

Chapter 4 Environmental Activities

Section 1 Environmental Protection Expenditures

In order to eliminate, prevent or mitigate environmental pollution generated during the course of production or consumption, countries around the world have formulated policies regarding environmental protection. These policies require each and every user of the environment to pay related costs to shoulder their responsibilities to protect the environment and reduce or slow down the rate of resource depletion and the level of environmental pollution. The purpose is to achieve sustainable utilization of the environment; therefore, we present the efforts and successes in improving the environment in Taiwan, in terms of the circumstances of environmental protection expenditures by the various sectors. This is so that we may better understand the pollution control expenditures input by Taiwanese people into various environmental domains, as well as the level of importance placed on environmental protection.

Currently, statistical data on Taiwan's environmental protection expenditures is primarily sourced from the *Survey of Environmental Protection Expenditures*, commissioned by the EPA. In defining environmental protection expenditures, we have referenced and adopted OECD's concepts, in addition to taking into consideration Taiwan's specific circumstances. These expenditures have been defined as "those expenditures from various activities for preventing, decreasing or eliminating the pollution or hazards generated during the course of production and consumption". This excludes the expenditures for industrial safety; general daily environmental cleaning; ecological conservation; and the maintenance & management of natural resources. The survey was based on the principle of implementation (direct implementation of environmental protection tasks). The organizations surveyed encompassed the government agencies and some industrial sectors (the manufacturing, and the sectors of water supply and electricity & gas supply).

In principle, the environmental protection expenditures of the government agencies should include the numbers they compile and use; subsidies from superior agencies; matching grants from other agencies; and donations from the private sector, but they exclude subsidies and grants to subordinate agencies and the private sector, as well as commission charges. In addition, revenues from environmental pollution

control should be deducted. As regards the industrial sectors, they should exclude outsourcing & joint disposal charges and paid pollution fees from the self-utilized and self-implemented portion. In addition, revenues from environmental pollution control should be deducted. However, organizations surveyed by environmental protection expenditures surveys in Taiwan currently do not encompass every sector (including the government, industrial, households, and professional manufacturers). In order to estimate the scale of environmental protection expenditures more comprehensively, when estimating the survey results, the disposal charges for commissioned projects to the private sector have been included as these are viewed as environmental protection expenditures of partial environmentally-friendly professional manufacturers. Moreover, as households and civilian organizations have not been included in the survey, environmental protection budgets earmarked as subsidies and grants to the private sector are therefore viewed as environmental protection expenditures of government agencies. With regard to the uses of environmental protection expenditures, they include: pollution abatement and control expenditures (including air pollution control, greenhouse gas reduction, water pollution control, waste treatment, noise & vibration control, and soil & groundwater pollution remediation), R&D, and others.

A summary account of the compilation results, by implementing sectors and uses of expenditures, is as follows:

I . Implementing sectors

In 2016, environmental protection expenditures amounted to NTD 160.85 billion, up NTD 4.62 billion or 3.0% from 2015; within these, the government agency expenditures amounted to NTD 71.55 billion, up 5.3% and accounting for 44.5% of the total, an increase of 1.0 percentage points over 2015 in terms of proportion. The industrial sector expenditures amounted to NTD 89.31 billion, up 1.2% from 2015, while slightly declining in proportion.

Table 1.4.1.1 Environmental protection expenditures—by implementing sectors

	Unit: billion NT\$, %					
	2014		2015		2016	
		structure ratio		structure ratio		structure ratio
Total	154.13	100.0	156.23	100.0	160.85	100.0
Government agencies	66.81	43.3	67.94	43.5	71.55	44.5
Industrial sectors	87.32	56.7	88.29	56.5	89.31	55.5

II. Uses of expenditures

Among the uses for environmental protection expenditures, expenditures on pollution abatement and control had the lion's share, with NTD 147.18 billion in 2016, 91.5% of the total. R&D expenditures amounted to NTD 1.67 billion, 1.0% of the total. Besides, the other expenditures such as environmental impact assessments and toxic chemical substance treatment totaled NTD 12.00 billion, 7.5% of the total. In terms of the expenditures for pollution abatement and control, waste treatment led with NTD 55.28 billion, 34.4% of the total expenditures. This was followed by water pollution control with NTD 47.43 billion and air pollution control with NTD 41.07 billion, 29.5% and 25.5% of the total, respectively.

In terms of different sectors' pollution abatement and control expenditures, half of government agencies' environmental protection expenditures were spent on waste treatment. This was followed by water pollution control. Waste treatment and water pollution control combined accounted for 73.2% of the total. In the industrial sectors, expenditures were primarily concentrated in air pollution control and water pollution control; both combined accounted for 75.0% of the total.

Table 1.4.1.2 Environmental protection expenditures — by uses of expenditures

Unit: billion NT\$, %

	2014		2015		2016	
		structure ratio		structure ratio		structure ratio
Total	154.13	100.0	156.23	100.0	160.85	100.0
Pollution abatement and control expenditures	139.00	90.2	142.45	91.2	147.18	91.5
Air pollution control	50.12	32.5	40.10	25.7	41.07	25.5
Greenhouse gas reduction	—	—	2.83	1.8	2.49	1.5
Water pollution control	39.94	25.9	44.49	28.5	47.43	29.5
Waste treatment	47.45	30.8	54.40	34.8	55.28	34.4
Noise and vibration control	1.49	1.0	1.31	0.8	1.22	0.8
Soil and groundwater pollution remediation	—	—	2.15	1.4	2.18	1.4
Research and development	1.03	0.7	1.64	1.0	1.67	1.0
Others	14.11	9.2	12.15	7.8	12.00	7.5
Government agencies	66.81	100.0	67.94	100.0	71.55	100.0
Pollution abatement and control expenditures	55.88	83.6	57.60	84.8	60.11	84.0
Air pollution control	5.64	8.4	5.49	8.1	6.25	8.7
Greenhouse gas reduction	—	—	0.08	0.1	0.55	0.8
Water pollution control	13.71	20.5	13.81	20.3	15.32	21.4
Waste treatment	35.51	53.2	36.73	54.1	37.04	51.8
Noise and vibration control	1.03	1.5	0.78	1.1	0.67	0.9
Soil and groundwater pollution remediation	—	—	0.79	1.2	0.83	1.2
Research and development	0.61	0.9	0.58	0.9	0.57	0.8
Others	10.31	15.4	9.76	14.4	10.87	15.2
Industry sectors	87.32	100.0	88.29	100.0	89.31	100.0
Pollution abatement and control expenditures	83.11	95.2	84.85	96.1	87.08	97.5
Air pollution control	44.48	50.9	34.61	39.2	34.82	39.0
Greenhouse gas reduction	—	—	2.75	3.1	1.94	2.2
Water pollution control	26.22	30.0	30.68	34.7	32.11	36.0
Waste treatment	11.94	13.7	17.67	20.0	18.25	20.4
Noise and vibration control	0.47	0.5	0.53	0.6	0.55	0.6
Soil and groundwater pollution remediation	—	—	1.36	1.5	1.35	1.5
Research and development	0.41	0.5	1.06	1.2	1.11	1.2
Others	3.80	4.3	2.39	2.7	1.12	1.3

Note: Prior to 2015, "Greenhouse gas reduction" and "Soil & groundwater pollution remediation expenditures" were listed under "Air pollution control" and "Others "; separate line-item presentation was not available until 2015.