

112. A General Research about the Role of Science Center and Science Museum—From the Perspective of Dealing with the Global-Warming Problem

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Abstract. As we all know, Climate-warming has become an indisputable fact, and this world-wide problem brings a series of serious results, such as climate change, the rising of sea-level and acceleration of glacier-melting, endless natural disasters and so on, which pose a serious survival challenge to all living things, including human beings. Climate-warming is a global problem, and it is the common challenge facing the whole people of the world, we have to attach a great importance to it.

This paper argues that, to deal with global Climate-warming, all the countries in the world need to act together, as for each individual, the most important point is to develop a low-carbon lifestyle, which advocated during the Climate Change Conference in Copenhagen in 2009.

Then, as the main place for people to get knowledge and attitudes about science and experience scientific research, what role should modern science center and science museum to play in dealing with this crucial and urgent global climate-warming?

This paper argues that, based on the above question, The modern science center and science museum should pay much more attention to help people understand and learn how to deal with climate-warming, not only just focus on the popularization of the knowledge of science & technology, scientific & technological achievements, and providing places for people to play interesting experimental games.

Modern science centers and science museums should establish a special area for climate-warming problem, where people have access to know the origin of climate-warming and what challenges it has posed to the whole world, it helps people realize the importance and the urgency for all countries to deal with climate-warming problem, it shows people the achievements which have been made in recent decades, it also introduce the main practices adopted by all countries in the world, The most important point is help people get knowledge about how to deal with climate-warming in everyday life, introducing low-carbon knowledge to people, advocating low-carbon lifestyle, help people develop low-carbon living habits in every detail of daily life and make contributions when it comes to the climate-warming problem.

Keywords: Science center and science museum, Climate change, Low-carbon

Science Center and Science Museum

Since it comes into being, the science center and science museum undertakes an important mission, which is popularizing knowledge of science and technology, advocating scientific methods, propagating scientific ideas and promoting the scientific spirits. And the traditional science center and science museum has been always practicing this mission, it emphasizes building scientific atmosphere, stimulating interest in science, it also attach a great importance to the exhibiting education, and the content of the exhibition mainly focuses on the concept and achievement of science and technology, including its influences on people's daily life.

But the roles of the science center and science museum in the whole world are not the same, they have different key points. Guangdong science center is the largest science -popularization base in Asia at the present, it is the platform for the exhibition, spreading and trading of scientific products, it also provides academic exchanges. Paris discovery palace in France gets the exhibition and the experiment together, it lays emphasis on inspiration and participation, and its purpose is helping people study during the exploration, and therefore improves their knowledge of science and technology. The San Francisco Exploratorium in USA focuses on the revelation of scientific principle; it emphasizes taking initiative as well as using both head and hand. The miraikan in Japan takes its position based on frontier science and advanced science; it mainly provides scientists a place for understanding of the latest scientific and technological developments. The science museum in Hong Kong focuses on the people's participation, it lets people have fun during the participation, it organizes high-quality exhibitions and interesting scientific programs, with the aim of popularization of science, besides, it helps schools carry out science and technology education. it also encourages

people to find out the scientific principles through the operation of the exhibits, and let them experience the pleasure when exploring and studying science.

Based on the research of the roles of science centers and science museums in several countries or areas, we can draw a conclusion, that is, the traditional science center and science museum's main purpose is helping people get knowledge and experience the fun of science and technology, and this kind of running mode of science center and science museum is quite common, it focuses on the popularization and dissemination of scientific knowledge, it also emphasizes the mastery and application of science and technology, and the ultimate aim is promoting human's development, including the change of living style and the improvement of living standards, etc.

Roles of Modern Science Centers and Science Museums

As we all know, with the emergence and development of science and technology, the human's living and production style has been greatly changed, the progress of human civilization has also been speeded up, since that, people has mastered a better understanding of the nature, and then, people could make full use of the nature. Besides, with the knowledge of science and knowledge, people could adopt scientific methods to avoid natural disasters. But since stepping into the 20th century, the disasters human experienced and faced are more and more, and the natural disasters has become the major challenges for people, and they are even threatening the existence of all life in the world.

The natural disasters are the abnormal phenomenon in the nature, and they influence people's life from time to time. The damage caused by the natural disasters is usually frightening, and the loss is also very heavy. The common natural disasters usually break out suddenly, such as earthquakes, erupting volcanoes, floods, typhoon and tsunamis, etc. Environmental disasters like ozonosphere changes, water pollution, soil erosion and acid rain, are produced by human activities. Besides, disasters, such as glacier melting, land desertification, drought, coastline variation and so on, develop its influence in a long time, and they do damage to human gradually. These natural disasters have a complex relationship with the environmental damage. Within the 21st century, the most important natural disaster the scientists discuss could be climate change. The rapid melting glaciers in Greenland, the frequent extreme heat in whole world are the serious consequences caused by climate change.

The occurrence of all these disasters existing in the nature are caused by the invincible natural factors, what's more, the factors produced by human activities could not be ignored. Then, as to these natural disasters, particularly the issue of the climate warming, is there anything we can do about it? When we make progress in science and technology and enjoy a better civilization, should not we adopt a scientific way to prevent or reduce the occurrence of these disasters?

The answer is yes, we have to get knowledge of these disasters occurrence and development from the scientific perspective, and then try to reduce the hazards, and it has become a common theme of the international community.

Dealing with these natural disasters, we need not only scientist to strengthen the scientific and technological breakthrough, but also the innovation of science and technology, what's more, we need everyone in the world take actions to combat the natural disasters, and use the scientific method and means to reduce the occurrence of disasters or damage caused by them.

Do people know how to combat natural disasters inherently? Do people know how to avoid damage caused by disasters inherently? No, when people get knowledge about these disasters, including the causes and the results, and learn how to do to avoid them, so that people could be free from all damages, or at least less.

There are different ways for people to get knowledge about the disasters, such as watching television, logging on internet, reading books and so on, but through these ways, people's consciousness of taking initiative to prevent and avoid disaster could not be stimulated, it also can't offer people a more powerful feelings towards disaster. To stimulate people's consciousness of taking initiative to prevent and avoid disaster, we must bring people a true sense of disaster and its severe consequences, etc.

The science center and science museum is a place where scientific knowledge is disseminated; it provides people a space to experience freely. Therefore, in order to offer people a more truly and powerful feelings towards disaster, the science center and science museum must take actions, it should not just hold the ideas of popularizing knowledge of science and technology, exhibiting scientific products, enjoying scientific fun and so on, the science center and science museum should show some scientific and effective methods to prevent and avoid disasters, as to dealing with climate change that concerns all living beings on earth, it becomes more urgent.

Climate Change: A Challenge for Human Society

The Copenhagen climate change summit held in September, 2009, has been considered as the most important meeting when it comes to the sustainable development of the whole world, it is also considered to change the fate of the earth. Thus, we can learn that how serious the climate change is for the survival of mankind. But at this summit, because of the interest conflict, the leaders of countries failed to reach an agreement on dealing with climate change; This means that the climate change will bring more harm to the whole world in the near future.

Then, what challenges the climate change brings to the earth? This paper expounds main some challenges listed as follows. First, is the global glacier melt. It causes a series of problems such as flood, drought, drinking water reduction and so on, these are the major issues related to human survival; Second, the extreme climate. Such as the blizzard, storms, hail, lightning, typhoons, and so on. The study shows that since the 1970s, the scope of drought has become broader, its duration becomes longer, and the result becomes more serious, particularly in the tropical and subtropical regions; Thirdly, the reduction of grain output. The global warming may lead to the instability of the agricultural production; problems like high temperature, drought, the pests may cause the reduction of grain output. Meanwhile, the rising of the temperature will expand the region where agricultural disease exists. Therefore, the influence on the crops will be worse, and finally leads to the increasing usage of the agricultural herbicides: Fourth, the rising of sea level. Due to the rising of sea level, various island countries are faced with problems like the shrinking of the land area, moreover, some island countries may be drowned. A survey shows, more than 70% people of the whole world live in coastal plain, among the 15 biggest cities, there are 11 located at the coastal area or the river mouth. once the sea level rises beyond a certain bound, people living in these areas will also face the danger of being drowned; Fifth, the extinction of species. The fourth assessment report released by the intergovernmental panel on climate change (IPCC) in 2007 points out that, in next sixty to seventy years, the climate change will lead to the extinction of a large number of species, as a member of the universe, may the human beings also be faced with this embarrassing situation one day?

The above five points are not just an alarming talk; they do exist in our daily life. If we don't take actions, we may do have to experience this serious consequences.

As we can see, dealing with the climate change can not be delayed anymore. Then how to cope with the challenges brought by the climate change? What should we do? As to each individual, a consensus has been reached, that is reducing the disasters brought by the climate change, and the most important point is guiding people to develop a low-carbon living style in our daily life.

Modern Science Center and Science Museum vis-a-vis Climate Change

Generally speaking, the science center and science museum consists of several exhibition areas, which are designed for the different exhibits. Each exhibition area has a main theme, such as Science and Technology in daily life, Exploration and Discovery, Science Park, Future and Challenge. With a main theme in each area, people could feel more convenient to visit. Besides, most science centers and science museums have a temporary exhibition area, which mainly used to exhibit the latest technology, products or research results. But the science centers and science museums with the theme of dealing with the climate change is few, most science centers and science museums have no relevant exhibition area. It is not in accordance with the development of human society. the development of human society is the sustainable development of human civilization, it aims at increasing people's living standards and improving the existing environment, and in order to achieve these aims, just relying on the scientific and technological progress is not enough, we should also need to reduce the violation of the nature as well as raise the ability of preventing and reducing disaster brought by the climate change.

After all, most people visiting science center and science museum want to learn science, get a better knowledge about science and technology, and then make full use of it so as to improving living conditions and environment. But various disasters brought by the climate change affect people's life at any time, and it appears to be more frequent in recent decades. But people's consciousness of dealing with the climate change is not strong enough, in fact, most people think that dealing with the climate change is just the responsibility of a country, and have nothing to do with each individual.

While, dealing with the climate change is the common challenge for the entire humankind, it requires the concerted action of the entire humankind. In this sense, setting up a exhibition area with the theme of dealing with the climate change is becoming increasingly urgent.

Then, how to design the exhibition areas with the theme of dealing with the climate change so as to attract people's interest and let people take initiative to combat the climate change? This is an important but difficult issue. As we all know, such as driving cars once in a while, using less plastic bags, stopping cutting trees and so on, are

the concrete actions for all individuals to combat the climate change, but taking these actions will inevitably affect people's lives, but if we don't do it, dealing with the climate change will be an empty talk.

Therefore, when designing the exhibition area with the theme of combating the climate change, the science center and science museum has to attach much importance to the aspects such as the exhibition area's designing, decoration, operation and so on. Let people have a shock from the bottom of the heart after visiting this special exhibition area, and help them give up the narrow consciousness of emphasizing personal interests and neglecting the existence of all humankind.

Then how to design the exhibition area with the theme of combating the climate change? The follow four aspects are strongly recommended to finish the layout. Relevant information on climate change has been introduced in the first part. When people talking about the climate change, the most direct understanding on it is the global warming, but where does the problem of global warming come from? What negative influences it brings to us? And how do these influences effect all the living things existing on earth? As to these questions, they do not know. While if they do not know the basic knowledge about the climate change, they will not take any action to combat the climate change. to be more strict, the global warming will be further increased. Therefore, introducing some relevant information on climate change is rather important. At the beginning of the exhibition area, the knowledge about the climate change should be introduced through texts, pictures, figures. The main text should include the origin of the climate change, but the written language should not be excessive, otherwise, people will neglect this part for the long texts. Some pictures may be added in appropriately, these pictures should be real and close to people's life, only in this way, people can be shocked after visiting. The numbers referred should be accurate and surveyable. In short, people's interest in climate change should be stimulated as much as possible in this part, and let them think that the problems caused by the climate change are closely related to everyone.

After introducing the relevant information on climate change, it is necessary to assume some circumstances if the problems of climate change aggravates and what might happen to the survival environment of humankind. That means simulating the survival situation after the global climate changes. In this part, much more attention should be paid to people's feelings. Designing a simulated environment, such as the increased temperature, with the aim to reinforce people's feelings of the impact brought by the climate warming, and therefore, help people recognize the responsibility and urgency for combating the climate change and take actions more consciously to protect our homeland.

Since people visiting in the science center and science museum, it is essential to introduce the research result of combating the climate warming by scientists to visitors. In this part, the exhibition content should be provided as rich as possible, including the latest research results and the efforts paid by the scientist, such as the development and application of new energy. In addition, some international conferences on global climate change as well as policies and measures adopted by the governments may be also introduced in this section, let people know that combating the climate change is not just the task for scientists and governments, everyone has the responsibility to join in this meaningful action.

The last part is the most important part. In this part, knowledge about combating the problems caused by the climate change in daily-life should be introduced to people with detailed presentation. the content of this part should be close to people's life, it may be classified according to people's eating, clothing, housing and move. As to eating, it is necessary to advise people don't eat those precious, rare or endangered animals and plants, so as to keep the ecological equilibrium and maintain the biodiversity. As to clothing, it is necessary to recommend people choosing clothes made of cotton, linen and silk, for they are not only green and durable, but also fashionable and elegant. As to housing, emphasis should be put on conserving water, saving electricity and avoid energy waste. As to move, it is essential to advocate green traffic ways, green and energy-saving policy should be also promoted, such as no driving or less driving.

In short, introducing knowledge about how to combat the disasters caused by the climate change in daily-life to people is quite significant for science center and science museum at present, it is also of great urgency for science center and science museum to help people form good habits and lifestyle so as to dealing with the global climate change.

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