

Chapter 2

Environmental Guidelines and Objectives

Owner companies of major projects, whether they have obtained ISO14000 environmental certification (or passed equivalent environmental audit), they will, as normal practices, set up their own environmental guideline and objectives. Environmental guideline is the ultimate goal to achieve for a business, such as “to build a low-carbon green company” and environmental objectives are relatively more detailed and specific, such as “the company will reduce carbon dioxide emissions by twenty percent through technology innovation in the year of xxxx.”

A long-term and strategic environmental guideline should be established first. The guideline shall be approved and supported by the Board or the executives, which will set the right tone for environmental protection throughout the company. Then the functional departments can cascade the guideline from top down to make it into tactical actions and specific steps, without being interrupted by internal and external factors. Otherwise, such strategy may become an empty concept simply due to the lack of budget, time or manpower. A more practical approach is to put the guideline and objectives down in formal writing (it will be included in first-class commercial file using ISO or similar certification system). The document shall be kept transparent to the stakeholders, all employees, and public media; or it will be audited by the certification system, which can ensure its implementation—this is also regarded as public or legal supervision.

Environmental guideline and objectives will never remain static; they change in different localities and times.

When a company’s business direction has shifted significantly, such as corporate merging and reorganization, or a project’s investment and design have had great changes, like adding investment based on design changes, the original environmental guideline, and objectives may not be applicable anymore because of the changes in ownership or spaces. The state-of-the-art technology will develop as time goes by. For example, the fossil fuels are being exhausted on the planet while catalytic oxidation technology has taken a great leap, an environmental guideline then can be made more specific, and the goal can aim higher. For instance, the environmental guideline can be upgraded from a “low-carbon green company” to a

“low-carbon low-sulfur environment friendly company,” environmental objectives can also be updated from to reduce “carbon dioxide emissions by twenty percent” to “carbon and sulfur emissions by half.”

It is very important that environmental guidelines and goals are achievable, or can be realized through the joint efforts. Otherwise, they are just empty sayings.

Basically, feasibility means the goal can be realized through common technology with controllable budget. If a business or project states now that they will “have zero carbon dioxide emissions,” or “to turn all sewage water into potable water,” they must be deceiving themselves or just put on a show. 100% usage of solar panels can be “zero emissions” theoretically, but the current energy conversion rate still cannot be zero. In theory, “physicochemical + biochemical + UF” combined could get any industrial waste water purified to be drinkable, but the cost would be enormous. Thus, it is beyond any company’s capability or will to do so. While we could have a beautiful and far-sighted vision regarding environmental protection, the goal should always be realizable and practical.

Following are some examples from the Fortune 500 companies to help us understand how to set up a company’s environmental guidelines and objectives. Although the construction of a project is not exactly the same as a company’s operation, the commitment and practices on environmental protection are still universal.

2.1 DuPont

Let us first take a look at DuPont—a world leading chemical company. Of course, environment and safety are the most closely related for a chemical company like that.

The core direction of DuPont is Sustainable Growth—the creation of shareholder and societal value while we reduce our environmental footprint along the value chains in which we operate. Through this Commitment to safety, health, and environmental excellence, we affirm to all our stakeholders, including our employees, customers, shareholders, and the public, that we will conduct our business with respect and care for the environment. We will implement those strategies that build successful businesses and achieve the greatest benefit for all our stakeholders without compromising the ability of future generations to meet their needs. We will continuously improve our practices in light of advances in technology and new understandings in safety, health, and environmental science. We will make consistent, measurable progress in implementing this Commitment throughout our worldwide operations and support Responsible Care® as a key program to achieve this Commitment.

Highest Standards of Performance, Business Excellence We will adhere to the highest standards for the safe operation of facilities and the protection of our environment, our employees, our customers, and the people of the communities in which we do business. We will manage security as we do safety. We will strengthen

our businesses by making safety, health, and environmental issues an integral part of all business activities and by continuously striving to align our businesses with public expectations.

Goal of Zero Injuries, Illnesses, and Incidents We believe that all injuries and occupational illnesses, as well as safety and environmental incidents, are preventable, and our goal for all of them is zero. We will promote off-the job safety for our employees. We will assess the environmental impact of each facility we propose to construct or acquire and will design, build, operate, and maintain all our facilities and transportation equipment so they are safe, secure, and acceptable to local communities and protect the environment. We will be prepared for emergencies and will provide leadership to assist our local communities to improve their emergency preparedness.

Goal of Zero Waste and Emissions We will drive toward zero waste generation at the source. Materials will be reused and recycled to minimize the need for treatment or disposal and to conserve resources. Where waste is generated, it will be handled and disposed of safely and responsibly. We will drive toward zero emissions, giving priority to those that may present the greatest potential risk to health or the environment. Where past practices have created conditions that require correction, we will responsibly correct them.

Conservation of Natural Resources, Energy, and Biodiversity We will excel in the efficient use of fossil fuels and feedstocks, land, water, minerals, and other natural resources and transition toward the greater use of renewable energy and feedstocks. We will seek to conserve and protect natural resource biodiversity and will manage our land to enhance habitats for wildlife. We will also work with our customers and suppliers to reduce impacts and improve efficiencies along the value chain.

Continuously Improving Processes, Practices, and Products We will extract, make, use, handle, package, transport, and dispose of our materials safely and in an environmentally responsible manner. We will continuously analyze and improve our practices, processes and products to reduce their risk and impact throughout the product life cycle. We will develop new products and processes that have increasing margins of safety for both human health and the environment. We will seek opportunities to make our new and existing facilities inherently safer. We will work with our suppliers, carriers, distributors, and customers to achieve similar product stewardship, and we will provide information and assistance to support their efforts to do so.

Open and Public Discussion, Influence on Public Policy We will promote open discussion with our stakeholders about the materials we make, use and transport and the impacts of our activities on their safety, health, and environments. We will build alliances with governments, policy makers, businesses, and advocacy groups to develop sound policies, laws, regulations, and practices that improve safety, health, and the environment.

Management and Employee Commitment, Accountability the Board of Directors, including the Chief Executive Officer, will be informed about pertinent safety, health and environmental issues and will ensure that policies are in place and actions taken to achieve this Commitment. Compliance with this Commitment and

applicable laws is the responsibility of every employee and contractor acting on our behalf and a condition of their employment or contract. Management in each business is responsible to educate, train, and motivate employees to understand and comply with this Commitment and applicable laws. We will deploy our resources, including research, development, and capital, to meet this Commitment and will do so in a manner that strengthens our businesses. We will measure and regularly report to the public our global progress in meeting this Commitment.

2.2 Sony Corporation

Not only manufacturing companies need detailed environmental goals and plans. Sony, an electronics and entertainment company has also lined out very specific and detailed environmental guidelines and objectives of its own.

Environmental initiatives are one of Sony's most important topics in this age in which a company's consideration of the environment is one of the selection standards for customers when purchasing products.

Sony has continued to promote environmental activities based on our "Road to Zero" environmental plan that aims for a zero environmental footprint. In order to accelerate our environmental activities, we have now established our "Green Management 2020" environmental targets (achievement year: FY2020). As we move toward these targets, the entire Group, including the field of entertainment in addition to electronics, will make the best use of its individual strengths in performing these activities.

The Sony Group has now entered the next stage of its environmental activities. Sony is committed not only to offering products, services, and content that deliver exciting user experiences by inspiring and fulfilling the curiosity of our customers around the world, but also, through our "Road to Zero" environmental plan, to working toward our goal of a zero environmental footprint throughout our business activities.

Sony established the Road to Zero environmental plan in FY2010 in quest of a zero environmental footprint.

FY2050 has been set as the year for achieving a zero environmental footprint, and we have been moving actively towards this goal since FY2010 by setting intermediate targets along the way. Green Management 2020 has been established as the intermediate target set for the FY2020, and we have now entered the next stage of Sony Group's environmental activities.

Be Moved with Sony products while using Minimal Energy

Sony will reduce the annual energy consumption of its products by an average of 30% by FY2020.

We will reexamine our products for further energy-saving potential while developing innovative energy-saving technologies in order to drastically reduce the energy consumption in all major products.

Efficient Production with a Smaller Environmental Footprint

All Sony sites have always sought and implemented energy-saving measures. In addition to further deploy conventional energy-saving activities in all production plants, we have initiated new improvements in our production lines to cut down on our environmental footprint, even when production increases are required.

Tapping the power of entertainment to raise awareness and inspire action

Through Sony's Entertainment products and content, whether in movie theaters, over the airwaves, on a production set, or through new media, we are hoping to reach out to over 500 million people worldwide by FY2020 to raise awareness and inspire action on the issues of environmental sustainability.

Business Partners Becoming Environmental Partners

To achieve the reduction of the environmental footprint throughout the entire life cycles of our products, we will further encourage our component suppliers, major external manufacturing contractors, and other business partners to help us to reduce our environmental footprint, and collaborate with them to meet our FY2020 targets.

Accelerating the Use of Renewable Energy

In addition to ensuring the thorough implementation of energy-saving measures in Sony sites, we are also accelerating the use of renewable energy. Our aim is to increase the amount of renewable energy that we use in order to contribute to CO₂ reductions equivalent to 300,000 tons by FY2020 through the use of certificates and credits.

2.3 China Metallurgical Group Corporation

Metallurgical Corporate of China (MCC) is a large state-owned corporate group in China. It is also one of the world leading companies in promoting environmental protection awareness and actions. MCC's main business is in conventional high energy consumption industries, meanwhile, they are a top-level construction general contractor nationally even globally. Their definition and guidelines of environmental protection are detailed here for us to study.

2.3.1 *Environmental Responsibility*

Ecological environment is related to human survival and development. China Metallurgical is committed to promoting coordinated development of social economy and ecological environment. The industry will promote the development and application of environmental technology as a business strategy development for hair

Show direction, leveraging technological advantage to promote energy-saving new technologies, new products, and develop environmentally friendly.

New markets, promote low-carbon economic development, environmental protection industry has developed a unique technology advantages, as corporate social.

Highlight the characteristics of responsibility, resource-saving and environment-friendly society, and make a positive contribution.

China Metallurgical Environmental Policy

Supervision according to law, energy conservation, environmental protection.

Adhere to the scientific concept of development, for the benefit of society and future.

In 2009, the company has million yuan output value (revenue) overall energy consumption 0.1622 tons of standard coal, declines by 12.94%.

2.3.2 Improve the Management System

China Metallurgical actively carry out environmental management system according to environmental policy, subordinate enterprise have passed the ISO14001 environmental management system certification.

Perfect the organizational system.

China Metallurgical and its subsidiaries are all establish emission reduction work leading groups which lead by the main leaders of the enterprises as the first responsible persons.

And they set up establishment of a permanent mechanism of energy conservation management, they make the energy conservation objectives allocate separate tasks, each task will implement into persons and position.

In 2009, China Metallurgical has established statistical monitoring system of the energy saving covers every subsidiaries, all subsidiaries fill in strict accordance with the energy-saving statistical monitoring form regularly and they will report to the headquarter.

Improve the examination system

In 2009, China Metallurgical have formulated the “energy-saving target responsibility assessment and evaluation scorecard,” which covers the Energy saving, energy conservation work organization and leadership, the energy-saving target decomposition and implementation, energy-saving technology and the implementation of energy-saving technological transformation, such as the implementation of energy-saving laws and regulations, and effectively promote energy conservation jobs.

2.3.3 Promote Energy Conservation

China Metallurgical will increase energy conservation capital investment, and R&D capabilities. They will continue to strengthen ecological protection and environmental protection, and actively explore the market in the field of energy saving, capture new opportunities.

2.3.4 Strengthen Research and Development

China Metallurgical Industry will increase the level of environmental protection technology as an important part of enterprise development strategies.

They will actively explore new energy-saving metallurgy, municipal environment and comprehensive utilization of resources, promoting the using of independent research, and development of environmental technology. Until 2009, the company has mastered over sixty great advanced technologies in the area of flue gas pollution control, sewage treatment, they have developed almost a hundred of major equipment and components, the overall technology.

Their technique level is at leading position in the domestic, in which the industrial flue gas desulfurization, pulverized coal injection, reheating furnace, more than thermal power technology and dry dust and other areas are closed to or reached the international advanced level.

2.3.5 Promoting Achievements Transfer

The company will attach great importance to research achievements into applications, such as the use of ground source heat civil design pumps, solar energy, and other green building technology. Independent design and construction of buildings CISDI has won the 2009.

China's top ten green building energy conservation estate. They have independent intellectual property rights to the Biological Aerated Filter and other leading domestic patents and proprietary technology in domestic sewage, industrial waste water treatment, they have successfully entered the construction and operation of municipal sewage treatment plants, sewage treatment facilities hosting operations, environmental engineering process design, and general contracting.

2.3.6 The Development of Circular Economy

Development of circular economy is to promote economic and social development and the natural environment. It is the important way to facilitate sustainable resource.

China Metallurgical improves the efficiency of resource in the sector of resource development, production and construction, product use, and waste management. They will do all their efforts to improve the efficiency of resource use and actively promote the recycling economy.

2.3.7 Promoting Ecological Protection

China Metallurgical actively strengthens ecological protection and promotes the development of ecological protection industry, to improve the ecological environment of the business region.

China Metallurgical actively promotes green office concept including improving staff awareness of conservation, promoting economical use of water, electricity and office supplies. They try to promote office automation and reduce meeting. They try to adopt the form of video conference meeting instead of merger meeting, they will focused on possible merger meeting firmly consolidated.

2.3.8 Environmental Awareness Training

In 2009, China Metallurgical headquarters participant in NDRC fourteen ministries and organizations of the National Energy Conservation Week activities under the unified arrangements of energy conservation leadership group to increase energy conservation and environmental protection advocacy and raise employee awareness of energy saving.

China Metallurgical affiliated overseas companies actively explain the project and answer environmental issues associated with the construction and operation period through various advocacy training activities.

They collect opinions and suggestions of local residents and enhance residents' acknowledge of the project items. They improve project management for environmental issues of community concern.

Environmental policy and objectives from the above example can be extended to three major projects—environmental objectives and targets of a project can be a company or business unit's construction policy and objectives, it can be a company or a special unit for the project objectives and targets. Among major projects, due to their potential environmental influence, environmental policy objectives must be very clear and relatively accurate operability. At this point, the general manager or the top leadership of or construction projects can set up the appropriate environment group.

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