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Environmental Conservation Consciousness of the Black Forest in Germany: A Study on the Characteristics of Bioenergy Villages

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Abstract

Freiburg, located in Baden–Württemberg, a southwestern state of Germany, has been regarded as an environmental capital, is surrounded by forests, and its relationship with the Black Forest is essential. In the research so far, the relationship between the Black Forest and the environmental consciousness among residents has not necessarily been specifically examined. The purpose of this paper is to clarify what aspects of the Black Forest contribute to the promotion of environmental consciousness among residents. It can be said that the unique natural landscape is an opportunity to produce eco-business because of its strong effect in promoting environmental consciousness.

Key Words: the Black Forest, Bio-energy Villages, Freiburg

1. INTRODUCTION

Freiburg has been regarded as an environmental capital and its various environmental policies have been emphasized. For example, its famous environmental policy was prohibiting private cars from entering the city center actively introducing bicycles. Environmentally-related think tanks are found in Freiburg. For example, the Fraunhofer Institute for Solar Energy Systems **ISE** (Fraunhofer-Institut Energiesysteme, 1300 employees), is the largest solar laboratory in Europe. The headquarters of the International Solar Energy Society (founded in 1954) is also located in Freiburg. The "Environmental Capital" accredited by Freiburg in 1992 is a local government competition organized by the Environmental Action Germany (Deutsche Umwelthilfe) in cooperation with German environmental movement groups (German Union for Environmental Conservation [BUND] and the German Federation for Nature Conservation [NABU]) since 1991.

Murakami (2007) examined ecological houses in

Vauban Freiburg. Many houses in Vauban have been built to specification in various ways and many residents are highly environmentally conscious.

This high environmental consciousness is reflected not only in the active introduction of environmental policies but also in the high approval rating of the Green Party, an environmental political party. The Green Party in Freiburg has long been well received and has contributed to the promotion of environmental policy.

For example, in the distribution of Freiburg City Council, in the election held in May 2019, the Green Party won 13 seats (26.5%) as the first party, an increase of 2.2% on the 2014 election. Even though Alternative for Germany (Alternative für Deutschland [AfD]), which insists on the exclusion of immigrants and supports nuclear power, gains seats in areas like Saxony becoming the second party, the strength of the Green Party can be seen in Freiburg. The second party, with 12.7%, is the Social Democratic Party (SPD) and the third party, with 11.8% is the Christian Democratic Union of Germany (Christlich Demokratische Union Deutschlands [CDU]). AfD ranks 10th with 3.6%.

The Green Party in the Freiburg City Council has long held 48 seats. The Green Party first won a seat in the Landtag of Baden–Württemberg (BW) in 1980, and also

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won seats in the Freiburg City Council (4). At the national level, the Green Party won seats in the Bundestag in 1983. The Green Party in the Freiburg City Council had won the most seats each time, with four elections since the largest number of seats in 2004. The acquisition rate of the Green Party in Freiburg City Council is 26.5% (2019). Moreover, BW Landtag in 2016 was 30.3% and the Landtag in 2017 was 8.9%. Although the BW Landtag in 2016 was outstandingly high, it made a big leap forward in 2011, from 11.7% in 2006 to 24.2 in 2011. It can be said that the great breakthrough of the Green Party in BW was greatly influenced by the opposition movement called "S21" and the Fukushima nuclear accident (1). The S21 movement, the green party is on the side, is opposed to a large-scale development work on the Central Station of Stuttgart, the capital of BW, and the conservatives who want to preserve the pre-WWII station building change to support the Green Party.

The mayor in Freiburg now is Martin Horn who is a non-partisan, but the mayor from 2002 to 2018 was Dieter Salomon who belongs to the Green Party.

Because of the S21 opposition movement, BW can be said to be the state where the Green Party has been dominant in recent years, but the city of Freiburg itself has been stable politically where the Green Party has been dominant since the 1980s and has been portrayed as a successful example of a "new social movement" in which young people who are oriented toward "post-materialistic values" (Inglehart, 1977) and have been brought up in a wealthy family challenge environmental and minority issues. The Green Party in Freiburg is a major example of this type of new social movement.

Numerous studies in Japan have pointed out that the environmental policy of Freiburg is advanced. Imaizumi, who introduces Germany's environmental policy, published numerous books, for example, the title *Freiburg Kankyo report* (*Freiburg Environmental Report*) (Imaizumi, 2001) has been adopted as one book that deals with all aspects of environmental policy in Germany.

Freiburg is surrounded by forests, and its relationship with the Black Forest is essential. The origin of the name of the Black Forest lies in the fact that the Roman army who arrived there some 2,000 years ago named the dark forest "Silva Nigra" (2). Most of the research on the Black Forest is in the geological and botanical fields related to rocks and plants.

Imaizumi referred to the relationship between the nature of the Black Forest with such characteristics and the environmental consciousness of Freiburg residents (Imaizumi, 1997: 91). An effort has been made to protect the Black Forest because it is the basis of life. It is fair to say that it is the basis of life, but the difference from other regions that also utilize nature is not always clear, and that research is not necessarily considered unique to the Black Forest.

Imaizumi then took up a theme about Wyhl's antinuclear movement. The fact that both the vineyard farmers and the students of Freiburg University developed an opposition movement that prevented the construction of the nuclear power plant was also attributed to the geographical relationship between the Black Forest and the vineyards (Imaizumi, 2013: 38). However, the analysis does not always address residents other than vineyard farmers.

When referring to Freiburg's environmental policies, the anti-nuclear movement in Wyhl is often mentioned. Wyhl is located in the Emmendingen county of BW, 25 km northwest of Freiburg. The population is about 3,000. It is famous for the fact that when the nuclear power plant project was proposed in 1971, the vineyard farmers near the project area and the students of the Freiburg University jointly formed an opposition movement and blocked this plan. When the plan was proposed, more than half of the village residents agreed, but the results of 55% opposition came from the 1975 referendum. Many studies have evaluated the case of Wyhl as a successful example of the anti-nuclear movement in which conservative farmers participated and often referred to the tradition of university towns as a background of the movement's origination, due to the existence of the University of Freiburg (e.g., Honda, 2002: 110).

Freiburg belongs to the region of Baden, and the historical regional culture may differ from that of Stuttgart belonging to the region of Swabia. Baden—Württemberg was formed in 1952 by the merger of Württemberg (such as Stuttgart), Baden (such as Freiburg), and Hohenzollern (such as Sigmaringen). The region centered on Stuttgart is called "Swabia." Since there is no unit called the state in Japan, it cannot be said unequivocally, but it can be compared with the historical names of the Kanto region such as Kanhasshu and Musashi.

Aoki (2013) summarized Wyhl's anti-nuclear

movement. At first, even the people who agreed the plan found that, for example, if a nuclear power plant was constructed in the Oberrhein region, it would inevitably affect crops, and at that time the Three Mile Island accident had occurred, and the opposition movement was worked up (Aoki, 2013: 114). According to Aoki, the memory of historical resistance such as the "German Peasant War" and the "Revolutions of 1848" provided mental support for the opposition movement. The residents of the Oberrhein region have continued to describe themselves as an example of being suppressed but not giving in to power (Aoki, 2013: 122).

Now, whether it is the explanation of Freiburg or the anti-nuclear movement of Wyhl, the existence of the Black Forest has been pointed out as one of the success factors. Nakai referred to the significance of the Black Forest (Nakai, 1986: 124). Muramatsu also insisted that the people of Freiburg loved the rich nature of this region, including the Black Forest (Muramatsu, 1997: 8).

Indeed, the Black Forest is rich in nature and is thought to promote environmental consciousness. However, deforestation in the Amazon may not occur if the forest itself promotes environmental consciousness. I think it necessary to consider why the existence of the Black Forest is linked to environmental protection. What aspects of the Black Forest contribute to promoting environmental consciousness? In the research so far, this theme has not necessarily been specifically examined.

The purpose of this paper is to clarify what aspects of the Black Forest contribute to the promotion of environmental consciousness among residents in bioenergy village. Even though most residents have high environmental consciousness, some may be urban residents who are not interested in forests. For this reason, I planned to interview the residents who took part in the bioenergy village near Freiburg. For residents in the forest, focusing on forestry and animal husbandry requires a huge number of interviews. In addition to taking part in forestry and livestock farming, the residents featured in this paper are also involved in renewable energy businesses.

The research was conducted between 2015 and 2017 and I interviewed 19 people including mayors and project leaders from five villages including Schönau (5 people), Mauenheim (3), Freiamt (5) (2015), St. Peter (3), Breitnau (3) (2017)⁽³⁾.

In Chapter 2, I would like to summarize the outline of

the Black Forest, in Chapter 3, to clarify the characteristics of the Black Forest that promote environmental consciousness, by referring to residents' opinions.

The significance of this paper is to show the relationship between the Black Forest and environmental consciousness by showing concretely the relationship between the Black Forest and residents, and at the same time, I want to show different forms of environmental consciousness from some explanations by using the concepts of "new social movement" or "post-materialistic value."

In the interview research, many stories mentioned the role of Christianity, but due to space limitations, this article does not refer to this theme ⁽⁴⁾.

2. THE CHARACTERISTICS OF THE BLACK FOREST

The Black Forest is about 160 km north-south and its east-west width is 40-60 km. It is long north to south. The area is over 5,000 square kilometers. The breadth of the Tokyo Metropolitan area is 2,187 square kilometers, so the Black Forest is twice as large as the Tokyo Metropolitan area. The Black Forest is also famous as a ski resort, and the construction of ski lifts is said to be the oldest in Europe. The Black Forest Society (Schwarzwald Verein), which was established 130 years ago, is also famous for the construction of promenades ⁽⁵⁾.

A geographical feature of the Black Forest not well known in Japan is that the Black Forest can be divided into three areas. Figure 1 is an example showing that the Black Forest is divided into three. There are various methods of classification, such as two methods applied in ancient times, but in this paper, I will consider the area according to the categories heard in the interview. Below, I would like to look at each of the Northern, Central, and Southern Black Forests ⁽⁶⁾.

2-1 The Northern Black Forest(Nordschwarzwald)

The Northern line of the Northern Black Forest is from Karlsruhe to Pforzheim, the southern line is from Freudenstadt to Oberkirch along to Rench ⁽⁷⁾. Baden, famous for its hot springs, is located in the Northern Black Forest. The annual precipitation of this area is the highest in Germany, with a maximum of 2,200 mm per year, and forests are also the most dense of all black forests ⁽⁸⁾.

In 2001, the Central/Northern Black Forest Nature Park

(Naturpark Schwarzwald Mitte/Nord) was established. In January 2014, an area of about 10,000 hectares was designated as a National Park of the Black Forest, making it a popular place for winter sports.

2-2 The Central Black Forest (Mittlerer Schwarzwald)

The Central Black Forest is an intermediate zone between the Northern Black Forest and the Southern Black Forest. The border with the Southern Black Forest is the line from Freiburg to Donaueschingen.

The Central/Northern Black Forest Nature Park is the third-largest in Germany, 90 km north-south, 60 km eastwest, and covers an area of 375,000 hectares. There are about 100 municipalities with 700,000 residents ⁽⁹⁾.

2-3 The Southern Black Forest (Südschwarzwald)

Compared to the northern and central regions, the forest has fewer trees and is more open. In the Southern Black Forest, is Mt. Ferdberg that is the highest in BW. In this area, there are three mountains with an altitude of 1,400 m, and there are many high mountains in the Black Forest. Mt. Feldberg (1,493 m), Mt. Herzogenhorn (1,415 m), and Mt. Belchen(1,414 m) are the three highest mountains in the Black Forest.

Also in this region is the upper course of the Rhine river, so there are many flatlands and the landscape changes rapidly. It is also one of Europe's leading bird conservation areas. Some medieval buildings remain in



Figure 1. The Black Forest [Source: Gästehaus – Hug(https://gaestehaus-hug.de/Lage)]

Environmental Conservation Consciousness of the Black Forest in Germany: A Study on the Characteristics of Bioenergy Villages the Rhine basin of the region. Some industries use water streams. with a dip angle of more than 40 degrees is a scene hardless seen in Japan. The green grass maintained on the stee

The Southern Black Forest Natural Park in the Southern Black Forest is a BW State Park. There are seven BW state parks, accounting for 35% of the state area.

The northern line of the Southern Black Forest is from Herbolzheim to Triberg, the southern line is from Waldshut-Tiengen to Lörrach. To the west of the Southern Black Forest are the rolling hills that lead to Freiburg and Emmendingen. The eastern line of the Black Forest goes to Donaueschingen and Bad Dürrheim on the Baar plain.

The Southern Black Forest covers 39,400 hectares, with 115 municipalities, five counties, and Freiburg itself. Many activities in this area are supported by volunteers, and therefore, residents promote it as a "factory for regional activities" (Werkstatt regionalen Handelns). Sports such as hiking, mountain biking, cross-country skiing, and downhill skiing are also popular in this area.

The Southern Black Forest has high mountains, while smaller settlements are scattered on the slopes and gather at the bottom of the valley ⁽¹⁰⁾.

3. THE BLACK FOREST AS A FACTOR IN RAISING ENVIRONMENTAL CONSCIOUSNESS

The Black Forest has the characteristics mentioned above. But what kind of points raises the environmental consciousness of the residents? Of course, I can imagine that its abundant nature is the reason, but many other places in Germany are like this as well. Considering these situations, I would like to examine that the Black Forest promotes environmental consciousness among residents from the perspective of diversity (Section 1) and "Tüftler und Erfinder (Tinkerer and Inventor)" (Section 2) (11).

3-1 Diversity of Nature

The residents believe that the diversity of the Black Forest's natural environment promotes their environmental consciousness. Based on the opinions of the residents, I find that the existence of a diverse natural environment leads to the understanding of the diversity of species by the residents, the development of the residents' moderate character from the understanding of the diverse existence, and the fascinating natural landscape itself promotes environmental awareness.

I was also interested in the landscape of the Black Forest when I visited there. Grazing using steep hillsides with a dip angle of more than 40 degrees is a scene hardly seen in Japan. The green grass maintained on the steep hillside is shining, and the view of grazing cattle on the spreading grass is wonderful. Such grazing land exists in open hills and forest hills, and it is possible to see the diversity just by looking at the grazing land.

For example, Mr. S, the former mayor of the village of Schönau, explains the relationship between the diversity of the Black Forest and environmental consciousness.

There is a diversity of terrain and landscape. This creates residents' understanding of diversity. For example, the Southern Black Forest has 60% of hardwoods, but the Central Black Forest and the Northern Black Forest have many conifers and become dark. Also, due to the diversity of terrain, some villages build houses close to each other, and some villages build houses far apart, then there are also variations in the distance between houses (12).

A similar opinion is heard from Mr. H who is the former union president of Mauenheim, the second bioenergy village in Germany. He insists that the diversity of the Black Forest fosters the moderate character and environmental consciousness of the Black Forest residents.

I think the Black Forest can foster an understanding of diversity. The landscape and terrain are diverse in the Black Forest. For example, houses are different between hills and valleys. If it's a valley, a resident builds a house close to my neighbor, but the hill is different (13).

Ms. R, Mayer of Freiamt, explains the diversity by referring to the existence of the valley.

Since Freiamt is in a valley, it seems that there is only a view of the world in the valley, but it is also open to a new world because it is in contact with the landscape of the hills. The variety of landscapes contributes to the moderate character of the residents. I think the expression "moderate" fits people here ⁽¹⁴⁾.

Mr. M, Citizen Energy Saint Peter's union (Bürger Energie St. Peter eG), says that the forests, which consist of the Northern Black Forest, the Central Black Forest,

and the Southern Black Forest, have a variety of landscapes that gives residents an incentive to protect the forest.

There is a great difference between north and south. In the open part of the south, where there are many grasslands, the residents cannot keep the grass without cutting trees, so they must be aware of themselves and protect the Black Forest ⁽¹⁵⁾.

Mr. F and Mr. C also agree with such an opinion (16).

Certainly, it can be said that the Black Forest itself raises environmental consciousness, but it has not been clear until now what points about the Black Forest affect consciousness. The forest can be divided into northern, central, and southern regions according to various topography such as high mountains, valleys, and flatlands, and various vegetation. It becomes clear that the diversity instills consciousness in the residents to protect the various characteristics of the Black Forest, and at the same time, knowing the diversity positions the residents of the Black Forest as a moderate character.

However, because of the variety of landscapes, fostering environmental consciousness will not necessarily lead to a renewable energy business. For example, there is a way to make a living by doing ecotourism business by utilizing the diverse and unique natural environment of the Black Forest. Of course, the renewable energy villages I visited have been developing an ecotourism business. In addition to this business, they also have developed renewable energy businesses.

In the next section, I will consider the relationship between environmental consciousness and energy technology in the Black Forest.

3-2 The Spirit of "Tüftler and Erfinder" in the Black Forest

When thinking about the relationship between environmental consciousness and energy technology in the Black Forest, in the narratives of the residents concerned, the sobriquet "Tüftler und Erfinder" (Tinkerer and Inventor) cannot be ignored. It has the meaning of the spirit of patiently working and working, and is often heard in the BW State. In BW, this expression is used because the lack of resources and the history of inheritance by equal distribution have led to the spirit of invention,

especially in the region centered on the state capital Stuttgart. Unlike the Ruhr region, where coal is excavated, BW has no resources, and it is difficult to make a living from agriculture because there are no large-scale farms since the history of inheritance by equal distribution was introduced by Napoleon. It is said that invention is required to live. Successful examples are Benz and Porsche, and the state has more patents than elsewhere.

The spirit of "Tüftler and Erfinder" is characteristic of BW, but BW was created by the merger of Württemberg, Baden, and Hoenlohe after WWII. Given that it was a different state before the war, it can be understood that the Black Forest, which belongs to the Baden region, has a different regionality from the Swabia region with headquarters of Mercedes-Benz and the capital of Württemberg, Stuttgart.

The spirit heard in the Black Forest is the same as in the Swabia region in that it places importance on inventions because there is no other resource, but in the Swabia region, the system of inheritance by equal distribution is often adopted, while in the Black Forest it is not necessarily adopted. It is also characteristic that the inheritance method differs depending on the region of the Black Forest (according to Mr. S mentioned above, the Southern Black Forest inheritance by equal distribution is uniform, and the central part and the northern part are different). Besides, the characteristic of the Black Forest is that it is deep in the mountains, so in the winter there are snowfalls, and residents stay in their homes, which means that they have to make a living from invention. The city of Stuttgart is not in a mountainous area.

In the Black Forest, it is required to stay in the forest for a long winter, but there has been a strong commitment to technology such as watchmaking, and it has become necessary to devise energy technology with a high environmental consciousness.

Ms. R also said.

With a long winter and lots of time, the residents can think a lot and develop the spirit of "Tüftler and Erfinder." The machinery industry and the watch industry appear. The Black Forest has always had that spirit, and the inventors have also existed. Renewable energy businesses also come from a willingness to adopt new ones ⁽¹⁷⁾.

In this area, the cuckoo clock is one of the most famous results of this spirit. Switzerland is famous for its clocks, but in the Black Forest, clocks are a traditional industry, represented by cuckoo clocks. Based on the above opinions, it can be said that the Black Forest has an inventor spirit because it is in the mountains and the environmental consciousness described in the previous section has also been added, the habitants have entered the renewable energy business.

4. CONCLUSION

My interview research in the Black Forest reveals that the diversity of landscape promotes the environmental consciousness of residents. The significance of the Black Forest can be understood from the unique natural landscape of the Black Forest.

Other places could match the unique natural landscape of the Black Forest. For example, some rice terraces in Japan are located in steep mountains and have a very beautiful landscape. In 1999, the Ministry of Agriculture, Forestry and Fisheries established a system called "100 Selected Rice Terraces," and rice terraces (Oyama Senmaida) also promote environmental consciousness.

In common with the analysis in this paper, not only the rice terraces are diverse but also the private houses around the terraced rice fields. Regarding the former, the slope of the mountain where the rice terraces are located, the widening of the space, and the area of the rice terraces create diversity, which leads to various beautiful rice terraces, and the private houses around various rice terraces are also diverse (Nagafuchi et al., 2017). Moreover, Kobayashi and Miyawaki (2014) found that many residents cited "a perspective of biodiversity" as a reason for preserving Oyama Senmaida. However, this tendency is the outcome of the questionnaire research and almost no opinion was found in the interview research, so it is not always clear that the residents recognize it. This point is different from the findings of this paper obtained in the Black Forest. Residents of the Black Forest may be able to talk about environmental consciousness in their own words. Regarding the difference, rice terraces have a relatively small area unlike the black forests, so there is no regional division such as northern, central, and southern regions, and therefore, vegetation is not as diverse as in Germany.

For the northern, central, and southern divisions, the example of the Shiretoko Peninsula, which is a World Natural Heritage site, may be helpful. For example, Katayama (2009) points out that residents are highly conscious of living in Shiretoko. After dividing the Shiretoko Peninsula into east and west, Katayama analyzes the consciousness of residents in each region. However, it is not an analysis that links diversity, moderateness, and environmental consciousness, and besides, the Black Forest is 160 km north-south, 40 km east-west is 5,000 square kilometers, Shiretoko is 65 km, and 25 km east-west is 700 square kilometers, making it difficult to compare with the Black Forest. It would be difficult to find all the diversity of the Black Forest in Shiretoko. I will examine whether the model developed in this paper will be applied to Shiretoko.

In any case, there may be a place where the unique natural environment raises the environmental consciousness because residents want to protect the uniqueness, or the environmental consciousness rises from the interest in the uniqueness.

A "frame" is an interpretation scheme that enables an individual to locate, perceive, identify, and label phenomena that have occurred in their living space and society (Snow et al., 1986). It can be said that the "Black Forest" has become a frame of environmental protection for residents in the Black Forest. Besides, the existence of the spirit of "Tüftler und Erfinder," another regional frame that connects the Black Forest with renewable energy, is unique to the Black Forest.

The significance of this paper is in finding the relationship between unique natural landscapes and environmental consciousness from the perspective of the residents of the Black Forest, as well as the regional framework that contributed to the environmental consciousness toward the renewable energy business.

It can be said that the background has been clarified regarding eco-business linked to environmental protection, but it can also be said that the unique natural landscape is an opportunity to produce eco-business other than tourism because of its strong effect in promoting environmental consciousness.

NOTE

- (1) See Hosaka (2013) for details.
- (2) http://www.kuroi-mori.de/ (Last viewed on May 1,

2020).

- (3) I have been conducting an interview research in Germany since 2004 and heard the opinions of more than 200 people so far. In the 2015 and 2017 research referring to this time, I also heard BUND leaders for their opinions. However, it is not referenced because it is not directly related to this theme. I would like to thank the many people who responded to the interview. The Federal Ministry of Food and Agriculture in Germany (BMEL) have advanced the "Towards a bioenergy village" project since 2005. As of 2017, 140 villages have been certified for the project. There are 40 villages in BW, accounting for 28.6% of the total. There are seven bioenergy villages in the Black Forest (north 1, middle 1, south 5). Including the area around the Black Forest, there are about 14 villages. Mauenheim belongs to the southern periphery, 80 km east of Freiburg. Schönau has not participated in the Bioenergy Village Project, but known worldwide as a pioneering city of renewable energy.
- (4) I was able to hear a lot of opinions about the relationship between Wyhl's anti-nuclear movement and Christianity.
- (5)http://www.blackforest-tourism.com/Black-Forest/130-ans-tourisme (Last viewed on May 1, 2020).
- (6) Separations such as northern, central, and southern are slightly different with the times, but in this paper, I would like to focus on the divisions according to tourism. See also Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg (2010).
- (7)https://www.schwarzwald-tourismus.info/Spezielle-Angebote-fuer-Ihren-Schwarzwaldurlaub/wanderange bote/Im-noerdlichen-Schwarzwald (Last viewed on May 1, 2020).
- (8)https://www.schwarzwaldportal.com/Klima.html (Last viewed May on 1, 2020).
- (9)https://www.schwarzwald-tourismus.info/entdecken/natur-erleben/naturpark-schwarzwald-nord(Last viewed May on 1, 2020).
- (10) https://www.roughguides.com/destinations/ europe / germany / the-black-forest / (Last viewed on May 1, 2020).
- (11) As mentioned in the Introduction, it can be analyzed from a religious point of view, but in this paper, I will examine the relationship between the Black Forest and

- environmental consciousness of residents, and from this perspective that it is related to renewable energy technology, the spirit of "Tüftler und Erfinder" is taken up. Due to space limitations, I would like to take another opportunity to organize the discourse from another perspective.
- (12)October 27, 2015, Mr. S (former mayor of Schönau).
- (13)October 28, 2015, Mr. H.
- (14)October 29, 2015, Ms. R.
- (15)December 6, 2017, Mr. M.
- (16)October 29, 2015, Mr. F(Biogasanlage Reinbold Bio-Energie) and Mr. C(Freiamt village eco-tourism).
- (17)October 29, 2015, Ms. R.

REFRENCES

- Aoki, S., 2013, Doitsu niokeru genshiryoku shisetsu hantai undo no tenkai [Development Of Nuclear Facility Opposition Movement in Germany], Kyoto: Minerva Shobo.
- Hosaka, M., 2013, Midori no to seiken no tanjo—Hoshuteki na chiki niokeru kankyo undo no tenkai [Birth of the Green Party Government Development of Environmental Movements in Conservative Areas], Kyoto: Koyo Shobo.
- Honda, H., 2002, "Trajectory and Dynamics of German Nuclear Energy Politics," *Journal of Environmental Sociology*, 8, pp.105-119.
- Imaizumi, M., 1997, Jumin ishiki [Consciousness of Residents], pp.85-98 in 'Kankyo Shuto' Freiburg ['Environmental Capital' Freiburg], edited by the Resource Recycling Rromotion Council, Tokyo: Chuo Hoki Shuppan.
- —, 2001, Freiburg kankyo report [Freiburg Environmental Report]. Tokyo: Chuo Hoki Shuppan.
- —, 2013, Datsu genpatsu kara, sonosaki he—Doitsu no shimin energy kakumei [From the Nuclear Power Plant to the Future-German Civil Energy Revolution], Tokyo: Iwanami Shoten.
- Inglehart, R., 1977, The Silent Revolution: Changing Values and Political Styles Among Western Publics, Princeton University Press.
- Katayama, M., 2009, "Regional Difference in the Residents' Nature-related Activities and Pride of Their Living Environment in Shiretoko," *Landscape Research Japan Online*, 2(0), pp.21-27.
- Kobayashi, S., Miyawaki, M., 2014, "A Study on

- Environmental Conservation Consciousness of the Black Forest in Germany: A Study on the Characteristics of Bioenergy Villages
- Awareness and Problems for the Landscape Preservation of Oyama-senmaida in Kamogawa: A Research Landscape Resources and Funds of NPO, Farmers and Local Authority," *Papers on City Planning*, 49(1), pp.77-82.
- Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg, 2010, *Naturräume Baden-Württembergs*.
- Murakami, A., 2007, Freiburg no machi dukuri—Social ecology jutakuchi Vauban [Social Development in Freiburg Social-ecological Residential Areas Vauban], Kyoto: Gakugei Shuppansha.
- Muramatu, M., 1997, Rekishi to bunka [History and Culture], pp.1-10 in 'Kankyo Shuto' Freiburg ['Environmental Capital' Freiburg], edited by the Resource Recycling Rromotion Council, Tokyo: Chuo Hoki Shuppan.
- Nagafuchi, T., Imamura, Y., Ogawa, S., 2017, "A Study on the Landscape Characteristic of Onigi Rice Terraces in Hasami Town," *Graduate School of Engineering*, Nagasaki University, 47(89), pp.87-92.
- Nakai, T., 1986, Midori no to —Sono jikken to tenbo [Green Party —Its Experiments and perspectives], Tokyo: Iwanami Shoten.
- Snow, D. A., Rochford, E.B.Jr., and Benford, R.D., 1986, "Frame Alignment Processes, Micromobilization, and Movement Participation," *American Sociological Review* 51, pp.464-481.

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