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# The possibility of comprehensive disaster studies derived from social and living resource theory

Hiroyuki Mitsuishi Ph.D (MediEco R&D )

## Introduction

This presentation, "Possibilities for Comprehensive Disaster Studies Derived from Life Resource Theory," is a report on research into the issue of whether social life resource theory can be used to develop effective theories and methods for 21st century disaster measures.

Chapter 1 discusses the occurrence of "21st century disasters," which are large-scale, widespread disasters that are the product of 21st century society. 21st century society has achieved unprecedented wealth through advances in science and technology, huge productivity, international economy, and advanced information and communication society. Disasters are an extension of the positive aspects of these and have inherent negative aspects. 21st century disasters are the product of 21st century society and civilization.

Chapter 2 introduces the history of disaster research in disaster-prone Japan and explains how the academic field that emerged from this research has formed a unique Japanese sociology. Based on these previous studies, a study of life information during disasters was conducted, and a hypothesis was formulated regarding life information theory, followed by a brief explanation of the theory.

Life information is a reflection (pattern) of life substance. Life substance is life functions and their structure. Here, we call these living entities social life resources. In Chapter 3, we introduce research on social life resources, explain the concept, the elements that make up, and their composition, and call these hypotheses "social life resource theory." From this theory, we consider the conditions for the establishment of comprehensive disaster studies, a discipline for 21st century disasters.

Chapter 4 explains that various disaster countermeasures are determined by social resource capabilities and discusses the reason for the existence of various COVID-19 pandemic countermeasures, citizen volunteer activities as a challenge for comprehensive disaster studies in democratic countries, and how disaster countermeasures evolve citizen-participation societies.

Comprehensive disaster studies is problem-solving science. In that sense, new academic forms, methods, and perspectives are being called for in this field. These academic methods will also be verified, established, criticized, and continue to evolve in the formation of problem-solving comprehensive disaster studies.

## 1, Disasters as a social phenomenon in the 21st century

A quarter of a century has passed since the beginning of 21st century society. We are beginning to understand that this society is different from previous societies. We will list this social form and its positive and negative aspects. The positive aspects are the benefits we receive from this society, and the negative aspects are the damage.

### A, Society of advanced science and technology

High productivity, affluent society

Wider economic disparities

### B, An international society driven by advanced information and communication technology and its infrastructure

Cultural exchange on a global scale

Immigration and refugee issues in developed countries

### C, An international economic society driven by the advanced transportation and distribution technology and its infrastructure

Global economic activity

Destruction of domestic economic culture due to internationalization

### D, Formation of an advanced and rich artificial environment

Creation of a rich lifestyle and society

Environmental destruction on a global scale

## 1.2, Two types of disaster triggers: Natural trigger　and Artificial trigger

A disaster is an event that destroys human life and the social and living environment. It refers to an event that takes away people's lives, health, and wealth, causes a deterioration of the economic, socio-cultural environment, and ultimately reduces the quality of life (QOL).

There are two triggers that cause disasters. One is caused by natural events and is called a natural trigger. Disasters caused by this are called natural disasters. The other is created by humans and is called an artificial trigger. Disasters caused by this are called artificial disasters.

However, even if the disaster trigger is a natural trigger, such as an earthquake, if it occurs in an uninhabited area such as Antarctica, it does not become a disaster. In other words, a disaster is an artificial damage caused by a natural trigger. An artificial provocation exists in social infrastructure or a city, and it is triggered by an earthquake, causing it to collapse. This is a disaster we say.

A disaster is damage suffered by humans and society; small damage is called an accident, while large damage is called a disaster.

## 1.3, Various types of disasters in modern society

### 3a, Disasters triggered by natural events

First, natural phenomena trigger disasters, leading to the destruction of human society. Generally, these disasters are called natural disasters. However, not all buildings and social infrastructure collapse. For example, buildings that meet earthquake resistance standards will not be damaged by earthquakes. Disasters can be avoided with people's efforts. It means, the disasters are the collapse of manmade structures induced by natural phenomena. Then, what are called natural disasters can be said to be hybrid disasters caused by both natural and artificial factors.

The two typical disaster patterns are shown below.

**Initial triggers: Geophysical phenomena**

Earthquakes, Volcanic activity, Tsunamis, Ground uplift and subsidence,

**Initial triggers: Meteorological phenomena**

Typhoons, Heavy rain, Foods, Landslides, Droughts, Forest fires

### 3b, Modern society type, artificially induced disasters 1

Disasters and accidents caused by artificial objects. Damage caused by human activities.

As society modernizes, science and technology advance, capitalist economies develop, huge industrial societies are formed, and a lot of wealth is generated. Huge means of production, metropolitanization, and advanced science and technology create new types of disasters

**Provocation 1: Urbanization**

Accidents and disasters in social infrastructure

Accidents and disasters due to aging social infrastructure

Bridges, Roads, Water supply and Sewage, Power transmission infrastructure

**Provocation 2: Economic activity**

Accidents, disasters and health damage due to production activities

Work-related accidents and Occupational diseases

Production systems, Working conditions

Provocation 3: Science and technology development

Economic disparities due to the internationalization of economic and social activities

Military use of cutting-edge science and technology, development of new weapons (the atomic bomb)

### 3c, 21st century civilization society type

Disasters called 21st century type disasters　that are now occurring frequently

**A: Provocation 1: Huge economic activity**

**A1**: Environmental destruction caused by artificial objects

Environmental destruction such as Environmental pollution, Air pollution, Acid rain, Global warming, and microplastic pollution

Environmental destruction caused by urbanization: air, water, and soil pollution, and destruction of ecosystems due to the expansion of living areas

**A2**: Environmental destruction and accidents caused by production activities

Environmental destruction caused by agriculture: Destruction of forests, Destruction of the ecological environment by pesticides and chemical fertilizers

Nuclear power plant accidents

**B, Provocation 2: The negative side of advanced scientific and technological civilization**

Medical systems (Medical damage), Biological and bacterial contamination, New infectious disease pandemics caused by advanced scientific and technological civilization and advanced artificial environment society.

## 2. Disaster studies in Japan

### 2.1. Japan, a country prone to disasters

#### 1a, International comparison of disaster fatalities

Japan is a disaster-prone country. We calculated the average percentage of the total population caused by natural disasters for the 31 years from 1990 to 2021 for South Korea, Taiwan, Japan, China, the United States, and the United Kingdom. The order of countries with the highest number of fatalities in East Asia is China, Japan, Taiwan, and South Korea, but in terms of population ratio, Japan has the most, followed by Taiwan (0.79 times that of Japan), China (0.47 times that of Japan), and South Korea (0.2 times that of Japan). In addition, the United States has 0.17 times that of Japan, and the United Kingdom has 0.277 times that of Japan. In other words, it can be said that Japan suffers the greatest damage from natural disasters worldwide.

Figure1 : Ratio of total population of natural disaster deaths from 1990 to 2021 Comparison of 31-year averages (Japan, Korea, USA, UK, Taiwan, China)

|  |  |  |  |
| --- | --- | --- | --- |
|   | Korea | Taiwan | Japan |
|  | Average annual deaths | Average population | Average ratio | Average annual deaths | Average population | Average ratio | Average annual deaths | Average population | Average ratio |
| average | 65.5 | 48125.890 | 0.140% | 125.9 | 22582.880 | 0.563% | 909.4 | 126573.000 | 0.714% |

|  |  |  |
| --- | --- | --- |
|   | United States | United Kingdom |
|  | Average annual deaths | Average population | Average ratio | Average annual deaths | Average population | Average ratio |
| average | 364.5 | 296777.534 | 0.123% | 128.8 | 61426.553 | 0.198% |

|  |  |
| --- | --- |
|   | China |
|  | Average annual deaths | Average population | Average ratio |
| average | 4432.8 | 1307462.8 | 0.336% |

Reference materials: GLOBAL NOTE https://www.globalnote.jp/

#### 1b, Number of disasters and casualties in Japan in recent years

According to Cabinet Office data, the total number of natural disasters (earthquakes, tsunamis, floods, volcanic activity, etc.) from 2000 to 2024, including the Great Hanshin-Awaji Earthquake in 1995, was 67, the total number of disaster victims, dead and missing was 31,740, and the total number of injured was 90,770. During that time, in 10-year data, from 2000 to 2009, there were 27 disasters, 577 dead and missing, and 15,518 injured. From 2010 to 2019, there were 77 disasters, 24,316 dead and missing, and 25,119 injured. And from 2020 to 2024, there were 24 disasters, 460 dead and missing, and 2,741 injured.

#### 1c, Infectious disease disasters: Pandemics

COVID-19 in Japan: Infectious disease disaster

According to the Ministry of Health, Labor and Welfare's 2023 Vital Statistics, the number of deaths from COVID-19 was reported to be 105,950 from January 2020 to 2023.

The number of deaths from COVID-19 over three years (105,950) is about 3.3 times the number of deaths from natural disasters over about 30 years (31,740). Considering that the duration of natural disasters and Covid-19 differs by 10 times, the average number of deaths from infectious disease disasters in one year is about 33 times that of natural disasters. The extent of the damage caused by infectious disease disasters (pandemics) can be understood.

### 2.2, History of disaster research as modern science in Japan

#### 2a, The beginning of disaster theory as human social science in Japan

Kunio Yanagita: Folklorist, criticized the unscientific behavior of calling the Great Kanto Earthquake a divine punishment.

Wajiro Kon: Conducted fieldwork at the site of the Great Kanto Earthquake and developed modern studies.

#### 2b, Pioneer of the political economy of disasters before the war

Torahiko Terada: A physicist, he distinguished between natural phenomena, which are the causes of disasters, and disaster phenomena, which are their results. He also advocated the "evolutionary theory of disasters," which states that disasters evolve with the progress of civilization.

Yoshitaro Hirano and Yasuo Kondo analyzed disaster factors lie in production relations, and became pioneers of disaster economics from a Marxist economics perspective.

Tokuzo Fukuda: Pioneer of disaster reconstruction economics, in 1994, he proposed the "human reconstruction theory," which is the same concept as human security proposed by Sadako Ogata, the UN High Commissioner for Refugees, and economist Amartya Sen.

Since the Meiji period, Japan, a country prone to disasters, has conducted disaster research by incorporating not only Western science and natural science, but also social sciences such as economics and sociology. Economics, which calls itself the science of managing the nation and saving the people, has studied disaster studies as a science for providing relief to disaster victims.

#### 2c, The formation of disaster sociology

Shigeyoshi Tanaka

He proposed disaster sociology, saying that disasters have two aspects: "production of disasters" and "construction of disasters." "Disasters are produced" means that "disasters are determined by social structure." Tanaka also states that by taking the perspective of "construction of disasters," that is, construction, it is possible to explain how hazards (dangers) change into disasters through vulnerability.

Tanaka gives four reasons for the need for disaster sociology.

First, Japan is a country prone to disasters, and disasters are an important issue for Japanese sociology.

Second, disaster sociology should move from a marginal position to a general issue in sociology.

Third, disaster prevention should be made the main research topic in disaster sociology.

Fourth, disaster sociology aims to be a field of study that is useful for disaster prevention measures for companies, local communities, local governments, and the government, by focusing on disaster prevention and relief for disaster victims and disaster-affected areas.

### 2.3, Survey of lifestyle information during disasters

After the Great Hanshin-Awaji Earthquake, we surveyed the number of articles about lifestyle information during the earthquake that appeared in newspapers every two weeks and examined the changes over time. The changes over time showed two patterns. One pattern was for the first six weeks after the earthquake, and the second pattern was for the period after six weeks. What determined the pattern was the content of the lifestyle information. After that, we also surveyed lifestyle information other than newspapers and found that there was a third pattern several months after the earthquake.

To classify those living information, we classified them into the following three types of lifestyle information.

#### 3a, Primary living information

Primary living information is information needed immediately after the earthquake (when the basic infrastructure of social life has not been restored) and is information that arises from actions to maintain life, the minimum necessities of life (food, clothing, shelter) and a living environment.

**Characteristics**: Very many articles are generated immediately after the earthquake but then decrease rapidly.

**Characteristic 1**: There are a very large number of articles (amount of information) up to six weeks after the earthquake.

**Characteristic 2**: The number of articles decreases rapidly six weeks after the earthquake.

**Groups with similar increases and decreases in the number of articles**

**Group 1**: safety, missing, water, blankets, gas & recovery, electricity & recovery, relief materials

**Group 2**: dead, food, gas, electricity

**Group 3**: rescue or rescue or helped, hospital or medical certificate or hospital, water or drinking, evacuation shelter, dead or victim or passed away or telephone

**Group 4**: toilet, insurance and (house or residence), soup kitchen

Figure2 : Changes in primary living information over a two-week interval

Recruited data: deaths, food, gas, electricity


#### 3b, Secondary Living Information

Secondary living information is information that is needed after the restoration of basic social infrastructure and is information that arises from actions to seek a richer economic life.

**Characteristics**: It occurs more frequently a little later than immediately after the earthquake.

**Characteristic 1:** There are a very large number of articles (amount of information) up to 6 weeks after the earthquake.

**Characteristic 2**: The number of articles decreases rapidly 6 weeks after the earthquake.

Characteristic 3: However, the number is greater than that of primary living information.

**Groups with similar increases and decreases in the number of article**s

**Group 1**: entrance exams, school ・classes, traffic or transportation, recovery, insurance (home or residence or fire or earthquake)

**Group 2:** recovery, traffic or transportation, school, road

**Group 3**: children & students, railway

**Group 4**: repairs of apartments or housing complexes, city hall consultation, reconstruction

**Group 5**: employment, urban planning, waste or garbage

**Group 6**: neighborhood association, temporary housing,

**Group 7**: entertainment, concerts, events

**Group 8**: volunteering

Figure3 : Changes in the amount of secondary life information over two-week intervals

Recruited data: recovery, traffic and transportation, schools, roads


#### 3c, Tertiary Living Information

Tertiary living information is information that people need to satisfy their personal desires after the earthquake recovery.

**Characteristics**: It is assumed to occur at the stage when disaster recovery progresses and disaster recovery plans are being planned.

**Comment 1**: It is unclear whether tertiary living information was generated immediately after the earthquake. Two years after the earthquake, similar information was confirmed in a regularly published pamphlet on disaster recovery.

**Comment 2**: This tertiary life information was defined based on Parsons' theory of social action, and his three categories were applied to the concept of living information. However, Parsons' concept of tertiary social action is, in a sense, premised on a theory of human nature that assumes the fundamental goodness of humanity. When people perform actions to satisfy their personal desires, it does not only mean living positively and with hope but also includes secretly pursuing antisocial or unethical actions. In that sense, tertiary living information here is information generated by activities to satisfy desires.

## 3. Disaster structure and countermeasures from the perspective of social and life resources

### 3.1. What are Social and Living Resources (SLR)?

#### 1a. Previous research related to the theory of Social and Living Resources

"Life studies" is a Japanese sociological research and tradition and is a characteristic of Japanese sociology. The theory of SLR was developed from this uniquely Japanese social science theory.

Representative of previous researchers and their theories:

A unique Japanese folklore trend that began under the influence of Kunio Yanagita

• Wajiro Kon: Life studies, modern studies, and life pathology

• Kyo Kagoyama: Life structure theory

• Aoki and Soejima: Life systems theory

• Tamito Yoshida: Life space theory, program science theory

• Hiroyuki Yoshikawa: View of artifacts, artifact engineering (engineering researcher)

#### 1b, Concept of Social and Livinga Resource (SLR) concept as the substance about Social and Living Information

##### A, Concept of Social and Living Resources

SLR is defined as the entity concept of life information. In other words, it`s a entities or a substance that actually exist in the living space. At the same time, SLI is the form or pattern of information on SLR.

SLR referred to here are premised on things that have been the subject of research in natural sciences (objects with physical, chemical, and biological properties), but they are not general "things/substances" but "things" that have social functions (social roles) in the social life space.

For example, even if there are rocks on a mountain, they are not called social living resources. When these rocks take on a form that is useful for people's economic and social activities, they change from mountain rocks to "ballast (pebbles laid under railway rails)" as a social economic resource.

In other words, SLR is something that plays some role in the social living space, something that people accept as part of their social living environment.

##### B, Three types of SLR

From a survey of disaster information during the earthquake, SLI was classified into three patterns and the concepts were discussed. From this, SLR is also classified into three patterns and concepts. Based on these three classifications, we postulate (provisionally define) three concepts of SLR.

Primary Social and Living Resources as the substance of primary SLI.

It means that it is resources necessary for sustaining life, the minimum necessities of life (food, clothing, shelter) and constituting a living environment

Secondary SLR as the substance of secondary SLI.

It means that it is resources for building a richer economic society and living environment

Tertiary SLR as the substance of tertiary SLI.

It means that it is necessary resources to satisfy personal desires

### 3.2, Constructive Model of Social Living Resources

#### 2a. The constructive model of social life resources is derived from two conceptual axes.

The first conceptual axis is a spatial concept of the human subject and its activity environment. This concept consists of two components. One is internal (human body and mental elements) and the other is external (environmental elements surrounding humans).

The second conceptual axis is a constructive concept consisting of the materiality and functionality of resources. It has two components: one is one kind of design, behavior style or specifications that determine the patterns of cognition and behavior (the element that produces the resource function) and the other is material (the material components of the resource). Clarifying the material substance of resources is a task of natural science, but here we have defined the concept of materials and materials as useful objects in human society, rather than their chemical components. In addition, the concept of style is the role of defining the program that produces functionality, social order, and structure.

This resource model is created by combining the elements of the two conceptual axes.

Social and living Resources are constructed by the concepts of internal and external, which are derived from the above-mentioned human activities and the concept of the environment in which they are active, and the concepts of style and material, which are derived from the functions and structures of resources and their physical substance. There are internal and external materials for materials, and internal and external styles for styles.

**Figure4 :　 A model of the composition of SLR**

|  |  |  |
| --- | --- | --- |
|  | **Internal (world)** | **External (world)** |
| **Behavior Style, Design** | **Internal behavior style elements** | **External behavior style elements** |
| **Material** | **Internal material elements** | **External material elements** |

#### 2b, Concepts of components of social life resources

**Internal and External**

The concept of internal is inspired by the two concepts of life pathology mentioned by Kon Wajiro: internal medical pathology and surgical medical pathology. In other words, the body, mind, spirit, and way of thinking of the resident are expressed internal, and the social, cultural, and material environment surrounding the resident as external. This expression of internal and external is also used in phenomenology, where cognition, psychology, and mental phenomena are called the internal world, and the social and cultural environment is called the external world. Here, it is sufficient to understand very simply that internal means the human body and mind, and external means the world surrounding the body and mind.

**Style and Material**

Style: Human behaviors style and Social function style

In the previous section, we mentioned that behaviors style is an element that creates resource functions. It is very difficult to translate this into English. In other words, it is a mental action that controls a person's actions as reason and morality. It means Human behaviors style. It is also the cognition and behavioral programs, common sense, and ethics that create the functionality of the mind and psychology. It is guided by Social function style.

Behaviors styles such as cognitive design are systems of behavior that create social order, rules, and even skills and technology. Styles allow people to follow social order, social systems, laws, and machine operating manuals; they are programs that are structured into society and culture for people and society to function.

**Materials**

Materials were also briefly explained in the previous section. They are the physical materials that make up the social living environment and the bodies of people who live. These materials are not a material concept in natural science but can also be said to be a material concept in human social science. In other words, these materials are material materials that are useful in human society.

Examples of internal (human body and mind) styles and internal materials

Internal styles: ethics, morals, values, psychological and mental functions, sensory and physiological functions

Internal materials: body (meaning a culturally constructed body based on the biological human body. Example: gender)

Examples of external (human environment) styles and external materials

External styles: laws, customs,

External materials (materials): living materials, building materials, materials (meaning materials used as materials for socio-cultural existence, not materials that are the subject of natural science)

#### 2c, The concept of disaster considered from the perspective of SLR

The disaster is the destruction of SLR. We define the elements that make up the resources as materials and styles, internal (physical and mental) and external (environment surrounding the body and mind). An event that causes some damage to these elements is called damage. And the things that cause these damages are called accidents and disasters.

By interpreting disasters from the perspective of SLR, we can understand the details of the damage. In addition, we can analyze the issues of safety management and crisis management more specifically. In that sense, the theory of SLR (SLR Theory) can provide analytical and situationally rational means for disaster countermeasures.

##### A, Disaster state caused by destruction of materials.

Destruction of materials is classified into destruction of internal materials and destruction of external materials. Destruction of internal materials means destruction of the human body and mind. Disasters and accidents caused by this cause death, physical health disorders, and neurophysiological damage. The second type of disasters and accidents caused by destruction of external materials refer to events in which the materials that make up social infrastructure and the social life environment are damaged and destroyed. For example, damage to railways, roads, and buildings. This destruction of external materials is generally referred to as a disaster.

##### B. Damage caused by the destruction of style.

The destruction of style is classified into two categories: internal style and external style.

The destruction of internal style means the loss of people's skills, knowledge, techniques, and social ethics. The skills and techniques that people have acquired are destroyed. It also includes the loss of mental and physical functions necessary for social life due to some kind of accident. Specialized knowledge and traditional skills are lost both individually and collectively, and the social culture and human resources that cultivate them are lost. The destruction of internal style destroys the transmission of culture and the disappearance of skilled techniques.

The destruction of external style means the destruction of information on social systems, laws, devices, machines, tools, etc., and the socio-cultural environment that maintains them. For example, damage to materials and documents (universities, museums, libraries, etc.) that maintain the socio-cultural functions that maintain socio-cultural systems. The external patterns are damaged by the physical destruction of social infrastructure.

## 4, Issues of Comprehensive Disaster Studies (Countermeasures)

### 4.1, Disaster research topics related to the constituent elements of SLR, conditions for the establishment of comprehensive disaster studies.

Interpreting disasters from the perspective of SLR allows for more detailed analysis and understanding of the damage caused. By utilizing these detailed interpretations in disaster countermeasures, disaster research will lead to diverse developments. It becomes possible to utilize knowledge of human sociology in disaster analysis and disaster countermeasures. By considering disasters from the structure and function of SLR, the possibility of comprehensive disaster studies is born.

One of the conditions for the establishment of comprehensive disaster studies is to understand the academic fields necessary for the interpretation of disaster events from the perspective of SLR. From the four elements that make up SLR, the issues of interdisciplinary studies related to social life and humans were understood. Disaster studies exist based on this understanding. This is because disasters occur due to events in social life and human activities.

In other words, all sciences and technologies are related to disaster studies, and disaster studies is conceived as one of those academic fields. The interpretation that provides this interdisciplinary perspective is SLR theory. Utilizing this concept, the possibilities of interdisciplinary disaster studies are developed. In other words, SLR theory can be said to be a theory for the formation of comprehensive disaster studies.

Below are listed the possibilities and challenges of disaster studies derived from the theory of social life resources.

Academic fields related to internal style: Disaster human science (disaster psychology, disaster psychoanalysis, etc.) is made possible by the disaster-scientific development of human sciences (psychology, neuroscience, cognitive science, psychoanalysis, etc.).

Academic fields related to internal material elements: Disaster medical science is made possible by the disaster-scientific development of medicine, infectious diseases, and epidemiology.

Academic fields related to external style: Disaster social science (disaster economics, disaster sociology, disaster administration, disaster life science, disaster cultural anthropology, etc.) is made possible by the disaster-scientific development of social sciences (Economics, Sociology, Law, Politics, Public administration, Life science, Cultural anthropology, etc.).

Academic fields related to external materials: The development of disaster science into engineering (disaster prevention materials engineering, urban engineering, architecture, civil engineering, etc.) makes disaster and disaster prevention engineering (disaster prevention materials engineering, disaster prevention urban engineering, disaster prevention architecture, disaster prevention civil engineering, etc.) possible.

### 4.2, Political economy of social and economic resources as a important issue for comprehensive disaster policy; participatory democratic society

#### 2a, Political, social, and economic forms stipulated in social and economic resources and economic rationality of disaster countermeasures

Comprehensive disaster countermeasures are the efforts of a country or society to deal with an emergency. It is stipulated by the disaster situation, the wide variety of disaster triggers, the state of disaster prevention infrastructure (resources), economic power, and social culture. Therefore, disaster countermeasures differ depending on the country and social culture.　 This is because disaster prevention measures require more efficient use of social resources. When resources are scarce, a system that can control their management and use is necessary. This determines disaster prevention measures.

The main factors that constitute disaster countermeasures are the economic system and the political system. From the 20th century to the present, there are capitalist economic societies and socialist economic societies in the world. In the 21st century society, the only country that has a socialist economy is North Korea. Other countries are basically capitalist economies. This capitalist economy takes on a wide variety of forms depending on another factor, the political system. In nationalistic countries, it becomes state capitalism, and in democratic countries, it becomes liberal capitalism. Not all countries with capitalist economic systems are classified as state capitalism or democratic capitalism. Each country has different nationalistic and liberal tendencies, and at the same time, the nationalistic and liberal tendencies of a country continue to change throughout its history.

National disaster prevention measures are determined by the disaster situation and the country's political and economic environment. In other words, the scope of application of national disaster prevention measures is roughly determined by the economic and political form of a modern nation. In terms of economic systems, socialism is more likely to be nationalistic than capitalism, and in terms of political systems, nationalism is more likely to be nationalistic than democratic. Furthermore, in democratic nations, the development of democratic culture weakens the tendency for nationalism to be nationalistic.

This explains why COVID-19 pandemic prevention measures differed from country to country. To put it in extreme terms, we can understand the different infectious disease prevention measures taken by countries such as North Korea, which imposed strict travel bans, China, which imposed city lockdowns, Japan, which called for citizens' cooperation by refraining from going out, and Taiwan and South Korea, which took measures against infection while allowing citizens to continue their daily economic activities by making full use of the Internet and digital technology.

Figure5　: Modern states classified by economic and political system

|  |  |  |  |
| --- | --- | --- | --- |
|  | Economic system | Political system | country |
|  | capitalism | Developed democracies | developed country |
| Modern States |  | Democratic developing countries | Developing countries, Vietnam, pre-war Japan |
|  |  | nationalism | Modern China, Saudi Arabia |
|  | socialism | nationalism | Former Soviet Union, North Korea, China before reform and opening up |

Figure6　: Comparison of the level of state-led disaster countermeasures by the form of the modern state

|  |  |  |
| --- | --- | --- |
| evaluation | By form of modern state | Levels of state-led measures |
| ☆☆☆☆ | Socialist and nationalist states | All Disaster Preparedness |
| ☆☆☆ | Capitalist and Nationalist States | Overall countermeasures against major disasters |
| ☆☆ | Capitalist and Democratic Developing Countries | Overall catastrophe countermeasures |
| ☆ | Capitalist and Democratic Developed Countries | Initial stage of catastrophic disaster countermeasures |

#### 2b, Issues in disaster prevention measures in democratic countries/Disaster prevention measures in Japan Volunteer activities

Prewar Japan's disaster prevention measures were state-led. For example, in 1894, 27 years after the Meiji Restoration, Goto Shinpei quarantined over 230,000 returning soldiers from the Sino-Japanese War in two months. Japan, which had just started as a modern nation, lacked both financial power and infrastructure for disaster prevention. In that situation, state-led disaster prevention measures were the most economically rational.

As the capitalist economy developed, the country and society became wealthy, and the social infrastructure that supports infectious disease prevention was also improved. Since the Great Hanshin-Awaji Earthquake (January 1995), Japan's disaster prevention measures have changed from state-led disaster prevention measures to citizen-participation disaster activities. Many disaster volunteers gathered in the disaster-stricken areas from nearby towns and far away. They carried out support activities such as dysfunctional administration, evacuation shelters, and delivery of relief supplies.

From a disaster economics perspective, volunteer activities, that is, citizens' participation in disaster relief activities, increase the disaster prevention capabilities of a country and society. By utilizing volunteer activities as a new disaster prevention resource, countries and societies can provide relief to more victims.

From a social resource perspective, volunteer activities become a resource for managing society. A system for effectively utilizing this resource, that is, the external style necessary for disaster volunteer activities, is established. At the same time, a social infrastructure that supports these volunteer activities, that is, the external materials for this, is built. Then, the people who carry out volunteer activities and the people who make effective use of them (officials and citizens) develop ways of thinking and skills regarding volunteer activities, which means that an internal style that supports volunteer activities is formed. A sustainable culture of volunteer activities and a social culture to support citizen movements are created. The people who carry out volunteer activities are the people who are living and making a living there now. The existence of these people and their internal materials create contemporary volunteers.

#### 2c, Citizen-participatory democracy and volunteer activities for disaster prevention and disaster relief

Society has continued to reform its social functions by facing disasters, that is, crises. In other words, disaster countermeasures provide an opportunity for social reform.

Democratic culture matures in a democratic society when more citizens participate in social management and take responsibility for society; in other words, by being people who are supported by society and at the same time people who support society. Volunteer activities play a large role in forming such culture. In this sense, disaster volunteers exchange social life resources, called activities, from the perspective of mutual aid between disaster victims (citizens) who need rescue and citizens who provide rescue (citizens who volunteer for disaster relief). Citizen-participatory democracy is established by improving these exchange systems.

To achieve this, it is necessary to foster more democratic and economically rational volunteer activities. Volunteer activities in Japan have evolved from disaster volunteer activities that began with the Great Hanshin-Awaji Earthquake in 1995 to the Great East Japan Earthquake in 2011, and continue to the present day.

In the first volunteer activities, the government was in charge of managing volunteer activities. Citizens carried out activities according to requests and support from the government. Disaster volunteer activities were limited to disaster times. Later, NPOs were born to manage volunteer activities, and disaster volunteer groups were born that provided specialized knowledge, procured supplies necessary for disaster relief before a disaster occurred, and even trained human resources. The activities of these people created new business models and cutting-edge disaster support companies through the management of NPOs, fundraising, and participant recruitment activities.

A participatory democratic society evolves through people who actively try to solve social problems (disasters). These people are also people who suffer from social problems (disaster victims). Participatory democracy will continue to grow by fostering values ​​and morals that support and live together in a coexisting society.