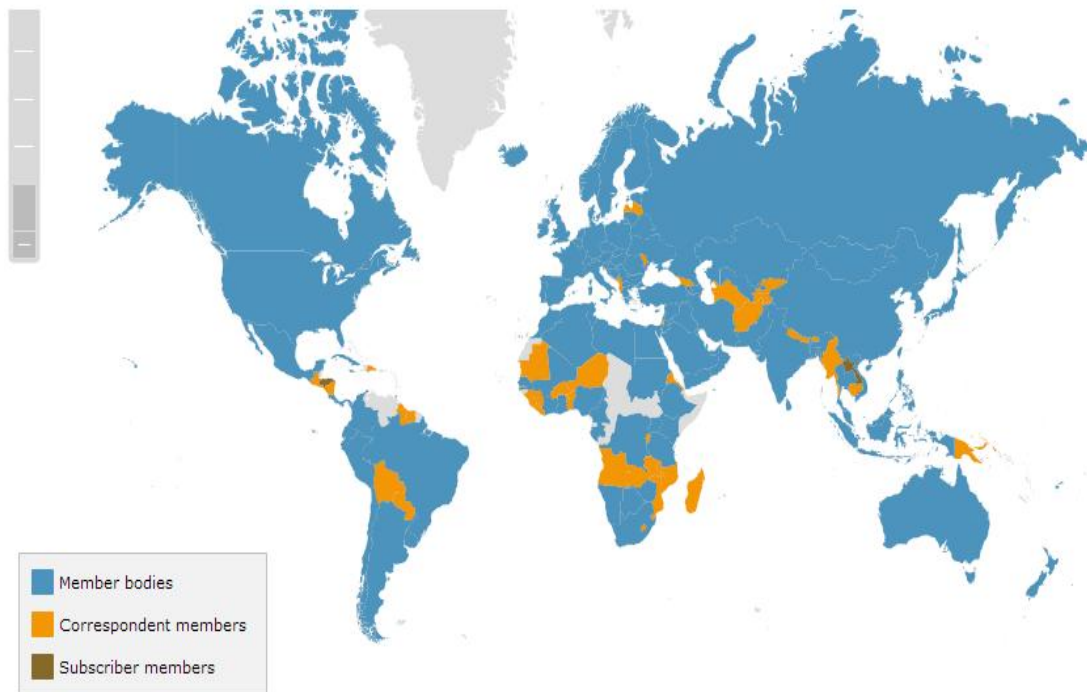
- Full members: within this group are the organizations of 113 countries that can be differentiated in the following way: all of North America, most of South America, Europe, Asia and most of Africa. Full members are those who have full participation and voting in the ISO technical and political meetings directly influencing the development and strategies of its rules. These members sell and adopt international ISO standards at the national level. It is important to emphasize that The Ecuadorian Institute for Standardization (INEN) belongs to this group.
- Corresponding Members: Within this group are the organizations for developing countries that do not have a national committee for standardization. There are 49 countries that include: Guatemala, Honduras, Dominican Republic, Guyana, Suriname, Bolivia, and Paraguay. Corresponding members may observe the development of the ISO standards through attendance at technical and political

ISO meetings as observers. They take no active part in the standardization process but are promptly informed of the work being done. These members can sell and adopt ISO International Standards nationwide.

- **Subscribed Members:** Within these members are organizations of 7 countries: Antigua and Barbuda, Central Africa, Cromoros, Grenada, Honduras, Lao PDR, Saint Vincent and the Granadias. Subscribed members are kept up to date on the work of the ISO, but they cannot participate. These members do not sell or adopt international standards ISO nationwide.

Here we can see the map that indicates the ISO members discussed above:

1.1.3.1 Map of ISO Members



Source: International Organization for Standardization
(www.iso.org/iso/home/about/iso_members.htm)

1.1.4 ISO Internal Structure

The ISO internal structure is composed of a council responsible for the approval of the draft standards. This council is subordinated by one hundred and seventy-six (176) standing committees called ISO Technical Committees, which have a serial number and a name that reflects the profile and the expertise of each one. Technical Committees are subordinated by six hundred and thirty-one (631) Technical Subcommittee (ISO/TCSC) that were created according to the specific expertise of each discipline, and finally these sub-committees are divided into one thousand eight hundred thirty (1830) working groups according to each specialty (iso.org, Structure and Governance section, p. 7).

1.1.4.1 The General Assembly

The General Assembly is the ISO annual meeting that has in a attendance more than 600 delegates from 169 members countries and top executives including the ISO President Terry Hill (United Kingdom), the Vice President of Politics Sadao Takeda (Japan), Vice President of Management Technique Dr. Elisabeth Stampfl-Blaha (Austria), the Vice President of Finances Oliver Peyrat (France), the Treasurer Julien Pitton (Switzerland) and General Secretary Rob Steele. The purpose of the General Assembly, is to provide an initial stage of discussion for the development of future products, services, and systems of the organization (iso.org, Structure and Governance section, p. 3).

1.1.4.2 The ISO Council

The ISO Council is a meeting that takes place twice a year where 20 ISO selected agencies members, the Bureau, and the Presidents of the Committees of Policies Development (CASCO, COPOLCO, DEVCO) meet. Participation in the Council is open to all participating member agencies and is rotatable so that all members are considered.

The ISO Council is primarily concerned with the governance issues. Therefore it is responsible for selecting the Treasurer, the fourteen members of the Council of Management Technique, and the Presidents of the Committees of Policies Development. It also decides on the annual budget of the Central Secretariat.

The organizations that give guidance and management on specific themes to the Council are as follows:

Conformity Assessment Committee (CASCO): CASCO is the body that develops policies and publishes standards relating to the conformity assessment of products and services that wish to obtain certification. CASCO membership is open to full and corresponding members.

CASCO work policy is carried out by three groups:

- Chairman's Policy and Coordination Group (CPC): Which organizes the technical work of CASCO and identify strategic issues of conformity assessment with CASCO Chair.
- Technical Interface Group (TIG): Which liaises with other ISO technical committees in order to ensure a consistent and harmonized approach of evaluation of conformity in therapeutic communities.
- Strategic Alliance and Regulatory Group (STAR): Which provides a forum for regulators and industry sectors to interact with CASCO.

Committee on Consumer Policy (COPOLCO): This Committee provides guidance to the system about consumption issues promoting the interests of consumers in the development of standards. Therefore, the ISO knows the consumers priorities when acquiring a good or service, and the system can create standards based on these priorities to improve the quality that the consumer acquires.

COPOLCO explores these issues that are a priority for consumers in order to bring them to the ISO and promotes the participation of consumers in the standardization work through empowering the consumer representatives. COPOLCO organizes annual workshops that are based on a specific current topic that is relevant to consumers. The workshops are attended by representatives of consumers, public authorities, manufacturers and experts of standardization. Finally, COPOLCO develops

recommendations for action, policy statements, and guidelines for editors of standards and proposals for new areas of standardization.

Integration into COPOLCO is open to full members as participants or observers, and corresponding members as observers. Additionally, a person can be selected to be responsible for representing the consumers that may come from a consumer association or part of an ISO member.

Committee on Developing Countries Matters (DEVCO): DEVCO is the committee that supports developing countries in terms of standardization through technical assistance and training on the awareness of standards and their benefits, improving regional cooperation, information, and communication capacity to participate in international standardization. This technical assistance is given in order to identify the needs of developing countries and to recommend actions to the ISO based on the importance of the development of standards to improve the economic sector, the conformity assessment, and support technologies for these countries.

Council Standing Committees- These committees provide advice on financial and strategic matters.

Ad hoc Advisory Committees- These committees can be established to advance the goals and strategic objectives of the organization.

1.1.5 Training Services

ISO offers training services to all its members, both in developing countries and developed countries. The services can be held in the Central Secretariat in Geneva or elsewhere under request. These courses help members on specific aspects of the development of the ISO international standards, as well as its distribution. Most of the training services are offered free of charge, however the ISO cannot support members with the costs of participation, for example transportation and housing expenses.

Trainings are focused on topics such as:

- Writing a standard according to the standard ISO / IEC
- Using the electronic services provided by the ISO
- The promotion and marketing of international standards ISO

1.1.6 ISO Associates

ISO works together with different international organizations focusing on specific areas to strengthen the international standardization in all fields of industrialization for each organization. Some of the organizations with which the ISO works are as follows:

- The International Electrotechnical Commission (IEC) and the International Union of telecommunications (ITU) which in 2001 formed the Global Cooperation on Standards in order to reinforce, between the three organizations, their systems of international standards, and to promote the adoption and application of standards based on the consensus of global standards.
- The World Trade Organization (WTO) focusing on international standards which are used for the reduction of technical barriers for trade.
- Members of the United Nations in contact with the specialized agencies that give technical assistance in order to assist them.

Summarizing, we can see that the ISO collaborates with international, regional, and national organizations, which participate in the rule-making process, as well as in the exchange of expertise and best practices. These organizations are a strong support for the ISO, and working with these organizations takes into consideration the needs of a large sector of industrialization.

1.1.7 ISO Financing

To cover the operating expenses of the Central Secretariat, the ISO is financed through the payment of a share of the national members. This fee is calculated in proportion to

the gross national product of the country and the trade numbers. Another source of revenue is through the sale of its rules.

The Central ISO Secretariat operations represent only about one-fifth of the cost of the operation of the system. Other expenses of the ISO are due to specific development projects standard and technical works, so these expenses are assumed by the organizations members and business organizations that allow its experts to participate and pay their travel expenses.

1.1.8 Standards

The International Organization for Standardization says:

"A standard is a document that establishes requirements, specifications, guidelines, or characteristics that can be used on ongoing basis to ensure that materials, products, processes and services are suitable for their purpose." (www.iso.org, Standards section 1)

1.1.8.1 Benefits of International Standards

There is a wide range of benefits that international standards bring to the environment in the technological, economic and social issue and it also serves to remove barriers in international trade. Even more importantly, the compliance with international standards gives the assurance to consumers that products or services consumed or used by them are safe, effective, and good for the environment.

Benefits for Companies: International standards are strategic tools that help companies in each of the important aspects to improve their quality, increase the satisfaction of its clients and therefore increase its sales. With an international standard certification, the company can reach cost savings since operations are optimized and its productivity is increased. In addition, the international certification opens companies to the international market, as the products or services offered by the company will have greater acceptance by consumers. In this way the company prevents from trade barriers

and it is known in the world market. Finally, international standards help businesses to reduce impacts on the environment, since they must comply with all requirements established by the standard to become a certified company.

The ISO focuses on helping companies of all shapes and sizes in order to help them work more efficiently. Thus, within this group of businesses are small and medium companies that are equally benefited by international standards. Therefore, the ISO focuses on the opening of the small and medium companies to export markets worldwide. Companies compliant with requirements that consumers demand on its products and services, and with an ISO Certification, companies achieve increase of credibility and trust from its consumers that recognize the company worldwide.

For the Government: Because of the great benefits that international standards have for companies and consumers, national Governments can rely on ISO standards to implement their regulatory requirements for the establishment of new companies, especially for companies that are directly related to international trade. In this way, Governments ensure that the requirements which are established for a company that imports and exports goods are the same in the entire world. Therefore, they facilitate the circulation of goods, services and technologies from country to country. In addition, the ISO standards are developed by experts, so Governments can benefit from experts opinions without having to resort to their services directly.

1.1.9 Development Process of ISO Standards

An ISO standard is developed by a group of experts from around the world who are members of a technical Committee of the industry in question. These experts address all aspects of the standard, including its scope, key definitions and content. In addition this technical Committee is composed of associations of consumers, academics, non-governmental, and governmental organizations.

Full members of the ISO can decide if they would like to be an active member (P member) of a technical Committee in particular or an observer member (O member).

P members are actively involved in the work and have the obligation to vote on all matters submitted to a vote on the Technical Committee. O Members continue the work as observers, but they cannot comment on the process of development or vote. Corresponding members may become O members of a special technical Committee.

For the development of a new standard, they first set the industry or consumers' needs in order to create a new rule. A sector industry, or group, communicates the need for a standard to its National Member who then, gets in contact with the ISO. Thus the ISO does not directly decide when a new standard should be created. Then the project is discussed and negotiated in order to build the standard. This project is shared with the 169 members of the ISO and is asked to comment and vote on it. If the member gets agree, taking into account the comments of the interested parties, the project becomes an ISO standard. The publication as an International Standard requires approval by at least 75% of member agencies required to vote, if there is not a consensus, it goes to the Technical Committee for subsequent editions (ISO 14001:2004 Environmental Management Systems - Requirements with Guidance for Use, 2004).

1.1.10 Certification

International standards certification is not a requirement for the companies, but it has become a need in order to improve the effectiveness and efficiency of the operations of companies, satisfy the preferences of customers, and motivate employees to have a clear goal for the development of a management system environment.

Despite being the organization that develops International Standards, the ISO is not involved in the certification of any of the rules made, thus the ISO does not give the international certification of standards. Certification is carried out by external certification bodies which issue certificates to companies that meet the requirements of the standards, in which include the ISO name.

The Conformity Assessment Committee (CASCO) has developed rules for the certification process which is based on an international consensus on good practices

related to certification. In this way, the companies and organizations operate their activities of certification in accordance with international standards.

At the same time, the certifying bodies must be duly accredited by the authorized bodies of their country, which can be identified by contacting with an ISO National Agency member in your country. In Ecuador, the national organism member of the ISO is the National Institute of Ecuadorian Standards (INEN), who works on the conformity, assessment, and processes of quality improvement. INEN has selected the Accreditation Ecuadorian Agency (OAE) to be responsible for accrediting external certifying bodies, which comply with the requirements to give the international certification to companies that wish to obtain it after validating compliance to the requirements of a specific international standard.

In Ecuador, several certifying bodies are classified according to the International Standards that they certify. The official website of the OAE, from June 25, 2013 indicates the following:

ISO 9001 Quality Management Systems: 2009:

- Bureau Veritas Ecuador SA (Quito)
- Conecta Certificadora Servicios Limitada (Bogotá, Guayaquil)
- Instituto Colombiano de Normas Técnicas y Certificación ICONTEC (Bogotá, Guayaquil)

Certification of Organic Products ISO 65:2005:

- Certificadora ecuatoriana de Estándares Ceres Ecuador Cia Ltda. (Riobamba)
- Ecocert Ecuador SA (Guayaquil)
- Quality Certification Services Certificaciones Ecuador QCS (Quito)

Persons Certification ISO 17024:2012:

- Servicio Ecuatoriano de Capacitación Profesional (SECAP) (Quito)

Production Cleaner Certification ISO 65:2005:

- Certificadora Ecuatoriana de Estándares Ceresecuador Cia Ltda (Guayaquil)
- ICEA Ecuador Cia Ltda (Quito)

Environmental Management Systems ISO 14001:

- Bureau Veritas SA Ecuador (Quito)

"Bureau Veritas Certification is the worldwide leader with more than 4,000 companies already certified in ISO 14001: 2004 in 80 countries, also operates in more than 100 countries. Bureau Veritas Counts with around 400 environmental auditors with knowledge of the environmental, technical, and regulatory issues." (www.bureauveritas.com.ec)

1.2 ISO 14001:2004

1.2.1 History

In the 1990s, due to environmental issues, countries begin to implement their own environmental standards. In this context arose the family of ISO 14000 standards, when the International Organization for Standardization (ISO) was invited to participate in the Earth Summit, which was organized by Environment and Development Conference on June 1992 in Rio de Janeiro-Brazil.

In this Summit, the ISO was committed to create the international environmental standards known as ISO 14000, which became an international standard of environmental management to assess the efforts of a country or organization to achieve reliable and adequate environmental protection (Corbitt, 2003).

Within the family of ISO 14000 standards is the standard "Environmental System Management 14001:2004 specifications and guidelines for use" (first Edition 1996).

This standard is the only one that can grant environmental protection certification because its requirements can be audited.

The ISO 14001 standard requires a company to create an environmental management plan that includes the following: objectives and targets, environmental and political procedures to achieve these goals, responsibilities, training, documentation and a system to control any changes and progress made. The ISO 14001 standard describes the process to be followed by a company in order to obtain international certification fundamentally based on respect for national environmental laws.

1.2.2 The ISO 14000 Family

The ISO official website shows the family of standards related to environmental management, consisting of the following:

- ISO 14000: Guide the Management in environmental principles, systems and techniques that are used.
- ISO 14001: Environmental Management System. Specifications for use.
- ISO 14010: General principles of Environmental Auditing.
- ISO 14011: Guidelines and Procedures for the Audit
- ISO 14012: Guidelines of Inquiry for Environmental Protection. Qualification criteria for Environmental Auditors.
- ISO 14013/15: Guide of reference for environmental review. Review, Intervention and Assessments Programs.
- ISO 14020/23: Environmental Labelling
- ISO 14024: Principles, Practices, and Procedures of Environmental Labelling
- ISO 14031/32: Guides of Inquiry for the Evaluation of Environmental Performance
- ISO 14040/4: Principles and General Practices of the life cycle of the product

-ISO 14050: Glossary

-ISO 14060: Guide for the Inclusion of Environmental Aspects in Standards of Products.

This Standards Family was approved by the International Organization for Standardization (ISO) in September 1996. The official Spanish language version was published in May 1997. (ISO 14001:2004 Environmental Management Systems - Requirements with Guidance for use, 2004)

1.2.3 ISO 14001:2004. General Considerations

The ISO 14001 has been prepared by the Technical Committee ISO/TC 207, Environmental Management, Sub-Committee SC1 Environmental Management Systems. This second edition 1004:2004 nullifies and replaces the first edition (ISO 14001:1996), which has been technically updated.

The ISO 14001:2004 is an internationally accepted standard that can be certified and provides the framework for businesses to demonstrate their environmental commitment to the environmental regulations through the implementation of an effective environmental management system to achieve their environmental and economic goals. Therefore, it supplies the Management of any organization specific steps to manage the impacts of its activities related to the environment. In this way, this standard handles the balance between the maintenance of profitability and environmental impact reduction.

The ISO 14001:2004 is a guarantee for the administration of companies, employees and external interest groups so the environmental impact is being measured and improved without affecting the state requirements for environmental performance. It can be used by any organization, regardless of its activity or sector.

In this context, the ISO 14001 can identify company aspects that have an impact on the environment and can link them with the environmental laws that are significant for the situation. To develop an Environmental Management System (EMS), the company must generate objectives for improvement and a management program to achieve them with

regular reviews for continual improvement. In this way, we can evaluate the system regularly. If it complies with the requirements, the company can be certified with the ISO 14001.

The International Standard ISO 14001 Environmental Management Systems - Requirements with Guidance for Use states:

This International Standard specifies the requirements for an Environmental Management System that allows an organization to develop and implement a policy and objectives which take into account legal requirements and information about significant environmental aspects. Its intention is that it could be applicable to all types and sizes of organizations and can be adjusted to different geographical cultural and social conditions. The success of the system depends on the commitment of all levels and functions of the Organization and particularly senior management. A system of this type allows an organization to develop an environmental policy, establish objectives and processes to achieve the commitments of the policy, take the necessary actions to improve its performance and demonstrate the compliance of the system with the requirements of this International Standard. The overall objective of this standard is to support environmental protection and the prevention of pollution in balance with the socio-economic needs. It should be highlighted that many of the requirements can be applied simultaneously, or reconsidered at any time. (pg. 6)

1.2.3.1 ISO 14001:2004 Benefits

Being a company certified by the Environmental Standard 14001:2004 brings with it many benefits to a company such as being in accordance with the State environmental regulations; in order to achieve the certification, the company must have met all requirements of the standard, which are consistent with the environmental standards of the countries. With this certification, the company reaches positioning, growth, and improving the corporate image of the company in the international market, as it is in accordance with international standards, which leads to the increase of satisfied customers.

It becomes a company friendly with the environment that saves energy and materials consumption by decreasing poor spending and use of resources. Therefore it increases the productivity of the company by giving it better conditions in the work environment and raising awareness of quality employees.

So the ISO 14001 standard can be applied to any organization such as:

- Companies of a single headquarters
- Large multinational companies
- Companies of high risk
- Service organizations of low risk
- Manufacturing Industries of processes and services
- All industrial sectors both public and private
- Manufacturers and their suppliers.

1.3 ISO 14001:2004 Methodology

The International Standard ISO 14001 Environmental Management Systems Requirements with Guidance for use, shows the methodology of the ISO 14001:

-Planning: Establish the objectives and processes necessary to deliver results in accordance with the environmental policy of the organization.

-Doing: implement the processes.

-Verifying: Monitoring and measuring the processes with respect to environmental policies, objectives, goals and the legal requirements and other requirements, and to report the results.

-Acting: Take actions to continually improve the performance of the environmental management system. (pg. 7)

1.4 Introduction to the requirements to develop a Environmental Management System

The creation of an Environmental Management System contains general requirements and environmental policy laid down in the International Standard ISO 14001 Environmental Management Systems - Requirements with Guidance for use:

1.4.1 General requirements

Within the General Requirements the organization must establish, document, implement, maintain, and continually improve an environmental management system in accordance with the requirements of this international standard, and determine how it will meet these requirements. (pg. 12)

1.4.2 Environmental Policy

The Management should define the Organization's environmental policy and ensure that, within the scope defined in its environmental management system, the company:

- a) Is appropriate to the nature, scale and environmental impacts of its activities, products and services;
- b) Includes a commitment to the continual improvement and prevention of pollution;
- c) Includes a commitment to comply with applicable legal requirements and with other requirements, to which the organization relates as to its environmental aspects;
- d) Provides the framework for setting and reviewing objectives and environmental goals;
- e) Document, implement and maintain;
- f) Communicates to all persons who work for the organization or on behalf of it; and
- g) Provides its environmental policy available to the public (pg. 12)

1.4.3 Planning

- Environmental aspects
- Legal requirements and other requirements

- Objectives goals and programs

1.4.4 Implementation and operation

- Resources, Functions, Responsibility and Authority
- Competence, training and awareness
- Communication
- Documentation
- Control of documentation
- Operational Control
- Preparation and response to emergencies

1.4.5 Verification

- Monitoring and Measurement
- Evaluation of legal compliance
- Not Conformity, Corrective Action and Preventive Action
- Control of Registers
- Internal Auditing

1.4.6 Management Review

The Management Review indicates all the revisions that the management must carry out to verify compliance with the requirements of the standard ISO 14001:2004

During the development of this first chapter, the importance of having known the Constitution of the International Organization for Standardization formed by organisms of the great majority of countries around the world, the degree of participation of each member and, above all finding our country, Ecuador, within them was highlighted. In addition, the structure of this great organization and how it is composed of committees to meet the needs of its members is demonstrated. Also, it is important to understand what an international standard, an international certification and, advantages or benefits are

for both, companies and Government of a country. Finally the ISO 14001:2004 has been understood in order to apply it to a company with its fundamental requirements.

CHAPTER 2

2 WATER PARK PLANETA AZUL AZUPARK CO. LTDA. BACKGROUND INFORMATION AND CURRENT STATUS

The present chapter will study all matters relating to the Planeta Azul project, from its constitution, structure, services and phases until the identification and assessment of its environmental impacts set out in its environmental impact study. The goal of this project and the intention of the investors to build a water park entertainment in the province of Azuay will be understood and the impacts on the environment that the park activities generate in each of its phases.

2.1 Historical Review

The entertainment parks were created in order to satisfy necessities for human amusement. In ancestral times fun referred only to fairs and carnivals in town squares. However, later the notion of theme parks was born where people could enjoy different games for recreation. The first amusement park was created in Russia, Europe where the first roller coaster appeared. At the same time, the idea of amusement parks was opening up to the rest of the world like the United States and Asiatic countries that created the idea not only of having mechanical games but having also water games during the summer time.

In this context, varieties of entertainment parks around the world are seen, some very famous either by their size, attractions or location. In Ecuador, there are theme parks for all ages, and the water parks are mostly on the coast. Due to the hot climate, a water park is a place of leisure to cool off from the coast climate.

The province of Azuay has a variable climate with wilderness areas located in the high plateaus, and humid, mesothermal, and semi-wet climates. The town of Gualaceo,

belonging to this province, was considered by investors as an appropriate place for the construction of the water park Planeta Azul. It is currently considered, by the media, as one of the biggest entertainment water parks in the south of Ecuador.

2.2 Building Structure

The 3 hectares of land that cover Planeta Azul include: aquatic attractions, a food court, an event room called "San Carlos", a restaurant called "Aqua" and parking. These have a capacity for 3000 people within its facilities with an ease of movement between its different areas.

2.2.1 Water Park

Here is where all the water games are. There are nine swimming pools in total. It occupies the rear part of the site.

2.2.1.1 Water games for kids:

The water park has three swimming pools for children with castles with slides, a pirate ship and several mini slides going down the tongue of a toad, the body of a butterfly or the beak of a bird.

2.2.1.2 Water games for youth and adult:

For adults the water park has the following aquatic games:

Racer: A game that has four slides, in which visitors can compete racing on top of mats.

Wild River: A toboggan game where visitors are aboard buoys and float along to arrive at a pool.

Kamikaze: A great toboggan of 64 meters where people jump from a platform into a swimming pool.

Lazy River: People use buoys to float in a pool similar to a river. In this pool, people will pass by bridges and waterfalls.

The barrel: a barrel which is filled and releases water.

Jacuzzi: Includes a pool and internal bar.

2.2.2 AQUA Restaurant

The Planeta Azul restaurant is called "Aqua Restaurant" and it is next to the events room in the front part of the site. It is decorated in an underwater style and people can taste national and international dishes. It has free entrance to the water park. In addition, during the warmer months, the restaurant has a terrace available that overlooks the park. The restaurant also hosts a weekend buffet, promotions for birthdays, cocktails, etc.

2.2.3 Food Court

The food court is a spacious place that offers fast food to the delight of visitors as they walk through the aquatic facilities and have the choice between Planet Burger Grill and Planet Sweet.

2.2.4 Events Room “San Carlos”

The Event Room is a spacious venue for receptions, which is located at the entrance of the park facilities next to the parking lot and is independent of the water games and restaurant. It has a capacity of 600 people and can be divided into two rooms depending on the number of people, and tastes of customers.

2.2.5 Parking

The parking lot of Planeta Azul has a capacity of 300 vehicles and it is located at the front and to the side of the main path.

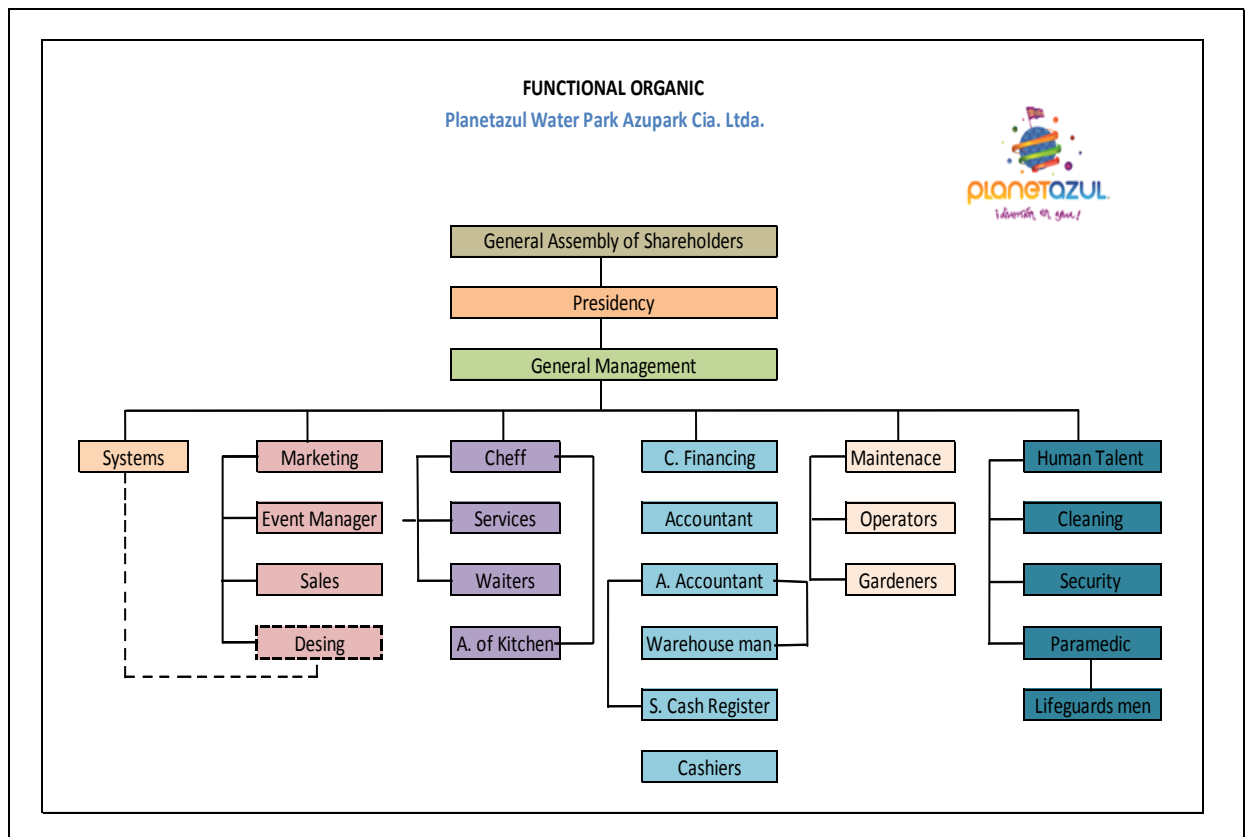
2.2.6 Others

- Green areas are distributed in four sectors, the largest being in the back of the Park.
- Planeta Azul has implemented a video surveillance for all installations.
- There are lifeguards at each of the games to ensure the safety of children and adults.

- There is an infirmary in case visitors need immediate medical assistance.
- In the facilities, there are ATMs and a souvenir shop.

2.3 Organizational Structure

In the graphic below we can see how Planeta Azul is structured in its operations.



Source: Planeta Azul Human Resources Department

2.4 Financing

As stated by the President of the project in an interview, this project was made possible thanks to the support of the Tourism Minister of Ecuador Freddy Ehlers who, in 2012 helped get funding from the National Development Bank. In addition, the project is also part of the investment of the partners. For confidentiality, it was not possible to acquire the project's costs.

2.5 Planeta Azul Map

Here is the map of Planeta Azul that allows us to put us in their facilities



Source: Planeta Azul Official Web Page (<http://planetazul.ec/mapainterno/pdfimg.php>)

1. Parking lot
2. Events room “San Carlos”
3. Ticket Office
4. Aqua Restaurant
5. Events terrace
6. Lazy River
7. Dinosaur Slide
8. Cave bar
9. Food Court

10. Whirlpool
11. Kids pool
12. Pirate Ship
13. Kids pool
14. Castle
15. The Racer
16. Kamikaze

2.6 Legal Basis of the Project

The Planeta Azul project and its management model proposed to settle their legal basis in law and articles detailed below:

2.6.1 At the National level:

- Constitution of the Republic

Establishes policies and guidelines on which public and private institutions and proponents are obligated as actors and control agencies to develop their activities and functions.

- Environmental Management Law

It is the highest standard in the environmental field and sets in the Unique Text on Secondary Environmental Legislation (TULAS in Spanish) the criteria, standards and parameters for assessing environmental quality.

- The Unified Secondary Environmental Legislation Text (TULAS)

It sets standards including the maximum permissible emission limits in various environmental components and parameters relating to environmental quality.

Book VI Appendix 1 - Statement of Environmental Quality and Effluent Discharge:
Water Resource

Book VI Appendix 6 -. Environmental Quality Standard for the Management and Disposal of Non-Hazardous Solid Waste.

- Labour Code

The risks from work, the employer obligations and the employee obligations.

- Regulations on Safety and Health of Workers and Improvement of Working Environment

The minimum norms to be observed by employers and workers in the field of industrial safety standards.

- Social Security Law

Employee benefits enrollment and payment of contributions along with the rights of the employer to deduct contributions for the employee.

- Water Law

This law states that only by granting a right to use (administrative authorization) can water be used for other than domestic service.

2.6.2 At the Local level:

- Ordinance that Regulates Preservation and Environmental Control
- Ordinance that Regulates the Obligation to Perform Environmental Studies for Civil Works, and industrial establishments. Commercial and other services located within Gualaceo.
- Building Standards for Residential Construction and other constructions in Gualaceo.

2.7 Project Phases

The Planeta Azul project has three phases, delineated by the company INGEASS CIA LTDA, which developed the Environmental Impact Study, according to its authors: Valencia, Lituma P., Nieto, and Lituma Urgiles C. (2010), the phases of the project are as follows:

2.7.1 Construction Phase

The construction phase of the project was focused on the development of civil works. The main activities that had been undertaken to execute the work are:

- Deforestation: Deforestation on the area of the project.
- Clearing of vegetative material: clearing of vegetative material that covers the site.
- Filling the construction site: For this activity it was necessary to excavate some sites of the area. The resulting material was used as backfill. Additional to this filling material, material from quarries located in Jadan was also used.
- Platforms building: This activity involved the modification of the physical characteristics of the ground in the area where the water park is located.
- Construction of retaining walls: Since this is a project located in a large and very irregular area, retaining walls were required to demarcate the land to be occupied by the water park.
- Construction of electric power system: Ground excavation was required in the ground for planting posts, assembling electrical structures, stringing conductors, and the installation of transformer stations and protective systems. Planeta Azul has its own transformer and their networks are underground.
- Construction of the wastewater treatment system: At the beginning of its activities, Planeta Azul had a septic tank. However, since March 2013, it has had its own sewage system due to the high demand for the service.
- Construction of the system for water collection: This activity involved the excavation of part of the site where water for pools and general use (Rio Paute) will be taken as well as the construction of the waterhole, installation of pipes, etc.

Through this way, the water is piped to the treatment plant and is then distribute to all the areas of the park. Once the water has been captured, it is conveyed to the treatment plant located at the top of the water park. In this site the water is given a chlorine treatment to ensure the potable quality. It is important to know

that each of the pools is filled once every 2 to 3 years. Each pool has its own engine room, cauldron, recirculation pumps, quick filters and treatments.

- Construction of water warming systems: Warming system is done through boilers that run on diesel which are located in an isolated room on the first platform along the lazy river and the second platform pools. There are two boilers, a small one that feeds four units (two buildings: offices and showers, the slow river and whirlpool) and a larger boiler that feeds the remaining seven units.
- Construction of access roads: access roads are located in the front of the field. This is the main route between Cuenca and Gualaceo, so it is an easy and direct access to the water park.
- Construction of parking lot: Located in the front of the park in a total area of 4035 square meters with capacity for 300 vehicles, the materials used are concrete ballast.
- Construction of the events room: the construction of the events room is in an area of approximately 722 square meters. The restaurant was built on top of it.
- Construction of pools: First was the construction of the lazy river (the swimming pool located in the lower part of the property, next to the meeting room). Once this was done, the following pools that are located on the top were built.
- Construction of offices: the offices were built at the same time as the pools and are located inside the water park.
- Slides Assemble: this activity was performed once the pools were ready. It consists of assembling parts that were imported from abroad.
- Adaptation of landscaping and plants: corresponds to the work of replacement substrate for ornamental planting and plant species on approximately 6320.14 square meters of land.
- Construction of cabin: was the last activity that took place in regard to the construction stage.
- Evacuation of debris: product of excavation and construction process. This material was removed by the Sociedad Minera Gualaceo.

2.7.2 Operational Phase

The execution of the project with the development of its process in regards to:

- **Administrative Process:** The process for billing any of the activities offered by the Water Park as well as making bookings for the restaurant or the events room.
- **Receiving Raw Material:** Regarding raw material required for the operation of restaurant and bars; it is received in the building of the events room, in the lower part of it there is an area called "kitchen production"; here are the warehouses for receiving materials.
- **Events room Service:** This room is divided into two rooms, San Carlos I and II with a capacity of 600 people between the two. It provides services for social and corporate events and complementary services such as WiFi, sound and lighting, a projector, laptops, and color copies services.
- **Pool service:** To operate the park, pools are filled once every 2-3 years with the water from the hole capture that is previously drinkable.
- **Restaurant services:** Has space for 100 people. The kitchen has three subdivisions: hot kitchen, cold and dishwashing area.
- **Service bars and fast food:** these are located in the pools area (food court).

2.7.3 Closure or Abandonment Phase

The projected operating period for the water park is 30 years. One of the possibilities to be defined at that time would be the final decommissioning of facilities as a recreation center.

The activities for the closure of the project include:

- Closing pools (pool sealing)
- Closing and sealing the hole capture
- Filling
- Elimination of piping and drainage systems

- Demolition of certain areas

2.8 Influent areas of the project

The Planeta Azul Environmental Impact Study (2010) shows the principal influent areas of the project:

2.8.1 Air

There is a great impact on air quality, since the project is located in front of a main road Cuenca-Gualaceo, on which there is a high amount of traffic, which causes a disturbance to the environment in relation to the atmospheric chemistry by the release of carbon dioxide, dust, etc.

2.8.2 Noise

The noise parameter was monitored by the company ELICROM during the construction phase by simulating normal operation of the park for 10 minutes in two locations (back and middle) of the park. It showed that the company complies with Unified Secondary Legislation of the Ministry of Environment (TULSMA) Appendix 5 (Noise). The maximum permissible limit of sound pressure level for this project is considered as "mixed Residential Zone" is 55.00 NPS while the park was 39.3 NPS.

2.8.3 Water

All water effluents of the water park are discharged in Rio Paute. Previously, primary treatment of solid waste through cleaning filters is done before the water is channeled by the sewage system out of the park.

2.8.4 Flora

At the time of construction of the project, there was a greater amount of flora and forest in the pasture lands that were abandoned. There are also currently fewer greenhouse crops from the people who live in the area. Construction of the project led to a loss of native plants of the area.

2.8.5 Fauna

To learn about the wildlife that inhabits the place, environmental engineers made surveys to residents of the area and obtained data with field visits. The predominant species in the area that were influenced by the project are: rats, dogs, cats, flies, hummingbirds, and blackbirds.

2.9 Identification and Evaluation of Environmental Impacts of the Project

The following tables developed by Valencia and colleagues (2010) in the Environmental Impact Study show the identification and evaluation of environmental impacts of this project step-by-step:

2.9.1 Actions that cause Environmental Impacts

STAGES	ACTIVITIES
BUILDING	Deforestation
	Clearing of vegetative material
	Construction of access roads
	Construction of general structure
	Heavy machinery operation
	Evacuation of debris and solid waste
	Modified traffic
OPERATIONAL	Administrative Processes
	Receiving Raw Material
	Events room services
	Pools services
	Restaurant services
	Traffic alteration
	Fire danger
	General maintenance
CLOSURE	Demolition

	Closing pools
	Closing and sealing of the hole capture

Source: Planeta Azul Environmental Impact Study (2010, 70)

2.9.2 Environmental factors likely to receive Negative Impacts

Interactions matrix

AFFECTED RESOURCE	ENVIRONMENTAL FACTOR AFFECTED
GROUND	Waste Generation
	Permeability
WATER	Quality
AIR	Dust
	Noises
	Odors
BIOTICS	Flora
	Fauna
OCCUPATIONAL SERVICES	Risk of accidents
SOCIO - ECONOMIC	Landscape
	Citizen satisfaction
	Employment

Source: Planeta Azul Environmental Impact Study (2010, 71)

Valencia and colleagues (2010) identified and assessed the environmental impacts using the methodology of IMPORTANCE MATRIX. They qualified interactions according its nature, intensity, extent, timing, persistence, synergy, periodicity, accumulation effect, reversibility and retrievability. Subsequently, impacts were categorized according to its importance as Irrelevant, Moderate, Severe, Critical and Positive.

2.9.3 Impacts Hierarchy

In the table below we can see the identification and assessment that were established by the authors of Environmental Impact Study:

STAGES	AFFECTED FACTORS	ACTIVITY	CATEGORIZATION
CONSTRUCTION	Employment	Infrastructure building in general	Positive
	Dust	Infrastructure building in general	Severe
	Waste Generation	Evacuation of debris	Moderate
	Noise	Heavy Machinery Operation	Moderate
	Odors	Infrastructure building in general	Moderate
	Job Security	Infrastructure building in general	Moderate
	Landscape	Infrastructure building in general	Moderate
	Ground Permeability	Deforestation	Irrelevant
	Biota	Deforestation	Irrelevant
	Water Quality	Infrastructure building in general	Irrelevant

	Citizens satisfaction	Intrastructure building in general	Irrelevant
OPERATION	Citizens satisfaction	Intrastructure building in general	Positive
	Employment	Pool services	Positive
	water Quality	Pool services	Severe
	Landscape	Fires dangers	Moderate
	Noise	Altering of vehicule traffic	Moderate
	Dust	Altering of vehicule traffic	Moderate
	Waste Generation	Pool services	Irrelevant
	Job Security	Fire dangers	Irrelevant
	Biota	Fire dangers	Irrelevant
	Odors	Altering of vehicule traffic	Irrelevant
	Ground Permeability	Pool services	Irrelevant
CLOUSURE	Employment	Demolition	Positive
	Dust	Demolition	Severe
	Noise	Demolition	Severe
	Waste Generation	Demolition	Severe
	Citizens satisfaction	Demolition	Moderate
	Flora and Fauna	Demolition	Moderate
	Landscape	Demolition	Moderate
	Ground Permeability	Closing pools	Moderate
	Water Quality	Demolition	Irrelevant
	Accidents Risks	Demolition	Irrelevant
	Odors	Closing pools	Irrelevant

Source: Planeta Azul Environmental Impact Study (2010, 78)

With this table of Impacts Hierarchy, the authors of the EIA indicate that the impacts in the construction phase are mostly irrelevant and moderate while getting one rating as a severe factor: dust. This is generated by the infrastructure building in general; for example, the construction of retaining walls, drainage systems, master buildings, the restaurant, the ballroom, etc. This is a major project that impacts several months of construction.

In the operational phase, the situation is similar to the previous phase, except that the major impact is caused by the quality of water in the process of operation of the pool. This is due to effluent disposal when the pool water is drained. On the other hand, in this phase two positive impacts of the pools services were obtained as the operation of the water park brings a big citizen satisfaction; it is a unique tourist attraction and will generate jobs. In the closure phase of the project, the activity that will cause the most negative impacts will be the demolition while the most affected factor will be the air due to the generation of dust and noise.

The development of this chapter appreciates the magnitude of the project Planeta Azul Water Park, its services, organizational structure, etc. It shows the most important insight into each of the phases for the implementation of the project and the ways in which these have affected the environment according to the EIS. This chapter is the basis and foundation for the implementation of the ISO 14001:2004 requirements to the daily activities of the Aquatic Park.

CHAPTER 3

3 DESIGN OF AN ENVIRONMENTAL MANAGEMENT MANUAL FOR THE IMPLEMENTATION OF THE ISO 14001:2004 STANDARD AND FEASIBILITY ANALYSIS

In this Chapter each of the ISO 14001:2004 requirements will be applied in chronological order as listed on the document "ISO 14001:2004 Environmental Management System - Requirements with Guidance for Use." In this Environmental Management Manual the procedure that Planeta Azul should follow in the development of its daily activities will be specified based on the requirements of the standard in order to get an International Certification.

3.1 Environmental Management Manual - Requirements ISO

3.1.1 Presentation of the Organization

The Water Park Planeta Azul was conceived through the initiative of the Brothers Business Group Pérez Lituma - Marisabel and Charles -, residents from Gualaceo. The idea was to create a mega tourism project covering 3 hectares of land to offer aquatic fun to visitors of all ages. According to an interview with the president of the company, Marisabel Perez, on December 2009, the feasibility studies of the project group Pérez were initiated.

The two partners traveled to the U.S. to learn about this subject and decided to invest in a similar project to the water parks in that country by recruiting engineers from the American company "Great Parks" that has built more than 900 projects around the world. They observed the building process in order to ensure the safety and comfort of the visitors. Construction work began in April 2010 while the Water Park was inaugurated in June 2012. The water park is located approximately 30km from Cuenca on the main Cuenca-Gualaceo road in the area of Carmen Bullcay which belongs to Gualaceo.

3.1.2 Purpose

This manual describes the features and conditions to be taken into account during the Water Park activities in order to provide water service entertainment, restaurant, and events in order to fulfill the requirements of the Standard ISO 14001:2004.

3.1.3 Scope

Planeta Azul defines the scope of the Environmental Management System in the geographic area which is located as the main Cuenca-Gualaceo road, in the Carmen Sector of Bullcay that belongs to Gualaceo. Planeta Azul has defined its scope in order to eliminate or minimize the environmental impacts that the activities from provision of water entertainment, restaurant and events room generate. Therefore the scope is from the moment the client is admitted into the Water Park by its security guards at the main gate until when the customer leaves the park.

3.1.4 Execution: Environmental Management System Requirements

3.1.4.1 General Requirement

Establish, document, implement, maintain and continually improve an environmental management system in accordance with the requirements of the international standard ISO 14001:2004.

3.1.4.2 Environmental Policy

The Environmental Policy that the company should implement for its Environmental Management Manual must show the following: We are a company committed to meet the entertainment requirements of our clients and stakeholders. Therefore, we ensure the provision of a friendly and timely service, and ensure customer satisfaction and safety from the use of our facilities. Our purpose is based on continuous improvement, prevention of pollution, and compliance with legal and environmental requirements related to the service we offer.

3.1.4.3 Planning

3.1.4.3.1 Identification and Evaluation of environmental aspects.

Objective

Identify environmental aspects generated by the operating activities of the water park.

Scope

All environmental aspects that generate an adverse change in the environment that are considered an environmental impact (Cause and effect).

Procedure to Identify and Evaluate Environmental Aspects

The environmental aspects and risks are reviewed either once a year or whenever substantial changes in the processes of running the business have been made. To evaluate an environmental aspect the company makes scores based on the following criteria:

Damage to the environment:

- Low: Does not cause potential harm
- Moderate: Generates controllable damage
- High: Generates serious damage

Frequency of occurrence:

- Rare: Has only been needed during an emergency.
- Regular: Occurs occasionally .
- Always: Occurs very often due to the daily operation of the park.

Degree of Control

- Controllable: Can handle it.
- Little Controllable: Can handle the situation using the appropriate management.
- Uncontrollable: Cannot handle the situation.

Geographic Scope

- Facilities: The impact affects only the territory of the water park.

- Regional or Local: The impact affects regional or local areas of the water park.
- Global: The impact affecting the entire globe.

Procedure for Determination of Aspects

The following procedure shows how to determine an environmental aspect and the environmental impact generated:

- All processes developed by the company in each of its activities are studied.
- A list of environmental aspects is prepared to consider in each of its activities studied.
- Define the criteria that each environmental aspect is, according to the knowledge of the analysis.
- Obtained the environmental impacts based on the established criteria
- Write up the procedures to be fulfilled in each of the impacts, when they could happen and the responsibility and enforcement of environmental legislation.

Table of Environmental Aspects and Impacts

PHASE	ENVIRONMENTAL ASPECT	ENVIRONMENTAL IMPACT
CONSTRUCTION	Intrastructure building in general	Deforestation
		Clearing of vegetative material
	Heavy - Machinery Operation	Air pollution
		Noise pollution
		Visual Environmental pollution
		Impact on peace and coexistence of the neighborhood
	Restaurant Operation	Ground pollution
		Waste emission
	Pools Operation	Park
		Emissions to the atmosphere by the chemicals use for cleaning and maintenance
	Events - room Operation	Noise pollution
	Generation of vehicle waiting lines	Traffic alteration
		Visual - Environmental pollution
		Impact on peace and coexistence of the neighborhood
	Use of diesel for boilers	Ground pollution

		Fire danger
	Use of industrial gas	Natural - resource consumption
	Use of lamps for illuminating of the parking lot and water park	High Consumption of electrical energy
CLOSURE	Pools Closing	Abundant consumption of ground resource
	Closing and sealing of the hole capture	Ground manipulation
	Elimination of piping and drains systems	Ground manipulation and use of ground resource
	Demolition of certain áreas	Air pollution
		Noise pollution

Source: Author

3.1.4.3.2 Legal requirements and Others

Objective

To identify the legal environmental requirements that are related to the environmental aspects of the water park.

Scope

Applies to legal requirements at a local and national level that are related to the environmental aspects of the water park activities.

Identification of Environmental Legal Requirements

This procedure was created with the purpose of identifying the legal environmental requirements by Planeta Azul, keeping them updated, and verifying its compliance. Legal Environmental requirements are all the laws that the Ecuadorian Ministry of Environment refers to with environmental compliance, among which include:

Legislation, including statutes and regulations

- Decrees and Directives
- Permits and / or Licenses
- Orders issued by regulatory bodies
- Opinions adopted by courts and administrative tribunals
- International treaties, conventions and protocols

Other environmental requirements that Planeta Azul have, or may subscribe such as:

- Agreements with public authorities or NGOs
- Agreements with customers
- Voluntary Principles
- Codes of good practice
- Agreements with the community
- Public commitments of the organization

Identification procedure

The responsible person, in this case, the Management Representative (General Manager) follows the procedure:

- Check current environmental regulations and agreements which the organization has subscribed to regarding environmental issues.
- Identify the rules that apply to environmental aspects.
- Shows each of the environmental requirements that apply to the correspondent area.
- Each beginning of the month, check for updates of the current environmental law and / or agreements through the internet, direct communication with representatives of environmental authorities, and research.
- Communicate the updates to the relevant areas.
- The responsible person must verify compliance with the environmental requirements in each area once a month.
- Noncompliance and call attention to apply corrective, preventive or improvement actions as appropriate (Later, nonconformative, corrective, and preventive actions will be studied).

Legal Environmental Matrix

IDENTIFICATION OF ENVIRONMENTAL LEGAL REQUIREMENTS						COMPLIANCE AND EVALUATION			
ISSUING AUTHORITY	LAW	YEAR	ARTICLES	AREA	WHAT REGULATES	COMPLIANCE EVIDENCE	RESPONSIBLE FOR EVULUATION	EVALUATION DATE	FREQUENCY TO EVALUATE

Source: Author

3.1.4.3.3 Environmental objectives and goals

Objective

To establish the environmental objectives and targets that Planeta Azul arises to carry out in the Environmental Management System.

Scope

The goals and objectives on environmental issues related to the requirements of the ISO 14001:2004.

Procedure for Achieving the Objectives and Goals through Responsibilities Assignment with deadlines

- The Human Resources Department manages the training to company employees on environmental issues twice a year.
- The marketing department uses the image of the Planeta Azul pet (BLUE) to place notes on recycling in different areas of the park, and food court, locker rooms, etc in order to create a culture of recycling for the customers.

Planeta Azul Pet "BLUE"



Source: Official Website of the Planeta Azul

- The Management Representative reviews any updates of the legal requirements at the beginning of each month and shows them to each respective area as described in the procedure for Identification of Environmental Requirements.

- The employee on duty to open the park starts playing music from 10am until 5pm during open hours (Wednesday to Sunday). In the events room, music can be played from 8pm until 2am when people have a pre-booked event.
- Every 3 months the maintenance manager indicates to senior management the state of gardening tools through a depreciation report and acquires new and more advanced gardening technologies whenever the Manager considers.
- The head cleaner organizes his team to empty the trash bins which are classified by type of waste, when they consider necessary during the operation of the park to avoid overflow, bad smells and a negative image.
- Garbage accumulates in large trash bins that are located in a corner of the parking lot (second floor). It is collected by the garbage collector of the Gualaceo Municipality 2 times per week.
- The maintenance manager gives employees special tools and cleaning chemicals for cleaning the pool every day after closing the park to the public.

Objectives and Goals Matrix

ENVIRONMENTAL OBJECTIVES	ENVIRONMENTAL GOALS
To implement a recycling culture for the customers	Internal Customer: Training employees on care for the environment and ways of contributing to recycling
	External Customer: Locate signs in different areas of the park of how their behavior contributes to reduce pollution through recycling
To comply with the environmental legal requirements	Constantly review updates and evaluate compliance of environmental requirements in each area involved
To prevent environmental pollution by the noise	Place music recreation in the park during public hours.
Maintain and care for the green areas	Providing gardeners the necessary tools to give proper maintenance to all the green areas of the park
To use garbage trash bins classified by waste	Put garbage bins classified by type of waste in most areas of the park and in the restaurant kitchen

Optimize the use of pool water	Use of chemicals for pool cleaning and prevent frequent water change.
Optimize the use of electric energy	Use of renewable energy

Source: Author

3.1.4.4 Implementation and Operation

3.1.4.4.1 Resources, Roles, Responsibility and Authority

Objective

To create a group of responsible people, having their functions and authorities within the procedures of the Environmental Management Plan.

Scope

It applies to all employees of Planeta Azul.

General Considerations

Planeta Azul ensures availability of resources to establish, implement, maintain and improve its Environmental Management System. These include:

- Human resources and specialized skills: Recruitment specialist with titles of fourth level in the areas of maintenance.
- Infrastructure Organization: Large green areas, administrative offices, sewage inside the water park, etc.
- Financial resources: Participation of partners.
- Technological resources: Programs or systems for better data management in each area

The General Manager of Planeta Azul has the primary responsibility of the Environmental Management System. The manager delegates a representative as the person of Order and Security Coordinator, a position that is within the processes of the company and has been disclosed in its organization and other forms of internal communication for the specific job

responsibilities, and to ensure that the environmental management system is implemented and adequately addresses the requirements in all areas of operation within the organization, as well to check and control resources essential to the implementation, control and improvement of the environmental management system, including: human resources, specific skills, technology and financial resources.

The Management Representative, Order and Security Coordinator has the functions, responsibilities, and authority defined as indicating the ISO 14001:2004:

- "Ensure that the environmental management system is established, implemented and maintained in accordance with the requirements of the standard."

Responsibilities and Authority

- Review procedures developed in areas related to environmental - aspect activities.
- Evaluate areas through internal audits.
- "Report to top management on the performance of the Environmental Management System for review, including recommendations for improvement."

Responsibilities and Authority

- Complete internal audit. The Order and Security Coordinator discloses their comments, nonconformities, and possible solutions to different situations.
- "The Order and Security Coordinator is responsible of reporting his work based on audits and the report for management review."

Responsibilities and Authority

- Outputs reports obtained in audits, showing how they have been developing their work and how it has contributed to improvements.

3.1.4.4.2 Competence, Training and Awareness

Objective

To emphasize environmental awareness to the employees of the Planeta Azul that works to benefit of the environment.

Scope

Applies to all employees of the company whose daily activities are directly related to environmental conditions.

General Considerations

A competent staff to perform tasks that may impact the environmental management system in the areas of operation of Planeta Azul is determined in the assessment of fees and procedures. The competence of each employee or contractor is defined in terms of appropriate education, training and experience, and in the latter case of not finding a full staff profile, the company will evaluate its roster. If they decide to hire someone, the company will provide adequate training in the process.

Among the positions that perform tasks that may have environmental impacts are

- Pool Cleaners (use of chemicals)
- Use of diesel boilers
- Use of raw material for the kitchen
- Garbage collection

Procedure

Blue Planet establishes and maintains procedures to ensure that its employees work at every level and relevant feature, and to be aware of the following points that the ISO 14001:2004 Standard Requirements sets with Guidance for Use:

- "The importance of compliance with the policies and procedures of the system and the requirements of the International standard, Environmental consequences actual or potential impacts on their work activities and the environmental benefits resulting from the improvement of staff performance " as follows:

After selecting a capable person for a job, the company gives an induction scheduled by hours for the first day in the company in each of the areas of business related to the

functions that this person will practice in the workplace. This induction is instructed by each area manager, who, after induction, must sign the log sheet of having instructed training. The areas that should be included in the induction for staff working in areas susceptible to environmental impacts are Maintenance, Security, and Administration, among others.

- "In their roles and responsibilities, to achieve compliance with the policy and Environmental procedures and the requirements of the management system, including the requirements and preparation for emergency care, the potential consequences to the failure of the operational procedures specified " .:

After induction into the different areas of the company, the worker must have a profound induction of his workplace. It should be dictated, by their immediate boss, the details of each of his functions and responsibilities in their work area. The boss will indicate the requirements of the environmental management system and specific procedures that are related to their activities that are to be respected.

- "The consequences of departure from specified procedures."

Induction received in the area of Security must indicate, with practical examples, the consequences that can arise due to neglect and disobedience of the procedures specified in each work area, for example:

- Pool Cleaners: Use the correct amount of chemicals specified by the Head of Maintenance, otherwise there may be water pollution.
- Use of diesel boilers: diesel spills on the floor
- Use of raw material for the kitchen: wasting food.
- Garbage collection: Affecting to air and ground.

3.1.4.4.3 Communication, Participation and Consultation

Objective

To give the open opportunity to all employees to communicate with the administrative areas of questions, suggestions or anomalies.

Scope

Applies to all employees, regardless of Planeta Azul area in which they work.

General Considerations

All staff who work in Planeta Azul has the power to communicate the appropriate recommendations or suggestions that contribute to environmental achievement or incident in their workspace.

Procedure for internal communication:

- Departmental meetings are held every Monday to report and share ideas about situations occurred during the week and goals for next week, the topics are:
- Suggestions and concerns of subordinates to their immediate superiors.
- Report of general environmental performance.
- Report environmental incidents.
- Send internal e-mails and bulletin boards to share information.
- The area manager will schedule meetings with public authorities when external issues arise that these institutions need to deal with such as emergency responses.

Procedure for emergency communication:

All staff is informed of the phone numbers of the emergency relief that is located in Gualaceo:

ECU	911
-----	-----

Fire	102
------	-----

Police	101
Civil Defense	110
Hospital Moreno Vasquez	072255064

- Personnel that identify an emergency situation give the alarm to their colleagues, the Order and Security Coordinator or Manager, or directly to the Presidency, who evaluate the situation and, if it is necessary, call the specific relief agency.
- After the incident, the area manager shall submit a report to the General Manager about the event happened in order to generate a commitment in the area under the following format:

Format for Incident Report

ENVIRONMENTAL INCIDENT REPORT WATER PARK PLANETA AZUL AZUPARK			AFFECTED AREA	
			INCIDENT DATE	
			INCIDENT HOUR	
Details of the Incident	Head of the department where the incident occurred	Affect to the Environment		
		Water		
What caused the incident	People who witnessed the incident	Air		
		Ground		
Impact Produced		Flora		
		Fauna		
Detail Analysis of the cause				
Accions to be taken, and resources				
Effectiveness of actions to be taken				
Conclusions and Recomendations				

DEPARTMENT HEAD	GENERAL MANAGEMENT	PRESIDENCY

Procedure for External communication:

- External communication will be made only in cases of emergencies that extend past the water park spaces.
- In case of an emergency and the presence of media, no employee may give statements of fact occurred, as this can generate, misunderstanding of information and facts.
- The person responsible for externally communicating facts of the controversy is the CEO or the President of the company.

3.1.4.4.4 Documentation

The documentation for the Environmental Management System described in this manual as direct description or system procedures are:

- a) Policy, objectives and targets.
- b) Description of the scope of the Industrial Management System Safety and Environment.
- c) A description of the main elements of the environmental management system and their interaction, and reference to related documents.
- d) Registers required by ISO 14001:2004.
- e) Registers as determined by Planeta Azul necessary to ensure the effective planning, operation and control related to its significant environmental aspects.

3.1.4.4.5 Control of Documents**Objective**

To establish criteria for the correct generation and document control of the Environmental Management System.

Scope


Applies to the design and control of all documentation generated to perform the procedures required by the Environmental Management System.

Procedure for document control

The control of documents that are generated to meet the requirements of the ISO 14001:2004 standard must meet the following guidelines:

- **Preparation of Documents:** When the need to generate a document arises, the head of each department will be responsible to produce it. First, defining the document name must be the same according to the activity performed and assigned a code to the procedure and revision number.
- **Document Review:** During the review it should be considered that the document complies with the guidelines in this guide and with the current practices of each procedure described. Once these points are complied, the Revision field must be signed and passed to the person responsible for approval.
- **Approval:** The person responsible for approving signature signs on the entry field, thus allowing the procedure to be carried out.
- **Review and update of documents:** The authorized documents pass to the Head of Documentation (Quality Coordinator), who in turn verifies updates or revisions that have emerged.
- **Publication of Documentation:** Subsequently, the document is published on the intranet for all employees to have access to. This publication automatically generates an email to the heads of each area to be notified of the new document.

Format for document control

		ENVIRONMENTAL MANAGMENT SYSTEM
Category: Process	Document No.	
Process:	Review:	
Subprocess:	Valid since:	
Task/Phase:		
Author	Head of the process/Head of the subprocess	
Name of the Process:		

	DEVELOPED	REVIEWED	APPROVED
Name			
Position			
Signature			

3.1.4.4.6 Operational Control

Objective

To evaluate the procedures for complying with the requirements of the ISO and to not deviate from the policies, objectives and targets.

Scope

Applies to all activities and services provided by the Water Park.

Operational Control Procedure

Through the General Procedure for Identification and Evaluation of Environmental Aspects, processes can identify the activities that may cause negative environmental impacts. With the information of the process, the Environmental Management System Manager gives the scope of the evaluation and the need to develop specific procedures for the control of the activity or process. These specific procedures are developed when Water Park staff detects abnormalities in the normal procedures that are not meeting goals and objectives.

It is the responsibility of the different department heads who made the implementation of procedures, to inform the Head of the Environmental Management System of any changes necessary to meet the purpose of the application and scope. This will include, in the specific procedures, the environmental aspects and operations associated with them, along with stricter control that should be applied to them.

The evaluation is based on the prevention and control of environmental impacts that may occur as a result of the operations and activities related to the environmental aspects considered by the Water Park. These include:

- Use of swimming pools (use of chemicals)
- Use of diesel boilers
- Use of raw material for the kitchen
- Garbage collection

3.1.4.4.7 Emergency Training and Response

Objective

To determine a contingency plan for emergencies and know how to deal with unexpected situations.

Scope

Applies all potential emergencies that could happen in the water park.

Procedures

The following emergency response procedures are taken from the Contingency Plan of Planeta Azul:

Emergency Response by Fire

- In the case of a release of a flammable gas or liquid or a fire or explosion that creates immediate risk, the person who discovers it will immediately notify the Order and Security Coordinator, who must ensure to alert the response teams (fire pump, hoses, extinguishers).
- The alarms will be activated, and the staff will be notified. If it is necessary, all personnel not essential to the case will be evacuated from the affected area.
- Requirements will be determined based on the type and magnitude of the situation.
- The immediate support staff for emergency response activities will be required (Fire Brigade).

The available resources that the water park has for fire emergency response are:

Dry powder extinguishers (17)

Carbon Dioxide extinguishers (6)

Equipped fire hydrants (7)

Megaphone (1): throughout the park

Medicine Cabinet (2): first aid

Detection and Alarm (36)

Alarm button (12)

Alarm Siren (2) the whole park

Points of outdoor concentration (2): main administrative building and parking

Flood Emergency Response

- In case of a serious flooding that generates immediate risk, the person who discovers the risk will immediately notify the head of the respective area for the notification to the Order and Security Coordinator, who must ensure to alert the response teams (hoses, brooms).

- Follow the procedure above for fire emergency.

Emergency response to hazardous material spill

- In case of a huge spill of a hazardous material that generates an immediate risk, the person who discovers it will try to stop the spill at its source if this can be done safely. Otherwise, they will immediately notify the department responsible for the corresponding notification to the Order and Security Coordinator, who must enable the emergency response equipment according to the type and magnitude of the spill and the type of material.
- The alarms will be activated, and the staff will be notified. If it is necessary, all personnel not essential to the case will be evacuated from the affected area.
- The requirements for protective clothing and respiratory equipment will be based on the type and magnitude of the situation.
- The immediate support staff for emergency response activities will be required (Fire Brigade).
- The appropriate actions for collecting the spill will be according to the characteristics of the material and the magnitude of the spill taking into consideration the information from the material safety data sheet (MSDS). The spill will be gathered with absorbent material such as sawdust or dry sand.

In the water park, there is the risk of diesel spills. Therefore the operation center has absorbents to diesel spills such as fine sand. Also they have personal protective equipment for the containment and collection of a spill including skid boots and gloves.

Emergency Response to Earthquake

- In case of a strong earthquake that generates an immediate risk, the person who discovers it will immediately notify the head of the respective notification area to the Order and Security Coordinator
- The alarms will be activated, and the staff will be notified. If it is necessary, all personnel not essential to the case will be evacuated from the affected area.

- The condition of the facilities, materials, and processes will be reviewed to determine response actions to follow in each affected area.
- The immediate support staff for emergency response activities will be required (Fire Brigade).

Emergency response for a collapsing of facilities

- In case of a breakdown of machinery or equipment that generates an immediate risk, the person who discovers it will immediately notify the head of the respective area for the notification to the Order and Security Coordinator.
- Follow the procedure above for fire emergency.

Process for Evacuation

- When evacuating an area is ordered, all personnel not essential will be released in accordance with routine procedures and normal output.
- The head of the area will verify that all the personnel in his area evacuate the site, reminding them of the meeting site and evacuation route to follow.
- The output of the facilities normally will be by major roads and through the front door; the alternative evacuation solutions will be in accordance with the situation.
- Exit routes must be free of obstructions all times and must have adequate lighting (emergency lights) and signage.
- Once the staff arrive to the meeting site, the head of each area will be responsible for counting their staff in order to confirm that staff have left the site.
- If there is an absent person, it should be reported to the Order and Security Coordinator as soon as possible.
- The necessary actions will be initiated to locate any missing person.

Emergency Brigade

Planeta Azul has an emergency brigade, which is formed by the staff normally working at the company with a minimum of 4 and a maximum of 7 people. This brigade is headed by the General Manager and his delegated, in case of absence, by the Order and Security Coordinator.

The main function of this brigade is to perform emergency operations before the arrival of the Fire Department and to help in first aid, transportation of injured and evacuation operations when these do not impede the brigade members.

Dissemination of the emergency plan

- The company must inform and communicate the features, as well as how leaders will make decisions and deal with possible problems of organization.
- The person responsible to disclosing this emergency plan is the General Manager, while the heads of each area verbally report developments, extensions and / or modifications of the plan.
- Employees must be trained on topics such as alarm system, procedures to turn off the machinery and the types of potential emergencies
- Once every 6 months, a general discussion with all staff will be made in order to reinforce the knowledge acquired from the plan.
- Simulations will be conducted annually that will be directed by the General Manager

Responsible staff in emergencies:

General Manager	Charles Stewart Pérez
Order and Security Coordinator	William Plasencia
Communication	Eliana Lopez Cardenas
Official Spokesman	Jose Cano Gúzman
First Aid Coordinator	Danny Vera Cabrera
Fire Control Coordinator	Rafael Ramón Sanmartin
Evacuation Coordinator	Eduardo Zhicay

3.1.4.5 Verification

3.1.4.5.1 Measurement and Performance Monitoring

Objective

To establish processes to measure and monitor performance in activities related to environmental issues.

Scope

Applies for all activities directly related to the environmental aspects.

Method for Measurement and Monitoring

The activities that are measured and monitored continuously are:

- **Cleaning Pools:** The head of maintenance takes control of the chemicals to use according to the training by the supplier of chemicals for purification pools, who performed the calculation of the use of chemicals according to the cubic feet of each pool.
- **Use of diesel:** Diesel isotanks should enter by the established road that is located in front of the main entrance to the water park. The isotanks move to the highest point of the water park where they unload the diesel that is then distributed to the boilers.
- **Discharge of raw material for the kitchen:** Suppliers unload food by the underground that is located on one side of the events room that goes directly to the kitchen.
- **Garbage collection:** The trash bins garbage around the park are collected according to how full it gets. Garbage collect tanks are located next to the parking lot (2nd floor). These are taken by the garbage collector of the town two days a week.

All these procedures measure, control, and follow up according to reports issued by the warehouse, and are crossed them with the accounting statements and purchase orders.

3.1.4.5.2 Evaluation of Legal Compliance

Objective

To verify compliance with the local, regional and national environmental laws related to legal water park activities.

Scope

Applies to all activities of the Aquatic Park that have to meet environmental laws so that they can be practiced.

Procedure

In connection with its commitment to legal compliance, Planeta Azul established, implemented, and maintained the following procedure for periodically evaluating compliance with applicable legal requirements:

- The External Legal Advisor of Planeta Azul should keep files of the laws relating to legal and regulatory issues that the company must comply to. They must also be in constant update with the Official Register to the relevant legal provisions to which the company is subject.
- This evaluation is performed by an internal audit. With these documents the update, and regulatory compliance reference is evaluated through a legal audit that must be performed at least once every year. Records of the results of periodic evaluations must be kept on file in the legal department of the company by date.
- The legal department notifies the representatives of the changes to the laws that are registered in the official register (newsletter) if it is relevant (in the case of existing changes affecting Planeta Azul).
- Planeta Azul also evaluates compliance with other requirements subscribed. Additionally, the records of the results of periodic evaluations are kept on file in the legal department of the company by date.

3.1.4.5.3 Nonconformity, Corrective Action and Preventive Action

Objective

To establish steps to identify non-conformities with the requirements of the ISO in the activities and services offered by the Aquatic Park and define corrective or preventive actions in order to avoid reoccurrence.

Scope

Applies to the real and potential non-conformities arising from activities and services.

Procedure for Nonconformity, Corrective Action and Preventive Action

- When a person detects nonconformity that directly affects the Environmental Management System, immediate notice must be given to the Head of the area in order to make a decision for improvement. Nonconformities are results of:
 - Poor environmental practices
 - Failure to comply with the requirements of ISO 14001:2004
 - Deviations from the policies, goals, and environmental objectives
 - Audits
 - Environmental complaints made by service users
- Managers involved in nonconformity must analyze the causes and take action in order to counter the situation and show this anomaly to head person in charge of the Environmental Management System.
- The non-conformities must be documented indicating the implemented corrective or preventive action.
- For corrective or preventive action someone should be establish as in charge of the deadline for the implementation and responsible for verifying the action. It should be a tracked action to be applied within the prescribed period, and work to eliminate

the nonconformity (cause). These actions will be documented and signed by the monitoring person in charge.

3.1.4.5.4 Control Registers

Objective

To establish control of the formats used in different procedures for documenting results.

Scope

Applies to all formats of records generated in each of the procedures of the Environmental Management System.

Procedure for Control of Registers

Within different procedures of Environmental Management System there are formats for recording results. These registers are used in each process when they have gone through the following procedure:

- Review and authorize formats: The person in charge of the Environmental Management System receives proposals formats for records in different processes. These registers are reviewed for convenience and are approved and authorized.
- Distribute formats: Formats are distributed to the respective areas to take their records and the date of entry is indicated. If it is necessary, training is done for filling formats. In addition, it should be indicate whether the records will be electronic or physical.
- Ensure the protection and recovery of Records: Evidence recorded in the formats ensures its protection and recovery information.
- Retain and dispose of records: Records must be retained and stored by area as each one considers necessary. If it is taking too much physical space it must be stored in a warehouse of inactive files. Legal files must be retained as required by law.

3.1.4.5.5 Internal Audit

Objective

To determine the parameters for carrying out internal audits in all areas of business related to environmental aspects.

Scope

Applies to all areas that are related to environmental issues

General Considerations

Internal audits are performed in order to verify that all areas of the company are meeting the requirements of the ISO standard, for which Planeta Azul has implemented an annual program of internal audits that are performed by its own competent staff education working at the company. This type of work should be done objectively and impartially, therefore, the auditor will be a person free of audit activity responsibilities.

Procedure

- To carry out annual audits, the General Manager prepares the Audit Plan, indicating the times for opening and closing meetings, the procedures to be audited and the names of the auditors. This is distributed to all departments before to execution.
- The audit begins with the opening meeting where the auditor discloses to his team the objectives and scope of the audit, the audit procedures, and includes activities to be undertaken during the audit.
- Once starting the Audit Plan, the auditor asks the person in charge of each area for the necessary documentation such as procedures, reports of previous audits, and corrective and preventive actions established. The audited for their part, is obliged to provide evidence and information requested by the auditor. With this information the auditor can verify that the department is acting in accordance with the provisions of the Environmental Management System.
- During the process, the auditor will be revealing finding of nonconformities verbally at the meeting. He then classifies in the audits meeting the audits findings on nonconformities or concerns. The Auditor concludes with the preparation of

documents that indicates corrective or preventive actions for each situation, and the general report is delivered to the General Manager.

- Finalizing the audit according the established schedules in different areas includes an audit-closing meeting where auditors and managers of the areas audited participate, and the results are presented
- The person in charge for the areas audited and presented nonconformities or concerns should ensure that corrective or preventive actions are implemented.

3.1.4.6 Management Review

The environmental management system should be formally reviewed jointly by the Chair of Management and Planeta Azul at least twice a year as establishes in a previously meeting to ensure actions are in accordance with the requirements of the ISO 14001:2004 international. The results of this meeting should be kept on file and will be the basis for the next meeting.

According the ISO 14001:2004 standard, regarding its requirements of guidance for use, "The input for the management review should include:

- a) Results of internal audits and evaluations of compliance with legal requirements and other requirements to which the organization subscribes.
- b) Communications from external, interested parties, including complaints.
- c) The environmental performance of the organization.
- d) The compliance grade of objectives and targets.
- e) Status of corrective and preventive actions.
- f) Tracking of actions arising from previous reviews conducted by management.
- g) Changing circumstances, including developments in legal and other requirements related to its environmental aspects requirements.
- h) Recommendations for improvement. (2004)

3.2 Feasibility Analysis of the Standard requirements' implementation to the Water Park

The design of the Environmental Management Manual above shows the direct application of each of the requirements of ISO 14001:2004 to the activities of the company Planeta Azul, in order to provide its services of aquatic entertainment, a restaurant and an events room. Currently, these activities are carried out by people working in the company who have knowledge and optimal management of each of its tasks.

The company has its own Environmental Impact Study whereby we can clearly know the activities of the park that have effects on the environment and what the environmental laws are that must be followed in order to have the permission to operate as an entertainment company.

However, this is not enough for being a company of recognition and status at national level, nor to reach the international market by offering the services of aquatic entertainment, restaurant and events room if the company is not on par, or offers even better service, than the competition. It can be achieved by obtaining an International Certification where a third party (International Organization for Standardization) ensures, in written form, that the service offered by Planeta Azul is compliant to the specified requirements in ISO 14001:2004. This is a valuable tool for the company to reach the international market and generate customer confidence.

With the development of this design of the Environmental Management Manual, Planeta Azul is a potential creditor company to the International Certification ISO 14001:2004, since each of its activities may be classified, performed, and improved based on requirements of the standard. In addition, the standard will be useful to the company to precisely define each of the responsibilities of the employees to the company as well as the responsibilities of the company towards the environment. Therefore, the company would acquire greater and improved environmental awareness and, at the same time create added value to its activities.

The company must incur additional costs to obtain certification, as certain requirements demand more than what the company currently has. However, this building was possible from a great partners investment and banking finance, so the international certification is not considered as a flashiness but it becomes a necessity for the company. The company looks to recover the investment term and it especially reaches high profits due to the full and unique service that offers.

The International Certification must be seen, by the partners, as an investment in the medium to long term that will bring great benefits such as: removing barriers to reach international markets, attracting customers with sensitive environmental issues, reducing on spending electrical energy and water, obtaining public merit, and especially having the security to keep control and compliance with legal requirements related to environmental issues.

4 Conclusions and Recommendations

4.1 Conclusion

Research of the thesis topic: FEASIBILITY STUDY ON THE IMPLEMENTATION OF THE INTERNATIONAL STANDARD ISO 14001:2004 ENVIRONMENTAL MANAGEMENT IN “PLANETA AZUL” WATER PARK BASED ON ITS ENVIRONMENTAL IMPACT STUDY, has been made on the International Organization for Standardization, which establishes the requirements to achieve an International Certification, which generates greater status for a company that is so important today. These certifications help companies make better handling and practice of commercial activities, satisfy the demands of consumers, and give them greater security when purchasing products or services from a company with International Certification.

Additionally, research has been made on an Ecuadorian Company that provides entertainment and generates tourism in the Ecuadorian Austro. Planeta Azul, which has more than two years in the market, has been promoted nationally, offering its services of

aquatic entertainment, a restaurant and an events room. As we have seen it is an undertaking of great magnitude and high investment, but it also has created major disruption to the environment during its construction and its operation. What it could happen in its stage of closure or abandonment was also explored.

For this reason, the need to propose a feasibility study for the implementation of the ISO 14001:2004 Environmental Management was presented. This way, the company would continue to offer entertainment services while their activities are carried out on a friendly plane with the environment. Chapter 3 has developed a specific Environmental Management Plan based on the requirements that the standard establishes. For this, people of each area of the company must be trained in order to be able to qualify and develop their activities to maintain and comply with the Environmental Management Plan.

The implementation of the Environmental Management Plan, and obtaining International Certification for Planeta Azul, could be possible with the commitment of the Management and Presidency if their objectives are centered on the care and protection of the environment in which it operates. Despite being a company that has been in the market a short amount of time, it shows itself to be a company able to comply with each of the requirements that the standard states, as each of the areas is properly defined and employees know their responsibilities.

Finally, achieving an International Certification of Environmental Management will give greater status to the company and recognition, not only nationally, but also internationally. It could be known abroad as a company committed to the environment. Therefore, tourists who visit can feel safe and satisfied that they are having fun time without affecting the environment. This is precisely the idea of achieving the ISO Certification: to publicize the company to the international market and encourage more people to visit the Water Park Planeta Azul.

4.2 Recommendations

As recommendations for the Water Park to comply more specifically to the requirements of ISO 14001:2004 the following can be done:

1. Use solar panels to produce electricity and heat swimming pools: This relates directly to the Environmental Policy which requires the continuous improvement of the company's activities and the objectives and targets set by the company in the long term.

Planeta Azul could be using two types of solar panels. Photovoltaic panels in the parking lot, water park and water pumps because these panels produce electricity that could serve to illuminate this area and circulate pools water while reducing costs and energy consumption in a friendly practice with the environment. Thermal panels for water heating could be used alone, or in combination with the boilers system currently used to heat the water park pools. The benefit would be reflected in the reduction of fuel consumption (diesel) it means monetary savings, and decrease emission of greenhouse gas produced by the use of diesel.

In this way, Planeta Azul would be a company friendly to the environment by reducing the use of resources to generate electricity. The company would make a major investment from the high cost of the panels, batteries and inverters. According consultation with solar panels suppliers, the cost of a solar panel is approximately 460 dollars, and the total cost the company would invest should be calculated in relation to the number of panels required according the lamps and pumps watts and the size of the pools. However, the monthly cost for electricity (2000 dollars currently) and diesel consumption (4000 dollars currently) would decrease considerably and costs will only incur in maintaining equipment.

2. Develop excursion programs to the water park: It relates to the requirement of communication. The marketing department should develop tour programs to the water park with management of schools and colleges, so students could learn about the process of operation of the park and how the care of the environment is handled. After the tour, students could enjoy a day of entertainment on park facilities replacing this visit with a day of regular school attendance as part of a recreational

activity and learning. In this way the company will be developing the requirement of communication without omitting the main objective of the water park which is to provide entertainment to its visitors.

3. Develop an emergency response plan for volcanic ash fall: It relates to the requirement of Emergency Response. It is necessary, as in past months of this year ash fall from Tungurahua volcano to Azuay and the water park suffered a great impact and had to be closed one weekend for urgent cleaning facilities. To carry out this plan the company should always continue with responsibility placing night covers on pools as cleaning prevention. Additionally, when a person who works for the company discovers ash falling, he will immediately notify the Order and Security Coordinator, who will inform the cleaning staff and additional areas necessary for support in order to initiate the urgent cleaning activities on extraordinary schedules with the objective of not suspending service to its customers for a few days. In order to perform the clean up quickly, the company must have numerous and all necessary tools like industrial brooms and trash cans rated for this type of waste. It is necessary to consider that ash must not be flushed because it blocks sewers.

5 References

5.1 Glossary

The following glossary lists the terms mostly used during this work and are directly related to the thesis topic. It has been obtained from ISO 14001:2004 Environmental Management Systems - Requirements with Guidance for Use:

- Auditor: Person with the competence to conduct an audit.
- Continuous Improvement: Process of optimization recurring environmental management system to achieve improvements in overall environmental performance consistent with the environmental policy of the organization.
- Corrective action: Action to eliminate the cause of nonconformity
- Document: Information and its supporting medium.
- Environment: The location in which an organization operates, including water, soil, natural resources, flora, fauna, humans and their interrelation.
- Environmental Aspect: Element of activities, products or services of an organization that can interact with the environment.
- Environmental impact: Any change in the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
- Environmental management system (EMS): Part of the management system of an organization, used to develop and implement its environmental policy and manage its environmental aspects.
- Environmental Objective: Environmental ending generally consistent with the environmental policy that an organization has established.
- Environmental performance: Measurable results of an organization's management of its environmental aspects.
- Environmental policies: Overall intentions and direction of a related environmental performance as formally expressed by top management organization.

- Environmental Target: Detailed performance requirement applicable to the organization or parts of it which stems from the environmental objectives and the need to establish and follow to achieve those objectives.
- Interested party: Individual or group concerned with or is affected by the environmental performance of an organization.
- Internal Audit: systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are complied of the environmental management system set by the organization.
- Non-compliance: Non-compliance with a requirement.
- Organization: Company, corporation, firm, enterprise, authority or institution, or part or combination of them, whether or not societies, public or private, that has its own functions and administration.
- Pollution Prevention: Use of processes, practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or in combination) the creation, emission or discharge of any type of pollutant or waste, to reduce adverse environmental impacts.
- Preventive action: Action to eliminate the cause of a potential nonconformity.
- Procedure: A specified way to carry out an activity or process.
- Record: Document stating results achieved or providing evidence of activities performed.

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