

Innovation from clean industry process: Taiwan as a reference of good practices for Latin America

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ABSTRACT

The aim of this article is to highlight the importance of the PR China-Taiwan, as a global reference in the environmental theme, with emphasis on "Clean Industry". It is the product of a research, descriptive, historical, and socio-cultural, when reviewing decisions of the different state agencies. In the first part, we sought to contextualize. While the second since World War II, involving the protagonists of society, from SMEs, public and private workers, academia, and children from young age to adults. Industry is one of the tips that receives this learning, to replicate today, throughout Asia. These points were analyzed in their significant advances, in the second part, which help to argue, of why PR China-Taiwan is a world reference, with emphasis on "Clean Industry". It was found that, before the United Nations Conference on Environment and Development (1992), an ambitious beginning of an environmental policy, the Confucian conception of its environment, the innovative vocation of its society, established a social culture of total respect to the environment, which covers the company, through its interregional processes of "Clean Industry".

Keywords: Clean industry, Taiwan, EPA, Confucianism.

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INTRODUCTION

The annual report of the World Wildlife Fund (WWF, 1961), with the Living Planet Report 2016, marks a trend of what is happening on the planet, in front of all living things. In a term of more than four decades, 1970-2012, fish in water disappeared almost completely, at a level of 81%, that is, average, during these years decreased to about an annual rate of 3.9%. Since the beginning of the 1970s, vertebrates, in their natural habitats of savannas, forests and deserts, disappeared by 38%, at an annual average of 1.1% per annum, and in the event of a catastrophe, report points out that in more than four decades, about 58% of the vertebrates of planet earth, "mammals, birds and fish (WWF, 2016).

There is data to show how devastating this change has been: despite the fact that last century, the average sea level increased about 17 centimeters, this last decade of the millennium, it shows what happened, since the level has already grown close to double what happened last

century, showing the "rapacity" of the water from the sea and the speed with which this episode is generating, evidencing a clear environmental imbalance (Church and White, 2006).

The work, first focuses, in "Conferences and agreements of the XX and XXI century" on contextualizing jurisprudence, around the environmental issue in the world, since it has allowed to establish long-term commitments and recognize the problem in a clear and explicit manner. Then look for the work in its first part, take a tour, to understand the progress in environmental matters, after the meetings that have been made for that reason, especially from the seventies, until today. This tour aims to show the commitments acquired after each meeting and the actual achievements, some of them, with agreements signed by the participants, headed by the relevant multilateral organizations and the attending countries.

In the same way, it uses through the Appendices, the explorer more about associated topics, such as the city concept, or about the environmental modalities damages, which makes more understandable the language usable in the rest of document. Another, specific objectives of this document, are manifested when explaining the contributions, not only of the State, but of society itself, consolidating work teams, as in the case of the process of collection and treatment of waste.

In the second part, "Takeoff, institutionalization and moral bases of environmental policy", shows in principle the moral support of this "green road", from Confucianism and then from Neo-Confucianism, the cornerstone of the social walk of the Island. On the other hand, it shows the conformation of the first institutions that still belong to the Second World War, as a State, they understood the need to place this "green" policy in the category of the great vertices of the modern state, leaving this subject under the planning and execution of the Executive Yuan and the Department of Health. He was giving life to this issue, as a particular public policy and driven by the high Government, which planned, integrated with other policies, such as education, health, roads.

In the in the third part of the document, "Taiwan, environmental paradigm to reference", the center seeks to answer: Why Taiwan is an environmental paradigm, with emphasis on the theme of "Clean Industry"?

As will be shown the structure achieved today, it is integral to other environmental processes, ranging from working with air, to garbage collection, through the back office of companies. Until a couple of decades ago, in several parts of the country, the level of pollution was double, that accepted by then, in U.S., and many of its waters, were contaminated with industrial chemical wastes. Thanks to its creative, investigative capacity, state management and social conscience, today the country is considered as a world leader in the environmental theme, recognition, which among others, is given in this second decade of the millennium, by the US Environmental Protection Administration (Taiwan Republic of China: Taipei Economic and Cultural Representative Office, 2015).

The basis of information had several roads, especially experts, and institutions dedicated from Taiwan, to the development of public policies and control, in front of the advances, goals and objectives, in the environmental field, in some cases depending on the particular agenda. In general, official databases, scientific investigations, journalistic follow-ups from known world media, and own pages of the involved protagonists were used. In other cases, of garbage in its cycle of collection and citizen participation, I went several times to observe the same, in cities such as Taipei, Zhongly, Taoyuan, in the Campus of the "National Central University", in the course, of 2016.

In the case of state enterprises and agencies, I visited Mr. Ray Reu, of the Industrial Technology Research Institute ITRI, Office of Environment & Safety Technology

Division- Green Energy and Environment Research Laboratories. Two decades in ITRI, of this expert and recognized Taiwanese, working with the theme associated with the environment, served as a testimony, not only to contextualize the evolution of the "green public policy" of the Island, but, to know the processes recommended by ITRI, for specific cases, in the field of Clean Industry and complementary microprocessors.

The document has a contribution made in the field of formative research, by the student, Mateo Andrés Rodríguez Morales, belonging to the group "Elite" of the Business Administration Programme of the University Piloto of Colombia, led by the Professor Oscar Gómez, of the same Programme. In recognition of their academic efforts in the first two years of the study, students will be rewarded among others, participating in research processes, which will contribute in their training in this task. His contribution, focused on the development of Appendix B.

The conclusions of this work, rather than being a strict reference to the Taiwanese model, seeks to create a point of reflection on the environmental issue, in the heads of the leaders, presidents, leaders of Latin America, to find alternatives and solutions, which not only include short ages, but think of ceasing to focus exclusively on taxes as a way to structures value chains, full of innovation and about the good treatment of the environment.

The main objective of the study is to publicize the pillars of Taiwanese environmental public policy and its singularities vis-à-vis the world. The problem that seeks to work on this document, focuses on the environmental issue, the problem addressed, is in to know, which to discover the basic parameters that a country must have, to implement an environmental and effective public policy. To resolve this concern, the case of China-Taiwan is taken as a reference problem that seeks to work on this document, focuses on the environmental issue, from this, the problem addressed, is to discover the basic parameters that a country must have, to implement an environmental and effective public policy. To resolve this concern, the case of China-Taiwan is taken as a reference.

Each one of the sections of this document in its historical walk, since 1895, when the Japanese Empire took the Island of Taiwan, seek to give a reference of each step that the Taiwanese State, gave in this sense.

Hand in hand and the commitment of its people, they manage to build "an environmental roadmap", determine management indicators and establish a "green national" culture, achieving to become a global paradigm to date.

To put in context the advances that Taiwan had in this topic, the first part of the work seeks to give the reader a tour of the great treaties and agreements in the matter at world level, which also aims to show the precocity with which the society and the State of the Island, have worked on the matter, assessing the results so far achieved.

CONFERENCES AND AGREEMENTS OF THE XX AND XXI CENTURY

The environmental issue has had an important deployment, discussing, collecting, updating information, projecting the issue, at the head of the United Nations. Thanks to its initiative, the environmental theme became a theme of the International Agenda, to be considered in the 1970s as one of the seven Millennium Goals (MDGs) (Table 1).

To better illustrate and understand the origin and possible causes of Environmental Disasters, is Appendix A, called "Type of Disasters." Let us mention some Conferences, Commissions, Protocols, etc., which have dealt with the subject and have generated part of the jurisprudence at the global level, until today on the subject:

United Nations Conference on the Human Environment or Stockholm Conference, 5-16 June 1972. Important for having addressed the key sources of environmental deterioration: heavy industry, technological development, use of heavy machinery. Almost three centuries of industrialization, a balance in front of the progress of the same and its environmental impact. For this purpose, the United Nations Environment Program (UNEP) was created.

World Commission on Environment and Development, April 1987. The term "Sustainable Development" is introduced, to designate the subject of study on the environment in the world. From these results, "Brundtland Commission", presents the October in the same year the "Brundtland Report" (Centro de Información de las Naciones Unidas CINU, s.f.).

United Nations Conference on Environment & Development, from 3 to 14 June 1992. It was known as the "Earth Summit" or "Rio Summit". For many specialists, from here came the long-term road map, on the subject. It was attended by 108 Presidents and achieved key documents: "Program 21"; way to continue in the world in the matter of sustainable development; "The Rio Declaration", establishing rights-obligations, of the States themselves towards sustainable development and the environment. In addition, in particular, the "Declaration of principles relating to forests" emerged, giving guidelines for sustainable use in the world of forests. Finally, two documents, binding for the signatory countries, were signed: "Convention on Biological Diversity" and "Framework Convention on Climate Change" (Naciones Unidas, s.f.).

Special Session of the General Assembly-Plenary, for the Review and Evaluation of the Implementation of Agenda 21, from 23 to 27 June 1997. Topics touching on practical elements of what is expected, are the cities of the 21st century and will then give concrete projects like those of "Clean Industry" within or in the rings of the cities (Naciones Unidas, s.f.). In Appendix B, some basic criteria and contributions of model cities is found.

Kyoto Protocol, 11 December 1997. Its basic objective is to achieve a fall in the emission of six greenhouse gases (GHG): sulfur hexafluoride (SF₆), carbon dioxide (CO₂), nitrous oxide (N₂O), perfluorocarbons (PFC), methane gas (CH₄), Hydrofluorocarbons (HFCs); cause of global warming.

Commitment, reduce these emissions by at least 5%. The application and entry into force has been late in the largest generators of these gases. Russia signed the Protocol until 2004 (UNFCC, s.f.). United States in 2015 (BBC MUNDO, 2015), a goal of reduction of close to 30% of the same, by 2030 (MUNDIALES, INSTITUTO DE RECURSOS, s.f.). Millennium Development Goals. Sustainability (Protecting our common environment /22-23), of the environment was included as one of the so-called Seven Millennium Development Goals (MDGs) by the United Nations (Naciones Unidas, s.f.).

World Summit on Sustainable Development (WSSD), 26 August to 4 September 2002. It is sought that the "Agenda 21" that establishes the way forward since 1992 on Sustainable Development, has concrete processes, on the part of the signatory States to demand quantifiable achievements, at a given time period. From this is achieved "Johannesburg Declaration". Figures are analyzed that show the use of resources and responsibilities with respect to their consumption in the world: "...20 percent of people in the richest countries account for 86 percent of all private consumption, the poorest 20 percent account for only 1.3 percent of private consumption" (Naciones Unidas, s.f.).

The United Nations Climate Change Conference, from 30 November to 12 December 2015 developed within the framework of the XXI Conference on Climate Change (COP 21), called as the "Conference on Climate Change 2015". We work to face worldwide goal to minimize the effects of "Climate Change". It has quantum goals and achievements from the achieved "Paris Agreement" its terms will go until 2020, the year ending the validity of the Kyoto Protocol (Naciones Unidas, s.f.).

TAKEOFF, INSTITUTIONALIZATION AND MORAL BASES OF ENVIRONMENTAL POLICY

This second part, describes the basis of the beginning of this "green path", which starts from a key principle of this culture: to have a moral support in its actions of social impact, taking Confucianism as a starting point and reference that will allow a clear horizon and precise in the matter, for the Taiwanese society (Table 2).

After the Second World War, it was already clear the need to specify this issue and its management, from an agency that by its impact and national importance, was the Department of Health. However, very much in the style of countries such as Japan and South Korea, the issue is inserted in their four-year plans, guaranteeing a projection of institutional life, beyond the government and

Table 1. Agreements and conferences on the environmental theme.

Agreement/ Conference	Year-Month	Day(s)	City/Country	General Purpose
UN Conference on the Human Environment or Stockholm Conference	1972-June	5 to 16	Stockholm/ Denmark	Declaration from the United Nations, on the preservation of the environment, impact of heavy industry and technological development.
World Commission on Environment & Development (WCED)	1987-April	27	London/ UK	The term "Sustainable Development" is introduced. From this results "Brundtland Commission, presents the "Brundtland Report".
United Nations Conference on Environment & Development	1992-June	3 to 14	Rio de Janeiro/ Brasil	Achieved key document: "Program 21"; way to continue in the world in the matter of sustainable development; born "The Rio Declaration", establishing rights-obligations.
Special Session of the General Assembly for the Review and Evaluation of the Implementation of Agenda 21	1997-June	23 to 27	NY/ States	United How cities will be in the 21st century and will then give concrete projects like those of "Clean Industry".
Kyoto Protocol	1997- December	11	Kyoto/ Japan	Its basic objective is to achieve a fall in the emission of six greenhouse gases (GHG): sulfur hexafluoride (SF6), carbon dioxide (CO2), nitrous oxide (N2O), perfluorocarbons (PFC), methane gas (CH4), Hydrofluorocarbons (HFCs).
Session of the General Assembly/ Millennium Development Goals	2000- September	18	NY/ States	United Sustainability was included as one of the so-called Seven Millennium Development Goals (MDGs).
World Summit on Sustainable Development (WSSD)	2002- August and September	26 to 04	Johannesburg / South Africa	Establishes the way forward since 1992 on Sustainable Development. Figures are analyzed that show the use of resources and responsibilities with respect to their consumption in the world
The United Nations Climate Change Conference	2015- November and December	30 to 12	Paris/ France	We work to face worldwide, to minimize the effects of "Climate Change".

Source: The author, based on data obtained from the agreements, conferencias and documents, issued and related in this document.

political party in turn, giving it a "public policy status" at the level of education, land routes and energy, as well as its impact on water, garbage from families and industries. By then, the "Executive Yuan and the Department of Health," already seized this government initiative, and began the decade of the nineties, to deal with the third part of the document.

Confucianism respect and love of nature

China, from about 500 BC, and in 1949, had two major sources, on the issue related to the deterioration of the environment: the search to become a state of high military power and therefore political in the area (500 BC to 1,000 AD); the exponential increase of its population

with its uncontrolled pressure on resources, period 1000-1949 (Mark, 1993).

Entering into the conception of the Taiwanese people today, in the face of their relationship with the environment, is in the framework of the Chinese people's thought tradition, which for centuries has in its great thinker Confucius (551 BC to 479 BC), the base to many responses as a society and as a nation. Under the concept of *Humanist Confucianism*, a division between nature and human is never accepted, always interacting in harmony (Huang, 2009).

Neo-Confucianism

On the other hand, from the eleventh century, retakes

Table 2. Timeline, public policy and environmental example.

Agreement/ conference in the world	Year- Month	Taiwán Insitution / Company	Year(s)/ Environmental achievements	Historical Phase	
			500 BC- today.	Confusionism (500 BC), and Neoconfucionism (1000 aprox), now Religiuos Syncretism, determine the moral principles against the Environment.	Past.
UN Conference on the Human Environment or Stockholm Conference	1972-June	Executive Yuan and the Department of Health	1947 1957-1960 1971 1974 1976 1979 1983	The new Constitution, included "environmental sanitation". In the "Second Four-Year Plan", it seeks to minimize the effect of pollution. Is moving towards a long-term solution, such as the impact of pesticides, the use and management of wastewater, regulation of "Food Processing Plants". Creation The Waste Disposal Act (WDA). Established the rules of the game on the subject of the recycling cycle. Typified the different types of waste, which allowed them to recognize and regulate each one. The Ministries of Economic Affairs (MOEA), established as a specialized office, Water Resource Integrated Planning Commission. Established the "Office of Environmental Protection", responsible for environmental health and pollution impact. Water problems, their toxicity and waste treatment, were handed over to the "Office of Environmental Protection".	Early Institution, on the Environmental theme, from the Constitution of 1947
World Comission on Environment & Development (WCED)	1987-April		1987 1988	With "Office of Environmental Protection", launched the "Environmental Protection Administration" (EPA). Eesponsible for public environmental policy, the standardization of processes, monitoring and inspection and the derived regulations. To create decentralized agencies, which from the big capitals, develop local plans and programs, integrated with national objectives. Established in this sense that importers and manufacturing companies had to form associations, aimed at managing recycling.	
United Nations Conference on Environment & Development	1992-June	EPA	1992 1993	Established by the State, the "Green Mark Program". Establishes 112 categories of products, where they go near 6,000 tangibles. EPA signed an agreement with the American Institute in Taiwan (AIT). AIT has replicated and continuously demonstrated its decades-long experience in Africa, Asia and the Pacific And Latin America, establishing with it, a basis of "good practices".	Taiwan, environmental paradigm to reference.

Table 2. Continues.

			1995	Promulgated the "Air Pollution Control" (APC), and sought, pollution control from, cars, factories and constructions. Aimed to create zero-pollution spaces, areas known as "Clean Air Zones".	
Special Session of the General Assembly for the Review and Evaluation of the Implementation of Agenda 21	1997-June	EPAT	1997	How cities will be in the 21st century and will then give concrete projects like those of "Clean Industry".	
			1997	"Recycling Program", this formalizes the recycling operation, seeks to generate its own resources, to make the action sustainable, without being an additional tax burden. It is now the EPAT Agency, which creates the "Recycling Fund Management Board" (RFMB), its role, to administer the "Recycling Funds".	
Kyoto Protocol	1997-December				
Session of the General Assembly/ Millennium Development Goals	2000-September	EPA	2001	To adopt, the norms of "Energy Star Label". Applied since 1992 in the U.S., they seek to reduce the energy consumption of tools, such as PCs, servers, lights, household appliances, imaging equipment (photocopies), construction, refrigeration and heating.	The millennium, Taiwan as an example for the World.
World Summit on Sustainable Development (WSSD)	2002-August and September	EPA- TAITRA- MOEA	2005	"Separation at Source Legislation". With two phases, it managed to regulate the separation of recyclable waste, food and waste from food, included specifying the freedom for cities to set spaces to recycle and sell them.	
			2007	EPA includes its "Green Stores" program, which demonstrates "Green Store Best Practices". Include "local retailers" in retail chains with the support of the local Environmental Protection Offices. A plan was signed with supermarkets, to reduce the use of plastic bags gradually, to 2011.	
			2009	"Green Stores" program, included the Back Office of the processes, seeking that the value chain, ensure the use of "Clean Technology". With the support of Taiwan External Trade Development Council (TAITRA), promoting the best advances in Clean Industry, with the "Taiwan International Green Industry Show" (TIGIS). "Renewable Energy Development Act". With Ministry of Economic Affairs (MOEA) and its Bureau of Energy (BOE), supports the technical part, installation, dictates (by 2015, only 2.3% are left out), and implementation of photovoltaic (PV) energy.	
			2011	Enacted the "Indoor Air Quality Management Act" with the support of EPA. Born "zero indoor pollution" or Indoor Air Quality (IAQ). In the second decade of the millennium,	

Table 2. Continues.

The United Nations Climate Change Conference	2015- November and December	The Industrial Development Bureau (IDB), promoted by the Ministry of Economic Affairs (MOEA)	2015	one with the lowest rates of waste generated per day, for each person: to create 1.14 kilograms per person in 1997, was changed to 2014, to 0.38 kilograms, that is to say a reduction of 300%, Taiwan an Example for thr World.	With results, an environmental paradigm to be referenced Glocal.
			2018	In 2014, it was possible to reach about 354,000 homes with this clean energy source, achieving a reduction of 776,000 CO2 emissions that year. Results for the implementation of photovoltaic (PV) energy. Passed in 2009 to produce 9.5 mW to 728.5 mW, an exponential growth of 76 times the capacity, in 6 years, between the year 2007-2011, went from the fifth position, to second largest producer of solar panels, to date, is only surpassed by the PR China. They have established aid to companies that, apart from Gogoro, produce this type of motorcycle (with "Clean Energy") and have worked on advertising so that each time they buy this type of vehicle, which minimizes the environmental impact.	

Source: The author, based on data obtained from the agreements, conferencias and documents issued and related in this document.

these ideas, from its vision of the cosmos, in the relation, between the man and the nature that surrounds it (Columbia University, 1988). One of its founders, the philosopher Zhang Zai (1020-1077), Commented "heaven is my father and the earth my mother and even a being as small as I find an intimate place between them" (Yao, 2001).

Religious syncretism

Although there is a "religious syncretism" in Taiwan, which combines traditions of its early settlers, with Taoists and Buddhists, the importance of Confucianism is as evident as real, appreciated by the great majority of its inhabitants. A proof of this, in the Island, until 2012, there were 13 official temples of Confucius, one of them is in Tainan, that rose in the year of 1655, during the last Dynasty, the Qing (1644-

1912). It is chosen by all its leaders, from the time it was created, which includes eight emperors and all the Presidents, after the end of the Second War, to place a "Spiritual Tablets" on its ceiling, with a verse of four Chinese characters; where the leaders express, under the Confucian vision, the political approach that characterizes it. This, before the Taiwanese people, not only legitimizes them, but also achieve the acceptance of their nation from the depths of their heart (Taiwan Today, 2012).

EARLY INSTITUTION, ON THE ENVIRONMENTAL THEME, FROM THE CONSTITUTION OF 1947

Human sensitivity to the environmental issue has begun to engage States since the 1972 United Nations Conference on the Human Environment

or Stockholm Conference. Environmental changes are manifested through the establishment of semi-independent state agencies with long-term public policies.

Another element very typical even today, even in its political majority, shows that it can be an effective State, by strictly meeting its objectives, goals, and an efficient State, by increasing achievements, period by period, in full was the Taiwanese industrial take-off. The empirical evidence marks these advances in the Island. When the Taiwanese state took off in 1947, the new constitution came into effect; in addition services associated with health care and prevention activities explicitly include the promotion of "environmental sanitation", and is beginning with the Department of Health.

The strategy continues with the Second Four-Year Plan (1957-1960), in the sixties, when the Island built five Industrial Parks. There was no

location and comprehensive spatial strategy, which would locate the first large factories, seeking thereby to minimize the impact on pollution (Bustelo, 1994).

Topics, water, garbage in your collection cycle, air condition and noise impact. This environmental take-off is not alien to a reality, the agrarian condition of the island, which left the export path as the basis of the model, a fact learned during the period of Japanese colonialism (1898-1947). In 1950, about 90% of its exports came from the primary sector; more a decade later 1960-1964, its participation was around 60% (U.S. Congress, 1995).

Environmental public policy has the strong support of the Executive Yuan and the Department of Health, which establish the Environmental Health Division in 1971. With this, the country is moving towards a long-term solution, dealing with specific issues of the sector, such as the impact of pesticides, the use and management of wastewater, regulation of "Food Processing Plants".

Understanding the importance of water, the Ministries of Economic Affairs MOEA (1931), established as a specialized office, the Water Resource Integrated Planning Commission (Environmental Protection Administration Executive Yuan R.O.C., s.f.).

The Executive Yuan, "Environmental Health Division", the Department of Health, established the "Office of Environmental Protection", which since 1979 was responsible for environmental health and pollution impact, which came from that exponential business-industrial growth, the environment is such that this industrial expansion led the country to average growth levels of 7.5% in the years 1981-1985 (Kuo, 2015).

In 1983, thinking of concentrating water problems, their toxicity and waste treatment, these tasks were handed over to the "Office of Environmental Protection"; A year later all cities, assigned to a Health Office, to receive and manage urban cases associated with the environment (Environmental Protection Administration Executive Yuan R.O.C., s.f.).

In 1987, the Department of Health, the Executive Yuan, and the Environmental Protection Office launched the "Environmental Protection Administration" or EPA, which is responsible for public environmental policy, the standardization of processes, monitoring and inspection and the derived regulations. This led to the creation in October of that year of the First Comprehensive Plan for Public Policy: the "Guidelines for Environmental Policy at the Current Stage" (Ho, 2013).

In order to centralize and return effective, it is assigned seven specialized departments: Sanitation and handling of toxic substances, integral planning, environmental monitoring, air quality protection and noise control, monitoring and evaluation of dispute resolution, protection of Quality of water and the key to an objective public policy, its Information Center (Table 2).

Another important element, at this stage that establishes the institutional bases, was to create decentralized agencies, which from the big capitals,

develop local plans and programs, integrated with national objectives. In this regard, it is important to appoint the Administration of the great port of Kaohsiung, which delegates concrete actions to its departments. The Department of "Cleaning Management", integrated the tasks of collection and management of garbage and water drainage, creating comprehensive programs, in the late seventies was its Environmental Department who integrated these tasks. For its part, the capital, establishes the "Water Pollution Control Institute", which deals with wastewater and even, the own investigation on the subject (Ho, 2013).

Thanks to these developments, between 1988 and 1991, a year before the United Nations Conference on Environment and Development, from 3 to 14 June 1992, the country was able to form Offices in major cities, specialized in the themes local and integrated with national policies that protect the environment (Environmental Protection Administration Executive Yuan R.O.C., s.f.).

Taiwan, environmental paradigm to reference

The analysis seeks the basis for why Taiwan has been a global reference in Clean Industry for Asia since before the United Nations Conference on Environment & Development (1992) for America Latin and much of the world today.

The main reasons are as follows:

At the end of the eighties, there is already a legal norm, clear against the chain of recycling, which towards the nineties determines the creation of the "Recycling Fund Management Board"; since the beginning of the nineties, categorize products according to their environmental impact with their "Green Mark Program", even those from entrepreneurship projects and since the middle of the decade, strict rules have been established against pollution generated from the factories that looked for zones of "zero pollution"; in the millennium there is a traceability to processes that generate advances in the face of environmental impact, from the company to the academy, the health sector, even from the State itself, and its companies; At the end of the second decade, it is included in the "Clean Industry" value chain, to the stores, which due to their coverage (first in the world) and social impact, are decisive in this purpose, recognizing them for their achievements through the program "Green Store", of which brands of final goods and suppliers are part; beginning the second decade of the millennium, its zones of "zero external pollution", became a purpose within the companies and their factories; its institution of commercial promotion in the world TAITRA, launches the "Taiwan International Green Industry Show".

This Island is decisively determined to be a global paradigm in clean sources of clean energy, which feed your company, today with 70% of the production of

electronic circuits in the world and about 80% of semiconductors, for this between 1995 and 2015, in these twenty years, it became the second producer of solar panels after the People's Republic of China, all over the world, which will take it to the year 2015, to replace its nuclear energy with clean energy (Mathews, 2016).

These results are the ones that now, chronologically and from all possible sources, have made this model of "Clean Industry" a global reference that in several of its parts we will work in a specific way, in this document, from now on.

The objective of Clean Industry is addressed from different fronts. In 1992, the "Green Mark Program" was established by the State. With the same, it addresses the "labeling", establishes 112 categories of products, where they go near 6,000 tangibles. The interesting thing is to list some categories, to observe the impact and progress in the specificity of the environment: building materials (since 2004, with the support of the Chinese Architecture Center), Office and Equipment, cleaning products, products destined to the energy saving, coming from the subsector productive of the Information and of the branch of the Electrical Appliances.

For the millennium, the State seeks to prioritize socialization and environmental awareness. In 2002, the EPA Government announced 43 categories from which to lead the work, in areas such as academic (colleges, universities), companies and hospitals, owned by the State. The process was integral, it was decided that the purchases of its inputs, be of those with the label "Green Mark" (Public Construction Commission Executive Yuan, s.f.).

For 2007, the EPA includes its "Green Stores" program, which demonstrates "Green Store Best Practices", which includes marketing its products, thereby seeking to include "local retailers" in retail chains with the support of the local Environmental Protection Offices. In 2009, included the Back Office of the processes, seeking that the value chain, ensure the use of "Clean Technology", which discarded the processes "in situ", already audited (Table 2).

Air pollution following the Air Pollution Control Act (APCA), in 1995, promulgated the "Air Pollution Control" (APC), and sought, pollution control from, cars, factories and constructions. However, the idea was more ambitious and aimed to create zero-pollution spaces, areas known as "Clean Air Zones". This idea takes off in the second part of the nineties, becoming a reality during the millennium, planting trees in particular spaces, thus generating green and sustainable solutions (Public Construction Commission Executive Yuan, s.f.).

As a world example, at the beginning of the second decade of the millennium, we opted for a higher objective: zero indoor pollution or Indoor Air Quality (IAQ). To do this in 2011, it enacted the "Indoor Air Quality Management Act" with the support of EPA (Environmental Protection Administration Executive Yuan R.O.C., 2012).

Technology and citizen culture, basis of credibility and reliability

Entrepreneurs or involved in the processes like "Green Mark", local and national programs, have pages of the State, where they are inscribed in the same ones at specific level. In these pages, advances, quantitative targets against achievements, purchases of inputs with "Clean Technology" are pointed out.

Here we find, with one of the social skills of the Taiwanese people, the "good faith" of the citizen, because it is rare to find that statements of this nature are false, which includes information provided versus results, beyond Of the drastic measures that the offender can face (Green Loiving, s.f.).

Formation of networking's with the participation of the citizen, company and state

With the aim of promoting the best advances in Clean Industry, in 2009 the "Taiwan International Green Industry Show" (TIGIS) is launched. The same is done with the support of Taiwan External Trade Development Council (TAITRA), arm and support in relation to promotion, national-international Networking structure, specialized training, and pursuit of greater competitiveness, Taiwanese business structure, inside and outside the country (Show, s.f.).

These processes do not imply raising taxes, to support them, the Taiwanese, from specialized Associations, with establishment of Funds, which cover their maintenance, and bring, who benefit, clearly from the value chains involved.

The Waste Disposal Act (WDA) has been, since its creation in 1974, the standard that established the rules of the game on the subject of the recycling cycle. In addition, with a significant contribution, it typified the different types of waste, which allowed them to recognize and regulate each one (Table 2). The existence of two large groups was determined: "Industrials" are general, random, those that are forbidden to "import", and those that will be part of an additional process of transformation. The second group, are the "Generals", known as General-incinerated, and by this additional process that consists of burning them in special public "chimneys", they are prohibited for their mobilization (EPA, 2012).

In a modification of the WDA standard (A10-1), made in 1988, established in this sense that importers and manufacturing companies had to form associations, aimed at managing recycling. Another change made to the WDA in 1997, establishes the "4-in-1 Recycling Program," this formalizes the recycling operation, seeks to generate its own resources, to make the action sustainable, without being an additional tax burden. It is now the EPAT Agency, which creates the "Recycling Fund Management Board" (RFMB), its role, to administer

the "Recycling Funds".

To obtain their own budget, importers and companies were asked for a "Recycling Fee", their specific destination, to oxygenate a "Recycling Fund" that will contribute to the processes derived from recycling and for those Firms, who obtain their license to carry out these tasks, according to the national standard and the tutoring of EPA Taiwan Agency. Without neglecting this cultural change, a slogan was applied, worked in every public place, from schools, public and private offices, as a social educational contribution: "reduce, reuse (circular economy), recycle."

In 2005, a program was launched against collection; it was called "Separation at Source Legislation". With two phases, it managed to regulate the separation of recyclable waste, food and waste from food, included specifying the freedom for cities to set spaces to recycle and sell them (Allen, s.f.).

From then on, the whole society was involved: in the two years to be followed the use of disposable plates and glasses in State Colleges and Agencies was prohibited; it was sought to regulate the packaging of food, cosmetics, CDs, alcoholic beverages. Since 2007, a plan was signed with supermarkets to reduce the use of plastic bags gradually to 2011, starting with 15% and reaching 35%; in 2009 EPAT was able to sign an agreement with the five largest PC-producing companies so that in 2009 they would eliminate 3,700 tons of computer waste (TEPA, 2010). It was sought in 2008, very within the national culture, that both, convenience markets and coffee shops, will deliver "Chopsticks" disposable and in a single opportunity, achieving in 2008, reduce 350 tons in waste from this Taiwanese and Chinese cultural tool (TEPA, 2010).

Beginning in the second decade of the millennium, the government regulation compares and recycles purchased electronic material, where marketers, after the finished product life cycle, undertake to return to the final recycling cycle of this material. On the other hand, traditional recycling options were left, but controlled by the government (Table 2). It is the case of the boilers or incinerators of the same and under state permission, there were 24 in the country to the 2010: 40% of the material burned was destined to industrial waste and the rest, municipal waste of solid material (Allen, s.f.).

The basic phase of collection today, has its garbage collectors, arriving at pre-established corners, where they carry a team of trucks (two); locating them in time and space, can be done through "apps", mobile-readable. The back truck for paper (newspaper and magazines, white), the color horn, warning the arrival at the collection point, people carry their bags, certified by the government: red (food waste), blue (vegetable waste), commit registered infractions, have fines from USD \$ 184, representative, understanding that it has been, close to something less than a third of a monthly minimum wage. This "Networking-social", has led in 2015, at

recycling rates, 55%, only comparable worldwide, with its neighbor South Korea and traditional in this sense, Germany and Austria (Chen, 2016).

The country became, in the second decade of the millennium, one with the lowest rates of waste generated per day, for each person: to create 1.14 kilograms per person in 1997, was changed to 0.38 kilograms in 2014, that is to say a reduction of 300% (Executive Yuan Public of China (Taiwan), s.f.).

INTERNATIONAL COOPERATION AND CERTIFICATION, FORMATION OF INTERDISCIPLINARY TEAMS

The EPA signed an agreement with the American Institute in Taiwan (AIT) for the year 1993. Since then the AIT has replicated and continuously demonstrated its decades-long experience in Africa, Asia and the Pacific And Latin America, establishing with it, a basis of "good practices" (EPA US, s.f.).

In another front of the subject, Taiwan decides to adopt since 2001, the norms of "Energy Star Label". Applied since 1992 in the U.S., they seek to reduce the energy consumption of tools, such as PCs, servers, lights, household appliances, imaging equipment (photocopies), construction, refrigeration and heating (EnergyStar, s.f.).

In the use of photovoltaic (PV) energy, today it is based on mega projects, in countries like the United States, continents, as in Africa, Europe, and Asia, where they look for as in Taiwan surfaces that do not affect the balance Environmental, recommending for example spaces to the borders of the railroads or that are not suitable for crops. Since its business unit (AbylTek Co. Ltd., KY Solar, Botian, Ltd., LIGITEK, Speedtech Energy, Tynsolar, etc.), it has used its large companies, which are considered as the largest manufacturers of contract chips, DRAMs, Semi-conductors, in the world, thus have generated a robust industrial sector (Crook, 2016).

Converted energy needs, in options of technologies of low consumption and very low environmental impact

Another source of pollution, from the industry, transportation and housing in general, are the fossil, energy sources. With the impetus of the "Renewable Energy Development Act" of July 2009, the State has from this law, the Ministry of Economic Affairs (MOEA) and its Bureau of Energy (BOE), which supports the technical part, installation, dictates (by 2015, only 2.3% are left out), and implementation of photovoltaic (PV) energy.

The results are remarkable to October of 2015, it was passed in 2009 to produce 9.5 to 728.5 mW, that is to say an exponential growth of 76 times the capacity, in 6

years, between the year 2007-2011, went from the fifth position, to second largest producer of solar panels, to date, is only surpassed by the PR China. Business modalities, to facilitate the implementation of this technology, have many options. One of them, is that the owner of the property, does not need any money for the installation, the company guarantees you between 6 and 8%, of income that comes from the sale of that energy created and sold to "Taipower," Signature of the State created in 1946, in charge of generating energy for the country (Table 2). The agreement will have a 20-year maturity, regardless of future owners, because in Taiwan, the term is contemplated in agreements between private bidders and the State Energy Firm (Crook, 2016).

The "Photovoltaic (PV) Industry", to 2015, has four segments: 59.1% from the subsector produces silicon cells; 22.7%, Wafer production; 12.5%, of photovoltaic material and 5.1%, with the production of silicon modules. It has achieved in this sense a whole chain of value from Firms that produce pieces of microelectronics, to Firms that produce, design, innovate, and look for markets, against the PV. On the other hand, it has managed to channel two markets, India and PR China, as its largest demanders (National Development Council, 2016).

Another source that favors the Industry and applicants in general is the Wind or "Wind Power" field. The "Renewable Energy Development Act" seeks to substitute in the two decades to follow the dependence of nuclear energy and import, fossil fuels, led by gasoline. In 2014, it was possible to reach about 354,000 homes with this clean energy source, achieving a reduction of 776,000 CO₂ emissions that year (Executive Yuan Public of China (Taiwan), s.f.)

Purposes through public-private initiatives of international scope

There is always the idea and public management, in terms of seeking international alliances. They seek, consolidate innovative products of Taiwanese companies and / or, transfer of technology in two ways, and generate income to companies, universities of the Taiwanese State, to replace those generated through their current income: taxes.

The company with the highest sales in the world of motorcycles, the Japanese Yamaha, will begin a strategic alliance with the Taiwanese company Gogoro, which manufactures electric motorcycles since 2011. This business synergy will allow Keiretsu Yamaha to design the new versions, and Gogoro, make them for the island (Table 2).

This Taiwanese company has a disruptive innovation which gives a representative comparative advantage, its batteries are rechargeable in more than 750 points distributed throughout the island, with the alliance will reach about 1,000 points. The owner of the motorcycle,

stops at the respective point, lifts the seat and from there takes out the discharged battery, places it in a "panel" of charge and changes it to another one that is inside this same panel, which is already loaded (NOTICIAS DE TAIWAN, 2018).

However, once again, the government is an integral part of this strategy that seeks to replace all motorcycles that use gasoline. Public policy part of this line from The Industrial Development Bureau (IDB), promoted by the Ministry of Economic Affairs (MOEA), they have established aid to companies that, apart from Gogoro, produce this type of motorcycle and have worked on advertising so that each time they buy this type of vehicle, which minimizes the environmental impact. The amount of aid given to this type of company has grown nearly 250%, in what is going through the year 2018, compared with these same aids given to the company in 2017, which explains why this year, the number of license plates for this type of motorcycles on the Island is already doubling. Companies like, Sanyang Motor Co. (SYM), China Motor Corp., Kwang Yang Motor Co. (KYMCO), already have several lines of motorcycles under this same technological scheme (NOTICIAS DE TAIWAN, 2018).

CONCLUSIONS

The conclusions confirm that the same document, in its first part, as the "World Environment Agenda", is the roadmap that countries should take to integrate themselves into the structuring and application of "green policies," with objectives and global goals, given that the impacts are not purely regional, but basically international.

To enumerate, trafficking in endangered species, illegal and massive hunting in some cases (the red macaw, toucan, jaguar, etc.), waste of water, accompanied in many parts by an old infrastructure of public services, from the great cities of Sao Paulo, Santiago, the Federal Capital of Mexico, the greenhouse effect, by excess of gases from CO₂, in large cities, illegal mining, which has in Colombia and Brazil, transgenic crops in Brazil, Mexico and Argentina, deforestation in one of the lungs of the world, the Brazilian jungle (Agencia Latinoamericana de Información, 2015).

The environmental situation has obviously become an indivisible part of the global agenda, a process led by more than four decades by the United Nations. It is enough to observe the basic "jurisprudence", that in the environmental theme, established in the twentieth century, to defend itself against the depredation and insensibility of the world society in front of the subject.

This action, often irresponsible, has helped to generate the so-called "Climate change", manifested by the rapid rise in temperature in the last decades and its consequent effect on the poles and the life of all nature.

To adapt to this cruel reality, the effects are more and more disastrous, since the "glaciers", present at present a significant setback in the whole world. From the same Andes in South America, passing through the European Alps, the visited Rocky Mountains, the north-western United States, the Himalayas, the heart of Everest and Alaska, the damage in their levels before perpetual is evident (Center, National Snow & Ice Data, s.f.).

According to studies, the temperature has increased significantly since 1880, with inflection points since then (Crudata, s.f.). For example, two decades of high temperatures have been detected since 1981. Today the alarms are kept on extreme temperatures, recognizing that a downward point was achieved, from the impact of solar effects, in the period 2007-2009 (Al, 2009).

On the other hand, this document draws attention in this model reference from the China-Taiwan Republic. Having a moral reference for this society, since *Confusio*, who understands and interprets the environment, as part of personal balance. In the case of Taiwan, has served to lead from the State itself, processes of this nature and believe in them, as part of the "personal balance" and social. We need leaders in Latin America who believe in these processes and who, beyond their political interests and personal image, manage to form interdisciplinary groups that guarantee the application and fulfillment of achievements and objectives, beyond the presidential periods, but as part of a moral commitment with their voters, and with the new generations, who deserve to have a habitat full of hope and alternatives of coexistence.

It is important to recognize the "precocity" that the island has in terms of environmental issues, this allows it to have more than seventy years and a learning curve, which allows it to count today, with a Human Resource that has lived through the different stages of this Policy Public that until today is integral with education and business. In 1947, even when it was in the process of civil war, its public health policy included a section for the promotion of "environmental sanitation", a program developed by the Ministry of Health itself, which gave it participation in the Executive and the Yuan of the country from the beginning. His interest in solving and proposing an exemplary management in the world, led to Taiwan, since 1988, three years before the Earth Summit, made by the United Nations, has built a national network of local offices, specialized in detecting and proposing policies regional offices in all the major cities of the Island.

On the other hand, this policy is integrated into the quinquennial, quadrennial plans of the country, which since the early fifties has become the "roadmap" of the objectives and goals of each government, as of 1953. This procedure, in the second five-year Plan (1957-1960), has achieved that in the environmental issue, guarantee human and financial resources, allowing to achieve goals and objectives set, regardless of the new

government of the day, nor its purely political interests, nor its ideologies.

The global situation shows that we must have as a global objective the care of the environment, from the industrial, but as it was observed involving a culture of respect for the care of the same. This Taiwanese paradigm, makes us see, how respect and belonging to the environmental issue, should start with the education of children, of an integral type, that is, it must involve both minors, as well as their parents, who must be observers of achievements and guarantors, that is, that the classroom is the laboratory, where the rules aimed at rescuing are met, a "green conscience", with the tutoring and continuous counseling of its professors.

On the other hand, the Taiwanese paradigm, public policy, successful, is because, in large part, it is possible to involve the different levels of society, under one principle: good faith. The State should not become exclusively an "Environmental Police", but, who periodically reports and revises the achievements, the objectives. Successful green public policy, is clear transparent, non-discriminatory, has simple but strictly enforceable objectives and goals. Taiwan is a global example, with a great macroeconomic reference for Latin America and its Ministers of Finance: the only way to fund these processes is NOT raising taxes, which can ultimately damage the degree of ownership of these policies, the citizens will see it as punishment, retaliation to favor "other" political groups or, to continue to cover embezzlement for the misuse of resources.

Public policies in their application and management in Latin America, have an intrinsic problem. Its application implies an increase in national or regional taxes, even local taxes in cities. This phenomenon, because the studies and plans have been years with a "costing" at prices that at the time of putting it to march implies adjustments for accumulated inflation and "extension of the contract", new suppliers, close relationship of contractors with the new government party. However, the application of economic policy, associated with the management of environmental public policy, has a "new recipe" Taiwanese style, which does not imply an increase in taxes, but a financing for environmental services rendered.

Since the year of 1987, the "Environmental Protection Administration" is created by its acronym EPA, hand in hand with the Department of Health and its own, Executive Yuan. Your role is to lead the public policy of the environment. One of its tasks is to monitor the money funds, fed by the associations of entrepreneurs that participate in the value chain of garbage, through the "Recycling Fund Management Board" or RFMB. These resources, not only for these companies, but for society, at the head of their schools, universities, families, serve to maintain publicity and continuous education, of the proper use of waste, as a healthy life reason for all. In addition, these monies enter the RFMB, which complies

with the established short and long term goals of this public policy, and even helps to reward and recognize achievements in this area, from the part of the entrepreneurs that develop business strategies, aimed at minimize the environmental impact.

It is a Taiwanese tradition, to have management references, searching the world for the best representatives of each practice. For example, at the end of the 1950s in 1958, Wall Street officials, supervised, to achieve the establishment of the Stock Exchange. In 1961, the "Measures for Administration of Securities Dealers" was issued, with this governmental support, as a result of this counseling, the operations on the stock exchange of its operators and customers are monitored.

The government of the United States, through the "American Institute in Taiwan" or AIT, since 1993, signed an agreement with the Government of the Island, its commitment was focused since then, in sharing in this area, all experiences in the form of "good practices" developed in the rest of Asia, Africa and Latin America itself. In the same vein, in 2001, the government as a national policy, adopts the standards known as "Energy Star Label", which in the United States since 1992, sought to minimize the use of energy in household appliances at home as in the office, like, Servers, PCs, lights, photocopiers, refrigerators, among others.

The need to create an environmental strategy, did not leave aside the thinking more than 25 years ago of the need to establish product categories, due to their own chemical characteristics, after entering the market. From the beginning of the nineties, around 1992, the need to categorize the products was thought, so that in this way, programs could be developed according to each category, understanding that each one has its own characteristics in its decomposition, use and effect on the environment. In this year, the "Green Mark Program" was born, recognizing an area of construction products, energy, office and equipment and clean products, thus facilitating their treatment and assessment given their work environment and life period, after disposal.

One of the greatest achievements of this environmental example comes from its social capital, since the Second World War it has been possible to build social competences, associated with caring for the environment, from all strata, companies, state agencies, which always seek to act looking for this ideal of caring and acting collectively and individually, seeking this better environmental living. To exemplify what was said, in the year of 2007, the "Green Stores" was established by State initiative, recognition extended in 2009, to that related in this sense from the same "Back Office". With this program, it is sought to highlight the "good practices" that in this area, these commercial units make in their retail sales points. These processes include from the same advertising campaigns, through its management "in situ" with your client, who not only motivate these practices, but also provide a healthy environment, not

even in packaging, the product itself, recycling inside the store, generate or inset damage to the environment.

The garbage collection process is not only a global example, compared to the "division of labor" involved in it, where citizens participate by depositing, monitoring and demanding proper use of packaging according to the type of garbage and care of the placement of garbage. The same. Also, the same process of appearance anywhere, seeks to turn this action into a pleasant and friendly activity with the participants. Normally, a small caravan of trucks arrives, two of them, which can be located, through an "App" that starts from giving the route, parking spaces, establishes schedules, of their arrivals, and collection offices, as process times. Like everything Taiwanese, with schedules fulfilled sacredly. In addition, one of these trucks, which has two operators, remembers his arrival accompanied by pleasant music and recognized with melodies, many of them national, which invites to place, people, their waste, in bags, which can be vegetables, meals, solids, in bags certified by the same Taiwanese State, in its quality and technical dimensions.

In a report last May, made by the World Health Organization, "taking as evidence what happened in recent years (2008-2016), in 4300 cities, from 108 countries, of the nearly seven million deaths, whose origin it is the pollution, around 60% of them, come from Asia (Organization, 2018). It is evident the environmental damage and more in the air that is breathed in the whole world, but more in this Continent. For this reality, more than two decades ago, once anticipating any urgent action in the world, Taiwan in 1995, innovates as always in terms of effective public policy, establishes a standard of "Air Pollution Control", aiming for "zones of zero pollution" or "Clean Air Zones". Always, breaking the limits of quality and innovation in public management, at the beginning of the second decade of the millennium takes a step above the standards and levels of global demand: the establishment of "zones of zero pollution within constructions" or "Indoor Air Quality".

The Taiwanese, like the Japanese and in the last decade, the Koreans and the Chinese people, have always been clear about the need to "copy" good practices, but if they come from the best exponents in the world on the subject. So Deming, Joseph Juran, Alex Osben, contributed to create the Japanese Quality Model itself, later considered the best in the world, ten years after ending the Second World War, which took place in the Japanese Union of Scientists and Engineers (JUSE) from 1949 until today as its maximum organism.

From the view of Deng Xiao Ping, the highest Chinese leader who led China to become the "Factory of the World", at the end of the seventies, to the industrial plant of Toyota, in 1982, during the XII Congress National of the Chinese Communist Party in 1982, proposed the establishment of a Socialism with Chinese characteristics, a hybrid form between Socialism and the Market Economy, known as "Market Socialism". In the

same way, the Taiwanese create the "Environmental Protection Administration Executive (EPA).

Finally, the countries of Latin America, bordering on the tropics of Cancer or Capricorn, have sun all year round; the only country that has no outlet to the sea is Bolivia; almost all countries have coastlines; that is to say, cleaner technology, such as the use of wind energy, solar energy, more research on adapting or creating its own clean energy sources should be used, which will also fuel the company's energy consumption; Research and Development and new patents should be facilitated and motivated in the face of these mechanisms to improve the relationship of industry and society with their scarce assets.

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APPENDIX A

Type of disaster

There are different types of disasters, with different criteria to differentiate. However, this Appendix A will use the criterion centered on the origin of the same, whether it is caused by the Man's Hand or, is a product of the Natural Forces (RESTORE YOUR ECONOMY, s.f.). According to the same, we can list the following, first Natural Forces.

Diseases and pests in agriculture: It refers to processes related to diseases - pests, which attack the fauna, vegetation, flora, in general and the processes involved, the monitoring, prevention and eradication of any of these modalities that attenuate the natural balance. This includes from the immediate to the long term, depending on the incident, to create programs, plans, to control or prevent the generation or extension of each of these eventualities as diseases and pests (USDA, s.f.).

Damage and effects by strong winds: This type of natural event, refers to those winds that exceed speeds between 50-60 mph. Damage on land, which covers not only the central action of the same, but in its vicinity, both materially, vegetative, animally and humanly (NATIONAL SEVERE STORMS LABORATORY NASSL, s.f.).

Hurricanes, typhoons, cyclones: There are some modalities in the face of these strong winds: "tropical cyclones", formed by the confluence of moist air currents and warm air, which when rising on the ocean, in this process leaves less air on what is the surface, in as this air begins to cool, the water that mounts from the ocean, in the form of vapor, is combustible to form clouds; as this rotating mass grows, thanks to the heat of the ocean (above 27°C) and the consequent water that evaporates from it. These formations generated in Atlantic and Pacific Ocean waters, on their eastern side, are called "Hurricanes."

If these formations are generated in waters of the western Pacific Ocean, it is called "Typhoon"; are known as "cyclones" when they are located in the waters of the Indian Ocean and pacific south side. This process in its damages, from prevention, to the protection of occupants of occupied lands, which are usually devastating in their path, in front of everything on the surface, this implies plans to recover from the immediate too long term, against material damages, vegetation, animals, people (Federacion Internacional de Sociedades de la Cruz Roja y de la Media Luna Roja, s.f.).

Drought and water shortage: It implies, problems related to periods of drought and therefore water scarcity (Informed, Drought, s.f.).

Earthquakes, strong earth movements: It refers, to strong movements of the earth, that when shaken, it generates superficial damages, of high consideration, in small or large extensions (Ready Plan Stay Informed, s.f.).

Tsunamis-cystic waves: The same is manifested by the creation of very large waves whose origin in the sea, can be: landslides in the marine layer or on the coasts, eruptions of marine volcanoes, the fall of a meteor, earthquakes at the bottom of the sea. Its first strong impact affects areas within a mile or 25 feet above sea level. Their effects depend on the magnitude of the waves, but range from total material destruction, floods, collateral damage such as obstructions of access roads or fires due to pipe rupture that transport flammable material, contaminate waste and salt water with landfills or water wells Drinking, breaking of dams. Like other phenomena of this nature, the process includes follow-ups, alerts, and plans as contingency programs for damages (Informed, Tsunamis. , s.f.).

Extreme heat: This phenomenon can create additional effects such as excess humidity and with it, evaporation processes, melting of the ice, both of the poles, as well as in the mountains, with perpetual snow or forming, snow can enter. Equally, refers to the accompanying process to these phenomena, which follow the temperatures, establish alarms, and care pertinent for humans, plants, animals, for high temperatures (Informed, Extreme Heat, s.f.).

Forest fires: It is the creation and propagation of forest fires, by natural action: excess heat, drought, and lightning in the midst of an electric storm. The maximum conditions of danger in these events usually manifests in the period between 12 to 72 hours, after the start of the fire. Included are contingency plans for the community, both evacuation and prevention of this type of disaster (Informed, Wildfires, s.f.).

Floods and sudden surges: The most common origin, are the rains, but also count on other sources: when the snow melts in the mountains; because, a dam breaks or touches to leave large amounts of water of the same, by the levels; there is also the entry of sea water to the mainland, above the normal or daily level of the waves. The increase in size,

impact and time differs from case to case. Attention is drawn to those sudden surges, because they are the product of joining several confluents, which at the same time constitute a force of great immediate impact and often impossible to prevent (NATIONAL SEVERE STORMS LABORATORY NSSL, s.f.).

Hail: They are product of the freezing of the raindrops, that ascend and in doing so to zones of low temperature they freeze. Depending on the size of the "hail", and force of fall, it generates damage to the vegetation, sowing, crops, breaking or burning vegetation, by the temperature of the hail balls. He can mistreat all kinds of cattle. The same can cover the drains of houses, buildings, streets, and cause accidents because while it thaws, the surface becomes slippery (NATIONAL SEVERE STORMS LABORATORY NSSL, s.f.).

Electric storms: Another form of large water discharges, accompanied by precipitation and lightning, from which the famous "thunder" is heard. Its "gravity" condition is given by "tornado" tempest levels, which go hand in hand, with winds reaching speeds of "50 knots or 57.5 mph". These phenomena, sometimes part of fires, tornadoes (accompanied by winds with speeds up to 300 miles per hour), hail, or create floods, landslides, and even, can generate discharges that kill people, or, total or partial material destruction (NATIONAL SEVERE STORMS LABORATORY NSSL, s.f.).

Landslides: It has several sources, which can mobilize, slide, large volumes of debris, rock, earth, building material, plant material: volcanic eruptions, earthquakes, storms that can also be accompanied by accumulation or water depletion, storms that can be source of the previous one, thawing of mountains with perpetual snow. It includes preventive actions, in areas where there have been deforestation, drought and tree felling, in nearby areas, where these phenomena originate, such as river banks, canyons, coasts in general, mountainous areas. The measure that collects material along its path and depending on the speed can generate a greater or lesser impact (Informed, Landslides & Debris Flow, s.f.).

Winter and snowstorms: There are mainly two types of precipitation: freezing rain and snow. This creates a state of cold, both on the ground and in the air, generating very low temperatures (freezing water), which can create damage to all living things and of course, all the material infrastructure that supports temperatures or many times, the weight of the snow, the height of the snow, the associated visibility and the stability of the living or material objects, making use of surfaces that are covered with snow (NATIONAL SEVERE STORMS LABORATORY NSSL, s.f.).

Sinks: It manifests itself through a collapse of the earth, of the earth's surface that it soothes, leaving a hollow, whose size, depth depends on the layer that initially occupied this space and now, is dissolved. This can happen because, precisely, this layer that originally occupies this space was saline, limestone, coal rock, which, upon permanent contact with groundwater, dissolves in it, like an Alka-Seltzer in a glass of Water (The USGS Water Science School, s.f.).

Biological weapons: From the storage or cultivation of live agents in the form of germs or any biological substance (toxins, bacteria or viruses), which can cause illness or death to persons. Many of these agents can be transmitted by the action of other animals, which may be mosquitoes, fleas, flies, rodents, and some farm animals. Other means may be mechanical, such as aerosols; also can be spread, by the way of the water or the same foods that are watered with these polluted waters. Many of these pathogens can infect living beings through other living things, whether domestic animals or the same people who have been contaminated (Informed, Biological Threats, s.f.).

Chemical threats: It is all those chemical agents, made by man, that attack the life of plants, people or animals themselves, from domestic, to wild and insects themselves. Its lethal effect can be effective, from the immediate term to deadlines that can reach the days. Although its production is usually complex, its components, the modalities to release and to get the contamination with these agents are diverse, mechanically they can be present in aerosols, liquids, level of vapors, solids, all, that by their contact Affect health. Their sources are diverse; they can be of biological, nuclear, chemical and radiological source (Informed, Chemical Threats, s.f.).

Unrest, social manifestations: When a group of people consider that their rights, points of view, needs, have been violated, they group together to manifest it publicly. However, many of these events end in confrontations, where parties, protestors and those who wish to dissolve these manifestations, use mechanical agents to impose themselves, generating real environmental disasters and often fatal (Coittone, 2006).

High-impact diseases - pandemics, epidemics: Refers to actions aimed at preventing, but also at curing and if the case prevents further contagion in the population, from diseases, which then reach levels of epidemics pandemics (Pandemic, s.f.).

Cyber-attack: Today, they may be global in scope. Its effects are therefore unpredictable, when doing damage to files, reports, documents, even computer tools that are part of mechanisms of action, belonging to a machine, a robot, which is part of a process. The effects are not only environmental, due to the interrelation between processes thanks to information networks, but also to security, economic, social and personal. This aspect covers prevention actions, such as detecting attacks of this nature, as actions of defense against cyber-crime (Informed, Cyber Attack, s.f.).

Explosions: The explosion's purpose is to end lives of human beings, animal, plant and/or cause material damages. This type of action is done under all modalities, from action to remote control, to the use of immolations, through the use of locomotion vehicles loaded with explosives, luggage, mail envelopes (Informed, Explosions, s.f.).

Material accidents: All those actions that, in a non-voluntary way, end in an affectation to the environment, in processes of transportation, storage production, provision of a service, discharge of substances. The modalities are innumerable, but they range from losing control, on chemical, explosive, flammable, poisonous, heavy, passing through incidents in nuclear plants or, with radioactive material, that are poured or dropped in an uncontrolled way (Informed, Hazardous Materials Incidents, s.f.).

Nuclear explosions: An explosion of this nature generates a wave, which spreads around it radioactive material, and according to its degree of destruction all kinds of material which does not disintegrate initially. According to its capacity, the wave is also accompanied by intense light and a high level of heat (thermal radiation). In addition, above the atmosphere can create what is known as an "Electromagnetic Pulse", by its initials in English EMP. Its effect can be overwhelming, since all electronic devices will be affected by being switched on, or at the moment connected, with antennas, power sources, cars, planes, boats, motorcycles, electric bicycles, computers, cell phones, tablets, implanted devices, such as a mark steps, will be damaged, as it will act as a strong electric discharge much greater than a lightning, in a field of action comprised the 1,000 miles from where the detonation was generated. Another side effect is the known "Radioactive Rain".

When this heat wave is generated and forms an upward fungus, the particles then condense and precipitate to land, which can be in rivers, seas, dams, fields, etc. Depending on existing wind currents, its range is difficult to predict. These are clouds filled with radioactive particles, which are odorless, often hardly detectable to the human eye, but with the lethal effect of all kinds of life (U.S. Department of Security Homeland - FEMA, 2004).

Radiological dispersion pumps: It is the use of bombs that, when exploded, release radioactive material. At the global level and in the field of international security, it is known as "Radiological Dispersion Device" by its abbreviations in English RDD. Likewise, he is distinguished as "Dirty Bomb", also called "Dirty Nuke". The explosion, releases material, which by its radioactive nature, causes death to the living beings affected by the explosive wave; the effect will depend on the area if it is open or closed, the evacuation of the place, the wind currents. Its source usually comes from radioactive material other than plutonium and uranium, the basis of atomic bombs and comes from instruments used, industrial level, medicine, research (Informed, Radiological Dispersion Device, s.f.).

APPENDIX B

Concept of city

In the world, there are a large number of authors who have tackled the theme of the city, there are texts from the twentieth century to date, which allow us to understand that there are no great similarities and that the theme of the city can be approached from various fully valid criteria (Rodríguez, 2016).

Etymologically, what is a city?

The city concept comes from the Latin "civitas", which refers to the word citizenship where to follow a historical and based on texts that time investigated on order, citizenship is what makes the citizen which would guarantee certain full rights (BERMUDO, 2001).

The concept in Latin "civitas" refers to all citizens, where the word urbanism Latin urbs plays a very important role because at that time it referred to the city as such, the one built by the public infrastructure which as stated above it is what creates the concept of city or urban in Latin.

Prototypes for city watch

By verifying it in this way it can be said that the main aspect in a city is that it is clear its constant interrelation with its surroundings which must have premises; a great emphasis on social issues, environmental and economic value creation by means of their capacity to create, innovate and achieve self-sustainability which must be supported by government policies and legislation (JAPAN, 2011).

As it has been possible to identify the cities must tend towards a process of sustainability and mutual collaboration. As clear examples to be highlighted, cities such as Basel (Switzerland) where in 1998 subsidies granted by the government took the initiative to install covered over all buildings for a period of one year (Bataller, s.f.).

This city is Curitiba (Brazil), which is cataloged as the best in sustainability due to its transit bus system fast (BRT), and also with the first great pedestrian avenue of Brazil leaving her with a rating of "well above average" (Siemens, 2010).

On the other hand, Sao Paulo (Brazil) has made a great effort to generate electricity from methane gas that comes from landfills together with the case of Belo Horizonte, which according to the research carried out in 2010 by the Economist Intelligence Unit is a city Brazil as the leader in solar energy in Brazil and has a of 12 times more solar collectors per person across the country (Siemens, 2010).

In the issue of quality of life, there are cities that stand out; with the highest quality of life in 2016, will bring their first three exponents to analyze their actions (FORBES, s.f.). First is the city of Vienna (Austria). It is said that a primary factor in this city is citizen security accompanied by the price and the quality of housing. In second place is Zurich (Switzerland), in which it is validate the cost of the products of the family basket, the price of housing and pollution in general (MERCER, 2016). Finally, there is the Auckland, New Zealand who have as first characteristics the education, consumer goods and housing (BBC MUNDO, 2016).