

**The necessity of administrative democracy measured
by the index of inherent democratic sizes:
The usefulness of the index to suggest how to
implement a public policy such as a flood policy under
government mergers**

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Abstract

The purpose of this study is to emphasize importance of “administrative democracy”. The necessity of administrative democracy is confirmed in anytime and anywhere, and in rationale for democratic social sustainability and democratic administrative discretion. Some examples such as a policy regarding flood crises under local government mergers are examined in order to present the usefulness of the index measured by the inherent democracy based on the given population density. The question discussed in the analysis is as follows. What is inherent difference in democracy among governments? When and where may the inherent governmental democracy be focused on? How does the inherent democracy differentiate the administrative function for public policy implementation? Why should the inherent administrative democracy be discussed? The index is made according to my proposition: People’s democratic involvement is “equivalently” converted to political democracy and administrative democracy in the public policy system. The originality of this study gives the theoretical rationale of the importance of administrative democracy.

Key Words: Administrative democracy, Size and democracy, Social sustainability, Administrative discretion, Public policy system

Introduction

The democracy of a governmental administration is important for public

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policy implementation. The reason why I think about its importance is that the excessive democracy may be built in politics, and therefore the complementary democracy should be expected in administrations for a democratic function of the public policy system. This is Murayama's theoretical assertion, which is the base of analyzing administrative democracy in this study. Here, I make an index of the administrative democracy in my understanding of the public policy system in order to clarify fundamental characteristics of relationships between people and government. The index composed of inherent democratic factors of the given population density is detailed later in reference to Dahl's discussion of the size and democracy focusing on the population, the area and the population density.¹ My index is useful to answer the questions as follows. What is inherent difference in democracy among governments? When and where may the inherent governmental democracy be focused on? How does the inherent democracy differentiate the administrative function for public policy implementation? Why should the inherent administrative democracy be discussed? With regard to the first question global democratic difference is presented by using the index, which is formulated to consist of people's democratic involvement, political comprehensive democracy and administrative plural democracy in a public policy system. Secondly, examples of local governmental mergers in Japan and Norway are compared for focusing on the change and the difference of inherent governmental democracy. Thirdly, the possibility of the administrative complementary democracy is examined to differentiate the democratic function towards the political excessive democracy regarding the flood risk in Kyoto Prefecture in Japan. Fourthly, the necessity of the administrative complementary democracy based on the inherent democratic sizes is pointed out from the view of the social sustainability maintaining a coexistence society against people's conflict in social integration. Consequently, the importance of governmental democracy is revealed in discussing its rational function of administrative democracy in comparison to political democracy, that is legislative democracy. The characteristics of the administrative function are found in pluralistic democracy as similar as the discussion in Dahl's polyarchy. The complementary feature of administrative democracy is contrasted with the comprehensive democracy as discussed in my theoretical assertion and in open democracy for social sustainability in public policy implementation. My interest in this study is to discuss "size and democracy" in order to insist the importance of administrative democracy. The index I made for the discussion is based on the 4 principles derived from my proposition: People's democratic involvement is "equivalently"

The necessity of administrative democracy measured by the index of inherent democratic sizes

converted to democratic politics and democratic administration in the public policy system. The first principle of the index of governmental democracy is that the government has the inherent characteristics that can be measured by the index based on its given sizes, which causes democratic difference between government and people. The second is that the inherent size democracy is comparable in anytime and anywhere even though the given population density for calculating the inherent size is large or small. The third is that the inherent administrative democracy notifies an administration how to promote democratic implementation according to its plural function towards the political comprehensive function. The fourth is that the democratic administrative implementation requires two kinds of rationality which are necessary for the social sustainability and necessary for administrative discretion in the pluralistic open democracy.

1. What is inherent difference in democracy among governments?

The first principle of the index of governmental democracy is that the government has the inherent characteristics that can be measured by the index based on its given sizes, which causes democratic difference between government and people. The index is useful to distinguish each country in global democratic comparison. (Figure 1) In order to show meanings of the comparison, the theoretical framework of the index is presented. (Figure 2).

1.1. Global comparison of the inherent democracy in each country

The index of the inherent democracy is based on two kinds of Murayama's theoretical propositions: Firstly, "There are democratic inherent differences based on governmental sizes of its population and its area" and secondly, "People's democratic involvement is equivalent to democratic politics and democratic administration in the public policy system". These two propositions are derived from the axiom of democracy, "Democracy means that the political and administrative performance is based on the people's attitude". This axiom seems to assume that it is true without proof and the axiom is the foundation for my proposition with regard to the relationships between people and government. It must be carefully considered in my discussion that politics with legislative functions in policy making is distinguished from administration with the function of policy implementation in a governmental process. According to my understanding, politics tends to be focused on its function of being entrusted by

mass people, while administration should be focused on its function of entrusted by individuals.²

The democratic difference in global comparison is presented in Figure 1 by using the index, which shows people's democratic involvement, political comprehensive democracy entrusted by mass people and administrative plural democracy entrusted by individuals in a public policy system. This index of the "inherent" democracy of each government is formulated to include two kinds of indicators of the given size democracy that depend on its population. One is "population density" (population/area), which indicates mass quantity of democracy and it relates to representative democracy. The other is "area density" (area/population), which indicates individual weight of democracy and it relates to responsive democracy. The complex formulation of the index is detailed next, but the inherent democracy of each country is revealed certainly different. The total length shows the political comprehensive democracy added to the people's democratic involvement to the administrative plural democracy in the calculation based on each country's ratio to the world average of population density in 2019. The administrative plural democracy differently expected in each country is relatively realized among several countries picked up in Figure 1 by comparing its complementary administrative democracy to its comprehensive political democracy and its people's democracy.

The necessity of administrative democracy measured by the index of inherent democratic sizes

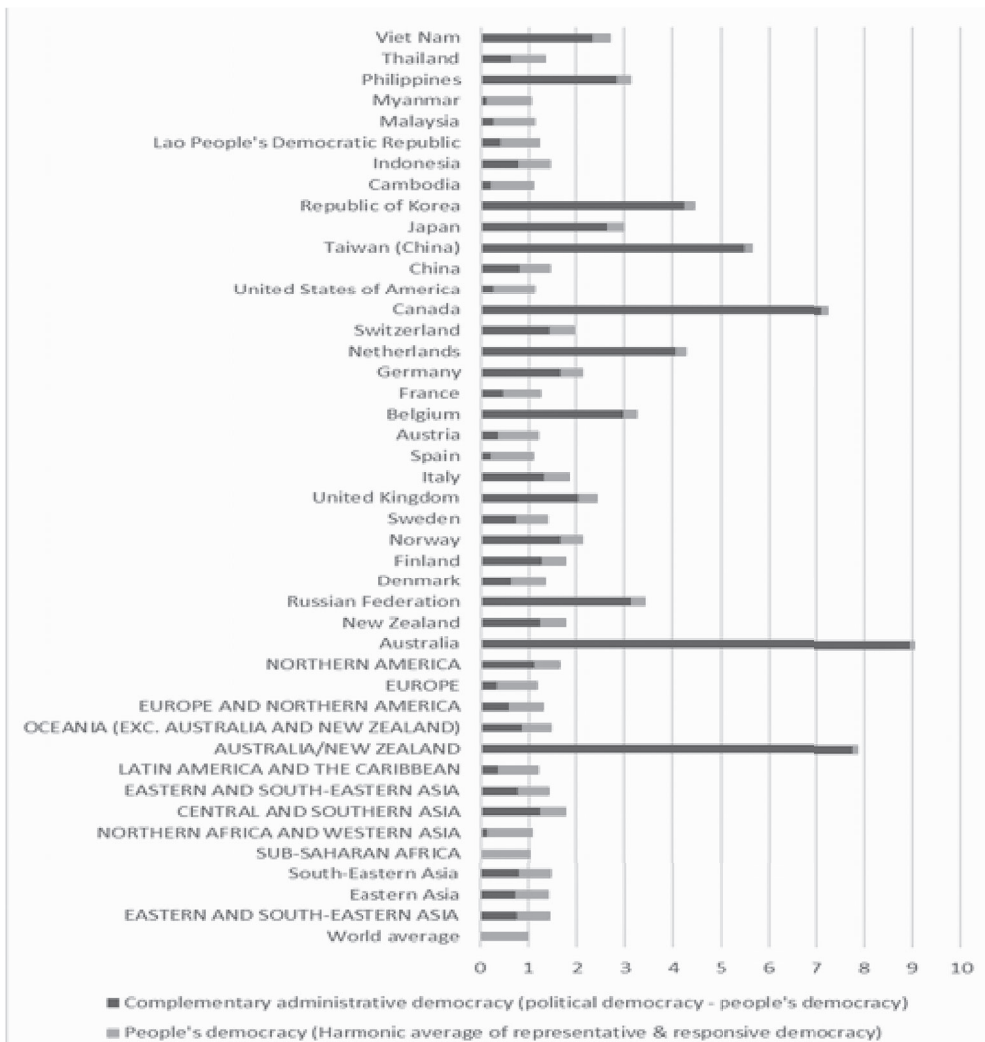


Figure 1 International comparison of governmental democracy in each country

(Note) Author created. The unit is point of the ratio calculated to world average of which value is 1. The total value of the administrative democracy and the people's democracy is the value of the political democracy. See to the end note 4 and 5 about the range of values and their meanings.

For example, Table 1 shows differences between Japan and Norway in some indices related to the governmental inherent democracy which should be considered for each government to make a policy or to implement a policy. The administrative open democracy which has compleutary function in the public policy system in Japan (2.6461) is higher than one in Norway (1.6756). The meaning of open democracy is detailed the next. These points are calculated by

the index of the inherent democracy of the political democracy and administrative democracy converted from the people's democratic involvement of the given size of representative democracy and the given size of the responsive democracy. The difference indicated by the inherent size democracy is interpreted that administrative policy implementations in Japan are more necessarily considered to promote pluralistic open democracy than in Norway. Looking at Figure 1 again, more pluralistic policy implementation is expected in some countries than in Japan, whereas less pluralistic policy implementation is expected in some countries than in Norway. It is not necessarily true that the more dense population a country has, the more pluralistic approach is expected in its policy implementation. The variety of the governmental democracy found in Figure 1 suggests the inherent index of democracy is useful to discuss the question: What is inherent difference in democracy among governments? The answer is that the difference is what an administration should do in its policy implementation according to the first proposition, "There are democratic inherent differences based on governmental sizes of its population and its area".

Table 1 The inherent governmental democracy in Japan and Norway

	Japan	Norway
Population size of a government (person)	126476461	5421241
Area size of a government (km ²)	364555.0086	365267.9326
Population density which indicates mass quantity of democracy (Representative democracy): population/ area	346.9338	14.8418
Area density which indicates individual weight of democracy (Responsive democracy): 1/population density	0.0029	0.0674
Approval input (Aggregation of mass oriented democracy.) Population density: Ratio to world average	5.7903	0.2477
Objection input (Variance of individual oriented democracy.) Area density: Ratio to world average	0.1727	4.0370
People's democratic involvement (Parallel input of approval & objection) Index: Harmonic average of approval & objection	0.3354	0.4668
Political comprehensive democracy (Strait output) Index: Add-on average of approval & objection	2.9815	2.1424
Administrative open democracy (Complementary output) Index: Add-on average – Harmonic average (of approval & objection)	2.6461	1.6756

(Note) Author created. Population is reference to Department of Economic and Social Affairs Population Dynamics, World Population Prospects 2019 but area is calculated by Author. Other units are based on point of ratio to world average. About more details of each index, see the next section.

1.2 The theoretical framework to make the index of the inherent democracy

The index of the inherent democracy is based on Murayama's theoretical second proposition which is "People's democratic involvement is equivalently converted to democratic politics and democratic administration in the public policy system". This proposition is also derived from the axiom of democracy: "Democracy means that the political and administrative performance is based on the people's attitude". In addition, the second proposition refers to Murayama's understanding of a public policy system of the functional model from input to output in Figure 2.³ The model focuses on the democratic function of the public policy system in which the axiom of democracy is embodied. The feature of Murayama's model of a public policy system differentiating it from others is to consist of both the political system and the administrative system. The model combines a political system with an administrative policy cycle. In the public policy system, firstly the input of policy evaluation in administrative system is converted to the political input of people's approval and objection. Secondly in political system the political input is converted to the political output of legislative policy making. In addition, the political output is converted to the administrative output of policy implementation in the administrative system. Finally, the policy implementation links the administrative feedback with the policy evaluation.

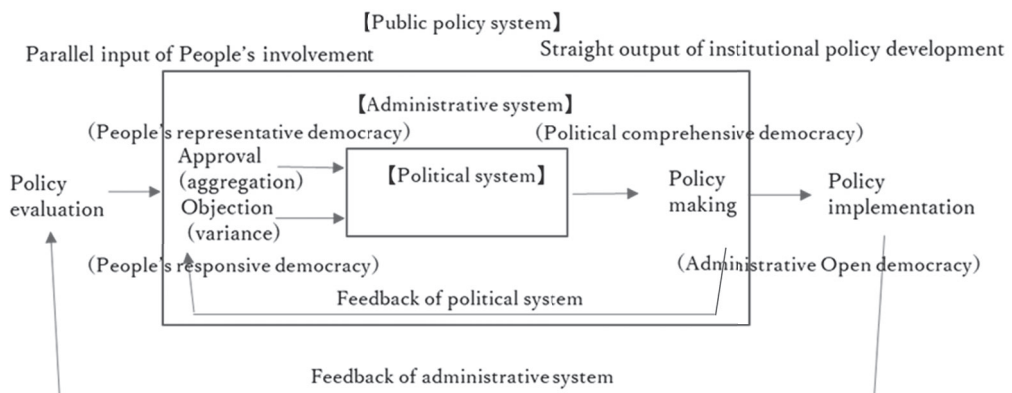


Figure 2 Model of a democratic public policy system

(Note) Author created. See Murayama's input output model in the end note 3.

My theoretical assertion made in the second proposition is that the excessive democracy may be built in politics, and therefore the complementary democracy

should be expected in administration. Table 2 shows the assertion in the functional structure of the input & output model of the public policy system. Representation and response between people and government are essential concepts in a democratic system. It might be a way with less friction to make a decision by the majority principle of whether there are a lot of approvals or opposites except when everyone approves or everyone opposes it because it is common for and against everything. It is the reason why the excessive democracy may be built in politics that too much comprehensive politics for emphasizing both representative and responsive majority in the conversion from people's involvement to political performance. For maintaining democratic public policy system, too much of the comprehensive political performance should be complemented by much of the pluralistic administration for emphasizing both representative and responsive individuals. The additional meaning in Table 2 suggests the conversion in the democratic public policy system from the parallel input of people's approval related to representation and objection related to response to the governmental "strait" and "modified" outputs that are detailed next. The strait output is political policy making comprehensively related to both representation and response, and the modified output is administrative policy implementation with the pluralistic relation to both representation and response.

Table 2 The functional structure of democratic public policy system

	Representation	Response
People's involvement	Much or little representative involvement	Much or little responsive involvements
Political performance	Much or little comprehensive politics for representative & responsive majority	
Administrative performance	Much or little pluralistic administration for representative & responsive individual	

(Note) Author created.

Figure 3 summarizes the framework of the index composed of the inherent democratic factors calculated by the given "population density" for the representative approval and the given "area density" for the responsive objection (Table 2, Figure 2). The parallel input of people's democratic involvement of approval and objection is equally calculated to be converted to the strait output of political policy making and the modified output of administrative policy implementation. That is, the complementary administrative open democracy is the political comprehensive democracy minus people's democratic involvement.

The add-on average for the straight output that is different from the harmonic average for the parallel input is similar to mathematical examples of calculating an add-on average for strait and a harmonic average for parallel such as an electric current resistor or an average speed of round trip. There is a mathematical formula that a harmonic average is less than or equal to an add-on average.⁴ Therefore, the add-on average of the representative oriented democratic involvement and the responsive oriented democratic involvement which tends to be the over-inclusive political comprehensive democracy should be complemented by administrative pluralistic open democracy. Democracy is going back and forth between the approval and the objection. The average speed of the round trip of the back and forth is not the add-on average, which is the average speed of each way, but the harmonic average of the distance of the round trip. Under the definition of reverse relationships between each speed of the back and forth, for example the the objection and the approval in this study, the difference between the add-on average and the harmonic average of the approval and the objection is interpreted. This add-on average means the comprehensive political democracy while this harmonic average means the complementary administrative democracy. My image of democracy like this in the public policy system is a base of the framework of my index of the administrative democracy. My index of the inherent size democracy emphasizes the importance of the administrative democracy in the public policy system. My inherent index of democracy is useful to present what kind of democratic policy an administration should implement in order to complement the political excessively comprehensive democracy according to the analytical finding by focusing on sizes of its population and its area. The index can be used for the comparison in domestic and in global contexts.

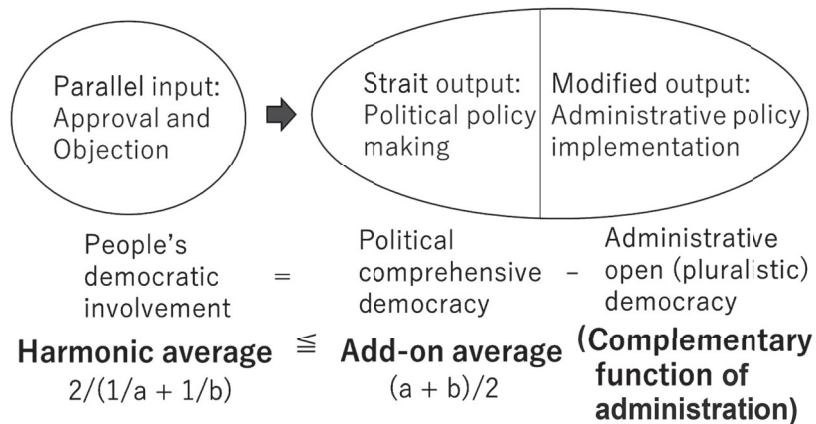


Figure 3 The calculation in Murayama's democratic public policy system (Figure 2)

(Note) Author created.

2. When and where may the inherent governmental democracy be focused on?

The second principle of the index of governmental democracy is that the inherent size democracy is comparable in anytime and anywhere even though the given population density for calculating the inherent size is large or small. Here, the comparison between merged cities in Japan and Norway is an example to show usefulness of the index of the inherent democracy for the democratic impact of mergers regardless of time and place.

2.1. Examples of complementary administrative democracy in a case of a merger

The index I made is a universal scale by which the administrative democracy is compared anytime and anywhere. For example, local governmental mergers before and after in Japan and Norway are compared for focusing on the change and the difference of inherent governmental democracy. If the inherent democracy becomes worse by mergers in Japan or in Norway, the administrative implementation of a public policy should be expected for the complementary function of the democratic policy system. In the merger of Fukuchiyama in Kyoto Prefecture in Japan of 2006, three towns were absorbed to Fukuchiyama City in Figure 1, whereas in the merger of Voss in Hordaland County in Norway of 2020, six municipalities were absorbed to Voss Municipality in Figure 2. Generally speaking, governmental democracy of amalgamated municipalities after merger becomes worse. The degree of becoming worse is not the same in each

The necessity of administrative democracy measured by the index of inherent democratic sizes

municipality, and sometimes it may become better in the inherent governmental democracy. The merger of Fukuchiyama in 2006 in Figure 4 is one of various mergers of nationwide local governments practiced for a part of administrative reform in Japan. The merger in Voss in Figure 5 is one of various mergers in Norway where local governments are continuously being merged year by year for these years. In 2020, 18 counties were planned to be merged up to 11 counties and 422 municipalities up to 356 municipalities. The necessity of the mergers in Norway is required because 17 municipalities are currently on a financial black list under economic control by national government, while discretionary tasks of local government have been expected besides the local welfare conducted under many national welfare programs.

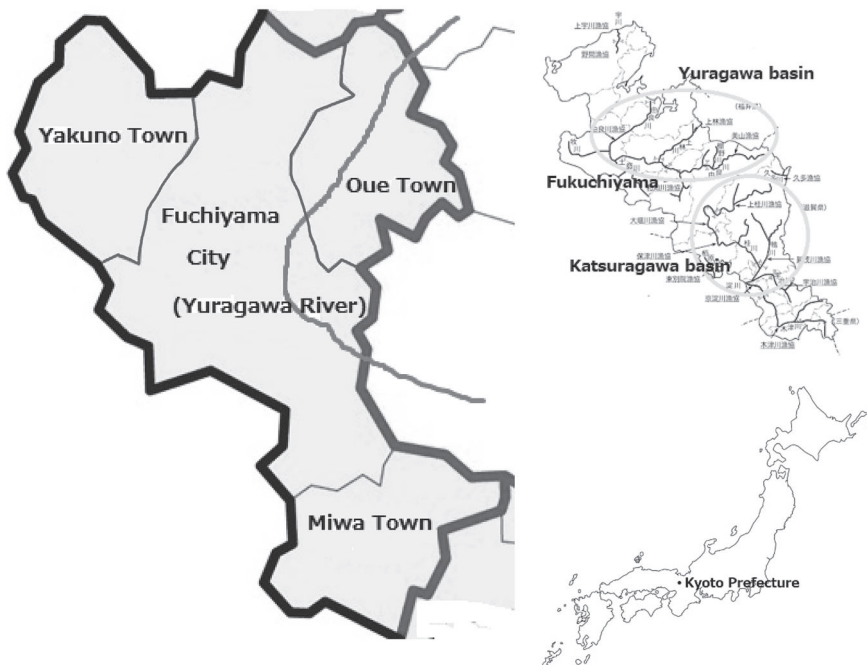


Figure 4 The merger of Fukuchiyama in Yuragawa basin, one of two basins often discussed about flood risks

(Note) Author created.



Figure 5 The merger of Voss with 6 municipalities for amalgamation sometimes confronted with flood risks of fiords in Norway

(Note) Author created.

Figure 6 of the Fukuchiyama merger and Figure 7 of the Voss merger show the expected complementary administrative democracy by using the index of the inherent democracy. The value of the complementary administrative democracy is equal to the value of the political comprehensive democracy minus people's democratic involvement, parallel input of people's approval and objection. In Figure 6, the Fukuchiyama amalgamation including 3 former towns brought less democratic impact in all of Oue, Yakuno and Miwa because the governmental democracy of the former towns became the same as Fukuchiyama after the merger. In the merger of Voss in Norway in Figure 7 as well, the inherently expected administrative democracy is shown in comparison to the political democracy and the people's democratic involvement. It is understood in the case of the two mergers of different times and places in Japan and Norway that the index is useful to clarify the relative comparison of the inherent governmental democracy expected by each local government according to the inherent national standard of each country. The examples of findings are as follows. The administrative complementary democracy in former town area before the merger is expected more than the administrative democracy in Fukuchiyama

The necessity of administrative democracy measured by the index of inherent democratic sizes

amalgamating the former areas after the merger. It means that administrative devices for the amalgamated areas are necessary for reducing the less democratic impact of the merger in Fukuchiyama. In Voss, all of the merged municipalities are not necessarily expected of more democratic devices, and the degree of the expected complementary administrative democracy is different in each amalgamated area. In addition, the different impacts of the mergers between Fukuchiyama and Voss are found in comparing governmental democracy according to the index based on the ratio to each of the national standard.

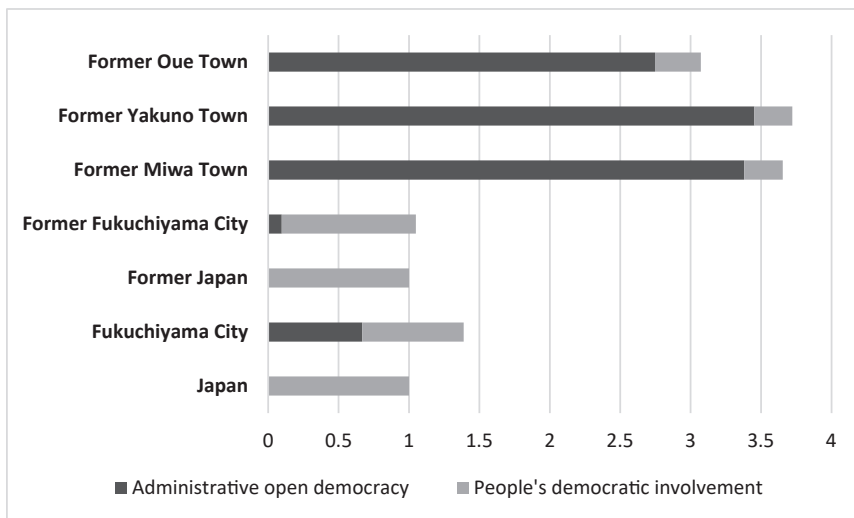


Figure 6 Administrative democracy expected after the merger of Fukuchiyama in Japan

(Note) Author created. Unit is point of ratio in National Survey in 2010.

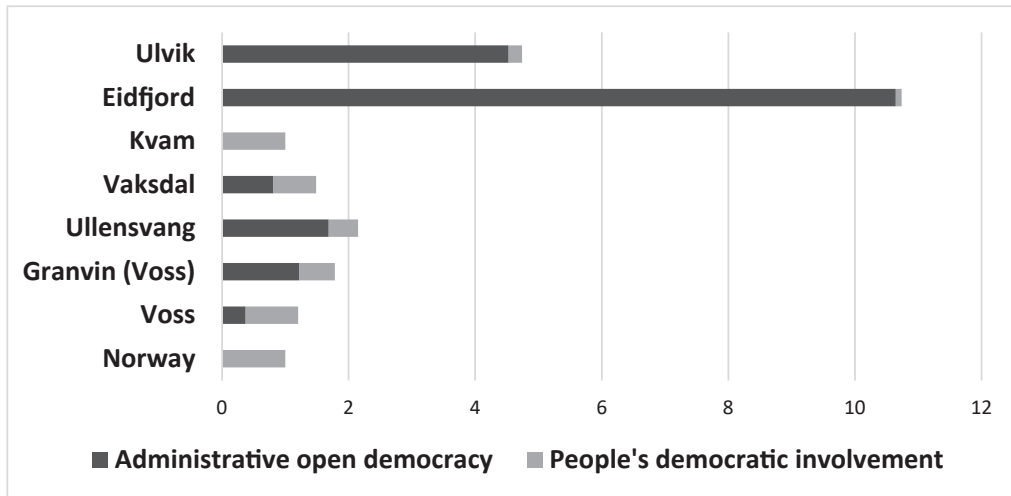


Figure 7 Administrative democracy expected after mergers of Voss in Norway

(Note) Author created. Unit is point of ratio in the web page of each municipality in 2019.

2.2. Comparison of the inherent democracy after the mergers of Fukuchiyama and after the Boss

Figure 8 shows the details of the comparison between the merger of Fukuchiyama in 2006 and the merger of Voss in 2020. The characteristics of each inherent democracy in both countries suggest that each administration is expected to implement a policy after the merger differently from before the merger. (to see Figure 6 and Figure 7) The first finding in the cross-national comparison of the two mergers is that the comprehensive political democracy and the complementary administrative democracy increase in both the governments absorbing some towns or municipalities. The value calculated in Figure 8 is the governmental democracy after the merger minus that of before the merger in each democratic factor of the parallel people's involvement democracy, the plural administrative democracy and the comprehensive political democracy. The lower democracy of the political democracy and administrative democracy in the amalgamated municipalities is brought by the merger except Kuvam and Vaksdal in Norway as well as in Japan. It means in general that an absorbing merger may tend to expecte more complementary administrative democracy in the absorbed areas after the mergers.

The necessity of administrative democracy measured by the index of inherent democratic sizes

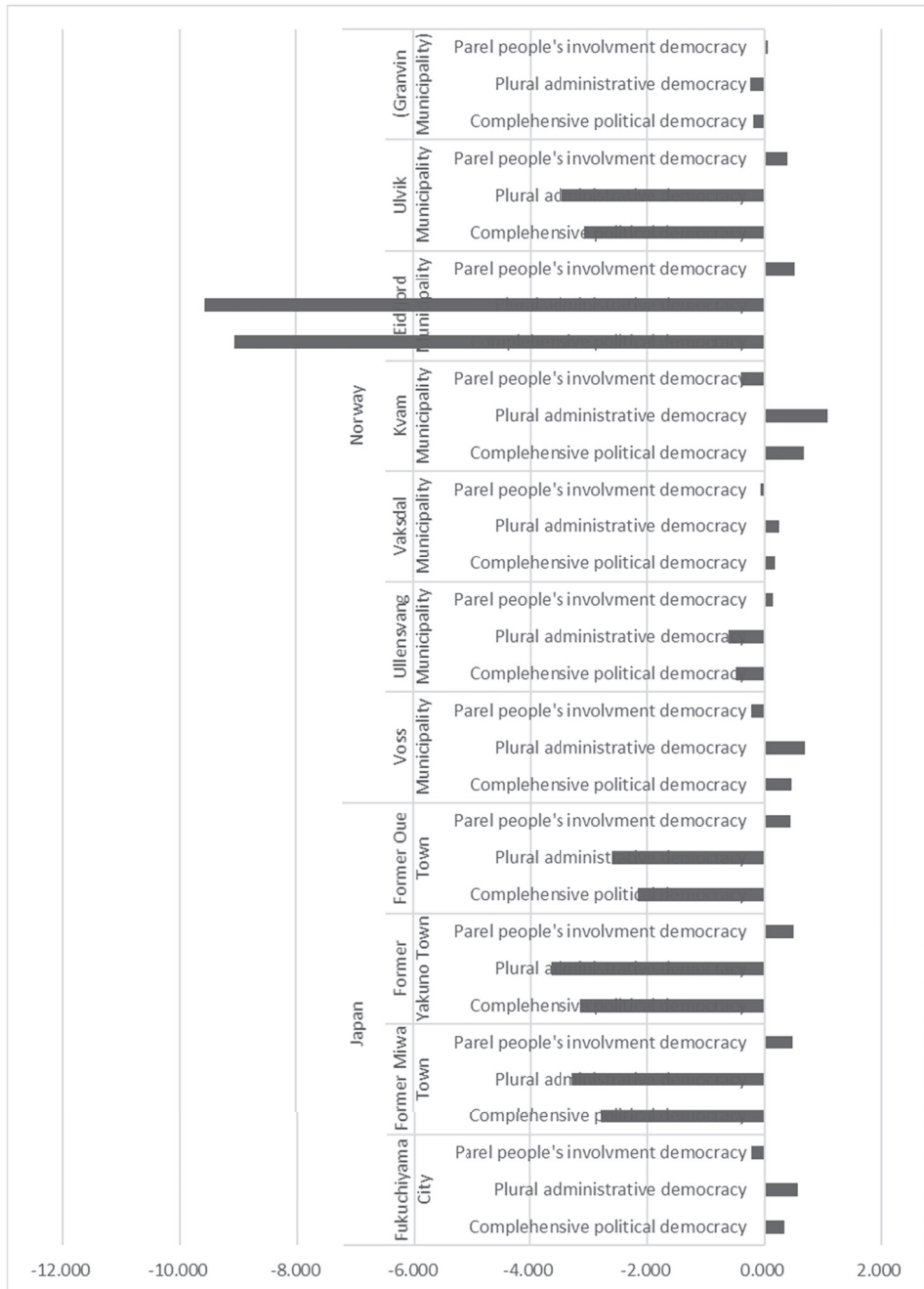


Figure 8 Cross-national comparison of democratic impact of mergers in Japan in 2006 and Norway in 2020

(Note) Author created. The unit value is calculated by governmental democracy after the merger minus the value before the merger in each democratic factor in the web page of each municipality in Norway in 2019 and in National Survey of former towns, and Fukuchiyama City in 2010.

Additionally Figure 9 shows the second finding of global comparison of the mergers between Fukuchiyama and Voss according to another calculation of different ratio index based on the world average from the ratio index based on the national standards in Figure 6 and Figure 7. The value calculated by the democracy in Fukuchiyama subtracts from the value calculated in Voss in the ratio to the world average. The results indicate that the both of the plural administrative democracy and the comprehensive political democracy are more expected in the Voss merger than in the Fukuchiyama merger, whereas people's involvement democracy is almost same in the both mergers. That is, the impact of the merger of Voss in Norway is seriously considered in the view point of the inherent governmental democracy rather than the merge of Fukuchiyama in Japan in relative comparison from the global perspective. It means that my index of the administrative democracy is useful for an administration to consider how to implement a policy in democratic comparison anytime and anywhere, in addition globally and domestically. The theoretical originality of the inherent democracy index may be attractive in mathematical comparison between the add-average and the harmonic average of the given size of the representative democracy and the responsive democracy.

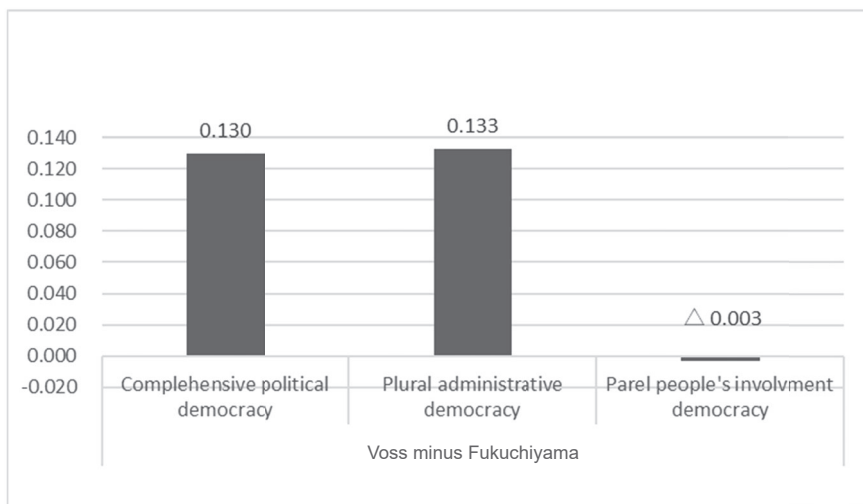


Figure 9 Global comparison of democratic impact of mergers in Japan and in Norway

(Note) Author created. Unit is point of comparison on Boss (2020) to Fukuchiyama (2006) in each ratio to its world average.

3. How does the inherent democracy differentiate the administrative function for public policy implementation?

The third principle of the index of governmental democracy is that the inherent administrative democracy notifies an administration how to promote democratic implementation according to its plural function towards the political comprehensive function. Here, the inherent democracy index is clarified to be useful in an example of flood risk policies in different basins in Kyoto Prefecture with a view of domestic impacts of local government mergers. The comparison is examined between the representative democracy and the responsive democracy before and after the merger (Figure 11), and the possibility of the administrative complementary democracy is examined as to how its function should be differentiated towards the political excessive democracy (Figure 12).

3.1. The given representative and responsive democracy related to the inherent representative and responsive democracy

There are two stages of the democracy index that indicates the democratic rationale for public policy development in this study. One is the universal index to compare governmental democracy in the public policy system anytime and anywhere. The other is the dual index to distinguish the input of people's approval, that is people's representative democracy, to the output of people's objection, that is people's responsive democracy. The inherent universal index mainly used in this study is derived from the dual index in which people's democratic involvement as the input is shown to convert to the output of both the political comprehensive democracy and the administrative complementary democracy. The dual index of the representative approval and the responsive objection is composed of the given democratic factors of the mass quantity of democracy, "population density", and the individual weight of democracy, "area density", whereas the universal index of the inherent democracy of politics and administrations is composed of the representative and responsive democracy in the public policy system (to see Figure 2). The governmental democracy before and after the local merger may be examined to clarify the usefulness of the dual index regarding the representative and responsive democracy. Figure 10 shows two basins where flood risks are often discussed and in which governments were involved in mergers in Kyoto Prefecture. There are 6 local governments and in addition 3 merged local governments in Yuragawa basin. There are 7 local governments and in addition 4 merged local governments in Katsuragawa

basin. Those were merged in 2005 and 2006.



Figure 10 Local governments related to the mergers in Yuragawa basin and Katsuragawa basin in Kyoto Prefecture

(Note) See the two basins in Figure 4.

The difference in the dual index used in Figure 11 from the universal index used in other figures in this paper is easily known by the graph about Japan because its representative democracy of people’s approval is a half of 1 and its responsive democracy of people’s objection is a half of 1. On the other hand, in the figures of the universal index a graph of Japan indicates the total value 1 of the people’s democratic involvement. The difference of the analytical standards causes the difference between Figure 11 and other figures. In any figure, the value is measured by the ratio to the standard. The value of each graph in Figure 11 is calculated by the formula: The parallel input of people’s representative democratic approval (value: population density) × people’s responsive democratic objection (value: area density; reverse of population density) = 1.⁵ The new vision of administration for socially sustainable democracy is focused according to the given sizes based on its population and its area, whereas original schemes by each government are not necessarily sustainable in its implementation handling the flood disaster according to just regional natural characteristics such as topography and climate. It is popularly believed that representative democracy has a high affinity with a large size democracy while the responsive democracy has a high affinity with a small size democracy. Figure 11 shows that the belief is more reasonable, because the ratio of representative democratic approval tends to be higher in urban administrations and on the other hand the ratio of responsive democratic objection tends to be higher in rural areas. The less democratic municipalities where people’s thoughts are less reflected in policies appear by local governmental mergers, the more democratic policies are required there. The

The necessity of administrative democracy measured by the index of inherent democratic sizes

dual index suggests how local administrations implement against flood crises after the mergers according to the findings as follows. In the comparison of administrations of the Yuragawa basin and administrations of the Katuragawa basin, the Katsuragawa average indicates that the representative democracy is expected more than the Yuragawa average indicates, and particularly expected in Nagaokakyo City and Muko City. In the comparison of mergers between before and after, in the Katsuragawa basin the responsive democracy is expected in former Keihoku Town in Kyoto City, and in Yasugawa basin the responsive democracy is expected in former Oue Town in Fukuchiyama City, former Wachi Town in Kyotanba Town and former Miyama Town in Nantan City relatively more than others. These variety of findings suggests the usefulness of the index in the dual scale of the parallel representative approval and responsive objection besides the usefulness of the index in the universal scale clarified next.

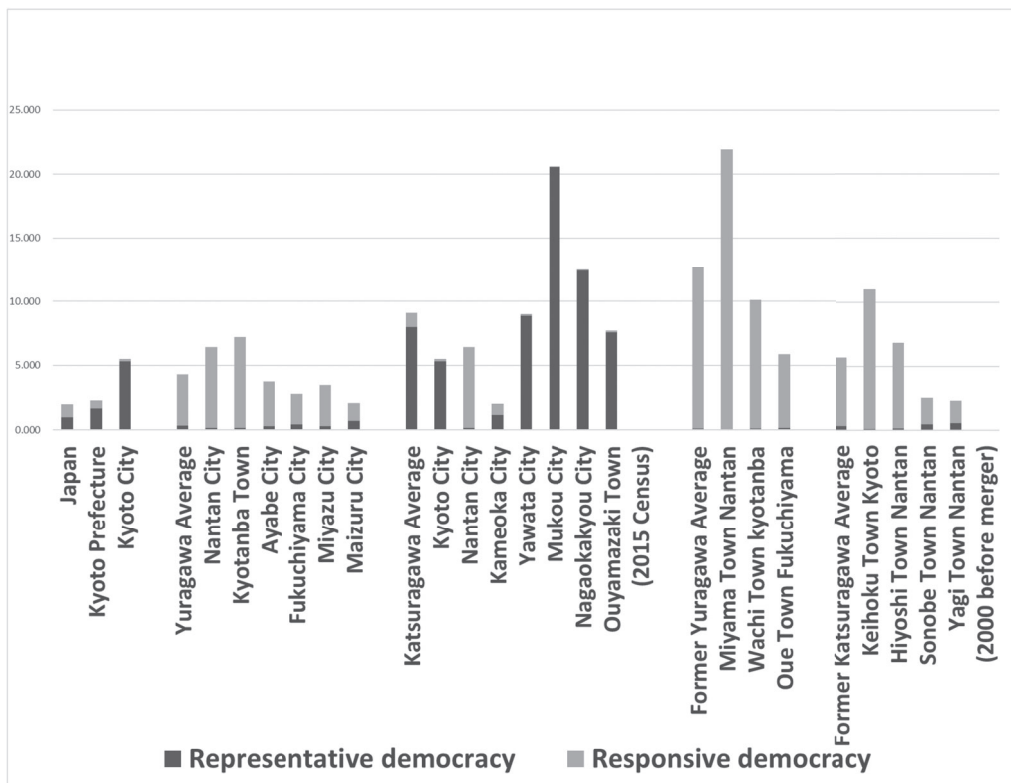


Figure 11 Representative democracy and responsive democracy before and after the mergers in areas close-by Yuragawa and Katsuragawa in Kyoto Prefecture

(Note) Author created. Unit is point of ratio to population density and area density.

3.2. The different function of the administrative democracy before and after mergers in a flood risk policy in Kyoto Prefecture

The two big river basins, Yuragawa basin and Katsuragawa basin in Yodogawa river system, are often discussed for their administrative policy implementation for flood disaster in Kyoto Prefecture. I think a new vision derived from administrative democracy should be considered for social sustainability in public policy implementation of the flood disaster by each local administration after the mergers in 2005 and 2006. The social sustainability discussed later in relation to democratic integration should be focused on in the new vision of the inherent administrative democracy based on the given sizes of population and area. The reason is that the usual approach in consideration of regional natural characteristics such as topography and climate is possible but is not necessarily enough in its sustainable implementation handling the flood disaster. That is, a sustainable policy depends on the degree of democracy in administrative policy implementation so that each local administration should decide how to implement democratic public policies. The administrative complementary democracy seems to differentiate the democratic function towards the political excessive democracy in Figure 12. Some examples among many findings are as follows. In the comparison of administrations in the Yuragawa basin and in the Katuragawa basin, the Katsuragawa average indicates the complementary function as the administrative open democracy more than the Yuragawa average, and in particular the complementary functions in Nagaokakyo City and Muko City are expected. Comparing between before the merger and after the merger, in the Katsuragawa basin, the complementary administrative function is expected in the former Keihoku Town area in Kyoto City. In Yasugawa basin, the complementary administrative functions are expected in the former Oue Town area in Fukuchiyama City, in the former Wachi Town area in Kyotanba Town and the former Miyama Town area in Nantan City.

The necessity of administrative democracy measured by the index of inherent democratic sizes

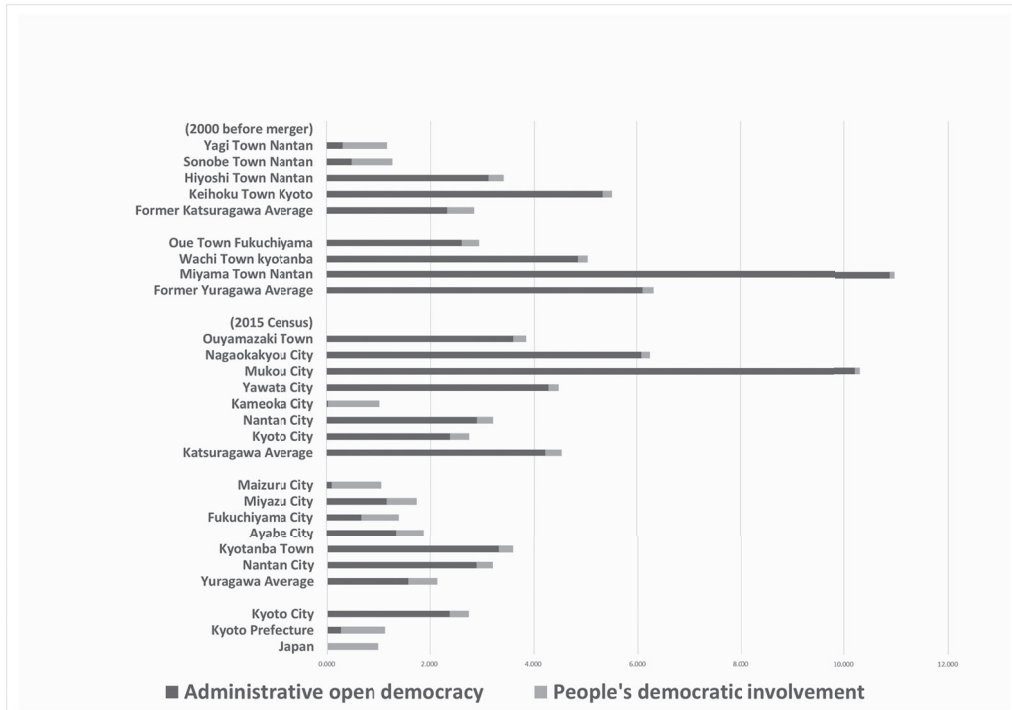


Figure 12 Administrative democracy, political democracy and people’s democracy before and after the mergers in areas close-by Yuragawa and Katsuragawa in Kyoto Prefecture

(Note) Author created. Unit is point of ratio to Japanese average. Political comprehensive democracy is equal to the addition of complementary administrative open democracy to people’s democratic involvement.

The reflection of people's thoughts to a public policy is a requirement in democracy, but conflicts among people in policy implementation must be avoided as much as possible. To do so, each administration should implement flood disaster policies variously according to the democratic norm of inherent democracy of the people’s democratic involvement, the political comprehensive democracy and the administrative complementary democracy, which are calculated from the given democratic sizes of the population and the area. The variety of the administrative democracy in Figure 12 gives the rationality as to how an individual administration can implement a public policy differently against flood disasters by using the index of the inherent democracy based on the ratio to the national standard in Table 3. The index used in this study for both domestic and global comparison is explained in Table 3. Here, the democratic rationale for the democratic administration is presented in the example of flood

disaster policies by local administrations in Yuragawa basin and Katuragawa basin regarding the local government mergers. The domestic comparison with the national standard by using the index of Table 3 is conducted in order to answer the question: How does the inherent democracy differentiate the administrative function for public policy implementation? A socially sustainable public policy seems to be expected, because it is necessary for public policy not only to solve social problems occasionally but also to be challenged continually regarding its rationality among public. I think democracy is one of key factors of social sustainability, because social sustainability depends on people's conflict in social integration. Sustainable public policies by each government can be compared to others in the aspect of democratic sustainability so that the democratic norm for social sustainability of public policy can be derived from focusing on democratic function in Murayama's theory of the public policy system. Each local administration can decide how to implement sustainable public policy so that the degree of democracy in administrative policy implementation is clarified according to the democratic norm calculated by the given democratic scales based on its size of population and area. I mean that individual local administration should implement sustainable public policy differently on the basis of democratic rationale for continual challenge.

Table 3 The global or national index of governmental democracy in public policy system

Democratic conversion in public policy system	The index by the given size (for inherent democracy)	Standard (to compare) Ratio (index to calculate)
Representative democracy in people's input and governmental output	Population density for people's approval and comprehensive politics (Mass majority oriented)	<ul style="list-style-type: none"> • Global standard: Ratio to global standard • National standard: Ratio to national standard
Responsive democracy in people's input and governmental output	Area density (1 / population) for people's objection and pluralistic administration (Individual weight oriented)	<ul style="list-style-type: none"> • Global standard: Ratio to global standard • National standard: Ratio to national standard

(Note) Author created.

4. Why should the inherent administrative democracy be discussed?

The fourth principle of the index of governmental democracy is that the democratic administrative implementation requires two kinds of rationality which are necessary for the social sustainability and necessary for administrative

The necessity of administrative democracy measured by the index of inherent democratic sizes

discretion in the pluralistic open democracy. Here, the social sustainability for which the index is useful is characterized for maintaining a coexistence society against people's conflicts in social integration in the framework of the sustainable society in Figure 13. In addition, the rationale of the administrative pluralistic open democracy to avoid conflicts is discussed to be secured in the administrative discretion in Figure 14.

4.1. The rationale of the administrative democracy for the social sustainability

There are two reasons why the inherent administrative democracy should be discussed. The first reason is that the necessity of the administrative democracy is rational for the social sustainability. The second reason is that the administrative discretion in the public policy implementation is made rational because of the administrative democracy. Here, the first reason of the rationale for the social sustainability is explained. The necessity of the administrative complementary democracy based on the inherent democratic sizes should be discussed from the view of the social sustainability. In Figure13, the social sustainability is characterized for maintaining a coexistence society against people's conflict in social integration in its problem and its policy which are compared to the ecological sustainability and the economic sustainability. ⁶ Democracy is often discussed about the mechanisms of governance and organizations of governments. I would rather prefer to discuss the democratic policy development in the sight of relationships between government and people. I believe that one of the key conditions for being a democratic government is the policy development that matches the given democratic size of democracy. It might be a way with less friction that a policy is decided by the majority principle as to whether there are a lot of approvals or oppositions except when everyone approves or everyone opposes it. People's thoughts are common for or against every policy. In the public policy system for social sustainability it is necessary to make a coexistence society with the balance between representative democracy and responsive democracy based on the majority principle for reducing people's conflicts in social integration.



Figure 13 Framework of sustainable society

(Note) Author created. See to the end note 6.

The idea of social sustainability regarding people's conflicts is also focused on the SDGs goal 16, justice and strong institutions, which emphasizes an effective process of governance to reduce the conflict with violence.⁷ I think democracy with the majority principle in the rule of law is the important process of the public integration to avoid conflict with violence but it may not be enough if the comprehensive political integration has too much inclusive function. The people's conflict will rarely happen if political policy making is according to the majority rule based on the parallel treatment of people's approval and the people's objection. However, the political majority rule is practiced in general by calculating the add-average of the approval and the objection so that the political excessive comprehensive democracy appears as I have already pointed out in my discussion of the democratic public policy system. Therefore, the administrative democratic function is expected for the social sustainability to prevent the coexistence society from the social conflicts among people. The administrative democracy is especially recommended to promote policy implementation in order to complement the lack of plural democracy of its administrative body in relative comparison to excessively comprehensive democracy of its political body. The

The necessity of administrative democracy measured by the index of inherent democratic sizes

analysis of the flood disaster in Kyoto Prefecture above in this paper is an example for considering the rationale of the democratic function of local administrative policy implementations for the sustainable policy development.

4.2. The rationale of the administrative democracy for the administrative discretion

The possibility to make the administrative discretion rational in the public policy implementation is the second reason why the inherent administrative democracy should be discussed. That is to say, the administrative discretion against the internal control of administrative organization is rationalized by the inherent administrative democracy to the political democracy. Consequently, the democratic administration becomes to have a responsibility in an administrative system directly towards people in addition to an indirect responsibility to people through a political system. The necessity of this rational responsibility of the democratic administration is emphasized in my theory of the administrative function of the complementary democracy which is expected towards the excessive comprehensive function of the political democracy. The political balance between the people's representative approval and the people's responsive opposition is excessively democratic in its comprehensive function on the majority rule of the social integration. Therefore, the administrative balance between the people's representative approval and the people's responsive opposition is rationally expected to be complementarily democratic in its pluralistic function. Its pluralistic function of the administrative democracy is provided in the open democracy. My theory of the open democracy is with reference to Dahl's theory of the size and democracy of the capacity and the effectiveness, and is additionally with reference to Dahl's theory of the polyarchy of the pluralistic democracy with the comprehensive political participation.⁸ The originality of my study is to point out characteristics of the administrative function in pluralistic democracy as similar as the discussion in Dahl's polyarchy, in complementary democracy as discussed in my theoretical assertion and in open democracy for social sustainability in public policy implementation. In Dahl's theory the approach to the dilemmas of scale and democracy seems to seek the optimal scale of democracy, but rather in my theory the approach is explored in seeking the pluralistic responsive policy implementation in each administration against the political over-representation.

The dilemma in Dahl's size and democracy means that larger political units provide greater system capacity while smaller political units provide more citizen effectiveness. System capacity is the ability of authorities to deal successfully

with the policy challenges they confront. Citizen effectiveness is the ability of residents to control and influence political decisions. Dahl's analytical framework of the two dimensions is applied in my theory of the index of the administrative democracy. One is comprehensive political participation which is applied to people's representative democratic approval finally leading to the political comprehensive democracy, and the other is applied to people's responsive democratic objection finally leading to the administrative complementary open democracy, that is pluralistic democracy (to see Figure 1 and Table 3). My inherent index of democracy is useful to present what kinds of public policy an administration should implement in order to complement the excessively comprehensive political democracy according to the analytical finding by focusing on governmental sizes of its population and its area. The pluralistic open democracy in administration makes less conflicts in political integration than the political comprehensive democracy on the majority rule that may be the cause of conflicts among people with the pluralistic groups' participation expected by Dahl's theory of the polyarchy. Each varied approach of democratic municipalities, in which people's thoughts are reflected in policies, is a requirement for social sustainability that does not cause conflicts among people under the majority rule. The administrative pluralistic democracy is necessary to correct the structural error in taking the mean of the approval and opposition in political democracy on the majority rule. I think the rationale of the pluralistic open democracy in administration is secured in the administrative discretion in Figure 14.⁹

		Administrative function	
		Validity (Objective/Subjective)	Responsiveness (Objective/Subjective)
Administrative structure	Administrative officer (As an object/ as a subject)	Disciplinary action (Security for objective validity as an objective officer)	Office's discretion (Security for subjective responsiveness as a subjective officer)
	Administrative organization (As an object/ as a subject)	Internal control (Security for subjective validity as a subjective organization)	Administrative discretion (Security for objective responsiveness as an objective organization)

Inherent governmental sizes (population and area)

Figure 14 Administrative discretion in relationships between administrative function and structure

(Note) Author created. See the end note 10.

The administrative organizational discretion is a tool to shape the complementary democracy in the administrative public policy implementation.

Whether the administrative discretion is practiced or not according to the inherent administrative democracy is important for the socially sustainable implementation of public policies without people's conflicts. The administrative discretion secures objectively responsive function of the administrative organization in its objectively open democratic structure to the public against the internal control function by the closed subjective validity outside the public. Actually, it is important to decide as to how much democratic discretion of administration is expected in each policy implementation. The decision is evaluated by the comparison to other policy implementation in other administration. The mergers in Japan and Norway in analyzing the administrative complementary democracy in this study are examples for comparing the possibility of the expected discretion of administration. The comparison between Japan and Norway shows that there are local mergers of the areas with flood risks in both countries in different time. Dahl begins to describe the population of Norway in his book, *Size and Democracy*. In addition, the aspect of Dahl's size and democracy is emphasized in the discussion of mergers of Norway.¹⁰ In fact, it is interesting that the area size of Norway is quite larger than Japan while the population of Norway is quite smaller than Japan, and nevertheless the population densities of the two countries are quite similar. Thus, in order to prove the usefulness of my index to clarify the administrative democracy, the comparison between Japan and Norway is made by using different standards of the index in the ratio to the global average and the national average (to see Table 3) The index is actually useful to show the comparison in domestic and in global contexts. The index gives the answer to the question as to why and how a local administrative discretion is possible in policy implementation. The index provides a way to consider the democratic basis for administrative discretion under the democratic public policy system for a sustainable response against disaster risks with the global comparison.

Conclusion

In this study, the rational importance of administrative democracy in a public policy system is pointed out in sight of the inherent size of democracy. The administrative democracy seems important especially for me to consider about public policy implementation for social sustainability though the administrative democracy is rarely discussed while the political democracy is often discussed. This is my motivation to make an index for democratic rationality of

administrative policy implementation because a direct democratic roll of an administration is expected additionally to its regular roll of implementing policies according to political decisions. I think that politics tend to have the excessive democratic function in policy making so that administration is expected to have the complementary democratic function in policy implementation in the democratic public policy system. That is, the democratic administration should be emphasized because of its function derived from my proposition which means that the people's democratic involvement is converted equally to the excessively comprehensive political democracy corrected by the administrative complementary democracy in the democratic public policy system.

The index derived from the proposition is examined of its usefulness in analyzing some examples regarding the administrative democracy based on four principles of mine as follows.

Principle 1: The government has the inherent characteristics measured by the index based on its given sizes (Figure 2), which causes democratic difference among countries. (Figure 1)

Principle 2: The inherent size democracy is comparable in anytime and anywhere even though its size is large or small. (Figure 6, Figure7, Figure 8, Figure9)

Principle 3: The inherent administrative democracy notifies an administration how to promote democratic implementation according to its plural function towards the political comprehensive function. (Figure 11, Figure 12)

Principle 4: The democratic administrative implementation requires two kinds of rationality which are necessary for the social sustainability and necessary for administrative discretion in the pluralistic open democracy. (Figure 13, Figure 14)

According to the findings about these principles, my index composed of the inherent democratic size is useful anytime and anywhere for an administration to consider how to implement a policy in the view of its function of the complementary democracy. The change of the administrative complementary democracy before the merger to after the merger in Fukuchiyama is presented as a useful case about the anytime. The difference between the administrative complementary democracy in the merger of 2006 in Fukuchiyama in Japan and in the merger of 2020 in Voss in Norway is presented as a useful case of both the anytime and the anywhere. Moreover, the index is examined useful for the administrative complementary democracy to differentiate the democratic function towards the political excessive democracy regarding the cases of the flood risk in Yuragawa basin and Katsuragawa basin in Kyoto Prefecture in Japan. Additionally, the rational reason of the necessity of such useful index is discussed

The necessity of administrative democracy measured by the index of inherent democratic sizes

theoretically from the view of the social sustainability maintaining a coexistence society against people's conflict in social integration and the view of administrative discretion for the pluralistic open democracy. The necessity of administrative democracy measured by the index of inherent democratic sizes was consequently confirmed in anytime and anywhere, and the necessity was also confirmed in rationale for democratic social sustainability and democratic administrative discretion.

The importance of the index that I made is not only useful but also significant. The significance is to reveal the rational reason why the administrative democracy should be expected differently from the political democracy. The characteristics of the index are found in the definition of the reversed relationships in the parallel scale of the people's representative approval and the people's responsive objection. Also, the structural characteristics are found in the measurement of the conversion from the parallel input of the approval and the objection to the strait output of the political excessive function that is corrected by the administrative complementary function. The originality of the theory and analytical method of the index provides new guidance for recent democratic issues of excessive democracy and underestimate of democracy.¹¹ The necessity of the administrative democracy, then, is emphasized in this study.

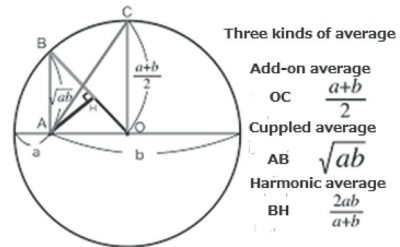
Notes

- ¹ See Robert A. Dahl & Edward R. Tufte, *Size and Democracy*, Stanford University Press, 1973, chapter 2. Inherent democracy is based on a unit of a country because elections are held in base of a country. The size of democracy is measured for the comparison focused on the standards of the nation in the world and the standards as a nation in each country. Therefore, the discussion of representative democracy and responsive democracy is based on measurement by the index of the ratio to the national and domestic average on the country. It is clear from Dahl's chapter 1 in *Size and Democracy*.
- ² To distinguish administration from politics is not so clear that both politics and administration sometimes seems to promote policy making and policy implementation because politics is based on both representative and responsive democracy through an election. In this study, the distinction is focused on the functional difference between administrative policy implementation and legislative policy making even though the top of administrative organization is elected or the top of political organization is appointed. Administration may be an affinity with an individual while politics may be an affinity with mass people.
- ³ For reference to Murayama's model of the public policy system regarding a democratic administrative function, see Hiroshi Murayama, "How to entrust a policy expectation of people's: An administrative democracy", Policy Science Association of Ritsumeikan University, *Policy science*, vol.28 no.1, 2020 (Japanese article). About the index of the size of democracy regarding administrative discretion, see Hiroshi Murayama & Toru Murayama,

“Administrative discretion and prescribed characteristics caused by the size of a population and area in a democratic government: Operational conceptualization of representativeness and responsiveness affecting policy development”, Policy Science Association of Ritsumeikan University, *Policy science*, vol.26 no.1, 2018 (Japanese article). About size and democracy regarding mergers in Kyoto Prefecture, see Hiroshi Murayama, “A challenge of an empirical analysis of the size and democracy: Democratic effects made by the merger of local governments in Kyoto Prefecture”, Policy Science Association of Ritsumeikan University, *Policy science*, vol.27 no.3, 2020 (Japanese article).

- ⁴ This figure shows the mathematical theorem of the average: $OC \geq AB \geq BH$.

In this study $OC \geq 1 \geq BH$ because the index is defined as population density (a) \times area density (b)=1. The meaning of coupled average (Geometric mean) in this study is detailed in Note 5. The index of the inherent democracy I made is available for patent.



- ⁵ The geometric average of the representative democracy and the responsive democracy is meaningful in this study because the contrary scale of the approval of population density and the objection of area density is made for defining the same weight of values of them. To do so, the ratio to the standard average means the difference between the people’s approval and the contradiction. The more the difference is, the more political comprehensive democracy is required with the more administrative open democracy in one case, and the less administrative open democracy relatively compering political comprehensive democracy is required in the other case. Range of values of the people’s democratic involvement is from 1 to ∞ . Range of values of the political comprehensive democracy is from 1 to ∞ . Range of values of the complementary administrative democracy is from 0 to 1. These calculations come from the natures that the approval is from 1 to ∞ , and the objection is from 1 to ∞ , and also the approval \times the objection =1 (defined in this study). Democracy is going back and forth between the approval and the objection. The average speed of the round trip of the back and forth is not the add-on average, which is the average speed of each way, but the harmonic average of the distance of the round trip.
- ⁶ The model of three sustainability is discussed by Murayama for “Research Project on Sustainable Society against Flood Disasters” in Center for Sustainability Science of Ritsumeikan University.
- ⁷ The goal 16 of SDGs is not only for developing countries but also for developed countries. The goal means that sustainable development cannot be sufficient without effective governance based on the rule of law. Its aim is to reduce all forms of violence, and work with governments and communities to end conflict and insecurity. It seems similar to the social sustainability of the coexistence society without people’s conflict.
- ⁸ See Robert A. Dahl, *Polyarchy*, Stanford University Press, 1971, chapter 1. It looks for an optimal scale of the size democracy that has been discussed for long time. The originality of discussion is not to search an optimal size democracy but to show a variety of governmental democracy in each public policy implementation.
- ⁹ The figure of the administrative function including administrative discretion is presented in the study subsidized by Grants-Aid for Scientific Research, Ministry of Education, Culture, Sports, Science and Technology, 2019-2021. The subject by Akio Kamiko (Principal Investigator) and Hiroshi Murayama is “Size of local governments and structure securing

The necessity of administrative democracy measured by the index of inherent democratic sizes

efficiency and effectiveness of government policy implementation”.

¹⁰ The interview about mergers of Voss is conducted at Bergen University in Norway by Hiroshi Murayama and Akio Kamiko in 2019.

¹¹ Examples of the significant importance of such democratic administration are to give new orientations on specific cases: the reorganization of administrative divisions, allocation of electoral constituency, excessive democratization of populism, two-way representative system in local governments, presidential system and house cabinet system in national government, administrative litigation and so on.

