

**Environmental Policy in Taiwan<sup>[1]</sup><sub>SEP</sub>- Content of The Research**  
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#### **References**

#### **Research Questions**

1. What are the bases of environmental policy in Taiwan? Can Environmental organization and legislation of Taiwan be a model for environmental organization and legislation of Turkey?
2. Taiwan Environmental Education Law imposes citizens to have an environmental awareness and be sensitive towards environmental pollution types.
3. What are the environmental protection objectives of Taiwan at national and international levels? What is the role of Taiwan to combat with climate change?
4. Which kinds of cooperation can be made for the solution of environmental problems at national and international levels between Taiwan and Turkey?

#### **Methods:**

The research will be conducted through academic books, articles, websites, laws, court decisions and some interviews with academics and public officials, political party members.

#### **Expecting outcomes:**

1. Most of environmental pollution types in Taiwan and Turkey are similar (such as, air, soil, water and noise pollution, climate change), so that solutions to these problems and environmental policies may be similar. Environmental policy and extensive environmental laws in Taiwan can be a model for Turkey in terms of protection and improvement of environment.
2. Taiwan's environmental education law and environmental education practice may be a source of inspiration for environmental education in Turkey.
3. Taiwan's efforts, objectives and policies in order to diminish the emissions of greenhouse gasses must be taken into consideration by the other nations such as Turkey, especially who are the members of UN, but who do not reduce greenhouse gases.
4. There may be a close cooperation between Taiwan and Turkey for the protection of environment at national and international levels. Turkey should benefit environmental information, laws-regulations, experience and pollution control technology of Taiwan.

## **Introduction**

The context of the study is limited with the environmental legislation of Taiwan in terms of the laws of Taiwan Environmental Protection Administration. There are many laws and regulations related with the other ministries and public institutions of Taiwan.

The basic argument we try to support with this study is that Taiwan has established extensive and effective environmental policies in a short time for the protection of environment which is destroyed by a rapid industrialization process; Taiwan has improved and looked through environmental laws and regulations over time and implemented them effectively. Taiwan also tried to monitor and evaluate her environmental policies as much as possible, and shared current environmental data with the public regularly.

Taiwan who has similar environmental problems (Air, water, soil, noise pollution, climate change) with Turkey, should be taken into consideration by Turkey in terms of environmental legislation and practice. Taiwan's knowledge, experience and technologies related with the environment can also provide guidance for Turkey. In addition, even though Taiwan is not a member of UN, it constantly updates its environmental legislation and policies especially for the problem of climate change within the framework of the agreements put forward by the UN.

### **1. Political, Economic, Social and Cultural Structure of Taiwan**

#### **1.1 Short Information on Taiwan**

Taiwan is an island located in the Western Pacific Ocean, 100 miles off the Fujian province of The People's Republic of China. Until the 17<sup>th</sup> century, while the Netherlands was a colony, aboriginal people settled in Taiwan. Then came the wave of Han Chinese (led by Cheng Cheng-kung) loyal to the Ming Dynasty. The Han had successfully repelled the Dutch, and in 1683 Taiwan was captured from mainland China by the Ching Dynasty. After the Sino-Japanese war in 1895, Taiwan would change hands again, and for the next fifty years it was transferred to Japan by the Ching Dynasty to become a Japanese colony. After the defeat of Japan in World War II, Taiwan was given to the Republic of China in 1945. Later Taiwan would be ruled for more than 50 years by political regime leaders belonging to the Nationalist Party (Kuomintang-KMT) who left the People's Republic of China after they lost the elections (Fan, 2019: 4).

#### **1.2. Political System in Taiwan**

During the period of martial law in Taiwan during the KMT period between 1950-1987, Taiwan experienced a rapid economic growth with industrialization (Fan, 2019: 4). Central government elections were held in 1991 and 1992 after the abolition of the martial law in 1987. During the period of martial law, when the priority was national security and economic growth, environmental quality was in third place and environment problems increased as a result. The KMT held power for over 50 years, and the Democratic Progressive Party (DDP) won the elections in 2000 and 2004; KMT took power again in 2008 and 2012 (Anonymous, 2019: 30-31); DDP won the subsequent 2016 and 2020 elections again.

### 1.3. Economic Structure of Taiwan

In 1949 when the Nationalist Party (KMT) came to Taiwan, the economy was depended on agriculture. Taiwan had an import-substitution industrial development policy in the 1950s. Since after the 1960s an export-oriented policy had been pursued. In the 1970s heavy and technology-intensive industries developed. After the 1980s as international trade improved, Taiwan's economy became as technology and capital-intensive one (Shih, 2002: 75).

After the World War II, Taiwan's economy began to transform from a planned economy to a market economy, accompanied by economic growth and rapid industrialization. In this process, the agriculture-based economy transformed into a service-oriented national market economy based on foreign trade and heuristic information technology (Yu and Kuo, 2015: 2).

Taiwan, which has an important share in the world especially in electronic products and technology, had a devastating effect on environmental values due to the economy-oriented policies followed for many years.

Taiwan is one of the leading creators of information and communication technology in the world. According to the World Trade Organization, Taiwan is 18<sup>th</sup> highest country in product exports and 17<sup>th</sup> highest country in product imports in 2018. Taiwan's gross domestic product reached US 25,004 in 2018 (Anonymous, 2019: 49).

Population (whole area) 36,013.7 (2018)

Taiwan Island 35,886.9

Population density 639.99 (2010)

Population density 651.68 (2018)

Source: Taiwan Statistical Data 2019 (ws.ndc.gov.tw, Visited: March, 13, 2020)

Table 1. Sources Taiwan's Economic Growth (By Industry)

Real Growth Rate (%)

	2010	2018
Gross Domestic Product	10.6	2.6
Agriculture	2.3	2.3
Industry	20.8	3.3
Mining and Quarrying	44.4	4.7
Manufacturing	22.7	3.4
Electricity, Gas Supply	4.8	1.4
Construction	13.7	3.3
Services	6.3	2.6

Source: Taiwan Statistical Data 2019 (ws.ndc.gov.tw, Visited: March, 13, 2020)

Taiwan has been adopting a New Economic Model of economic development since May 2016. In this framework, the new economy model aims to integrate industrial restructuring, national land use planning and regional growth strategies for sustainable development, while improving the use of green energy resources (Anonymous, 2019:

52-53, 56-57).

#### **1.4. Social and Cultural Structure of Taiwan**

In 2014, the government increased the basic education period from 9 to 12 years (Anonymous, 2019: 67). In addition, the literacy rate for over 15 years old is 98.9%, apart from that, a %20.9 share is allocated from the government budget for education, science and culture. There are 153 institutions (141 universities, and colleges, 12 small colleges) in the country for higher education. According to 2018 data, the number of students enrolled in higher education is 1.24 million (167,092 masters, 28,167 doctoral programs) (Anonymous, 2019: 69).

### **2. Definiton of Basic Concepts**

#### **2.1. Environment**

Environment is the sphere of interaction of living and non-living beings with each other and with their surroundings. There are three kinds of environment: the natural environment; the artificial environment and the social environment.

#### **2.2. Environmental Issues**

Main environmental problems are soil, air and water pollution, noise pollution, the protection of biological diversity, the protection of cultural and historical assets,

##### **2.2.1. Global Environmental Issues**

The most important global environmental problems as follows; greenhouse effect, global warming and change of climate, the destruction of ozone layer, deforestation and desertification.

In the last century, the carbon dioxide concentration in the world atmosphere has increased by one third and 85% of the energy consumed in the world is produced from fossil fuels. According to scientists, if emissions are not reduced by two-thirds worldwide, the level of greenhouse gases will double the pre-industrial Revolution level (Williams vee Chang, 2008: 67-68).

Human activities continuously affect the use of land and atmosphere; affect the balance of global energy directly or indirectly and accelerate the process of climate change. All of these strengthen the importance of achievement of sustainable development.

##### **2.2.2. Local Environmental Issues**

Environmental issues consist the negative effects that appear in the air, water, soil and destroys the health of living beings, environmental assets and ecological balance. Environmental problems are in general, air pollution, water pollution, soil pollution, the destruction of biological diversity, noise pollution, the destruction of cultural and historical environment.

#### **2.3. Policy and Public Policy**

Policy is defined as principles and action plan that forms the basis of decisions and activities. Public policy, is a managerial attitude taken against social problems (Kraft, 2007: 13). As the state is the main actor of the public policy, the main issue at this context is the question of how and to what extent the state and state institutions, citizens and communities will intervene in the political, economic and social life. The means and to what extent the legislative, executive and judicial bodies which take their sources from the Constitution at democratic regimes, intervene on social life constitute the basic framework of public policy.

## **2.4. Environmental Policy**

Environmental policy covers the diversity of managerial actions that affect or try to influence the environmental quality or the use of natural resources. It sets out administrative actions that affect human health and safety, energy use, transport, agriculture and food production, population growth, national and international security, and the protection of global, ecological, chemical and geophysical systems beyond environmental protection. Environmental policy is what governments do or don't do about environmental issues (Kraft, 2007: 13).

Sustainable development is also one of the types of environmental policy. The role of the state in balancing between the social, economic and environmental needs of the community in the long run, enables us to achieve the concept of sustainable development (Leng, 2005: 201). To achieve a balance between different priorities and to reach a sustained community will be possible under the policy of sustainable development.

Sustainable development cannot be achieved only by state action, the interaction between the state, business community and political forces are also required in order to achieve sustainable development in a community (Leng, 2005: 202). Sustainable development is also a process of distributing interests within the community (Leng, 2005: 209).

## **2.5. Environmental Regulations**

Environmental regulations can be classified into national regulations and international regulations for the protection of environment. There are different types of environmental regulations in the system of law. National regulations are Constitutional regulations, the environmental act, the other acts regarding with protection of environment by laws and the other types of regulations. International regulations for the protection of environment are international conventions between countries, international conventions between two countries, international declarations that accepted and adopted or enacted by the assembly and the government and the others.

### **2.5.1. National Environmental Regulations**

National environmental regulations contribute the protection of environmental resources on the national context. National environmental regulations in the Constitution, the laws, the other regulations are called as national environmental regulations in most of countries. The constitution includes environmental rules in most of countries for the protection of the environment. Besides, there is an environmental

act for the protection of the environment in some countries. In addition, there are some rules within the other laws, by-laws and regulations for the protection of the environment.

### **2.5.2. International Environmental Regulations**

International environmental regulations contribute the quality of environment on international level. There are bilateral and multi-lateral international conventions for the protection of the environment. Most of them focus on the prevention of air pollution, water pollution, and conservation of flora and fauna of the Earth. They try to prevent the transboundary pollution between countries and to solve the disputes between two or more countries for the protection of the global environment. In addition to the international conventions, there are some conferences, declarations and directions for environment such as, the documents of 1972 Conference on the Human Environment in Stockholm, 1992 Rio Earth Summit. Some context of international conventions is air pollution, marine conservation, climate change, the protection of ozone layer, hazardous waste, the protection of water quality, biodiversity, nuclear safety.

International environmental law sources include international treaties such as conventions, agreements, protocols, general principles of international law, subsidiary sources such as decision of international courts, some sources of international organizations for the protection of the environment, United Nations General Assembly Resolutions, recommendations and declarations for the environment.

### **2.6. Environmental Management**

It is the creation of policies, relevant policies, relevant personnel, financial resources and organizational structure required to find solutions to environmental problems, protect, develop and transfer the environment to the future. Environmental management is a systematic approach to protect the environment from the effects of economic (industrial), social and agricultural activities. Environmental management includes policies, practices, procedures, and administration in local, national and international levels. The aim of environmental management is to protect environment and to increase life quality in the environment.

## **3. Environmental Issues in Taiwan**

“Since the early 1970s, the government has adopted measures to promote capital-intensive industries and chemical industries in order to guide Taiwan’s transition from light to heavy industrial development” (Tien, 1992: 33). For this reason, especially in the end of 1970s, although the state of the ecological environment in Taiwan was developing structurally, the natural environment started to be destroyed due to negative factors (rapid industrial development) (Chen, Chen and Hsieh 2011: 279).

Taiwan has developed a system of national parks, in particular covering fifth of the island and home to the rich biodiversity of the island. The system of parks, besides contributing to the unique nature of the island, the quality of life of the island residents and island tourism, will be carried to the next generations (Williams and Chang, 2008: 167). In addition, the island’s scenic areas, natural forests, parks and especially the untouched ecological regions where the locals live, are protected with the care of the

island natives and NGOs who cooperate with them; contributes to the preservation and promotion of these areas and cultural assets by opening the cultural structures and natural environments of the inhabitants of the island to the tourism.<sup>1</sup>

Taiwan, which has a rich diversity of animals and plants, has 123 species of mammals, 788 species of birds, 133 species of reptiles, 42 species of amphians, 400 species of butterflies and 3100 species of fish. There are 866 species of fern, 4966 species of angiosperm, 34 species of gymnosperm plants on the island. In addition, in order to protect the habitats of this animal and plant property, the government protects 20% of its land as a natural park, including nine national parks and one national nature park, 22 nature reserves with special ecosystems, six forest reserves, 20 wildlife habitats and 37 key wildlife environments (Anonymous, 2019: 5).

It is worth noting that Taiwan's economic development is based on high resource consumption and it lacks these resources (Chen, Chen, Hsieh, 2011: 286). Taiwan's energy resources are coal, natural gas, oil and electricity. Oil and electricity meet 90% of total energy consumption (Williams and Chang, 2018: 130).

Taiwan's farmers are among the most intensive users of agrochemicals in the World (The Greening of Taiwan, 1995: 11) The rate of motor vehicles per km<sup>2</sup> in Taiwan is 15 times that of the USA (The Greening of Taiwan, 1995: 11). Those data show that the security of food and noise pollution are the other serious problems in Taiwan and those two issues can be a threat for the health of Taiwanese community.

In the early 2000si the major urban areas were where 70% of the population lived, and 42% of this proportion only covered the Taipei region. As a result of this rapid urbanization process, the number of motor vehicles causing one of the largest air pollutions in the World has increased significantly. At the same time, the wastewater and sewage system of the capital Taipei City had become inadequate. Solid garbage, caused by the rapidly increasing population, was being collected in a way that was not suitable for environmental health. Air and water pollution due to Taiwan's heavy industry reached significant levels, especially in the biggest city of Southern-Kaohsiung City. As a result, this rapid industrial and urban development caused serious environmental problems in Taiwan. Apart from these, industrial parks established in the coastal areas caused rapid pollution of agricultural lands, island rivers and streams in most of the island. Heavy metals and toxic waste haphazardly dumped or buried for years (Williams and Chang, 2008: 25-26). At the same time, the industrial areas which are widely dispersed on the island, were often located at the border of the agricultural areas, especially near the rice fields, causing cadmium pollution. Additionally, food, rice and industrial factories are put in the same place (Interview with Huang, Yan-Lin, Research Assistant, Discipline STS and Science Communication, Public Administration Department, National ChengChi University, July, 6, 2020).

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<sup>1</sup> The contributions of Hualien County) indigenous people and NGOs for the natural assets of the region and tourism. see; Chi, Chun-Chieh (2016), "Going Green from Industrial Dream? Community-NGOs Cooperation among indigenous communities in Hualien, Taiwan", in *Local Realities and Environmental Changes in the History of East Asia*, (ed.: Ts'ui-jung Liu), Routledge: USA, p.142-154.

The protest movements that started in the late 1980s and gained significant momentum in 2011 played an important role in Taiwan's recent success in environmental policy (Grano, 2015: 1-3).

“Nuclear policy in Taiwan; Taiwan has policy nuclear free homeland in 2025. Our nuclear power plants will be re-conditioned till 2025. There are two nuclear working in process. One of four has been stopped, fourth one is constructed but it not operating” (Interview with Prof. Tu, Wen-Ling, Department of Public Administration, Dean of International College of Innovation, National ChengChi University, July, 8, 2020)

The rise of sustainable development consciousness appeared with democratization process in Taiwan at the mid of 1980s. At this period, rise of environmental problems caused public awareness and public environmental movements. To adjust the conditions which are accompanied with sustainable development, the Taiwanese government has adopted many policies to reach the goal of sustainable development (Leng, 2005: 203).

In 2001, the Taiwanese government put forward a plan named “a Green Silicon Island” to reach the goal of sustainable development. As the consistency or integration between the economic development, social justice and ecological sustainability is a precondition for environmental protection we can assert that environmental protection is a precondition for economic development. This goal can be achieved by the Project of Green Silicon Island. At this process the trust between state and community is important (Leng, 2005: 204). The goal of sustainable development usually involves conflicting interests of state and community (Leng, 2005: 204).

### **3.1. Local Environmental Issues in Taiwan**

Air pollution, water pollution problem, soil pollution caused by excessive use of pesticides and food pollution, waste problem are among the most important environmental problems of Taiwan.

Taiwan's energy, minerals, and food are depending on imports. Taiwan's dense environment, rapid economic growth, and developed industry and commerce have led to a heavy environmental load and deteriorating environmental quality. This is a serious challenge to our environmental work” (Interview with Environmental Protection Administration, May 29, 2020).

Solid and hazardous wastes, air and water pollution, depletion of natural resources, which are among the rapidly accumulating environmental problems caused by rapid industrialization and economic growth, started to deteriorate the quality of life of the people in the 1980s. The deteriorating living conditions and spreading environmental awareness have been effective in spreading environmental movements (Hsiao, 1999: 33). In 1987, many important environmental laws were passed by the parliament and the Environmental Protection administration was established in this period (Weller, 2006: 2).

Air, water, and noise pollutions, solid waste, and toxic substances were major pollutants during 1990s. The rising of environmental consciousness among the public has forced the government to take measures against these issues. Another problem is the threat of

agricultural zones in nonurban areas as some of them are occupied by industrial factories (Anonymous, 1993: 31-32).

Total destruction of the ecological system of water collection areas at the middle- and down-stream is caused by the over-lumbering of forest, construction of lumber passes and development of golf courses. This led to lack of water supply, frequent flood, the destruction of landscape, and poor water and soil conservation. In addition, the construction of the residence community and industrial parks in slope areas caused many environmental problems, such as, the discharge of wastewater and sewage, air pollution, soil pollution, and waste disposal (Anonymous, 1993: 28).

Although air pollution has been significantly controlled in Taiwan in recent years. It is an important problem especially in the South (Kaohsiung City). Air pollution is especially at Southern Taiwan. Air pollution is especially at southern Taiwan because of China Steel Cooperation which are responsible of air pollution in Southern Taiwan. We may buy necessary material such as steel from another country to keep clean our air (Interview with Jhang, Jhu-Cin (Rita) PhD., Green Party Taiwan; May 20,2020).

Air pollution which is seen as a serious environmental problem of Taiwan, is recovered since the late of 1980s.<sup>2</sup>

Table 2-Taiwan Air Quality Index

Year	Total	Good 0-50	Moderate 51-100	Unhealthy 101-199	Very unhealthy 200-299	Hazardous
1984	2 421	438	1 585	132	232	34
1991	6 907	1 131	4 654	1 087	33	2
1996	20 692	8 209	11 123	1 351	9	-
2001	20 699	8 985	11 011	703	-	-
2006	20 760	8 578	11 319	863	-	-
2009	20 799	8 262	11 864	660	7	6
2010	20 771	9 059	11 262	380	14	56
2011	20 721	9 208	11 228	285	-	-
2012	21 788	10 474	11 105	208	1	-
2013	21 758	9 493	11 933	332	-	-
2014	21 884	9 838	11 758	288	-	-
2015	21 869	11 298	10 441	130	-	-
2016	21 935	12 312	9 458	165	-	-

Year	Total	Good 0-50	Moderate 51-100	Unhealthy for Sensitive Groups 101-150	Unhealthy 151-200	Very Unhealthy 201-300	Hazardous 301-500
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<sup>2</sup> For details of air pollution see Williams and Chang, 2008: 34-35.

2017	21876	8 690	9 231	3 334	610	11	-
2018	21885	9 299	9 083	2 955	540	8	-

Source: Taiwan Yearbook of Environmental Protection Statistics 2019: <https://eng.stat.gov.tw...>, Visited: March 25, 2020

As can be seen from the Table 2, starting from 2001 (and 2010) a significant decrease in air pollution is observed. This shows that the measures taken by the administration and the legal regulations it enacted have yielded successful results.

Another problem facing Taiwan apart from water pollution is water scarcity, especially in the southwestern coastal area. In this context, the Taiwan Government is constructing new water collection areas, taking into account the water balance of the country. As a solution to this problem, the Council of Agriculture has implemented a three-stage plan (“Methods and Procedures for Ecological Engineering and Management in Farm Irrigation”) (Williams and Chang, 2008: 163).

According to the strategies followed in waste management, the government has asked everyone to buy official garbage bags since 2000. A bag fee is paid as much as the garbage that everyone takes out on the garbage collecting days. This practice has reduced the amount of waste, saving is also achieved as the new bags are more durable. The second strategy is recycling, where Taiwan is making rapid progress (Williams and Chang, 2008: 111-112). Especially paper, aluminium and glass wastes are separated and recycled.

Taiwan has six protected national parks, 19 nature reserves, 17 wildlife refuges, 31 major wildlife refuges, 31 major wildlife habitats and six forests, which corresponds to 20% of the total area of the island. It also ten scenic areas (Williams and Chang, 2008: 121-122).

Noise pollution: Taiwan Environmental Administration classifies noise in Taiwan into seven different categories; 1) nearby noise; 2) folk noise (temples, weddings, funerals etc.); 3) construction projects, etc. 4) noisy facilities; 5) vehicle noise; 6) aircraft noise; and 7) noise of transportation. The levels of these noise resources tend to increase in parallel with the population, welfare and urbanization levels (Williams and Chang, 2008: 52).

### **3.2. Global Environmental Issues Threatening Taiwan**

#### **Global Warming**

In 1998, Taiwan’s total energy supply was equal to 28.8 million kiloliters of oil, which accounted for 19% of total energy production. In 1998, total energy supply reached 92.3 million kiloliters, was not dependent, but also country with large emissions of greenhouse gases. In 1990, Taiwan’s total greenhouse gas emissions reached 113 million tons, which was 35<sup>th</sup> among 126 countries with 5.44 tons per person. In the same year, OECD countries’ emissions were 12.14 tones per capita. According to Taiwan Environmental Protection Administration, the carbon dioxide emission from Taiwan’s energy sector reached 255 million tons in 2003. Also, according to the estimates of this institution, this rate would reach 501 million tons in Taiwan in 2020 (Williams and Chang, 2008: 69-70).

Table 3-Emissions of greenhouse gases in Taiwan

Year	Total	Carbon dioxide (CO <sub>2</sub> )
1990	138 098	124 045
1991	148 107	133 565
1996	195 051	176 761
2001	252 834	230 089
2006	298 553	275 886
2007	301 283	279 586
2008	284 571	266 377
2009	269 283	252 237
2010	286 883	270 134
2011	292 289	276 166
2012	287 126	272 332
2013	287 613	272 618
2014	290 894	276 235
2015	289 579	275 634
2016	293 124	279 216

Source: Taiwan Environmental Protection Administration Executive Yuan; Taiwan Yearbook of Environmental Protection Statistics 2019: <https://eng.stat.gov.tw...>, Visited: March 25, 2020

As seen from the Table 3, the amount of CO<sub>2</sub> emissions has not been increased in high proportions since 2008.

In 2017, the volume of carbon dioxide emissions in Taiwan amounted to approximately 285 million metric tons (<http://www.statista.com/statistics/...>, Visited: November 20, 2020).

Taiwan like the other countries, is faced with the problem of climate change. Taiwan has restricted the use of CFCs and the other ozone destroying substances (halons and methyl bromide). Although the illegal use of these substances continued in Taiwan in the 1990s, their legal consumption was reduced to zero in 1996. Although Taiwan did not sign the 1987 Montreal Protocol, it regularly monitors the ozone layer and contributes to international efforts (Williams and Chang, 2008: 70).

Besides Taiwan has passed Greenhouse Gas Reduction and Management Act (1 July 2015) and some action plans to reduce greenhouse gas emissions.

#### **4. Taiwan Constitution and Taiwan Legal Regulations for the Protection of Environment**

Taiwan Constitution, laws and regulations contain many articles related with the protection of environment.

##### **4.1. Taiwan Constitution (related articles for the Protection of**

## Environment)

Constitution of Republic of China (Taiwan)<sup>3</sup> dated January 1, 1947

Article 10 (2) (The Amendment to the Constitution of the Republic of China sets out the basis of national development policies for Taiwan. This provision stresses the importance of the goal of sustainable development and guarantees the right to a decent environment (Shih, 2002: 80).

Article 53- The Executive Yuan shall be the highest administrative organ of the State.

Article 107-Powers of Local Governments

Article 108-In the following matters the central government shall have the power of legislation and administration, but the Central Government may delegate the power of administration to the provincial and the Hsien governments.

3. forestry, industry, mining, and commerce;
6. Shipping, and deep-sea fishery;
7. Public utilities;
9. Water and land communication and transportation covering two or more provinces;
10. Water conservancy, waterways, agriculture and pastoral enterprises covering two or more provinces;
12. Land legislation;
13. Labor legislation and other social legislation;
18. Public health;

Article 109- In the following matters the provinces shall have the power of legislation and administration, but the provinces may delegate the power of administration to the Hsien;

1. Provincial education, public health, industries and communications;
2. Management and disposal of provincial property;
3. Administration of municipalities under provincial jurisdiction;
5. Provincial cooperative enterprises;
6. Provincial agriculture, forestry, water conservancy, fishery, animal husbandry and public works;
7. Provincial finance and revenues;

Article 110- In the following matters, the Hsien shall have the power of legislation and administration;

1. Hsien education, public health, industries and communications;
5. Hsien agriculture and forestry, water conservancy, fishery, animal husbandry and public Works;
6. Hsien finance and revenues;

Chapter 11-System of Local Government

Section 1: The Province

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<sup>3</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=A0000001>, Visited: April 25, 2020

Article 113- The Provincial Self-government Regulations shall include the following provisions;

1. In the province, there shall be a provincial council. Members of the provincial council shall be elected by the people of the province.
2. In the province, there shall be a provincial government with a provincial governor who shall be elected by the people of the province.
3. Relationship between the province and the Hsien. The legislative power of the province shall be exercised by the Provincial Council.

Article 117-When doubt arises as to whether or not there is a conflict between provincial rules or regulations and national laws, interpretation thereon shall be made by the Judicial Yuan.

Article 118- The self-government of municipalities under the direct jurisdiction of the Executive Yuan shall be prescribed by law.

(Article 119- The local self-government system of Mongolian Leagues and Banners shall be prescribed by law.

Article 120- The self-government system of Tibet shall be safeguarded)

Section 2-The Hsien

Article 121-The Hsien shall enforce Hsien self-government

Article 122-A Hsien may convoke a Hsien assembly to enact, in accordance with the General Principles of Provincial and Hsien Self-Government, Hsien self-government regulations, provided the said relations are not in conflict with the Constitution or with provincial self-government regulations.

Article 123-The people of the Hsien shall, in accordance with law, exercise the rights of initiative and referendum in matters within the sphere of Hsien self-government, and shall in accordance with law, exercise the rights of election and recall the magistrate and other Hsien self-government officials.

Article 124- In the Hsien, there will be a Hsien council. Members of the Hsien council shall be elected by the people of the Hsien.

The legislative power of the Hsien shall be exercised by the Hsien council.

Article 125-Hsien rules and regulations that are in conflict with national laws, or with provincial rules and regulations, shall be null and void.

Article 126-In the Hsien, there shall be a Hsien government with a Hsien magistrate who shall be elected by the people of Hsien.

Article 127- The Hsien magistrate shall have charge of Hsien self-government and shall administer matters delegated to the Hsien by the central or provincial government.

Article 128- The provisions governing the Hsien shall apply mutadis mutandis to the municipality.

Chapter 13 – Fundamental National Policies  
Section 3-National Economy

Article 146-The State shall, by the use of scientific techniques, develop water conservancy, increase the productivity of land, improve agricultural conditions, plan for the utilization of land development, agricultural resources and hasten the industrialization of agriculture.

Section 4-Social Security

Article 157-The state, in order to improve national health, shall establish extensive services for sanitation and health protection, and a system of public medical service.

Section 6-Frontier Regions

Article 169- The State, shall in a positive manner, undertake and foster the development of education, culture, communications, water conservancy, public health, and other economic and social enterprises of the various of racial groups in the frontier regions. With respect to the utilization of land, the State shall, after taking into account of climatic conditions, the nature of the soil, the life and habits of the people, adopt measures to protect the land and to assist in its development.

**Additional Articles of the Constitution of Republic of China<sup>4</sup>** (June 10, 2005)

Some articles were added to the Taiwan Constitution in June 2005. Some of these items are directly related to are topic are;

Article 9- (see) in general related with the election of managerial personnel

1. A province shall have a provincial advisory council made up a number of members, who shall be nominated by the president of Executive Yuan and appointed by the president of the Republic.

Article 10- The State shall encourage the development and investment in science and technology, facilitate industrial upgrading, promote modernization of agriculture and fishery, emphasize exploitation and utilization of water resources, and strengthen international economic cooperation.

September 1, 2010 dated The ROC Office of The President Organization Act<sup>5</sup>

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<sup>4</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=A0000002>, Visited: April 25, 2020.

<sup>5</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=A0010012>, Visited, April 25, 2020.

Article 2- The Office of the President shall establish the following bureaus and departments:

1. First Bureau;
2. Second Bureau;
3. Third Bureau;
4. Department of Special Affairs
5. Department of Security Affairs
6. Department of Public Affairs

Article 3- some of the issues that The First Bureau shall be charged with 4) handling of matters set out in official documents of the five government branches (i.e., the five Yuan) or the provincial/special municipality and other local governments.

Article 5-The Third Bureau will be charged by;

- (1) Handling of ceremonial affairs
- (2) Handling of protocol affairs
- (3) Handling of managerial affairs
- (4) Management of transportation affairs
- (5) Handling of disbursements
- (6) Other matters that may be delegated to it.

“The current framework of Taiwan's environmental regulation is based on the Basic Environment Act as the guiding principle and legal source. The EPA has 18 regulations that fall into four categories: prevention, control, relief, and organization. At present, the Environmental Protection Administration is developing and promoting the organic law for the Ministry of Environment and Natural Resources. The Environmental Protection Administration cooperates with government agencies to support the establishment of the "Ministry of Environment and Natural Resources". It is to serve the actual needs of environmental protection, integrating the protection, conservation and control of the environment and resources. We rationally adjust the internal organization and functions of the government to determine organizational functions. Eight drafts of the organic law have been drafted to improve environmental protection activities” (Interview with Taiwan Environmental Protection Administration, May 29, 2020)

There are 93 laws that the Taiwan Environmental Protection Administration is obliged to implement. Some provisions of these laws will be given below.

There are important differences between laws and regulations in Taiwan. Laws must pass the approval of the Legislative Yuan and is difficult to extract. However, regulations are issued with the approval of Environmental Protection Administration, determine the details of the laws and are implemented in accordance with the provisions of the laws. Those who violate the provisions of the Regulations are punished according to the law (Williams and Chang, 2018: 101).

**Basic Environment Act** (Dec. 11, 2002)<sup>6</sup>

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<sup>6</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00100001> Visited, March, 05, 2020)

According to Article 3, environmental protection will be priority when economic, technological or social development starts to affect the environment negatively.

With Article 4, citizens, businesses and government will be responsible for protecting the environment at all levels, and those who harm the environment will be held responsible.

In the Article 5, the importance of extending the awareness of the citizens to the environment and the development of an environmentally compatible life style is given. Government and citizens will cooperate to safeguard the environment.

According to the Article 8; government units will notice green consumption and to environmental education that will integrate the concepts of environmental and sustainable development at all levels.

With the Article 9, the government will enable environmental and sustainable development education.

With the Article 10, it is also important that the government departments allocate a special budget to protect the environment at all levels and use it as necessary.

According to Article 13, the central government can carry out environmental protection education.

A separate court may be formed with the personnel for disputes regarding the environment with Article 14.

Article 15 states that the government will create an environmental information system and control system that is open to the public.

Article 21 supports the government to reduce the greenhouse effect.

Article 23 refers to the goal of becoming a nuclear free country and this is a positive point.

It is important that Environmental Impact Assessment system will be established to reduce the negative effects of development activities on the environment with Article 24.

Setting up an environmental monitoring network with Article 27 is an important development.

With the Article 28, it is important to allocate the costs collected within the scope of “polluter pays principle” to environmental protection and pollution prevention.

Article 29 and the establishment of a sustainable development commission consisting of representatives of the government, academics, experts and citizens is also a supportive environmental target for the sustainable development.

With the Article 30, central government will form a ministerial commission for

environmental protection.

According to Article 31 environmental funds may be formed for research, monitoring and management of government pollution sources. This is an important item for the combat with environmental pollution.

With the Article 32, the principle of polluter pays is under security.

In accordance to Article 34, if the law enforcement agencies are neglected about environmental protection issues, it is also important for the citizens or non-profit organizations to be able to file a lawsuit against the law enforcement units, in order to enforce the right to environment and the right to participate.

According to the Article 35, it is an important that incentives will be provided for academic and research organizations that contribute to the protection of the environment

### **4.3. The Other National Acts for the Protection of Environment**

Within the scope of this study, we will keep the legislative review limited by the environmental laws of the Environmental Protection Administration (EPA). Environmental Protection Administration has 93 laws, including the enacted Basic Environment Act. We will consider especially those that need to be examined in terms of our subject.

#### **Air Pollution Control Act (2018.08.01) <sup>7</sup>**

##### Chapter 1 General Provisions

Article 1-This act is enacted to control air pollution, maintain the living environment and public health and enhance the quality of life.

Article 2- The competent authority referred to in the Act shall be the Environmental Protection Administration, Executive Yuan at the central government, the municipal government at the municipal level, and the county (city) government at county (city) level.

##### Chapter 2 –Air Quality Maintenance

Article 5-The central competent authority shall delineate and officially announce each class of special municipality, county and city control region based on the demands placed upon air quality by land use or air quality conditions.

These control regions shall be divided into the following three classes:

1.Class 1 control regions refer to such areas as national parks and nature protection and

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<sup>7</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=O0020001>  
Visited, March 06.2020)

conservation areas that are delineated in accordance with the law.

2. Class 2 control regions refer to areas that meet air quality standards, with the exception of Class 1 control regions.

3. Class 3 control regions refer to the areas that do not meet air quality standards, with the exception of Class 1 control regions.

The central competent authority in consultation with relevant agencies shall determine the air quality standards in the preceding paragraph and shall review them at least every four years.

Article 16- Competent authorities at all levels may collect air pollution control fees from stationary and mobile pollution sources that emit air pollutants. The targets of air pollution control fees are as follows:

1. Stationary pollution sources: Fees shall be collected from the owners of the pollution source based on the types and quantity of air pollutants emitted. Fees shall be collected from the actual user or manager if the owner of the source is not the user or manager. Fees shall be collected from the construction project owner if the pollution source is a construction project. For substances designated and officially announced by the central competent authority, fees may be collected from the vendor or importer based on the sales volume of the substances.
2. Mobile pollution sources: Fees shall be collected from the vendor or user based on the types and quantity of air pollutants emitted, or from the vendor or importer based on the type, composition and quantity of fuel.

Article 17- Sixty percent of the funds collected by the central competent authority from stationary pollution sources shall be allocated to the competent authorities of the special municipalities, counties or cities in which the said stationary pollution sources are located. Twenty percent of the funds collected from mobile pollution sources shall be allocated to the competent authorities of the special municipalities, counties or cities in which users of the said mobile pollution sources are domiciled or oils and fuels are sold.

Article 18- Air pollution control fees shall be provided exclusively for air pollution control uses.

### Chapter 3-Control

Article 31-The central competent authority may prohibit and restrict substances that are prone to cause air pollution which are controlled under international environmental protection conventions; and the manufacture, import, export, sale or use of products manufactured from or filled with such substances.

Article 33-When stationary pollution sources of public or private premises emit a large quantity of air pollutants due to the sudden accident, the statutory responsible person shall promptly adopt emergency response measures and shall notify the special municipality, county or city competent authority within at least one hour.

Article 40- Competent authorities at all levels may, depending on air quality and characteristics of pollution, plan and install air quality maintenance zones and

implement control measures for mobile pollution sources (such as, prohibit or limit access of specific motor vehicles; prohibit or limit any fuel for mobile pollution sources or prevent the delivery of fuel; taking measures in order to keep the air quality)

#### Chapter 4- Penal Provisions

Article 51-People who caused air pollution or people who do not obey the rules of the competent authorities of special municipality, county or city; and thereby cause human death, shall be punished by life imprisonment or a minimum of seven years imprisonment and may be fined a maximum of 30 Million NTD. Those that cause severe injury shall be punished by three to ten years imprisonment and may be fined a maximum to 30 million NTD. Those that cause harm to human health such that it leads to illness shall be punished by six months to five years imprisonment and may be fined a maximum of 20 million NTD.

Article 53: With exhaust gases, it is possible to be imprisonment up to seven years and fines between 1 million and 15 million NTD.

Article 54: Those who give false information about their activities can be given up to three years in prison and fines between 200 000 NTD and 5 million NTD.

Article 55- Those who do not have air pollution prevention equipment or those who do not operate the equipment, and when they burn substances will harm health, and will receive a maximum of 3 years imprisonment and/or fines from 200 000 NTD to 5 million NTD.

Article 83-The penalties determined pursuant to the Act shall be assessed by the Environmental Protection Administration, Executive Yuan, at the central government level, the municipal government in special municipalities, or county or city government in counties or cities.

Greenhouse Gas Reduction and Management Act (1 July 2015)<sup>8</sup>

#### Chapter 1-General Principles

Article 1- Climate change concerns led to this Act; and this Act establish strategies to reduce and manage greenhouse gas emissions; strengthen environmental justice and the shared responsibility of environmental protection and national development.

(reduction and management of greenhouse gases)

Article 2- The Executive Yuan's Environmental Protection Administration is the central competent authority at the central government level, while municipal governments execute authority at the county and city level.

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<sup>8</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=O0020098>

Visited: March 09, 2020.

Article 4-By 2050, more than 50% of long-term greenhouse gas emissions will be reduced. Accordingly, the UN Climate Change Framework Agreement (UNFCCC) and its engagement agreements will be made by the central government in consultation with central industry officials, taking into account other international agreements and decisions

Article 5- The national government shall ensure the sustainable utilization of the nation's resources, maintain balanced energy supply and demand, mitigate and respond to the impacts of climate change, and place balanced emphasize on environmental protection, economic development, and social justice.

All levels of government shall encourage technological innovation, research and development, enhance financial mechanisms, spur economic momentum, encourage competition, promote low-carbon green growth, create employment opportunities, and boost national competitiveness.

In order to respond to the impact of climate change, the government shall uphold the following legal and policy principles:

1.To ensure the nation's energy security, the government shall draft mid-to long- term strategies for gradually reducing dependence on fossil fuels with a mid-to long-term aim of renewable energy policies, and the gradual realization of a nuclear-free homeland.

2. In line with the "user charge" principle of environmental justice, the free allowances allocation method will be gradually replaced by allowances sold by a fixed price.

3. To respond to the impact of climate change, under the principle of equality and social welfare promotion, the government should implement tax mechanisms on imported fossil fuels based on carbon dioxide equivalent.

4. The government should actively help traditional industries achieve energy conservation and carbon reduction or transition, develop green technology and green industry, create new employment opportunities and green economies, and promote a low-carbon, green growth plan for the nation's infrastructure.

5.In order to lessen environmental pollution and GHG emissions, the government should promote resource use efficiency, energy use efficiency, and resource recycling.

(The government will take measures to keep sustainable resource management on the forefront and mitigate the effects of climate change. For these, technological research will support low carbon emissions and national competition)

(Nuclear-free country, user fee, tax mechanism for equality and social welfare reduction, green technology, green industry, green economy and green growth target, efficiency in resource and energy use and recovery of resources are important)

Article 6-GHG management programs and plans shall comply with the following principles:

1. National reduction targets and schedule shall seek to realize the common but the differentiated responsibilities, specified in UNFCCC, while also furthering the sustainable development of the nation's environment, economy, and society.

2. The determination of the sector-based periodic regulatory goals shall take cost effectiveness into consideration and strive to achieve GHG reductions at the lowest possible cost

3. The government shall actively adopt preventive measures, seek to forecast, avoid, and reduce the causes of climate change, and mitigate the adverse effects of climate change.

4. The government shall actively strengthen the international cooperation, and strive to maintain the international competitiveness of domestic industries.

(Sustainable development and common but differentiated principles of responsibility; reduction of greenhouse gas emissions; preventive measures; protection of domestic industry's competition in international arena)

Article 7- The competent authorities and industry competent authorities may mandate qualified organizations to conduct investigation, verification, consultation, training and research regarding climate change adaptation and GHG mitigation.

(Relevant units will be created by authorities and industrial organizations to adapt to climate change and to reduce greenhouse gas emissions)

## Chapter 2 Authority and Responsibility of Government Agencies

Article 8- The executive Yuan shall invite relevant central government agencies, non-governmental organizations, experts and scholars, to determine and review the division, integration, implementation, compilation of the work of GHG reduction and climate change adaptation.

Relevant central government agencies shall promote GHG reduction and climate change adaptation through the following actions:

1. Development of renewable energy and technology of energy
2. Improvement of energy efficiency and energy conservation
3. Reduction of GHG emissions by industrial sectors
4. Transportation management, development of mass transit systems, and reduction in GHG emissions by other transportation sectors.
5. Implementation of low carbon energy transportation.
6. Reduction and management of GHG emissions from buildings.
7. Waste recycling and reuse
8. Forest resource management, biodiversity conservation, and strengthening of forests' carbon sequestration.
9. Reduction and management of GHG emission from agriculture and guarantee of food security.
10. Green finance and GHG reduction incentive mechanisms

11. Assessment of impact of GHG reduction on the economy as a whole and planning of response measures
12. Establishment of GHG cap-and-trade scheme including allocation, auction, allowance sale, trade, and facilitation of international emission reduction cooperation mechanism.
13. Research, development and implementation of GHG reduction Technologies.
14. Study of international GHG conventions and laws and participation in international conferences.
15. Development and implementation of matters connected with climate change adaptation.
16. Education and advocacy of climate change adaptation and GHG reduction
17. Other climate change adaptation and GHG reduction matters.

Article 9-In order to implement the nation's GHG reduction policy, the central competent authority shall develop a National Climate Change Action Guideline and GHG Reduction Action Plan reflecting the nation's economy, energy supplies, environment, current international situation, and the assignment of responsibilities mentioned in Paragraph 1 of the previous Article., and shall implement the Action Guideline and Action Plan in consultation with the central industry competent authorities after requesting approval from the Executive Yuan.

Article 10-The central industry competent authorities shall regularly review and revise the Action Programs on the basis of the changes in the industry and energy supply and demand and deliver an annual report on the implementation of GHG emission target and shall propose improvement plans if failing to meet emission targets.

Implementation, revision, improvement plans and annual reports of Action Programs will be submitted to the Executive Yuan for approval.

Creating a National Climate Change Action Plan and GHG Reduction Plan by the central government)

Article 11-Regulatory goals will be set in stages on a five-year basis. The central competent authority shall invite scholars, experts, and non-governmental organizations in conjunction with the central industry competent authorities, to form an advisory committee to set the regulations for the goals and regulatory approaches.

The central competent authority shall in consultation with the industry competent authorities, set for each stage's regulatory goal shall be submitted to the Executive Yuan for approval after public hearings are held.

Article 12- After regulatory goals for each stage have been approved, the central competent authority shall compile their status and report to the Executive Yuan annually.

Implementation of the regulatory goals shall take into account the following matters and make necessary adjustments upon Executive Yuan's approval:

1. Scientific knowledge concerning climate change and relevant technologies
2. The state of economic and industrial development
3. Fiscal and social conditions

4. Energy policy

5. UNFCCC and its agreements, or relevant decisions made under international conventions.

Article 13-The industry competent authorities shall assist entities in the accounting of emission sources, verification, registration, reduction, and participation in domestic and international offset projects.

Article 15-Special municipality, county and city competent authorities shall develop GHG control implementation plans in accordance with the Action Plan approved by the Executive Yuan and the Action Program determined by the central industry competent authorities; such implementation plans shall be finalized after requesting the approval of the central competent authority in consultation with the central industry competent authorities.

### Chapter 3 Emission Reduction Measures

Article 19-The central competent authority shall establish the GHG Management Fund from the following sources:

1. Proceeds from allowances
2. Fees collected
3. Government grant via budget appropriation
4. Revenues collected under fines and penalties
5. Money received from persons, liable entities or organizations; and
6. Other incomes

The fund will serve the following purpose only for GHG emission reductions and adaptation to climate change:

1. Reduce GHG emissions;
2. Inspect emission sources;
3. Provide emission sources with assistance, subsidies and grants for voluntary efforts to reduce GHG emissions;
4. Administrative affairs of holding accounts and establishment in the Registry, auctions, sales and allowance trading;
5. Employ staff to carry out administrative services;
6. Coordinate, plan and implement adaptation to climate change;
7. educate, promote, and award grants;
8. Conduct international affairs;
9. Carry out research and analysis.

### Chapter 4 Education and Grants

Article 24-At all levels of government shall promote public awareness of climate change mitigation and GHG reduction among citizens, schools and industries, proactively assisting non-governmental organizations in the following manner:

1. Develop and promote education plans on climate change and its impact;
2. Provide the public with easy access to relevant information on climate change;
3. Engage industries and the public about relevant measures based on local conditions;

4. Train scientific, technological and managerial personnel;
5. Encourage research in combination with environmental education on climate change;
6. Promote energy saving and enhance energy efficiency;
7. Support low carbon products by establishing a carbon-labelling plan;
8. Execute other actions officially announced by all levels of government.

Article 25- All levels of government, public education institutions and government-run enterprises shall promote energy saving and use energy-efficient products or services to reduce GHG emission.

Article 26- Electricity suppliers and distributors shall encourage energy conservation and energy efficiency among customers.

#### Chapter 5- Penalty Provisions

Article 28- When an entity fails to surrender designated amount of allowances within deadline and therefore, a monetary penalty of three times carbon market price per metric ton within a maximum of NTD 1,500 per metric ton.

Article 30- The owner, user or manager of an Emission Source who evades, impedes, or refuses investigation or information request from the competent authorities shall be subject to a fine from NTD 200,000 to NTD 2,000,000. The competent authorities may fine each time an offence occurs.

(Chapter 6 Supplementary Provisions)

Article 33- The enforcement rules of this Act shall be determined by the central competent authority.

### **Noise Control Act (3 Dec. 2008)<sup>9</sup>**

#### Chapter 1 General Principles

Article 1- This Act is enacted to protect public health, to enhance a quiet environment and the life quality of community.

Article 2- The competent authority referred to in this Act means the Environmental Protection Administration, Executive Yuan, at the central government level, the municipal government in special municipalities and the county or city government in counties or cities.

Article 3- Noise as referred in this Act means sounds that exceed control standards.

Article 4- The matters designated as the responsibility of the central competent authority:

1. Planning, determination and implementation of national noise control policies, programs and plans.

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<sup>9</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=O0030001>, Visited, 09.03.2020)

2. Discussion, deliberation and interpretation of national noise control laws and regulations.
3. Determination of national noise monitoring matters and research and development of control Technologies.
4. Determination of noise control standards
5. Supervision, guidance and approval of noise control work.
6. Coordination and implementation of noise control work that involves two or more special municipalities, counties or cities.
7. Delineation of noise control zones that involve two or more special municipalities, counties or cities.
8. Coordination of major noise disputes.
9. Training of professional noise control personnel.
10. Management of noise analysis laboratories.
11. Noise testing of motorized vehicles.
12. Public awareness work for noise control
13. International cooperation related to noise control
14. Inspection and appraisal of noise sources
15. Other national noise control matters

Article 5- The responsibilities of special municipality, county and city competent authorities are as follows:

1. Planning and implementation of special municipality, county or city noise control programs
2. Research and development for special municipality, county or city noise control
3. Coordination for special municipality, county or city noise disputes.
4. Delineation of noise control zones within the jurisdiction areas of special municipalities, counties or cities.
5. Special municipality, county or city noise monitoring.
6. Public awareness work for special municipality, county or city noise control.
7. Inspection and appraisal of noise sources.
8. Other special municipality, county or city noise control matters

Article 6- Police authorities shall, pursuant to the related laws and regulations handle those that produce sounds that are intermittent or difficult to measure, but sufficient to jeopardize the quietness of the lives of others.

## Chapter 2 Control

Article 7- Special municipality, county or city competent authorities may delineate and officially announce each class of noise control zone based on noise conditions within their areas of jurisdiction, shall perform evaluations at regular intervals and delineate and officially announce new noise control zone classes. The central competent authority shall determine principles for the delineation of control zones, delineation procedures, and regulations governing other binding matters.

Article 8- Engaging in the following activities that impair the tranquillity of the lives of others within noise control zones is prohibited at times and in places or premises officially announced by the special municipality, county or city competent authority:

1. The ignition of fireworks

- 2.The holding of such folk activities as god alter worship, temple festivals, weddings and funerals
3. The conducting of such activities as food and beverage preparation, laundering and dyeing, printing, or other commercial activities that use power machinery
- 4.Other activities officially announced by competent authority.

Article 9- Sounds emitted by the following premises, construction projects or facilities within noise control zones may not exceed noise control standards:

- 1.Factory plants or sites
- 2.Entertainment premises
3. Business premises
- 4.Construction projects
- 5.Public address facilities
- 6.Other premises, construction projects or facilities officially announced by the competent authority.

Article 11- Motor vehicles and civil air vehicles do not exceed motor vehicles and civil aviation noise standards. The central competent authority will set the standards together with the Ministry of Transportation and Communications.

#### Chapter 3 Penal Provisions

Article 23- Those who violate Article 8 will be able to pay fines between NTD 3000 and NTD 30,000 and will take the necessary measures to eliminate noise.

Article 24- Those who violate Article 9 will make necessary improvements within a limited time, otherwise they will receive the penalties set out below:

- 1.Factory plants or sites shall be fined NTD 6,000 to NTD60,000.
- 2.Entertainment and business premises shall be fined NTD 3,000 to NTD 30,000
- 3.Construction projects shall be fined NTD 18,000 to NTD 180,000
- 4.Public address facilities shall be fined NTD 3,000 to 30,000
- 5.Other officially announced premises, construction projects and facilities shall be fined NTD 3,000 to NTD 30,000

#### Chapter 4 Supplementary Provisions

Article 33- The central competent authority in conjunction with the Ministry of National Défense shall determine noise control regulations for the premises, construction projects and facilities, and such equipment as motor vehicles and aircraft, of military authorities and their subordinate units.

### **Water Pollution Control Act** (June, 13, 2018)<sup>10</sup>

#### Chapter 1 General Principles

Article 1- This act is formulated to control water pollution and ensure the cleanliness

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<sup>10</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00040001>  
Visited, 10.03.2020)

of water resources in order to maintain ecological systems, enhance the living environment and advance public health.

Article 3- The competent authority referred to in this Act means the Environmental Protection Administration, Executive Yuan, at the central government level, the municipal government in special municipalities and the county or city government in counties or cities.

Article 4-Central government, special municipality and county and city competent authorities may designate or commission dedicated organizations to perform tasks related to water pollution research, training and control.

## Chapter 2 Basic Measures

Article 5- In order to avoid jeopardizing the uses of a water body, those that use a water body to receive and convey effluent may not exceed the carrying capacity of the water body.

Article 6- The central competent authority shall delineate water zones and determine water body classifications and water quality standards based on the special characteristics and on-site conditions of water bodies.

Article 7- Those enterprises, sewage systems or building sewage treatment facilities that discharge wastewater or sewage into surface water bodies shall comply with effluent standards.

Article 10-Competent authorities at all levels shall install water quality monitoring stations, and issue official announcements of monitoring results at regular intervals and adopt appropriate measures.

Article 11- The central competent authority will collect water pollution control charges from sewerage networks and enterprises that discharge wastewater or sewage water (except public sewage systems and sewage systems of the society) to surface water resources.

Local governments will collect the water pollution control fee from households. The fees collected will be used for national water pollution control according to the following points:

1. Water pollution control fees collected by the central government
  - 1) Remediation of surface waters and monitoring of water quality
  - 2) Improved water quality in areas where the water quality is maintained
  - 3) Improvement of water quality in water pollution quantity control zones
  - 4) Water pollution control technology research and development, acquisition and strategy research and development
  - 5) Employment of personnel required for implementation of fee collection work and
  - 6) Other relevant water pollution control work
2. Water pollution control fees collected by local governments;
  - 1) Construction of primary and secondary public sewage system main pipes

- 2) Construction of wastewater treatment plants and wastewater and sewage interception facilities
- 3) Construction of nightsoil dumping stations and nightsoil treatment plants
- 4) Construction of centralized treatment facilities for sludge produced by wastewater and sewage treatment facilities
- 5) Public sewage system operation and maintenance fees
- 6) Employment of personnel required for implementation of fee collection and management of public sewage system construction and
- 7) Other fees relevant to household sewage treatment work

Water pollution control fees will be distributed between central government and local governments; the distribution principle will be determined by the central competent authority, according to the needs of each municipality, county or city.

Competent authorities shall set up a special fund consisting of water pollution control fees in Paragraph 1 (central government). The regulations for income, expenditure, custody and the use of fund shall be separately by Executive Yuan, the special municipality, county or city competent authority.

Local governments shall set up a special fund consisting of water pollution control fees in Paragraph 2. The regulations for income, expenditure, custody and the use of fund shall be determined separately by local governments.

Article 12- Sewage system infrastructure and wastewater treatment facilities shall comply with the requirements of water pollution control policies. The central competent authority shall determine water pollution control programs in consultation with the special municipality, county and city competent authorities and report implementation progress to the Legislative Yuan annually.

### Chapter 3 The Control Measures

Article 27- When there is a concern of the serious endangerment of human health, agricultural or aqua cultural production, or drinking water sources, due to the discharge of wastewater or sewage by an enterprise or sewage system, the statutory responsible person shall adopt emergence response measures promptly and notify the local competent authority within three hours.

Article 28- In case of an accident leading to water pollution, the local authority will be informed about the situation within three hours; the activity of the facility leading to pollution will be suspended.

Article 30- The following acts are prohibited within water pollution control zones:

1. The use of agricultural chemicals or chemical fertilizers that causes concern of polluting water bodies designated by the competent authority
2. The dumping of garbage, nightsoil, sludge, acidic or basic liquid waste, construction waste or other pollutants in water bodies or within a designated distance from their shorelines.
3. The use of toxins, drugs or electric current to catch or kill aquatic organisms
4. The raising of poultry or livestock in water bodies designated by the competent authority or within a designated distance from their shorelines.

5. Other behaviours sufficient to cause water pollution officially announced as prohibited by the competent authority.

#### Chapter 4 Penal Provisions

Various fines from NTD 100,000 to NTD 20,000,000 and up to seven years of imprisonment can be imposed on those who lead to pollution of water resources.

Water Pollution Control Act Enforcement Rules (Dec 21, 2018)<sup>11</sup>

Article 1-These rules are determined pursuant to Article 74 of the Water Pollution Control Act (herein referred to as “this Act”)

Article 3-The matters designated in this Act as the responsibility of the central competent authority are as follows:

1. Determination, supervision and implementation of national water pollution control policies, programs and plans;
2. Determination, approval, interpretation and implementation of national water pollution control laws, regulations;
3. Levy, review, utilization planning and management of the water pollution prevention fees
4. National water pollution control research and development;
5. Training and management of national water pollution control personnel;
6. Supervision of water pollution control work in special municipalities, counties and cities;
7. National water pollution control monitoring and testing;
8. National water pollution control survey work and compilation of statistics;
9. National water pollution control public awareness work;
10. International cooperation and technology exchange related to water pollution control
11. Coordination of national and inter-special municipality, county or city water pollution control work;
12. The water pollutant and water quality/volume screening/testing entity's permit and management; and
13. Other National water pollution control matters

Article 4- The matters designated in this Act as the responsibility of the competent authority of the municipality or county (city) as follows:

1. Planning and implementation of water pollution control plans under jurisdiction;
2. Implementation of the Water Pollution Control Act, and establishment (determination), approval, interpretation and implementation of pollution control laws and regulations under jurisdiction;
3. Planning management and implementation for the use of the water pollution prevention fees
4. Research and development of water pollution control under jurisdiction;

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<sup>11</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00040002>, Visited, 10.03.2020.

5. Training and management of water pollution control personnel under jurisdiction;
6. Monitoring and testing of water pollution control under jurisdiction;
7. Water pollution control survey work and compilation of statistics under jurisdiction;
8. Water pollution control public awareness work under jurisdiction;
9. Other water pollution control matters under jurisdiction;

### **Drinking Water Management Act (Jan., 27, 2006)<sup>12</sup>**

#### Chapter 1 General Principles,

Article 1- The Act is formulated to ensure the quality of drinking water sources, improve public drinking water quality and maintain public health. The regulations of other laws shall apply to those matters not regulated by this Act.

Article 2- The competent authority referred to in this Act means the Environmental Protection Administration Executive Yuan, at the central government level, the municipal government in special municipalities, and the county or city government in counties or cities.

#### Chapter 2 Water Source Management

Article 5-Acts that pollute water source quality are prohibited in areas within a certain distance of a drinking water source quality protection area or drinking water intake point.

“Acts that pollute water source quality” in the foregoing paragraph means;

1. Illegal logging of forests or clearing of land.
2. Development of industrial parks or establishment of polluting factories.
3. Development of nuclear energy or other forms of energy or construction of radioactive nuclear waste storage or processing facilities.
4. Dumping release or discarding of garbage, ash, soil and rock, sledge, excrement, urine, waste oil, waste chemical products, animal carcasses or other articles sufficient to cause the pollution of water sources.
5. For-profit raising of livestock or poultry
6. Development of new communities; however, communities formed by aboriginal villages due to natural population increases shall not be subject to this restriction.
7. Construction, renovation or expansion of golf courses
8. Extraction of soil and rock, mineral exploration and mineral mining
9. Development of railways, mass transit systems, harbors and airports with scale and scope requiring the implementation of environmental impact assessments.
10. Those river channel modification projects sufficient to impact the self-purification ability of the river and that fail to receive the authorization of the competent authority and the industry competent authority.
11. Those roadway and athletic facility development projects that fail to receive the authorization of the competent authority and the industry competent authority

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<sup>12</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00040010>, Visited, 10.03.2020)

12. Other acts officially pronounced by the central competent authority as prohibited.

The special municipality, county or city shall draft the scope of the drinking water source quality protection area and the certain distance from drinking water intake points.

#### Chapter 5- Penal Provisions

For various activities from NTD 10,000 to NTD 1,000,000 fines and one to five years imprisonment may be given; in some cases, it may be forbidden to make use of the drinking water networks.

#### Water Pollution Control Measures and Test Reporting Management Regulations (March, 8, 2019)<sup>13</sup>

##### Chapter 1 General Principles

Article 3-The types of industrial wastewater are described below:

1. Process wastewater: wastewater formed after manufacturing, processing, repair and treatment
2. Discharged wastewater: wastewater accumulating in the process of recycling
3. Non-contact cooling water: water used exclusively for temperature exchange in heat exchange pipelines
4. Runoff wastewater: wastewater produced from the rain when it washes outdoor facilities, surfaces of buildings or ground surfaces in the outdoor work environment and (raw) materials.

Article 4-Enterprises or sewage systems shall take the water pollution control measures approved by the municipality or county (city) competent authority or any agency commissioned by the central competent authority.

Article 6- When a natural disaster or emergency occurs, enterprises or sewage systems shall treat wastewater or sewage in accordance with the order of the competent authority.

##### Chapter 2 Management of Runoff Wastewater

Article 7- The wastewater or sewage produced by enterprises or sewage systems shall be collected through ditches pipes, or containers within the work environment, and shall not be mixed and collected with rainwater.

#### **Waste Disposal Act (June 14, 2017)<sup>14</sup>**

##### Chapter 1 General Principles

Article 1- This act is formulated for the effective clearance and disposal of waste,

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<sup>13</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00040054>, Visited, March 11, 2020)

<sup>14</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00050001> Visited, March 11, 2020)

improvement of environmental sanitation and maintenance of public health. The regulations of other laws shall apply to those matters not regulated by this Act.

Article 2- The waste is divided into as “general waste” and “industrial waste”. Industrial waste is also divided in to two as “hazardous industrial waste” and “general industrial waste”.

Article 4-Competent authority as referred to in this Act means the Environmental Protection Administration, Executive Yuan, at the central government level; the municipal government in the special municipalities and the county or city government in counties or cities.

Article 5- “Enforcement authority” as referred to in this Act means the environmental protection bureau of a special municipality government, the environmental protection bureau of a county or city government and the public office of a rural township, urban township or city.

## Chapter 2 The Disposal of the General Waste

Article 17- The Resource Recycling Management Fund shall be used for the following purposes;

1. The payment of recycling, clearing and disposal subsidies
2. The provision of subsidies and incentives for recycling systems and reuse
3. The covering of expenses when the enforcement authority performs disposal on the behalf of others
4. The covering auditing and certification expenses of the impartial auditing and certification group selected and commissioned by the central competent authority
5. Other uses related to general waste resources recycling approved by the central competent authority

Article 24- For the implementation of clearance and disposal of general waste, a special municipality, county or city competent authority shall, based on clearance and disposal costs, collect fees from households and other non-industrial sources within designated clearance areas.

## Chapter 3 Disposal of Industrial Waste

## Chapter 4 The Management of Public and Private Waste Clearance and Disposal Organizations and Waste Analysis Laboratories

## Chapter 5 Incentives and Penalties

Under this law, those who lead to human death under Article 45 can be sentenced to at least seven years in prison and up to NTD 30,000 fines.

Those who cause injuries to a person can be punished with imprisonment from three to ten years and a fine up to NTD 25,000,000

Those who danger human health and cause illness can be sentenced to prison from one year to seven years and a fine of NTD20,000,000.

Article 46- Those who perform the following acts can be sentenced to a prison sentence of one year to five years and up to NTD 15,000,000 fines.

1. Arbitrary disposal of hazardous waste
2. The responsible person of the enterprise or relevant person fails to store, clear, dispose or reuse waste pursuant to this Act, thereby causing environmental pollution.
3. Providing land refilling or waste pilling without permission from the competent authority
4. Waste storage, clearance, disposal without obtaining the waste clearance, and disposal permission
5. Personnel of the enforcement authority authorize clearance and disposal of general waste to the enterprise without valid permission document.
6. Responsible personnel or relevant personnel of a public or private waste disposal organization, or personnel of the enforcement authority issue a false certificate for the waste not being disposed of.

Article 48- Those who issue false documents or provide false information under this law may be sentenced to up to three years in prison and fines for not more than NTD10,000,000.

Some penalties are included due to being an example.

#### Chapter 6 Supplementary Provisions

Article 74- The competent authority and industry competent authority may designate or authorize professional organizations or relevant organizations to conduct research, training and management for waste management.

### **Environmental Agents Control Act (Dec., 7, 2016)<sup>15</sup>**

#### Chapter 1 General Principles

Article 1- This Act is formulated to prevent harm from environmental agents, preserve human health, and protect the environment.

Article 2- “Competent authority” as referred to in this Act means the Environmental Protection Administration, Executive Yuan, at the central government level, municipality government in special municipalities and the county or city government in counties or cities.

Article 4- The responsibilities of special municipality, county and city competent authorities are as follows:

1. Planning and implementation of environmental agents control action programs and plans under jurisdiction.

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<sup>15</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=O0060001>  
Visited, March 12, 2020)

2. Implementation of environmental agents control laws and regulations, and drafting, interpretation and implementation of environmental agents control laws and regulations under jurisdiction.
3. Environmental agents control research, development and public awareness.
4. Environmental agents control statistics compilation and reporting tasks under jurisdiction.
5. Other environmental agents control matters under jurisdiction.

#### Article 5-

1. The term of “environmental agents” means the following types of chemical agents or microbial preparations used for environmental sanitation and pollution control.

#### Chapter 5 Penal Provisions

Article 42-Those that manufacture, process or import counterfeit or prohibited environmental agents thereby causing human death shall be punished by a maximum of 10 years imprisonment and may be fined maximum of NTD 3,000,000; those that cause severe injury shall be punished by a maximum of a five years imprisonment and may be fined a maximum of NTD 2,000,000; those that cause harm human death such that it leads to illness shall be punished by a maximum of three years imprisonment and may be fined a maximum of NTD 1,000,000.

#### **Environmental Impact Assessment Act (Jan., 8, 2003)<sup>16</sup>**

First Environmental Impact Assessment Law is enacted in December 30, 1994.

The law of Environmental Impact Assessment of 2003 is below:

#### Chapter 1 General Principles

Article 1-This act is formulated to prevent and mitigate the adverse impact of development activity on the environment in order to achieve the goal of environmental protection. The regulation of other laws shall apply to those matters not regulated by this Act.

Article 2-The competent authority referred to in this Act means the Environmental Protection Administration, Executive Yuan, at the central government level, the municipal government in special municipalities and the county or city governments in counties or cities.

Article 3-Competent authorities at all levels shall establish an Environmental Impact Assessment Review Committee in order to review matters related to environmental impact assessment reports. Terms for the members of the Committee shall be two years and experts and scholars may not account for less than two-thirds of the total number of Committee members. When the industry competent authority is the developer, industry competent authority members shall withdraw from the voting process.

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<sup>16</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=O0090001>  
Visited, March 14, 2020)

Article 5- Environmental impact assessments shall be conducted for the following development activities for which there is concern of adverse impact on the environment:

1. The establishment of a factory or the development of an industrial park
  2. The development of a road, railway, mass rapid transit system, harbor or airport
  3. The extraction of soil and rock or the exploration and extraction of minerals
  4. The development of water storage, water supply, flood control, drainage projects
  5. The development or use of land for agriculture, forestry, fisheries or livestock
  6. The development of recreational areas, scenic areas, golf courses or sports fields
  7. The development of cultural, educational or medical facilities
  8. The construction of new municipal districts, construction of tall buildings, renovation of old municipal districts
  9. The construction of environmental protection projects
  10. The development of nuclear energy or other energies or the construction of radioactive waste storage or treatment facilities
  11. Those other activities officially announced by the central competent authority
- Chapter 2 Assessment, Review and Supervision

Article 7-When applying for permission for a development project, the developer shall submit an environmental impact statement to the industry competent authority, which shall then transfer the environmental impact statement to the competent authority for review.

The competent authority shall, within fifty days, complete a review conclusion.

### Chapter 3 Penal Provisions

Article 20- Those who knowingly include incorrect information in the documents may receive up to three years' imprisonment and up to NTD 30,000 fines.

Article 21- If the entrepreneur does not comply with the decision to postpone its action by the competent authority of the industry, shall be punished by a maximum of a three years imprisonment, detention and may be fined a maximum of NTD 300,000.

Article 22- Entrepreneurs who continue their activities under Article 5, before obtaining the approval of the competent authority pursuant to Article 7, may receive fines from NTD 300,000 to NTD 1,500,000. When necessary, the competent authority may order the activity to be suspended directly. Those who do not comply with this order can receive up to 3 years imprisonment and up to NTD 300,000 fines.

### Chapter 4 Supplementary Provisions

Article 25- The central competent authority in conjunction with Ministry of National Defense shall separately determine the environmental impact assessment process for those development activities that involves military secrets or emergency national defense construction projects.

Article 26- The central competent authority shall separately determine the environmental impact assessment process for government policy for which there is concern for environmental impact.

## **Soil and Groundwater Pollution Remediation Act (Feb 03, 2010)<sup>17</sup>**

### Chapter 1 General Principles

Article 1- This Act is formulated to prevent and remediate soil and groundwater pollution, ensure the sustainable use of soil and groundwater, enhance the living environment, and protect public health.

Article 3- The competent authority referred to in this Act means the Environmental Protection Administration, Executive Yuan, at the central government level, the municipal government in special municipalities and the county or city government in counties or cities.

Article 4- The responsibility of the central competent authority are as follows:

1. Planning, drafting, supervision and implementation of national soil sediment and groundwater pollution prevention and remediation policies, programs and plans.
2. National soil and groundwater pollution monitoring and testing
3. Drafting, deliberation and interpretation of soil, sedimentation and groundwater pollution remediation laws and regulations
4. Supervision, assistance and approval of soil, sedimentation groundwater pollution prevention, monitoring and remediation work by special municipality, county or city competent authorities.
5. Coordination of soil, sedimentation and groundwater pollution remediation work involving two or more special municipalities, counties or cities
6. Management of the Soil and Groundwater Pollution Remediation Fund
7. Certification and management of soil, sedimentation and groundwater testing organization
8. Soil and groundwater pollution prevention and remediation research, development and public awareness
9. International cooperation, technology exchanges and personnel training related to soil and groundwater pollution remediation
10. Other national soil, sedimentation and groundwater pollution prevention and remediation matters

Article 5- The responsibility of the special municipality, county and city competent authorities are as follows;

1. Planning, drafting and implementation of soil, sedimentation and groundwater pollution prevention and remediation action programs and plans within a jurisdiction
2. Drafting and interpretation of the autonomous soil, sedimentation and groundwater pollution remediation laws and regulations within a jurisdiction
3. Implementation of soil and groundwater pollution prevention, monitoring and remediation work within a jurisdiction

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<sup>17</sup> <https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00110001>, Visited, March 15, 2020)

4. Soil and groundwater pollution prevention and remediation research, development and public awareness within a jurisdiction
5. Special municipality, county or city soil and groundwater pollution prevention and remediation personnel training work within a jurisdiction
6. Other soil, sedimentation, groundwater pollution management, prevention and remediation matter within the jurisdiction

## Chapter 2 Prevention Measures

Article 6- Competent authorities at all levels shall regularly monitor the quality of the soil and groundwater within its jurisdiction.

The following local industry competent authorities shall regularly test soil and groundwater quality in accordance with pollution trends in the area, and submit the resulting data to the special municipality, county or city competent authority for future reference:

1. Industrial parks
2. Export processing zones
3. Science-based industrial parks
4. Environmental technology parks
5. Agricultural technology parks
6. other specially designated zones officially announced by the central competent authority

The industry competent authorities in charge of the following water bodies shall regularly test bottom sediment quality:

1. Rivers
2. Irrigation canals
3. Lakes
4. Reservoirs
5. Other specially designated surface water bodies officially announced by the central competent authority.

## Chapter 4 Regulatory Measures

Article 17-The following actions are prohibited within a soil and groundwater pollution control zones:

1. Putting pollutants into soil
2. Injecting wastewater sewage into a groundwater body
3. Discharging wastewater and sewage into soil
4. Other control activities officially announced by the competent authority

The following land use activities are prohibited within a soil and groundwater pollution control zone, and the entry of personnel may be restricted:

1. Development actions prescribed in the Environmental Impact Assessment Act
2. Construction of new or additional, alteration, renovation, or demolition of buildings or facilities until required in a pollution control plan, pollution remediation plan or other

pollution improvement plan

3. Other land use activities that have been designated by the central competent authority as affecting the health and living environment of the residents

A special municipality, county or city competent authority may prohibit the drinking or use of groundwater, or utilization as a drinking water source, within a groundwater pollution control zone.

#### Chapter 7 Penal Provisions

Article 32- Those who cause human death by activities prohibited by law, vertebral imprisonment or at least seven years in prison and maximum NTD 5,000,000 fines; those who cause injuries will be able to get up to three years' imprisonment and NTD 3,000,000 fines.

#### Chapter 8 Supplementary Provisions

Article 48: Each industry competent authority shall provide guidance to enterprises on the prevention and remediation of soil and groundwater pollution.

The main factors affecting public life and public policy have emerged as a result of political, economic and social changes in the contemporary world (Huang and Ou, 2017: 14). In this direction, the legal regulations of the countries are shaped under the effects the conditions required by the international and national developments. Environmental problems, which started to affect the lives of countries in the world and entered the agenda in the 1970s, also revealed the importance environmental education in time and caused the countries to make new legal regulations on this issue.

### **Environmental Education Act** (Nov. 29, 2017)<sup>18</sup>

#### Chapter 1 General Principles

Article 1- This Act is formulated to promote environmental education, assist citizens to understand the interaction of individuals and society with the environment, and enhance the environmental awareness, environmental ethics ,and responsibility of the nation taking as a whole, so as to safeguard the ecological balance of the environment, respect lives, promote social justice, and cultivate environmental citizens and environmental learning communities in order to achieve sustainable development.

Article 2- The competent agency the Act refers to is the Environmental Protection Administration, Executive Yuan on the central government level; the central-ruled municipal government at a central-ruled municipality; a county (municipal) government at a county (municipal) municipality.

Article 3- The important definitions contained in this law are as follows:

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<sup>18</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00120001>  
Visited, 12.03.2020)

1.Environmental education: Referring to the adaptation of educational means by which to culminate citizen to understand their ethnical relationship to the environment, enhance the citizens' environmental protection awareness, skills, attitudes and values, and steer the citizens to emphasize the environment and adopt actions to achieve a civility education progress that harbors sustainable development.

2.Environmental education entities: Referring to what the competent central government authorities have certified agencies (institutions), enterprises or organizations for staging the environmental education personnel training or environmental seminars.

3. Environmental protection laws and self-governance acts:

a) Referring to what the competent central government authorities had enacted of environmental protection related laws

b) what the central-ruled municipalities, and county (municipal) municipalities have been authorized for enacting environmental protection-related self-governance as per the self-governance measures, or as per the laws and regulations, or as per the highest laws and regulations

Article 4- Environmental education subjects encompass the entire citizenry, various organizations, enterprises, government agencies (institutions) and school districts.

Chapter II Environmental Education Policy

Article 5-The competent central government authorities, for the purpose of promoting the national environmental education policy, shall enact a national environmental education abstract, which is to be filled with the Executive Yuan for approval and finalization.

The aforesaid abstract shall undergo a comprehensive review at least ones every four years.

Article 6- The competent central government authorities shall draft and define a national environmental education action plan in consultation with the competent central government authorities in charge of the intended enterprises by adhering to the preceding paragraph's national environmental education abstract.

Chapter III Environmental Education underwriting Agency's Responsibilities

Article 8-The competent government authorities of all levels and the competent central government authorities in charge of the designated enterprises shall allocate a budget as per the national environmental education abstract, and environmental education action plan, with which to carry out environmental education-related measures.

The competent government authorities at all levels are required to set up an environmental education fund, and its funding sources are as follows,

1. From the environmental education fund set up by the competent government authorities of all levels, an expenditure budget amount at least five percent is to be allocated per year; which is to be allotted as subsidy (donation) fund, except where there is no cumulative surplus on said fund.

2. From the proceeds the execution agency derives from executing the waste recycling work as per the Waste Cleanup Act, ten percent of the amount is to be allocated and

allotted each year.

3. From the proceeds of penalty fines the competent government authorities of all levels have collected for breaching the environmental protection law or self-government acts, five percent which is to be allocated and allotted each year.

4. Fund interest gains

5. Donations by the people, businesses and organizations

6. Other forms of income

Article 9- The purpose of the environmental education fund shall be utilized for staging the following measures as enlisted under Article 5 to Article 7 of the national environmental education abstract, and the environmental education action plan.

1. To stage environmental seminars

2. To stage environmental education campaign and activity

3. To compile environmental education teaching materials, campaign literature and handbooks

4. To conduct environmental education research and development

5. To promote environmental education global exchange and cooperation

6. To subsidize environmental education facility or venues in staging environmental education activity

7. To facilitate environmental institutions stage environmental education personnel training or environmental seminars

8. To subsidize the stage of environmental education plans

9. To train environmental education personnel

10. Other environmental education-related promotion efforts

Article 11-The competent central government authorities are to appoint experts, academics and relevant governmental agency (institution), organization representatives to launch a national environmental education review board to review, coordinate and advice on national environmental education abstract and action plan.

Article 12-The competent central-ruled municipality and county (municipal) municipality authorities are to appoint experts, academics and relevant governmental agency (institution), organization representatives to launch an environmental education review board to review, coordinate and advise on a central-ruled municipality or county (municipal) municipality's environmental education action plan, with which to excel a jurisdiction's environmental education implementation and development.

Article 13-The competent authorities of all levels and the central industry competent authorities shall appoint a department or person that is in charge of environmental education for the planning propaganda, promotion, guidance, rewarding and assessment of environmental education.

#### Chapter IV Environmental education promotion and incentive rewards

Article 19- Institutions, state-run business institutions, high schools and secondary schools, and statutory bodies with over 50% of the funds sponsored by the government shall formulate environmental education programs every year to promote environmental education. All employees, teachers, and students shall attend an environmental education program for more than four hours

Article 20- The competent government authorities of all levels and the competent central government authorities in charge of specific enterprises are to spearhead the reward of the following:

1. The private sector that utilizes public or private idle space or buildings to launch environmental education facility, venues.
2. General citizens who voluntarily participate as environmental education volunteers.

Article 21- The competent government authorities of all levels and the competent central government authorities in charge of specific enterprises may provide incentive regards to those rendering environmental education with excellent results.

Article 22- The central competent authorities together with the Ministry of Science and Technology, the Ministry of Education, and the competent authorities shall enhance the environmental education related studies in order to perfect the environmental education system and continue to effectively promote environmental education.

#### Chapter V Penalty Clause

Article 23- A person may be fined NTD 5,000 if one violates environmental protection laws. The competent agency will be able to impose these individuals on one hour to eight hours of environmental protection seminars.

Article 24- For various actions, it will be possible to participate in environmental protection seminars form one hour to eight hours with a fine of NTD 5,000 to NTD 15,000.

As we can see from the legal regulations in Taiwan, the environmental issues are regulated in a comprehensive and detailed manner in laws and regulations.

### **5. Environmental Management in Taiwan**

Environmental Protection Administration, one of Taiwan's most important organizations, includes the following units in the current organizational chart (<https://www.epa.gov.tw/eng/>):

Office of Sustainable Development

Department of Comprehensive Planning

Department of Air Quality Protection and Noise Control

Department of Water Quality Protection

Department of Waste Management

Department of Environmental Sanitation and Toxic Substance Management

Department of Supervision Evaluation and Dispute resolution

Department of Environmental Monitoring and Information Management

Bureau of Environmental Inspection

1.Northern Branch BEI

2.Central Branch BEI

3.Southern Branch BEI

Air Pollution Control Fund Management Board  
Recycling Fund Management Board  
Soil and Groundwater Remediation Fund Management Fund  
Environmental Analysis Laboratory  
Environmental Professionals Training Institute  
Toxic and Chemical Substances Bureau

Offices of Personnel, Accounting, Civil Service Ethics, Statistics, and the Secretariat  
Committees for Legal Affairs, Petitions, and Appeals, Public Nuisance Arbitration

Environmental Police Unit  
Local Environmental Departments

Taiwan Environmental Protection Administration lists its responsibilities under the following topics (<https://epa.gov.tw/eng/33CB2...> Visited: March 27, 2020; Williams and Chang, 2008: 99):

Control of Pollution: Air pollution control, air quality protection control, Water pollution control, soil and groundwater pollution control, noise pollution and vibration control, waste management, toxic substance management, environmental sanitation management, non-ionization radiation control

Environmental Management: environmental protection plan, environmental analysis, environmental impact assessment, drinking water management, environmental training and education, recycling, environmental quality monitoring, environmental statistics, eco labeling, international cooperation

The other topics of Environmental Protection Administration (<https://www.epa.gov.tw/eng>, Visited: April 6, 2020):

- Air: Air quality; environmental monitoring
- Water: water; soil and groundwater; environmental monitoring; river water quality monitoring
- Resources Circulation: solid waste; resource recycling; green mark
- Environmental Impact Assessment, Education and Training: environmental impact assessment; environmental education; environmental training; international cooperation; sustainable development; science and technology development
- Pollution Control and Others: control and evolution; noise control; non-ionizing radiation; environmental analysis; environmental inspection; toxic and chemical substances

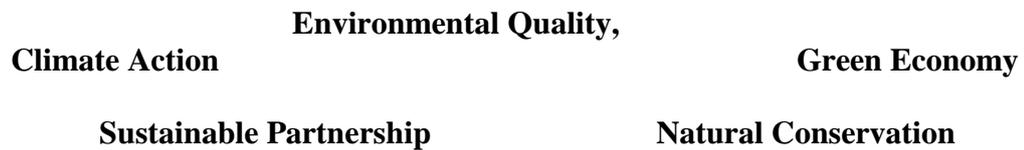
Taiwan National Environmental Protection Plan 2020 focuses the duties of the Ministry of Environment and Natural Resources and is prepared according to the Agenda 2030 for Sustainable Development. The goals of the Plan are achieved through the collaboration of government with organizations and departments at all levels toward environmental protection (Taiwan National Environmental Protection Plan 2020).

Some of the documents to be observed in environmental protection in Taiwan are as follows: (Environmental Protection Administration-Taiwan National Environmental Protection Plan 2020):

Basic Environment Act

Taiwan National Environmental Protection Plan  
Local Environmental Protection Plan

In order to reach sustainable development goal, planet, people, prosperity, peace and partnership will be taken into consideration (Environmental Protection Administration-Taiwan Environmental Protection Plan 2020):



According to Taiwan National Environmental Protection Plan 2020, there are five perspectives and 13 issues (Taiwan Environmental Protection Programme 2020):

- Climate Action: Climate change response, Watershed management and erosion control
- Environmental Quality: Environmental impact assessment, Atmospheric environment, Drainage basin management, Chemical substance control
- Natural Conservation: Terrestrial ecological conservation, Marine conservation, Investigation and monitoring of environmental resources
- Green Economy: Resource circulation, Environmental technology
- Sustainable Partnership: Environmental education, Social engagement

Strategies of Environmental Protection Plan 2020 (Taiwan National Environmental Protection Plan 2020);

- Complete the base of rules
- Pollution reduction
- Development and application of technological research
- Sustainable biological resources
- Strengthen national awareness
- Public engagement and international collaboration

Content of Environmental Protection Plan 2020- Qualitative Goals (Taiwan National Environmental Protection Plan 2020):

Long term (2030)

- Ensure environmental safety
- Change economic model and lifestyle
- Form the green living environment
- Live harmoniously with environment

Midterm (2025)

- Enhance environmental quality
- Increase energy and resources recycling
- Maintain natural ecology management

Short term (2020)

- Improve environmental quality
- Protect national health

-Maintain bio-diversity

Content of Taiwan National Environmental Protection Plan 2020- Quantative Goals (Taiwan National Environmental Protection Plan 2020):

-Living with the wild

-zero forest loss

-breathe comfortably

-Lower carbon, lower harm

-Enjoy clean water

-garbage is gold

Strategies of Taiwan National Environmental Protection Plan 2020:

Strategies for Issue 1- Climate change response;

-The basics of a sound legal system

-Step-by-step strategies to promote greenhouse gas reduction

-Deepen education and awareness of climate change

-Improving our climate change adaptability

-Deepen international cooperation and participate in internal activities

Strategies for Issue 2-Watershed management and erosion control;

-Improve related laws and realize hillside conservation

-Built smart disaster prevention for slope land

-Realize bottom-up autonomous disaster prevention

-Improve the treatment of sediment hazards in watersheds

-Realize slope land supervision and management

Strategies for Issue 3-Environmental Impact assessment (EIA);

-Improvement and innovation for EIAs

-Improve the efficiency of EIA reviews

-Realize the freedom of information and public participation in EIAs

-Realize the supervisory mechanisms of EIAs

-Encourage ministries to realize EIA process positively when they submit an environmental concerns policy

Strategies for Issue 4-Atmospheric environment;

-Complete rules and economic incentives; strengthen central and local work division and management

-Promote environmental education, strengthen air quality knowledge and promote public engagement

- Integrate energy, industry, transportation and other policies, strengthen source reduction

-Promote background research and prevention technology development, and strengthen scientific evidence bases

-Promote international air quality improvement exchanges and agreements and reduce the spread of pollution

-Build air cleaning facilities

-Carry out river dust control measures

Strategies for Issue 5-Drainage basin management;

-Pollution reduction

-Reservoir activation

- Groundwater protection
- Drinking water safety
- Integrated drainage basin management
- Promote scientific and technological research and development, and international collaboration and exchanges

Strategies for Issue 6-Chemical substances control;

- National governance
- Risk reduction
- Management capacity
- Knowledge establishment
- Cross border management

Strategies for Issue 7-Terrestrial ecological conservation

- Promote the conservation of species diversity
- Promote the conservation of biodiversity in ecological habitats
- Reduce habitat loss, land use change and degradation
- promote sustainable biological resources
- Enhance forest land protection, and implement land rehabilitation and security

Strategies for Issue 8- Marine Conservation;

- Complete legislation and regulations
- Complete marine ecological conservation, and inventory and integrate marine protected areas
- Optimize the marine environment
- Educational advocacy for marine environmental conservation and citizen awareness
- Deepen international cooperation and participate in international events

Strategies for Issue 9-Investigation and monitoring of environmental resource;

- Take inventory and roll out investigation and monitoring system technology
- Integrate environmental databases
- Provide applications and services based on the environmental database

Strategies for Issue 10-Circulation of resources;

- Strengthen the implementation of proper general waste disposal policies
- Implement proper business waste disposal policies
- Promote the integration of resources in industrial parks to accelerate the formation of low-carbon and circular industries
- promote sustainable material recycling
- Promote industrial green design

Strategies for Issue 11-Environmental technology;

- Promote the development of green technology
- Zero waste full recycling technology (FRT)
- Advise industry on enhancing environmental technology capabilities
- Improve environmental detection technology, and assist with chemical source control
- Promote research applications on cutting edge environmental protection technology, pollution remediation and environmental management

Strategies for Issue 12-Environmental education;

- Complete related legislation and build up civic organizations and environmental

education sites

- Deepen quality of environmental education and information
- Use multiple promotion methods
- Promote green living movement (GLM) for all. (Including review of green building material usage rate, etc.)

Strategies for Issue 13-Social engagement;

- Individual, community and social engagement
- Promote public-private partnerships
- Promoting international collaboration on environmental protection

Taiwan Environmental Protection Administration, with all its units, pioneers Taiwan's sustainable development goal, making laws accordingly, promoting environmental education and environmental consciousness.

“In the process of more than 30 years of environmental protection promotion, the Environmental Protection Administration has come to realize that when the pollution control technology and standardized management have achieved certain results, people's willingness to re-examine and change their lifestyle is critical for the pursuit of environmental sustainability” (Interview with Environmental Protection Administration, May, 29, 2020).

“The Environmental Protection Administration has carried out environmental protection work from the early years of end-of-pipe treatment to the present work of source control, and progressed from setting regulations and standards to the provision of economic incentives. The strategies and methods of environmental management are advancing with the nature of environmental problems and changes in the social and economic environment” (Interview with Environmental Protection Administration, May, 29, 2020).

“In a recent interview with a reporter from the Central News Agency, Minister Chang Tzi-Chin specifically mentioned that he hoped there would be some new changes in waste management in the future. He also stated that the biggest transformation he hoped to advocate was the promotion of the "Green Life Movement"(Interview with Environmental Protection Administration, May, 29, 2020).

Environmental Protection Administration manage and regulate environmental activities, they are regulators. There are different responsibilities of different ministries, their interacted perspectives may be different according to their economic interests. Energy Bureau of Taiwan deals with renewable energy. They perceive their roles. How do you set up projects is also important for the environment if it is not set up in an environmental sense, the activity may destroy environment? if you put solar system on farming area that will demolish environment. How to set of facilities are also related with environment (Interview with Prof. Tu, Wen-Ling, Department of Public Administration, Dean of International College of Innovation, National ChengChi University, July, 8, 2020).

Environmental Protection Administration's work on global environmental problems proceed as follows:

“According to the report from the United Nations Global Environment Outlook, it is still difficult to reach sustainable development goals in 2050 with the policies currently implemented by countries around the world. Stronger and more powerful measures are needed to promote the implementation. We need to develop long-term economic and social structural adjustment in order to change human behaviors” (National Environmental Protection Plan)” (Interview with Environmental Protection Administration, May, 29, 2020).

“Therefore, the Environmental Protection Administration has given great attention to environmental education in the promotion of environmental protection in recent years. The EPA not only clearly revealed the importance of environmental education in the National Environmental Protection Law, but also approved the "National Environmental Education Program" in 2016. And also pointed out that environmental education is based on the concept of "One Earth, Environmental Justice, Generational Well-being and Sustainable Development". The goal is to enhance environmental knowledge, skills, attitudes, and values of all citizens, and promote environmental protection and take various actions. Environmental education encourages individuals to understand the interdependence between individuals and society and the environment, and enhances the environmental ethics and responsibilities of all people. Furthermore, it maintains the ecological balance of the environment, respects life, promotes social justice, and cultivates environmental citizens and environmental learning communities to achieve sustainable development.

### **5.1 Public Environmental Organizations in Taiwan**

Established in 1987 at second-level ministerial level, a milestone in Taiwan’s environmental management, the Environmental Protection Administration is the top body in Taiwan’s environmental management. The establishment of the Taiwan Environmental Protection Administration also coincides with the end of martial law. In this period, environmental policies were enacted by various organizations and government units for environmental protection (Williams and Chang, 2008: 90).

**Taiwan Environmental Protection Administration** is established in August 22, 1987 as a result of measures that the Taiwan government stated to take at different levels in response to the environmental problems experienced in the late 1960s and early 1970s. In 1974, the first laws were introduced regarding solid waste disposal, water pollution and air pollution problems. During this period, an integrated plan was put forward to control pollution and protect the quality of life and was implemented under the name of Environmental Protection Scheme. In 1982, the Bureau of Environmental Protection under the department of Health, the Department of Environmental Protection under the Taipei Municipal Government and a similar environmental protection unit under the Kaohsiung Municipal Government are established. In Taiwan, in parallel with the problems lying in this period, coordination between various units was ensured, and in 1985 ad hoc Environmental Protection Committee directly affiliated to the Executive Yuan was established at the ministerial level. Environmental Protection Administration was established with the upgrade of the Bureau of Environmental Protection in 1987, and in the early 1988s the Provincial Environmental Protection Bureau was promoted to the Department of Environmental Protection. By the end of 1988, various levels of environmental organizations were established in Taiwan (Williams and Chang, 2008: 90-91).

The National Council for Sustainable Development (NCSD), an advisory body affiliated with the Executive Yuan, was established to address the global change challenge in 1987 to extend and coordinate the sustainable development goal to government units. The National Council for Sustainable Development (its president was Vice President and the executive secretary headed the Environmental Protection Administration), an inter-ministerial interagency group, was originally created to address the global climate change problem. The National Council for Sustainable Development, the advisory body of the central government on certain issues, served with nine groups. Those groups are Sustainable Vision; National Land and Transportation; Resources and Industry; Biodiversity; Livelihood and Production; International Environmental Protection; Health Risks; Sustainable Education and Climate Change and Kyoto Protocol Response. The National Council for Sustainable Development had 37 members from senior management positions in the government (Williams and Chang, 2008: 91; Williams and Chang, 2008: 31).

The main duties of NCSD are; to enhance the protection of the environment; to guarantee social fairness and justice; to promote economic development; to conserve national land and resources; to build healthy sustainable communities, and to pursue national sustainable development (<http://ncsd.org.index.php/sustainable...> Visited: August, 27, 2020)

“Taiwan’s process in setting up the objectives of Sustainable Development: Based on the U.N.’s objectives of Sustainable Development, the National Sustainable Development Committee of Executive Yuan had set up the objectives of Taiwan’s Sustainable Development in Nov, 2016 and initiated the 2020 specific objectives and corresponding indices in 2017. It also held the North, Central and South Taiwan citizen forums. The National Sustainable Development Committee also used the public policy internet participating platform to hold the second stage citizen forum and initiated the 2030 specific objectives and corresponding indices. Finally, the committee presented 18 core objects, 143 specific objectives and corresponding indices.” (Interview with The Bureau of Energy, Ministry of Economic Affairs, September, 10, 2020)

The main goals of Environmental Protection Administration; “Since its establishment in 1987, the EPA has been taking “blue sky and green earth”, “clean water”, “citizens’ participation in environmental protection”, and “health and sustainability” as its policy vision. The Executive Yuan recently approved the "National Environmental Protection Plan" on February 14, 2020. The plan compiled with the organizational scope of the Ministry of Environment and Natural Resources as the main body, echoing the United Nations Agenda 2030 sustainable development agenda, and considering domestic and international environmental protection development trends and key issues. The plan also proposes short-, mid-, and long-term implementation strategies and targets. It declares that by 2030, Taiwan will strive to achieve the visions of "less carbon, fewer disasters", "freely breathing", "enjoying clean water", "turning waste into resources", "zero forest loss", "coexisting with the wild"” (Interview with Environmental Protection Administration, May 29, 2020).

“According to the visions in the National Environmental Protection Plan, each stage and goal is set separately. And we hope by 2030, it will be possible to achieve environmental safety, reviving the economy and lifestyle, shape a green eco life, and

realize the vision of harmonious coexistence between people and the environment” (Interview with Environmental Protection Administration, May 29, 2020).

“The qualitative objectives of each period are: Short-term (2019-2020)- Improve environmental quality, protect national health, and maintain biodiversity.<sup>[1]</sup> Mid-term (2021-2025)- Improve environmental quality, strengthen energy resource recycling, and maintain natural ecological management” (Interview with Environmental Protection Administration, May 29, 2020).

“Long-term (2026-2030)- Ensure environmental safety, revive economy and lifestyle, shape a green eco life, and realize the vision of harmonious coexistence between people and the environment”, (Interview with Environmental Protection Administration, May 29, 2020).

There are some critiques related with the Environmental Protection Administration– (Interview with Jhang, Jhu-Cin (Rita), PhD., Green Party Taiwan, May 20, 2020):

EPA has strict rules, but low fines.  
Government makes zoning for different purposes (for farming, industry, housing etc) but industry sometimes occupy farming area, and build industrial buildings so we do not have enough farm lands.

Other than the Environmental Protection Administration, the organizations working under the Executive Yuan and indirectly related to environmental problems are as follows (Williams and Chang, 2008: 92-93):

- 1.The Ministry of Economic Affairs’ Industrial Development Bureau, Water Resources Agency, Bureau of Energy (and there is Taiwan Water Cooperation under National Corporations) There is also units related with environmental protection under the Executive Yuan) (<https://moea.gov.tw/MNS/eng>, Visited: March 26, 2020)
- 2.The Ministry of Interior manages the Department of National Parks under the Construction and Planning Agency.
- 3.The Department of Information and Technology Education is under the Ministry of Education to popularize environmental education (<https://english.moe.gov.tw/>, Visited: April 04, 2020).
4. The Council of Agriculture aims to improve the conditions of the farmers and the agricultural sector. This Council manages Agriculture and Food Agency, Taiwan Forestry Bureau, Agricultural Research Institute, Forestry Research Institute, Animal Health Research Institute, Taiwan Agricultural Chemicals and Toxic Substances Research Institute and the Bureau of Water and Soil Conservation (<https://eng.coa.gov.tw/ws.php>, Visited: April 4, 2020).
- 5.The environmental units of Taiwan Provincial Government shut down in 1990s.
6. There is the Environmental Protection Bureau in 16 Counties and five provincial level cities (Chiayi, Hsinchu, Keelung, Taichung and Taian). Those units operate under the Environmental Protection Administration (after Taiwan Provincial Government shut down) at the levels of County and city. In Taiwan there are 16 Counties, five cities, 23 the Environmental Protection Bureau in Taipei and Kaohsiung.

Apart from these, there are some units under the Ministry of Transportation and Communication as the Institute of Transportation, and Tourism Bureau. (see for details,

<https://motc.gov.tw/en/index.jsp> (April 04.2020)

There are many units directly related with environment such as the Agriculture and Food Agency, Fisheries Agency, Forestry Bureau, Forestry Research Institute, Agricultural Research Institute, Fisheries Research Institute, Animals Health Research Institute, Taiwan Agricultural Chemicals and Toxic Substances Research Institute under the Council of Agriculture (<https://eng.coa.gov.tw>, Visited: March 26, 2020). The Department of Cultural Resources is under the Ministry of Culture (<https://moc.gov.tw/en/information>, Visited: March 26, 2020)

Atomic Energy Commission is under the Executive Yuan (<https://aec.gov.tw/english/rdc>, Visited: March 26,2020) under the Environmental Radiation Monitoring

- Radiation Monitoring Center
- Natural Background Radiation Dose Assessment in Taiwan
- Real-time Information

“The competent authority for atomic energy operations such as the safety supervision of nuclear power plants, nuclear facilities and radiation workplaces in Taiwan is the Atomic Energy Commission of the Executive Yuan. To implement the government's Non-Nuclear Homeland policy, the AEC is accountable for the control and supervision of nuclear energy as well as radiation safety and emergency response. Furthermore, the AEC is also responsible for the decommissioning of nuclear power plants and the management of nuclear waste safety” (Interview with the Environmental Protection Administration, May 29, 2020).

Besides Taiwan has 13 counties, autonomous three municipalities (Chiayi, Hsinchu, Keelung), Environmental Protection Bureaus in special municipalities such as New Taipei City, Taichung City, Kaohsiung City; the Department of Environmental Protection in Taipei City and Taoyuan City.

“In June 1989 and August 1991, the Ministry of Economic Affairs and the Environmental Protection Administration, respectively, formed committees to respond to the Montreal Protocol on ozone protection. In May 1992, the Executive Yuan formed the Global Change Working Group, chaired by the Environmental Protection Administration's deputy administrator, to coordinate global environment-related activities in all government branches. In December 1996, the Executive Yuan elevated the position of the Global Change Working Group and organized its mission under the name of the National Council of Sustainable Development” (Energy and Resources Laboratories, 1997: 1-2 quoted by Leng, 2005: 204-205).

(Energy and Resources Laboratories, 1997, Sustainable Development in Taiwan: Report to Rio+5, Industry Technology Research Institute, Taipei.)

Since the mid-2000s, there has been a work to centralize the island's environmental management and unify the relevant units under the Ministry of Environment and Natural Resources, including the regulation of water, land and mineral resources, natural parks management, land planning and nuclear power (Grano, 2015: 26). Behind this idea there is the effort to gather the responsibilities and authorities allocated to different units under a single institution. If the Ministry of Environment and Natural Resources is established, the institution will be organized around three main topics; Pollution Control, Resource Use Planning and Nature Conservation (Grano, 2015: 26-

27). In this way, the problem of authority conflict will also be eliminated, with the handling of environmental issues from a single source, faster decisions will be taken on the issue of environment and environmental policies will be enabled easily.

## 1.2. Local Governments in Taiwan and Environment

According to the Basic Environment Act Article 7, paragraph 2; “local governments, in cooperation with the central government, will draft environmental protection plans and autonomous legal relations in accordance with the national environmental protection plans and other legal regulations within the framework of their local authorities within natural and social conditions. The central government will grant local autonomy to local governments to work on environmental protection issues.”

### Local Government Act<sup>19</sup> (June 22, 2016) (Ministry of Interior)

#### Chapter 1-General Provisions

Article 1-This Act is formulated in accordance with Article 118 of the R.O.C. Constitution and Article 9, paragraph 1 of the Amendment of the Constitution of the R.O.C.

Article 3- The local governments are subdivided into the provincial government and special municipalities.

The province is subdivided into counties and cities (hereafter referred to as counties/cities); counties are subdivided into townships and county-administered cities (hereafter referred to as townships/cities). Special municipalities and cities are divided into districts. Townships, county-administered cities, and districts are subdivided into villages. Villages are subdivided into neighborhoods.

Article 4- Regions with population of not less than one million and two hundred fifty thousand (1,250,000) and have special requirements in their political, economic, cultural, and metropolitan developments may establish special municipalities.

Regions with population of not less than five hundred thousand (500,000) but not more than one million and two hundred fifty thousand (1,250,000), and occupy major political, economic, and cultural roles may establish cities.

Regions with population not less than one hundred thousand (100,000) but not more than five hundred thousand (500,000) and possess thriving industrial and commercial development, adequate financial resources for self-government, convenient transportation, and comprehensive public facilities, may establish county-administered cities.

Article 5- The province shall have Provincial Government and Provincial Consultative Council.

Special municipalities shall have councils and governments of the special municipality; counties/cities shall have the county/city councils and governments; townships/cities shall have townships/cities councils and offices which are the legislative and

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<sup>19</sup> (<https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=00020001>, Visited, April 5, 2020)

administrative bodies, respectively, of the special municipalities, counties/cities, and townships/cities,

Districts in special municipality and city shall have district offices.  
Villages shall have village offices.

## Section 2- Self Government Matters

### Article 18- The self-government matters of Special Municipalities;

#### 1. Matters related to organization and administration:

- (1) Election and recall of public officials in the special municipality
- (2) Organization and management of the special municipality
- (3) Household registration and administration in the special municipality
- (4) Land registration and administration in the special municipality
- (5) Press administration in the special municipality

#### 2. Matters related to finances:

- (1) Management of income, expenditures, and finance in the special municipality
- (2) Taxes and levies in the special municipality
- (3) Public debt in the special municipality
- (4) Management and disposition of properties in the special municipality

#### 3. Matters related to social services:

- (1) Social welfare in the special municipality
- (2) Charity businesses and social assistance in the special municipality
- (3) Guidance to private organizations in the special municipality
- (4) Provision of religious guidance in the special municipality
- (5) Establishment and management of cemeteries in the special municipality
- (6) Arbitration in the special municipality

#### 4. Matters related to education, culture, and sports:

- (1) Provision and management of pre-school education, education at different levels, and social education in the special municipality
- (2) Cultural activities in the special municipality
- (3) Sports activities in the special municipality
- (4) Cultural asset preservation in the special municipality
- (5) Rites, traditions, and literature in the special municipality
- (6) Establishment, operations, and management of social education, physical education, and cultural institutions in the special municipality

#### 5. Matters related to labor administration:

- (1) Labor relations in the special municipality
- (2) Labor safety and health in the special municipality

#### 6. Matters related to urban planning and construction:

- (1) Formulation, review, and implementation of urban planning in the special municipality
- (2) Construction administration in the special municipality
- (3) Residential affairs in the special municipality
- (4) Underwater facilities construction and administration in the special municipality
- (5) Construction and administration of parks and green lands in the special municipality
- (6) Disposal of construction wastes soil in the special municipality

7. Matters related to economic services:

- (1) Guidance and administration of agriculture, forestry, fishery, livestock in the special municipality
- (2) Nature conservation in the special municipality
- (3) Guidance and administration of industrial and commercial sectors in the special municipality
- (4) Consumer protection in the special municipality

8. Matters related to water resources

- (1) River regulation and management in the special municipality
- (2) Watershed conservation and management in the special municipality
- (3) Construction and management of flood-prevention and drainage systems in the special municipality
- (4) Survey of the basic water resources information in the special municipality
- (5) Environmental protection in the special municipality

9. Matters related to health and environmental protection

- (1) Health administration in the special municipality
- (2) Environmental protection in the special municipality

10. Matters related to transportation and tourism:

- (1) Road planning, construction, and administration in the special municipality
- (2) Traffic planning, operations, and administration in the special municipality
- (3) tourism in the special municipality

11. Matters related to public safety:

- (1) Police administration and enforcement in the special municipality
- (2) Planning and implementation of disease prevention and rescue in the special municipality
- (3) Civil defense in the special municipality

12. Matters related to operations and management of businesses:

- (1) Joint operation of enterprises in the special municipality
- (2) Public utilities and public-run enterprises in the special municipality

- (3) Enterprises jointly operated with other local-self-government organizations
- 13. Other matters as required by laws and regulations

Article 19- The self-government matters of counties/cities are as follows:

1.Matters related to organization and administration:

- (1) Election and recall of public officials in the county/city
- (2) Organization and the management of the county/city
- (3) Household registration and administration in the county/city
- (4) Land registration and administration in the county/city
- (5) Press administration in the county/city

2.Matters related to finances:

- (1) Management of income, expenditures, and finances in the county/city
- (2) Taxes and levies in the county/city
- (3) Public debt in the county/city
- (4) Management and disposition of properties in the county/city

3.Matters related to social services:

- (1) Social welfare in the county/city
- (2) Charity businesses and social assistance in the county/city
- (3) Guidance to private organizations in the county/city
- (4) Guidance to religions in the county/city
- (5) Establishment and management of cemeteries and burial facilities in the county/city
- (6) Arbitration in the county/city

4.Matters related to education, culture and sports:

- (1) Provision and management of pre-school education, education of different levels, and social education in the county/city
- (2) Cultural activities in the county/city
- (3) Sports activities in the county/city
- (4) Cultural asset preservation in the county/city
- (5) Rites, traditions, and literature in the county/city
- (6) Establishment, operations, and management of social education, physical education, and cultural institutions in the county/city

5. Matters related to labor administration:

- (1) Labor relations in the county/city
- (2) Labor safety and health in the county/city

6.Matters related to urban planning and construction:

- (1) Formulation, review, and implementation of urban planning in the county/city
- (2) Construction administration in the county/city
- (3) Residential affairs in the county/city
- (4) Underwater facilities construction and administration in the county/city

- (5) Construction and administration of parks and green lands in the county/city
- (6) Disposal of construction wastes materials in the county/city

7. Matters related to economic services:

- (1) Guidance and administration of agriculture, forestry, fishery and livestock industries in the county/city
- (2) Nature conservation in the county/city
- (3) Guidance and administration of industrial and commercial sectors in the county/city
- (4) Consumer protection in the county/city

8. Matters related to water resources:

- (1) River regulation and management in the county/city
- (2) Watershed conservation and management in the county/city
- (3) Construction and management of flood-prevention and drainage systems in the county/city
- (4) Survey of basic water resources information in the county/city

9. Matters related to health and environmental protection:

- (1) Health administration in the county/city
- (2) Environment protection in the county/city

10. Matters related to transportation and tourism:

- (1) Road planning, construction, and administration in the county/city
- (2) Traffic planning, operations, and administration in the county/city
- (3) Tourism in the county/city

11. Matters related to public safety:

- (1) Police enforcement in the county/city
- (2) Planning and implementation of disaster prevention and rescue in the county/city
- (3) Civil defense in the county/city

12. Matters related to operations and management of businesses:

- (1) Joint operation of enterprises in the county/city
- (2) Public utilities and public-run enterprises in the county/city
- (3) Public productive enterprises in the county/city
- (4) Enterprises jointly operated with other local self-government organizations

13. Other matters as required by laws and regulations.

Article 20- The self-government matters of Townships/cities are as follows:

1. Matters related to organization and administration:

- (1) Election and recall of public officials in the township/city
- (2) Organization and management of the township/city
- (3) Press administration in the township/city

2. Matters related to finance:

- (1) Management of income, expenditures, and finances in the township/city
- (2) Taxes and levies in the township/city
- (3) Public debt in the township/city
- (4) Management and disposition of properties in the township/city

3. Matters related to social services:

- (1) social welfare in the township/city
- (2) Charity businesses and social assistance in the township/city
- (3) Establishment and management of cemeteries and burial facilities in the township/city
- (4) Arbitration in the township/city

4. Materials related to education, culture, and sports:

- (1) Provision and management of social education in the township/city
- (2) Cultural activities in the township/city
- (3) Sport activities in the township/city
- (4) Rites, traditions, and literature in the township/city
- (5) Establishment, operations, and management of social education, physical education, and cultural institutions in the township/city

5. Matters related to environmental sanitation and health:

Waste disposal and handling in the township/city

6. Matters related to construction, transportation, and tourism:

- (1) Road construction and administration in the township/city
- (2) Construction and administration of parks and green lands in the township/city
- (3) Traffic planning, operations, and administration in the township/city
- (4) Tourism in the township/city

7. Matters related to public safety:

- (1) Planning and implementation of disaster prevention and rescue in the township/city
- (2) Civil defense in the township/city

8. Matters related to operations and management of businesses:

- (1) Public utilities and public-run enterprises in the township/city
- (2) Public productive enterprises in the township/city
- (3) Enterprises jointly operated with other local self-governing bodies

9. Other matters as required by laws and regulations

Section 5-Local Finance

Article 63- The sources of income of special municipalities are as follows:

1. Income from taxes
2. Income from construction project profits

3. Income from fines and compensations
4. Income from charges and fees
5. Income from trust management
6. Income from properties
7. Income from operational profits and enterprise earnings
8. Income from subsidies
9. Income from donations and contributions
10. Income from self-government taxes
11. Other income

Article 64- The sources of income of counties/cities are as follows:

1. Income from taxes
2. Income from construction project profits
3. Income from fines and compensations
4. Income from charges and fees
5. Income from trust management
6. Income from properties
7. Income from operational profits and enterprise earnings
8. Income from subsidies and assistance
9. Income from donations and contributions
10. Income from self-government taxes
11. Other income

Article 65- The sources of income townships/cities are as follows:

1. Income from taxes
2. Income from construction project profits
3. Income from fines and compensations
4. Income from charges and fees
5. Income from trust management
6. Income from properties
7. Income from operational profits and enterprise earnings
8. Income from subsidies
9. Income from donations and contributions
10. Income from self-government taxes
11. Other income

Article 66- National taxes and special municipality and county/city taxes shall be allocated to special municipalities, counties/cities, townships/cities in accordance with the provisions of the Act Governing the Allocation of Government Revenues and Expenditures

#### Chapter 4-1- Mountain Indigenous Districts of Special Municipalities

Article 83-2 – Districts of special municipalities that have been converted from mountain indigenous townships shall be referred to as mountain indigenous districts of special municipalities

Article 83-3- The self-government matters of mountain indigenous districts are as

follows:

1.Matters related to organization and administration:

- (1) Election and recall of public officials in the indigenous districts
- (2) Organization and management of the indigenous districts
- (3) Press administration in the indigenous districts.

2.Matters related to finances:

- (1) Management of income, expenditures, and finances in the indigenous districts
- (2) Management and disposition of properties in the indigenous districts

3.Matters related to social services

- (1) Social welfare in the indigenous districts
- (2) Charity businesses and social assistance in the indigenous districts
- (3) Establishment and management of cemeteries and burial facilities in the indigenous districts
- (4) Arbitration in the indigenous districts

4. Matters related to education, culture, and sports:

- (1) Provision and management of social education in the indigenous districts
- (2) Cultural activities in the indigenous districts
- (3) Sport activities in the indigenous districts
- (4) Rites, traditions, and literature in the indigenous districts
- (5) Establishment, operations, and management of social education, physical education, and cultural institutions in the indigenous districts

5. Matters related to environmental sanitation and health  
Waste disposal and handling in the indigenous districts

6.Matters related to construction, transportation, and tourism

- (1) Road construction and administration in the indigenous districts
- (2) Construction and administration of parks and green lands in the indigenous districts
- (3) Traffic planning, operations and administration in the indigenous districts
- (4) Tourism in the indigenous districts

7.Matters related to public safety:

- (1) Planning and implementation of disaster prevention and rescue in the indigenous districts
- (2) Civil defense in the indigenous districts

8.Matters related to operations and management of businesses:

- (1) Public utilities and public-run enterprises in the indigenous districts
- (2) Public productive enterprises in the indigenous districts
- (3) Enterprises jointly operated with other local self-governing bodies

## 9. Other matters as required by laws and regulations

Local governance units are responsible for many issues such as, environmental protection, health management, protection of water resources, prevention of disaster, park and green areas building and management, traffic management, road construction, tourism. They work in cooperation with the central government for the protection and improvement of environment as a unity.

### **5.3. Environmental NGOs (Non-governmental organizations) in Taiwan**

Non-profit sector working in the environmental field in Taiwan is increasing. In a study conducted in the 1990s, non-profit organizations were discussed under two headings: non-social movement oriented and social movement oriented.

The second group played an important role in the democracy movement that flourished after the 1980s. Another classification was made in the form of those in the NGO group and donor-based organizations. In the late 1990s, approximately 11,800 NGOs officially registered (excluding commercial and political organizations) operated in the environment and other fields. Of these, 32 focused on environmental issues and 300 focused on environmental issues. In the 2000s, it was seen that the concepts of non-profit organizations and NGO were used interchangeably (Williams and Chang, 2008: 78-79).

Non-governmental organizations that play an active role in the environment can be divided into two types: those working on the protection of natural resources and those working on nature conservation. The Homemaker's Union and Foundation and the Beautiful Taiwan Foundation trained community and government on recycling, reduction of household waste, and water and energy conservation. Society of Wilderness and Taiwan Ecological Research Network, both focused on protecting Taiwan's habitats and ecosystems (Williams and Chang, 2008: 79-80).

The Help-Save-A-Pet Foundation or the Taiwan Association for the Protection of Animals that aimed to protect animals were also doing important work on this field. here were also non-profit organizations such as Association for the Protection and Breeding of Rare Animals, or the Wild Bird Society of Taiwan for the protection and investigation of wildlife.

The Society for Wildlife and Nature (SWAN) was founded in 1982 and has grown into an international organization, working on the conservation of Taiwan's unique wildlife. Among these organizations, the Taiwan Environmental Protection Union should be given a special place (Williams and Chang, 2008: 80-81).

Founded in 1987, Taiwan Environmental Protection Union has a large member base such as university professors, teachers, medical doctors, housewives, students, workers, farmers. Many of the Taiwan Environmental Protection Union activists, headquartered in Taipei, focused on public protest movements and focused on environmental education in the 2000s (Williams and Chang, 2008: 81).

The three goals of Taiwan Environmental Protection Union; 1) nuclear-free environment 2) to eliminate soil pollution, water pollution and air pollution in Taiwan;

3) to protect biological diversity (Williams and Chang, 2008: 81-82):

“NGO organization for activist advance their show agenda to have the right policy for Sustainability perspective. We have to revise the policy. Make the balance between different groups. To find a solution like a bridge between different sectors and to find different solutions and try to find effective solutions” (Interview with Prof. Wen-Ling Tu, Department of Public Administration, Dean of International College of Innovation, National ChengChi University, July, 8, 2020)

In the period of 1992-1995, the number of petitions for pollution complaints increased from 77,547 to 117,788, whereas the fines received from businesses that spread pollution decreased by 11%. (Yearbook of Environmental Statistics 1996.; Lai et.al., 1999: 275).

“The EPA regards public health as the starting point. Based on scientific evidence, we adopt prevention as principle, formulate policies and regulations, implement EIA and environmental monitoring and inspection work. We also provide environmental information and training for environmental protection personnel and build environmental protection infrastructures. In order to promote pollution prevention (Including air pollution control, greenhouse gas reduction management, surface water protection, soil and groundwater protection, waste source reduction recycling and treatment, noise vibration control and non-free radiation environmental management, toxic chemical substances and environmental drug management, environmental hygiene, and other aspects) and the prevention and treatment of pollution disputes, we adhere to the polluter pays principle. Furthermore, making good use of economic tools as well as investing in environmental protection technology development, promoting environmental education, and participation of all people. Lastly, integrating relevant ministries and environmental protection function, and combining local government forces to promote environmental protection” (Interview with, Environmental Protection Administration, May 29, 2020).

Undoubtedly, the People’s Republic of China, dealing with environmental disasters, has many lessons to learn from Taiwan, especially on green growth. The exchange of information and technology of these two competitors on clean technology and environmental information will also contribute to peace (Ali, Saleem H.,2006:6).

Policies towards reducing carbon production and saving energy increasingly continue in Taiwan (Anonymous, Ecology, Environment and Conservation, 2014: 61).

The findings Show that Taiwan shows an economic development based on a high consumption of natural resources. This economic growth is often based on the consumption of non-renewable resources. Taiwan should turn its development style, industrial structure and resource utilization towards a green-oriented development direction as much as possible, and strengthen its ecological economy system towards sustainable development (Chen, Chen and Hsieh, 2011: 279) Taiwan is in a national awakening in order to achieve sustainable development goals and continues its decision-making processes in this direction (Chen, Chen and Hsieh, 2011: 280).

## **6.1 Policy Making Process**

“The environmental issues that the EPA gives priority to are concentrated on public health. Therefore, whether it’s the present or future, the maintenance of various natural resources or functional services that affect people’s survival and development, including air, water, soil, sanitation, and safety are important issues. [SEP]Something that is worth paying attention to is that due to the continuous expansion of human activities and the dynamic interaction between the natural system and the social economy, many new environmental issues have emerged. These issues are not only interdisciplinary but also high in complexity, uncertainty, and controversy. At the same time, the impact is relatively extensive as a result of many related factors” (Interview with Environmental Protection Administration, May 29, 2020).

“Climate change is an example. In our National Development Plan, we pay exceptional attention to the impact of climate change on environmental pollution, ecological environment, and the complex disasters that people may face in the extreme weather conditions. Accordingly, we strengthen our ability to adapt to climate changes, improve greenhouse gas reduction and legal system, complete the management system of greenhouse gas reduction, improve the ability to respond to climate change, and build a low-carbon sustainable homeland. We will also actively promote the completion of the relevant sub-laws and supporting measures of the "Greenhouse Gas Reduction and Management Act" to reach the greenhouse gas reduction target. Additionally, in order to accelerate the improvement of air quality and maintain citizens’ health, the government will actively promote air pollution prevention to ensure the environment, economic, and social development to be sustainable” (Interview with Environmental Protection Administration, May 29, 2020).

“Taiwan is an island nation, and climate change is one of the risks that we must face. After discovering the gap between Taiwan’s clean energy developing and the sustainability goals, we’ve been actively promoting through carbon reduction and energy transformation. It focuses on "enforcement of greenhouse gas phase control objectives" and "increasing the capacity of renewable energy devices." In terms of “enforcement of greenhouse gas phase control objectives”, a target of reducing greenhouse gas emissions by 20% from the base year (2005) in 2030 has been proposed. Likewise, the proportion of overall renewable energy and gas-fired power also increased from 37% in 2016 to a target of no less than 70% in 2030” (Interview with Environmental Protection Administration, May 29, 2020).

“The Basic Environment Act stipulates that the government should set plans to gradually achieve the goal of Non-Nuclear Homeland. Moreover, the administration should strengthen nuclear energy safety control, radiation protection, radioactive material management, and environmental radiation detection to ensure people’s lives are protected from radiation hazards. Therefore, among the goals of Taiwan’s sustainable development, to "gradually achieve the goal of Non-Nuclear Homeland set by the Basic Environmental Law " has also been added to gradually decommission existing nuclear power plants” (Interview with Environmental Protection Administration, May 29, 2020).

“Regarding environmental management and prevention, tools such as environmental impact assessment, environmental permit system, and environmental education are important for the EPA” (Interview with Environmental Protection Administration, May 29, 2020).

“The environmental protection permit system is another pollution prevention and management system. Before installing and operating a fixed pollution source (such as a factory), the required permit documents should be obtained to fulfill the prevention of new pollution sources and the management strategy of continuous improvement of established pollution sources. The permit system requires public and private places to declare the pollution status before installation and operation. The pollution source can only be installed and operated after being approved and given the license. The operation of the relevant equipment and record declaration have to be in accordance with the approved license. Therefore, the environmental protection authorities could carry out the verification operation of the permitted content” (Interview with Environmental Protection Administration, May 29, 2020).

“Promote environmental education: Taiwan promulgated the Environmental Education Act in 2010, which established competent authorities and integrated mechanisms for different agencies. Furthermore, it compiled budgetary funds and deepened its environmental awareness and actions for different age groups such as businesses, schools, communities, and families. The main contents of the Environmental Education Act include setting up an environmental education fund, which certifies environmental education personnel, environmental education institutions, and environmental education facilities to improve their quality and strengthen the management. All employees, teachers, and students from government agencies, public institutions, schools under the senior high school level, and financial corporations established by government funding should participate in environmental education for more than 4 hours every year. For violations of environmental protection laws, cases involving a suspension of work or business and fines of NT\$5,000 or more will be subjected to 1-8 hours of environmental lectures in addition to the original punishment. Therefore, they could fully understand environmental issues, ethics, and responsibilities to reduce future violations of environmental protection laws” (Interview with Environmental Protection Administration, May 29, 2020).

“Everyone on this land has a responsibility to protect Taiwan’s environment. Communities, non-government organizations, factories and enterprises, etc., each has their own responsibilities in environmental protection” (Interview with Environmental Protection Administration, May 29, 2020).

“Even among government agencies, environmental protection also involves different ministries. Such as the Ministry of the Interior, the Ministry of Economic Affairs, the Council of Agriculture, the Ministry of Health and Labor, the Ministry of Science and Technology, the Ministry of Education, and the Ministry of Culture” (Interview with Environmental Protection Administration, May 29, 2020).

## **6.2. Environmental Management**

### History of Environmental Management

Taiwan Environmental Protection Administration (EPA), summarizes the development of environmental management (<https://www.epa.gov.tw/eng/>):

1. Stage: Period Until March 17, 1971

The Department of Health was established within the Ministry of Internal Affairs as an

authority on the prevention of infectious diseases, epidemic control and lifesaving, international health audits and quarantine, environmental health, public health facilities and drug management.

The Ministry of Economic Affairs founded the Industrial Development Bureau in 1969. The 7th Section of the Industrial Development Bureau was responsible for the protection and disposal of hazardous waste, as well as the management of industrial waste gas and water emissions.

The Taiwan Provincial Government is founded in 1947 and the mandate of the Department of Health was extended to the improvement and promotion of environmental health, and the prevention of problems that threaten public health.

The Experimental Institute of Environmental Health of Taiwan Province was established by the Health Unit in 1955 to manage water sanitation, waste water, garbage disposal and water quality control, general environmental health, air pollution control, radiation safety, noise pollution, and to support research and studies in these areas.

The Taipei City Government merged the Municipal Cleaning Unit and the Sewerage Treatment Commission into a Department of Environmental Cleaning in October 1968 to take charge of air and water pollution control and waste issue.

Division 2 of the Public Health Bureau is organized as the responsible body for the protection and promotion of environmental health in each city and county of Taiwan.

## 2. Stage: From March 17, 1971 to January 28, 1981

In March 1971, the Executive Yuan of the Department of Health established the Environmental Health Unit. This Unit is responsible for the management and monitoring of garbage and sewage disposal, the use of pesticides, and the control and monitoring of air, water and noise pollution in public health facilities, public facilities, public places and food processing facilities. In addition, (the Ministry of Economic Affairs), has established the Water Pollution Control Section under the Water Resource Integrated Planning Commission to provide water pollution control.

In addition to the Department of Health and the Environmental Institute of Environmental Health, Taiwan Provincial Government is to be responsible for inspection, monitoring and research on the control of wastewater treatment facilities technology, as well as pollution control, water basin determination, water pollution control planning and training, license works, dispute resolution and implementation areas, established the Water Pollution Control Institute under the Construction Department.

Kaohsiung City Government merged the Cleaning Unit and Sewerage Treatment Commission with the Department of Cleaning Management, responsible for garbage disposal and drain cleaning. In 1979, Kaohsiung City gained Municipal City status, which was transformed into the Department of Environmental Administration to manage issues related to environmental cleanup and control of threats to the public.

## 3. Stage: From January 29, 1982 to August 21 1987

The “Environmental Protection Act in Taiwan Area” is passed to establish a

comprehensive and healthy environmental protection management system by the Executive Yuan in April 1979. The Environmental Health Division, the executive Yuan of the Department of Health have been promoted to the Environmental Protection Bureau to take on issues such as water pollution control and traffic noise control which were the usual duties of the Ministry of Economic Affairs and National Police Agency, as well as the Department of Health's usual duties of air pollution control and environmental health.

Additionally, the Southern Environmental Protection and Surveillance Center has been established to manage and implement public health hazardous entities at national, provincial and urban levels.

Taiwan Provincial Government transformed the Institute of Waste Water Treatment and Environmental Health into Environmental Protection Bureau under the Department of Health on August 9, 1983.

Taipei City and Kaohsiung City expanded the Department of Environmental Cleaning and Environmental Administration and transformed the department into the Environmental Protection Bureau.

Since September 1984, the Health Bureau 2. Section has been established as an environmental protection management agency in each city and county.

#### 4. Stage: Since August 22 to Today

The Environmental Protection Bureau on August 22, 1987, The Executive Yuan of the Department of Health is promoted to the Environmental Protection Administration, which manages seven departments: comprehensive planning, the protection of the quality of air and control of noise pollution, the protection of water quality, waste management environmental health and management of toxic substances, audit evaluation and dispute resolution, environmental monitoring and information management.

Taiwan Provincial Government promotes the Environmental Protection Bureau to the Department of Environmental Protection on January 15, 1988. Environmental organization expanded into government organization, the Department of Environmental Protection is transformed into Central Taiwan Office in July 1999 and merged with the Environmental Protection Administration in March 2001, and reorganized as the Environmental Protection Administration Inspectorate.

Each city and county will establish the Environmental Protection Bureau that will strengthen environmental protection in terms of function and process between 1988 and 1991. In January 2003 by the establishment of Environmental Protection Bureau of the Lienchiang County, environmental protection organization and infrastructure has been completed.

One of the positive results of post-martial law in Taiwan is the emergence of genuine environmental movements and the establishment of the Environmental Protection Administration. Dissatisfaction with environmental problems escalated in many parts of Taiwan by the 1980s. With the abolition of the martial law, NGOs struggling to

protect the environment and improve environmental conditions raised their voices against the government and demanded that necessary measures to be taken. They have undoubtedly reflected the result of their efforts in the clean environment of today's Taiwan. There are some lessons to be learned from this Taiwan experiences (Williams and Chang, 2008: 29).

### **6.3. The Other Public Institutions for Environmental Protection**

Ministry of the Interior -

Law on the Territorial Sea and the Contiguous Zone of the Republic of China (Jan 21,1998),

Local Government Act (June 22, 2016)

Land Act (June 15, 2011)

Enforcement Act of Land Act (June 15, 2011)

Rural Community Land Readjustment Act (Dec. 11, 2002)

Land Expropriation Act (Jan. 04, 2012)

Enforcement Rules of the Land Expropriation Act (Dec. 16, 2019)

Urban Planning Law (Jan, 15, 2020)

Urban Road Act (Jan 7, 2004)

Urban Renewal Act (Jan 30, 2019)

Regional Plan Act (Jan 26, 2000)

Enforcement Rules for the Regional Plan Act (Oct 23, 2013)

New Town Development Act (Jan 15, 2020)

Enforcement Rules for the New Town Development Act (Oct 16, 1999)

Sewerage Law (May 23, 2018)

Enforcement Rule for Sewerage Law (June 5, 2007)

National Park Law (Dec 08, 2010)

Enforcement Law of the National Park Law (June 02, 1983)

Wetland Conservation Act (July 03, 2013)

Coastal Zone Management Act (Feb 04, 2015)

Spatial Planning Act (Jan 06, 2016)

The Enforcement Rules of the Spatial Planning Act (Feb 21, 2019)

Act for the Establishment of the National Housing and Urban Regeneration Center (Feb 14, 2018)

Ministry of Education

Organization Act of National Museum of Marine Biology and Aquarium (Feb 03, 2012)

Organization Act of National Museum of National Science (Feb 03, 2012)

Family Education Act (Article 7-environmental education) (May 08,2019)

Ministry of Justice

Ministry of Economic Affairs

Mining Act (Nov 30, 2016)

Petroleum Administration Act (June 04, 2014)

Water Act (June 20, 2018)

Enforcement Rules of Water Act (Nov 12, 2018)

Hot Spring Act (May 12, 2010)

Water Supply Act (Dec 04, 2019)

Enforcement Rules for Water Supply Act (March 29, 2011)

Special Statute for the Comprehensive Management of the River Basins (Jan 29, 2014)  
Reclaimed Water Resources Development Act (Dec 30, 2015)  
Regulations on Governing the Use and Quality Standards of Reclaimed Water (Oct 17, 2016)  
Energy Administration Act (Nov 30, 2016)

#### Ministry of Transportation and Communications

Organization Act of the Tourism Bureau, Ministry of Transportation and Communications (June 20, 2001)  
Organic Act of Railway Bureau, Ministry of Transportation and Communications (Jan 17, 2018)  
Statute for Encouragement of Private Participation in Transportation Infrastructure Projects (June 17, 2015)  
Maritime Act (July 8, 2009)  
Act for the Development of Tourism (June 19, 2019)  
The Mass Rapid Transit Act (Article 11) (June 4, 2014)

#### Council of Agriculture

Organizational Act of the Council of Agriculture, Executive Yuan (Jan 14, 2004)  
Organizational Act of Fisheries Agency, Council of Agriculture, Executive Yuan (June 24, 1998)  
Organizational Act of the Bureau of Animal and Plant Health Inspection and Quarantine, Council of Agriculture, Executive Yuan (Jan 17, 2001)  
Organizational Act of the Agriculture and Food Agency, Council of Agriculture, Executive Yuan (Jan 14, 2004)  
Act of Establishment and Administration of Agricultural Technology Parks (May 04, 2016)  
Agricultural Development Act (Nov 30, 2016)  
The Plant Variety and Plant Seed Act (May 23, 2018)  
Organic Agriculture Promotion Act (May 30, 2018)  
The Forestry Act (Nov 30, 2016)  
The Enforcement Rules for the Forestry Act (March 01, 2006)  
Regulation for Management of Protection Forest (Dec 04, 2018)  
Regulations Governing the Establishment and Management of Forest Recreation Areas (July 08, 2005)  
Regulations for Conservation Forest Managements (Jan 15, 2013)  
Regulations Governing Management, Operation and Coordination of Forests Located within National Parks or Designated Scenic Areas (May 25, 1990)  
Fisheries Act (Dec 26, 2018)  
Animal Industry Act (Nov 24, 2010)  
Animal Protection Act (Dec 26, 2018)  
Soil and Water Conservation Act (Nov 30, 2016)  
Enforcement Rules of Soil and Water Conservation Act (March 07, 2019)  
Slope land Conservation and Utilization Act (Jan 09, 2019)  
Enforcement Rules of Slope land Conservation and Utilization Act (August 08, 2017)  
Rural Rejuvenation Act (August 04, 2010)  
Wildlife Conservation Act (Jan 23, 2013)  
Enforcement Rules of the Wildlife Conservation Act (July 13, 2018)  
Regulations Governing Raising and Breeding of Protected or Dangerous Wild Life (Nov 30, 2000)

Statute for Prevention and Control of Infectious Animal Disease (Dec 13, 2019)  
Enforcement Rules of Statute for Prevention and Control of Infectious Animal Disease  
(Dec 23, 2009)

Ministry of Health and Welfare

Ministry of Culture

Cultural Heritage Preservation Act (July 27, 2016)

Enforcement Rules of the Cultural Heritage Preservation Act (Dec 12, 2019)

Underwater Cultural Heritage Preservation Act (Dec 09, 2015)

Cultural Fundamental Act (June 05, 2019)

Ministry of Science and Technology

Regulation for the Use and Management of Wastewater Treatment and Sewage System  
in the Science Park (Nov 22, 2018)

Fundamental Science and Technology Act (June 14, 2017)

Management Regulations for Waste Reuse of Industries in Science Parks (Oct 30, 2014)

Atomic Energy Council (At this level all laws are related with the environment). we  
can give a few of them as example.

Nuclear Damage Compensation Law (May 14, 1997)

The Nuclear Materials and Radioactive Waste Management Act (Dec 25, 2002)

Nuclear Reactor Facilities Regulation Act (Jan 15, 2003)

Enforcement Rules for the Nuclear Materials and Radioactive Waste Management Act  
(Nov 21, 2019)

Enforcement Rules for the Implementation of Nuclear Reactor Facilities Regulation  
Act (Nov 16, 2018)

Operational Regulations Governing Nuclear Safeguards (July 25, 2019)

Regulations on Treatment and Storage of Radioactive Waste and Safety Management  
of the Facilities (June 25, 2019)

Regulations for the Operation Permit of Radioactive Waste (Sept 19, 2014)

Nuclear Emergency Response Act (Dec 24, 2003)

Enforcement Rules for the Implementation of the Nuclear Emergency Response Act  
(Nov 02, 2017)

As we see, the environmental duties and responsibilities in Taiwan are distributed to  
various ministries and some other public institutions.

#### **6.4. Constitutional Court Protection for Environment**

Justices of the Constitutional Court

As Interpretations of Constitutional Court are newly added into the related web page,  
we could include only two of them related with environment below:

Date 2013/11/15

Interpretation No:714<sup>20</sup>

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<sup>20</sup> <https://law.moj.gov.tw/ENG/Law/LawSearchLaw.aspx?TY=0135>, Visited July 10,  
2020.

Liability for pollution produced prior to the entry into force of the soil and underground Water Pollution Control Act which holds a polluter liable for pollution produced prior to the entry into force of the law and which has continued thereafter unconstitutional

**Issue:** Is Article 48 of the Soil and Underground Water Pollution Control Act which holds a polluter liable for pollution produced prior to the entry into force of the land and which has continued thereafter unconstitutional.

**Summary of facts:** Article 48 of the Soil and Underground Water Pollution Control Act promulgated on February 2, 2000 provides that the said Act's pollution for soil and underground water pollution occurring prior to the said Act's entry into force Petitioner China Petroleum Chemicals Industrial Development Corporation merged with Taiwan Alkali Industry Corporation (hereafter called Taiwan Alkali Co, a now defunct Corporation) in 1983 under the direction of the Ministry of Foreign Affairs. In 2004, The Tainan City Government defined that the dioxin and the mercury pollution of An-Shun Factory and other facilities originally belonging to the Taiwan Alkali Corporation, were attributable to its processing of Pentachlorophenol and the exposure of residual piles penetrating the soil during the period of 1965-1978, and that the company was the polluter. It was held responsible for liability under the Soil Pollution Act. Since the petitioner had merged with and absorbed its legal personality, all general liability was to be assumed by the petitioner. Tainan City ordered the petitioner to pay NTD652,221 as a clean-up fee, and to provide land to store the pollutants. The petitioner did not comply. The cost was doubled, with a penalty and in accordance with relevant rules, totalling NTD2,858,881. The petitioner instituted an administrative litigation to contest the order. It contended that the Ministry of Economic Affairs had failed to supervise the two corporations properly, and that the Ministry's ordering the merger of the two corporations was an illegal exercise of public power. The petitioner sued for national compensation. However, it was affirmed that all claims were to be denied. Thereafter, a petition for constitutional interpretation on the ground that relevant law is suspected of violating the principle of prohibition of retroactive laws was lodged.

Date:2015/12/18

Interpretation No: 734<sup>21</sup>

Recognizing placement of advertisements as an act of environmental pollution

**Issue:** The Waste Disposal Act authorizes competent authorities to publish the types of Act which could be characterized as an act of environmental pollution. Is it consistent with the Constitution to regard the official notices published thereunder, recognizing the unapproved placement of advertisements in designated areas and by a designated manner as an act of pollution?

**Summary of Facts:** On June 22,2009, the petitioner in this case hung slogans, without prior approval, to protest against the People's Republic of China and promote Falun Dafa within the area designated, in accordance with Article 27, Subparagraph XI of the Waste Disposal Act, by the Environmental Protection Bureau of the Tainan City Government. The Bureau recognized the act as a violation of the aforementioned provision and thus fined the petitioner NTD1,200, in accordance with Article 50, Subparagraph 3 of the same Act. The petitioner was not satisfied and filed an administrative appeal against the administrative act, which was revoked by Ref.

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<sup>21</sup> <https://law.moj.gov.tw/ENG/Law/LawSearchLaw.aspx?TY=0135>, Visited July 10, 2020.

No.Xing-jiu 09826593560 Decision of the administrative appeal board of Tainan City on November 13, 2009 thereafter. The Bureau upon further consideration fined the petitioner NTD600 by Huan-fei-chu NO.9812087 administrative decision of Tainan City on December 21, 2009. The petitioner was still not satisfied and thus filled an administrative act and an administrative litigation in sequence. The aforementioned administrative litigation was dismissed by the Jian-zi No. 214 Judgement (2010) of the Kaohsiung High Administrative Court (hereinafter “The final and binding judgement”) and then further dismissed by Cai-zi No.3491 Ruling (2010) of the Supreme Administrative Court due to its failure to comply with the requirements of an appeal. The petitioner advocated that the regulations and official notices at issue applied by the final and binding judgement are not consistent with the Constitution, thus she petitioned for interpretation.

These two events are examples of the Constitutional court decision that includes fines in accordance with the ‘polluter pays principle’.

### **6.5. Public Participation and the Environment in Taiwan**

According to the surveys, environmental consciousness of the Taiwanese people raised since 1980s (Leng, 2005: 212).

“The EPA attaches great importance to public participation in environmental protection. For many years, NGOs have played a very important role in environmental protection initiatives and issues. In the process of promoting environmental education in Taiwan, NGOs and citizens played a very important role. With the idea of environmental education advocated by the various public organizations, environmental education can be widely promoted. The Environmental Protection Administration has always regarded environmental protection groups as an important environmental protection partner. To build a consensus on environmental protection and strengthen communication with environmental protection groups, the EPA assists NGOs to promote environmental protection work and activities every year, and then increase the active participation of all walks of life in environmental education and encourage people to implement it in their daily life” (Interview with Environmental Protection Administration, May 29, 2020).

“In addition to the function of environmental education, NGOs also assist in monitoring the environment, patrolling rivers and the ocean, promoting green consumption, and preventing environmental damaging behavior. The EPA also invites environmental groups to participate in the development of environmental protection policies, regulations or measures to provide consultation. NGOs serve as members of various committees of EPA as well, such as procurement selection members or judges in environmental awards” (Interview with Environmental Protection Administration, May 29, 2020).

“The "National Environmental Protection Plan" approved by the Executive Yuan has also stated the importance of social participation. It includes building diversified public participation channels for environmental policy in the short-term target, which could strengthen public-private partnerships. The mid-term goal is to expand international partnerships and actively participates in global environmental issues. And eventually,

all people could participate in environmental protection work (Interview with Environmental Protection Administration, May 29, 2020).

Taiwanese citizens, who took action to address environmental problems at the local level, chose to take an active role in the protection of their habitats and their environment and find solutions rather than relying solely on government programs and organizational protests (Lyons, 2009: 73).

## **7. Administrative Dimensions of Environmental Policy in Taiwan**

National regulations, international regulations and voluntarily participation of Taiwan for United Nations Framework Convention on Climate Change (UNFCCC) all contribute to the implementation of environmental policy in Taiwan.

### **7.1. The Importance of National Regulations in Taiwan Environmental Policy**

Environmental laws regulated in Taiwan's domestic law have spreaded to many Ministries and organizations, including the Environmental Protection administration, as well as local governments.

Environmental Protection Administration coordinates the enforcement of laws under its responsibility, updating regulations, as well as enforcement of environmental laws among local governments, other ministries and organizations. Environmental problems, which are intensely experienced in Taiwan with the effect of rapid industrialization, have been significantly controlled by laws, regulations and action plans that regulate many areas of the environment, and environmental life quality has been increased. The increasing environmental awareness in Taiwanese society has also been effective in the successful results of national regulations. Environmental awareness spreading throughout the society has contributed to making new legal regulations when necessary or updating the action plans of existing laws and regulations. On the one hand, the sharing of information on environmental problems through the websites of the relevant institutions has led the society to create awareness and assume responsibility on the environment, and on the other hand, when this awareness is required, environmental movements, administrations and legal regulations are guided.

### **7.2. The Importance of International Agreements in Taiwan Environmental Policy**

On October 25, 1971, the United Nations General Assembly accepted the People's Republic of China as an official member to represent Taiwan with the resolution no. of 2758 and with this decision Taiwan's (ROC) UN membership and United Nations Security Council membership was abolished as a result of the pressure of the People's Republic of China (Yu and Kuo, 2015: 5).

“Taiwan's participation in major international environmental organization was handicapped by the fact that Taiwan is not a member of the United Nations. Thus, Taiwan has not able to send official representatives to participate in any UN-related environmental conferences since 1971, only as an NGO” (Leng, 2005: 214-215). Taiwan's isolation from international community also makes it difficult for Taiwan to

achieve the goal of sustainable development locally and globally (Leng, 2005: 215). Taiwan's international status under the president Tsai can be summarized as "acting "as if" as if Taiwan were a member of the United Nations, and complying with fundamental international agreements." The Tsai Government has expanded the old approaches and extended its "as if" strategy to many areas. The most important of these are the international regulations under the law of the sea regime, international human rights regulations and climate change as the agreements within the United Nations (deLisle, 2020:190-191).

### **7.3. Taiwan's Bid for Participation in the UNFCCC-United Nations Framework Convention on Climate Change**

In 1998, an International Panel on Climate Change (IPCC) was held under the United Nations General Assembly Resolution 43/53 to assess the climate change issue scientifically. In 1990, the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC) was established under the UN General Assembly Resolution 45/212 in order to put into action the draft of the Convention. In 1992 the FCCC was ready in order to be signed and on March 21 1994 the Convention came into force being ratified by fifty states (Shih, 2002: 71). The Convention foresees the achievement of stabilization of greenhouse gas concentrations in the atmosphere at a level that will keep the balance of climate system (FCCC Article 2 quoted by Shih, 2002: 71). It foresees "the common but differentiated responsibilities" of the Parties (FCCC Article 3.1).

The negotiations to reduce greenhouse gases for annex 1 signatory countries were agreed at COP 3. Developing countries' voluntary commitment discussed at COP 4. Non-party Annex 1 countries, newly industrialized countries such as Brazil and South Korea could claim that Taiwan, in the same position, gained unfair gain. Such factors were the subject of international pressure on Taiwan (Shih, 2002: 74).

Tsai government's approach to the UN Framework Convention on Climate Change is in line with the "as if" strategy as we stated above. Taiwan has adapted its environmental law to the requirements of international agreements, like other parties to it.

The Tsai government has called the world nations for Taiwan's participation in UN Framework Convention on Climate Change; together with Taiwan Ministry of Foreign Affairs, it has announced its willingness as a global partner to participate in the fight against climate change and achieve the goal of sustainable development (deLisle, 2020:194; <http://focustaiwan.tw/news/aip/201812040022.aspx>, Visited: April, 09, 2020).

Taiwan is not included in the current global climate regime due to its uncertain international status. The limiting acceptance conditions of the Kyoto protocol and United Nations Framework Convention of Climate Change (UNFCCC) excluded Taiwan. The Taiwan Government is preparing to be included in the post-2012 multilateral climate regime by using its greenhouse gas regulatory opportunities and setting reduction targets. Taiwan's greenhouse gas emissions are 1% of the world's total greenhouse gas emissions. It took its share of responsibility against the global warming threat and realized that it should be included in the system as part of the

solution. Taiwan's participation in the World Health Assembly in 2009 demonstrated that People's Republic of China can accept Taiwan's participation in international agreements, unless membership allows for the autonomy of the Taiwan (Yang and Chien, 2010). Shih argues that international pressure and the internal demand for policy reform caused Taiwan to implement the FCCC (Shih, 2002: 70).

## **8. An Analytical Evaluation of Taiwan Environmental Protection System**

### **8.1. The Evaluation of Taiwan Environmental Policy**

Air pollution, which is an important environmental problem in Taiwan, has been widely controlled. The air of the island is cleaner than it was twenty years ago. Behind this success is the strict monitoring of emissions from motor vehicles, the reduction of the use of motorcycles that pollute the environment, the use of catalytic converters, the use of gasoline, the development of public transport, stringent emission standards for factories, construction and business environments, and strict traffic regulations. (Williams and Chang, 2008: 167). In addition, energy obtained from nuclear power plants, are limited.

Taiwan, apart from these, it has come a long way in the reduction, collection, separation, reuse and recycling of waste. In the 1997-2011 period, the Taiwan government succeeded in reducing the daily domestic waste amount from 1.14 kg to 0.43 kg. In this period, the waste recycling rate increased from 5.87% to over 60%, making Taiwan one of the successful examples in the field of recycling. Thus, Taiwan has made significant contributions to both the environment and the economy. Taiwan, which has come a long way in the electronics industry, is now witnessing a different challenge. Recycling companies have grown from 100 in the 1980s and 1990s to more than 2,000 today, turning garbage mountains into billions of dollars. The Industrial Development Bureau of the Taiwan Ministry of Economic Affairs announced that 2.2 billion revenue was generated in recycling in 2012 (Anonymous (2013), "Taiwan's Recycling Boom: A Shining Example for Asia, the World", The island nation's commitment to recycling benefits the economy and the environment, Dec 03, 2013 <https://thediplomat.com>; Visited March 30, 2020); (Anonymous, "EPA touts Taiwan's successful recycling Policy", August 23, 2012, <https://taiwantoday.tw/>, Visited March 30, 2020)

Additionally, Environmental Education Act which came into force in 2017, contributes to increase environmental awareness of citizens, students, public officials and employees of private sector in Taiwan. As environmental education is an indispensable part of environmental awareness, Taiwan people gained sensitivity in environmental issues and got involved in environmental movements to save the environment.

For all these reasons, with its highly environmentally sensitive development policy, Taiwan has emerged as an example of a sustainable development model for many developing countries. Taiwan environmental policy for developing countries such as Turkey, for example, by adopting the strategy of development without compromising the needs and expectations of future generations without destroying the environment, has succeeded in becoming a model. Of course, the shortcomings of Taiwan's environmental policy (such as keeping the penalties low against environmental crimes) and some mis implementation (such as opening agricultural areas to industrial use) are not eliminated. On the other hand, Taiwan can be seen as a country that provides the

balance of environment and economy with an environmentally sensitive approach that solves the shortcomings in environmental policy in a timely and effective manner, and therefore can be a model for many developing countries.

## **8.2. The Comparison of Taiwan Environmental Policy and Turkish Environmental Policy**

When we look at distributed legislation to different organizations regarding environmental Taiwan is much more regulation than Turkey, differ from each other in accordance with the complex and multi-dimensional nature of the environment and it is seen that covers a lot of different fields of environment for the improvement of environment. In addition to numerous legal regulations, Taiwan reveals its national action plans (related with the protection of environment) covering many areas and its policies, strategies, principles and targets regarding its environmental obligations in these action plans, and updates the content of the plans every five years and monitors their implementation. The current measurements related to the environment and accurate data related to these measurements are shared on the web pages of the relevant institutions. In this way, it facilitates the public's awareness and knowledge of environmental problems and environmental policies and their participation in environmental movements. Environmental penalties are similar in terms of lightness, Taiwan and Turkey. The lightness of imprisonment and fines, as well as for Turkey is also a lack for Taiwan's environmental policy. It is clear that increasing these penalties will provide a noticeable increase in the reduction of environmental pollution. Environmental Education Act of Taiwan for students as well as public-private institutions, will contribute the awareness of the environment of the employees of public-private organizations, provide a significant contribution to embrace eco-friendly living and this law should be taken by Turkey in this respect.

Another feature of Taiwan's environmental policy is that it exhibits integrity in terms of identifying environmental problems, improving solutions and measures for the problems and implementing the measures. In this respect, it is seen that Taiwan environmental policy adopts a holistic approach. Environmental policy in Turkey, in terms of monitoring of the implementation process of the measures, contains serious gaps and omissions. Therefore, the holistic nature of Taiwan's environmental policy should be taken as an example by the Turkish environmental policy.

Another feature of Taiwan's environmental policy is that measurements and data regarding environmental problems are regularly shared on the web pages environmental institutions in a correct and timely manner. This practice also contributes to citizens' awareness of the environment. So, Taiwan policies are currently reviewed and new measures are taken according to monitoring and measurements of environmental issues.

Taiwan's environmental policy also adopts a holistic approach to the protection of the environment in each sector. An important indicator of this is that effective measures for environmental protection for each sector have been reflected in the legislation. The Turkish environmental legislation is limited with environmental law and some related regulations. Regarding environmental protection, it cannot be said that there is a holistic approach to environmental protection since there are no provisions for environmental protection in the legislation of different sectors. Therefore, by taking into consideration

Taiwan's environmental policy and legislation, Turkish environmental legislation should be reflected effectively on different sectors as energy, development, agriculture, food, tourism etc.

### **8.3. Can Taiwan Environmental Policy be a Model for Environmental Policy of Turkey?**

Environmental values are protected by a large number of legal regulations under the authority of different organizations in order to protect the environment and improve the environmental quality in Taiwan, and are observed with an understanding that cares about the participation of the public with the cooperation of central and local governments. An important path has been established with various laws and environmental organization (second ministerial level) on the basis of sustainable development approach to fight with environmental problems that have been intense since the 1980s.

Besides Environmental Protection Administration, Ministry of Interior; Ministry of Education, Ministry of Economic Affairs, Ministry of Transportation and Communications, Council of Agriculture, Ministry of Justice, Ministry of Culture, Ministry of Science and Technology, Atomic Energy Council all have played important roles for protecting and improving the environmental quality in Taiwan. Despite the presence of these similar institutions in Turkey, it cannot be said that environmental protection in Turkey is adequate in terms of legislation and implementation in Turkey.

As it is seen that the authority and responsibilities related with environmental protection are distributed among Environmental Protection Administration and the other public institutions. This causes multi-faceted view of environmental problems, different duties and authorities distributed to different institutions, cooperation between different institutions. Besides environmental awareness is spreaded among different public institutions.

As a result, the environmental policy in Taiwan can be seen as a model for the Turkish environmental policy to be more successful in the following issues:

- 1) High environmental awareness
- 2) Holistic approach to environmental problem
- 3) Achievement of environmental protection in all sectors
- 4) Creating a robust environmental protection legislation
- 5) Improving citizens' environmental awareness
- 6) Extending environmental education
- 7) Promoting Citizen participation in environmental protection
- 8) Achievement of sustainable development policy goal

### **Conclusion and Evaluation**

“The challenges facing Taiwan is real. Taiwanese have many strengths and resources to bring to bear on those challenges, Taiwan matters, to China, to the United States, to the world-and above all, to its own people. It is not an object of others' destiny, but the subject of its own history; it is not a means of to others' ends, but an end in itself. Regarding Taiwan in this way does not foreclose any outcome in cross-strait relations,

but it does call on others to support outcomes that affirm and uphold Taiwan's dignity and democracy" (Shelley, 2011: 197). In this direction, Taiwan continues its foreign policy by establishing a balance between the People's Republic of China and Western democracy.

-Taiwan is Acting "as if" a member of United Nations

Although Taiwan met with environmental problems that threaten other countries in the second half of the 20<sup>th</sup> century, it has taken an important way in environmental organization, legal regulations and implementation of environmental policy in order to reduce the negative effect of these problems in a shorter time. Despite not being a member of the UN, it assumes its global responsibility and participates in the responsibilities of the international community by acting "as a member" for taking the necessary measures for local environmental problems as well as reducing the effects of global environmental problems; continues to implement the necessary legal, administrative and economic measures. In this context, if Turkey as a member of the United Nations, takes as an example of the Taiwan's administrative, legal, technological practice on environment, this will contribute to the protection of national and global environment.

Taiwan regularly carries out the necessary reviews and improvements to the environmental problems it has experienced more intensely in the past five years. Despite not being a member of the United Nations, it assumes the responsibilities required by international environmental agreements, acts as a member of UN conventions, changes and updates its laws, strengthens its organizational structure, and strictly monitors the implementation of laws and regulations. This sensitivity of Taiwan to international environmental agreements should also be taken as an example by countries that are members of the UN but do not take the necessary measures related with the environmental issues

-Enacting comprehensive and versatile environmental laws and monitoring their implementation.

Taiwan's comprehensive environmental legislation and environmental policy should be examined carefully and guidance should be taken in the restructuring of Turkish environmental policy.

In this context, increasing the fines and imprisonment imposed on those who commit environmental crimes will be more deterrent and will be reflected positively on the environmental quality of life in Taiwan.

-In addition, the Environmental Education Law dated 2017 in Taiwan subjects the broad segments of the society to continuous environmental education, thus contributing directly to the awareness of the society in the field of environment and to making environmental protection a lifestyle as well as facilitating the achievement of the sustainable development goal. The content of this act also must be taken into consideration by Turkey So Turkey should adopt a widespread and qualified environmental education laws by inspiring Taiwan's environmental education law and Taiwan's education practice may be guided by Turkey.

-Although Taiwan has not signed the UNFCCC which sets serious targets in fulfilling

its commitments; Turkey and the other countries (especially the United Nations member states) should take Taiwan's success on reducing the emissions of greenhouse gases as an example, since Taiwan has passed a law to reduce greenhouse gas emissions and has come a long way in its achievement on reducing greenhouse gas emissions, and this shows us that Taiwan is approaching its sustainable development target. Like many countries, Turkey as a country member of the United Nations do not fulfill their obligations and should take into consideration of the success of Taiwan, should eliminate the shortcomings in the Turkish environmental regulations, improve its practice to be a strict follower of environmental penalties, and should reflect its environmental laws into practice effectively.

-Taiwan, which has made significant progress in environmental protection in recent years and invested on environmental technologies, may also transfer green technology and environmental practice to Turkey. There may be a robust cooperation between Taiwan and Turkey on environmental issues and this cooperation will contribute to the improvement of global environment.

-Taiwan's environmental policy is based on the sustainable development goal adopted by the world societies towards the end of the 20<sup>th</sup> century and Taiwan tries to combine its policies for different sectors on this common ground.

As a result, Taiwan has created a successful model in order to achieve the goal of sustainable development especially for developing countries such as Turkey, it is useful for Turkey to study the Taiwan's environmental policy and practice in order to take it as a model. Besides, a close cooperation shall be made between Turkey and Taiwan if Taiwan shares its practices, information and pollution control technology on the protection of global environment. Cooperation for the protection and improvement of the environment should be made between the two countries in the following areas:

- air pollution control
- water quality
- prevention of soil pollution
- waste disposal
- renewable energy technologies
- environmental management

The cooperation between Taiwan and Turkey on environment will help the realization of the goal of "sustainable development" at local and global environment.

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