Second Interim Report of Research Project on Gross Arakawa Happiness (GAH)

【summary】

August of 2012

Research Institute for Local government by Arakawa City

(RILAC)

Index

Ⅰ. Trial to improve Gross Arakawa Happiness (GAH)

1. Concept of GAH 〜indicators and movement〜

The City of Arakawa established the Arakawa Basic Plan in March of 2007. Arakawa City aims to be a community where every citizen can feel happy. The word "happiness" or "happiness feeling" that we use in this report is often expressed as subjective well-being (SWB) in studies on happiness. In the plan, we proposed six images of the city which we aim to realize after twenty years (in about 2026): ① "City of health during the lifetime of citizens", ② "City of good rearing and education", ③ "City of innovation of industries", ④ "City of advanced environment", ⑤ "City of maintenance of traditional culture and creation of new culture", ⑥ "City of safety and relief." For each of the six city images, various policies and projects are launched to improve happiness (or subjective well-being (SWB)) of citizens, e.g., Gross Arakawa Happiness (GAH).

In GAH, there are two sides of indicators and movement. First, we want to make indicators to measure happiness of citizens. Using indicators, we can grasp problems occurring in the community, make needed political action clear and carry out optical policies to improve happiness of citizens. Not only Japanese citizens but also people (e.g., students and workers) staying only during the daytime and foreign citizens are also included in the subject of investigation.

Second, by movement (GAH movement), we mean that all people and organizations related to Arakawa City think of happiness of themselves, persons close to them, and the community which would lead to making Arakawa City better. As administration cannot satisfy all needs of citizens. Movement of administration, citizens, and community altogether play an important role to improve GAH.

2. Research system

For investigation and research of GAH, the research committee on GAH was organized. It consists of visiting knowledgeable persons of various fields. They discuss GAH actively from their special viewpoints. Also, the GAH working group was organized, consisting mainly of young city workers, because they work in the front line of administration, and grasp various needs of citizens directly. They mainly made tentative GAH indicators using their knowledge and experiences. The project team was also organized in order to investigate how existing policies are related to GAH. The GAH project is carried out in collaboration by the three: the research committee on GAH, the GAH working group, and the project team.

3. Meaning of the second interim report of research project on GAH

The first interim report of research project on GAH was published in August of 2011. In it, tentative indicators for health during the lifetime of citizens and for good rearing and education were shown. In this second interim report of research project on GAH, tentative indicators and tentative questions to citizens were shown corresponding to all six city images. We modified tentative indicators for health and rearing and education shown in the first interim report from the overall viewpoint. We also referred to happiness indicators made in foreign municipalities. We show methods of investigating and analyzing opinions of citizens which would lead to new policies and movement in the community for improving happiness of citizens. In the future, we are planning to verify relation between tentative GAH indicators and policies through questionnaires and interviews with citizens.

4. Procedures to make tentative GAH indicators

(1) System of GAH indicators

We made indicators corresponding to each of six city images defined in the Arakawa Basic Plan. We named indicators after the name of each city image: ① Health and welfare indicators, ② Child rearing and education indicators, ③ Industrial indicators, ④ Environmental indicators, ⑤ Cultural indicators, ⑥ Safety and relief indicators.

Happiness Feeling City "Arakawa"

Happiness Feeling

"City of health during life time for citizens"	"City of good rearing and education"	"City of innovation of industries"	"City of advanced environment"	"City of maintenance and creation of culture"	"City of safety and relief"
Health and welfare indicators	Child rearing and education indicators	Industrial indicators	Environmental indicators	Cultural indicators	Safety and relief indicators

Images of GAH indicators are shown below.
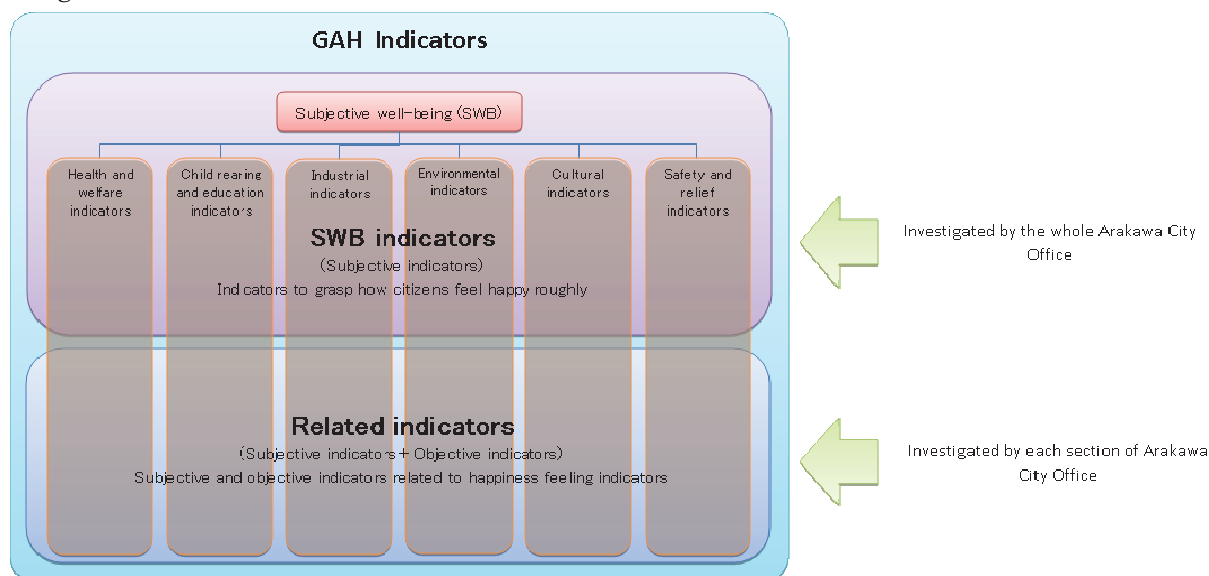
GAH Indicators consists of subjective well-being (SWB) indicators and related indicators.

（ⅰ）Subjective well-being (SWB) indicators

SWB indicators reflect self-reported subjective happiness of citizens. They are not based on existing statistical data, but grasped by questionnaires for citizens and so on. They consist of the SWB indicator in total and indicators made in each of six city images. The SWB indicator in total can be obtained from asking citizens "Are you happy?" These SWB indicators play an important role in grasping subjective happiness of citizens and finding causes of unhappiness. For example, the health feeling indicator is obtained by asking citizens "Do you feel healthy?"

（ⅱ）Related indicators

In GAH indicators, related indicators as well as SWB indicators are included. Related indicators are subjective and objective. They are used for finding obstacles to happiness of citizens. For example, the number of crimes and the number of stolen bicycles are objective indicators related to anxiety for crimes. The proportion of citizens scared of the darkness is a subjective indicator related to anxiety for crimes.

Tentative indicators, tentative questions, and related indicators are shown in Ⅱ.

Ⅱ. Tentative GAH indicators

The extent that citizens feel happy is located at the highest level in all indicators.

Tentative SWB indicators	
Tentative indicators	Tentative questions
The extent that citizens feel happy	Do you feel happy?

1. Tentative health and welfare indicators

Tentative SWB indicators			Related indicators (Examples)
Tentative indicators		Tentative questions	
Health and welfare	The extent that you feel healthy	Do you feel healthy?	
	Physical health — The extent that you exercise.	Do you exercise? (Exercise includes sports such as jogging, walk, and going up and down the stairs.)	○Life span for health ○Proportion of early death ○ Proportion of citizens needing care ○ Proportion of citizens falling down ○Proportion of citizens whose BMI is more than 25 ○ Proportion of citizens having habits of exercise ● Proportion of citizens having satisfactory diet ○ Proportion of citizens eating vegetables every day
	The extent that you have a balanced diet.	Do you eat a balanced diet?	
	The extent that you take a rest.	Do you take a rest?	
	Mental health — The extent of ties.	Do you have ties with your family or friends? (Ties include relation that you talk with or greet others.)	○Proportion of death by suicide ○Tendency for depression
	Feeling for having your own role	Do you have your role in your home or school or workplace or local community?	
	Peace of mind	Do you have time when you feel peace of mind?	
	Environment for health — Satisfaction with medical care	Is medical care satisfactory in the local community when you become ill or injured? (By this question, we ask you if facilities of hospitals and drugstores are satisfactory and if medical care is qualitatively satisfactory.)	○A number of medical facilities per population 10,000 ○ A number of drugstores per population 10,000
	Satisfaction with welfare	Is welfare for the aged and disabled persons satisfactory in your community? (By this question, we ask you if facilities are satisfactory and if services are qualitatively satisfactory.)	●Satisfaction with welfare services for disabled persons

* Some representatives among many indicators are shown in related indicators. The symbols ● and ○ represent subjective and objective indicators respectively.

2. Tentative child rearing and education indicators

Tentative SWB indicators			Related indicators (Examples)
Tentative indicators		Tentative questions	
Child rearing and education		The extent that a parent feels growth of his/her child	Do you feel that your child grows up in good health?	
		The extent that a parent brings up his/her child as he/she hopes	Do you bring up your child as you hope?	
	Family relation	Satisfaction with communication between parent and child	Do you feel that there is enough communication between parent and child in your home?	○Duration of conversation between parent and child
		The extent that family understands and cooperates with child rearing	Do you feel that your family members understand and cooperate with bringing up your child? (Family members include your spouse, your parents, parents of your spouse, or relatives. Family includes members who do not live together.)	●Assignment of roles for child rearing among the family members
	Strength for living	The extent that a child learns regular lifestyle	Do you think that your child has a regular lifestyle?	●How strictly a child is brought up ●The extent that a child gets strength for living through diet
		The extent that a child develops strength for living	Do you think that your child has knowledge, skill, sociability, or physical strength needed to live in the society?	○Results of achievement test ○How many books a child or student reads ●Proportion of parents who feel that their child is sociable and kind ○ Results of measurement of physical strength ○The extent that a child or student learns foreign languages
	Environment for child rearing and education	Satisfaction with environment for child rearing and education	Are you satisfied with undertakings, services, or facilities related to child rearing and education in your local community whether they are provided by private organizations or public organizations?	●Satisfaction with education in school ○A number of recognized bullying ●Contribution of financial support to child rearing and education ○A number of children on the waiting list ●Contribution of projects supporting child rearing at home ○A number of places where change of a baby diaper and nursing are possible ●A number of places where a child can play ○A number of facilities for childcare in service ○A number of accesses to web sites on child rearing
		The extent that the local community understands and cooperates for child rearing.	Do you think that your local community has an atmosphere where others understand and cooperate with households for rearing children?	● Proportion of citizens having persons who they consult about child rearing

3. Tentative industrial indicators

Tentative SWB indicators		Tentative questions	Related indicators (Examples)
	Tentative indicators		
Industry	Affluent life	Do you lead a financially and mentally affluent life?	
Work	Stability of life	Do you feel anxious about stably obtaining income needed to live?	● Proportion of undesirable irregular employment ○Unemployment rate ○ Period when workers remain unemployed ●Proportion of citizens leading an affluent life
	Balance between work and life	Do you feel that your work and private life are balanced well?	○Working hours ● Whether or not citizens have leisure time
	Satisfaction with the work	Do you feel satisfaction or fulfillment with your work?	● Proportion of citizens having places where they are active
Local economy	Industry of the city	Do you feel that businesses (stores and factories) in Arakawa City prosper?	○Sales of businesses in the city ○ A number of businesses and employees in the city ○A number of new products and new technologies
	Convenience for shopping	Do you feel shopping is convenience in Arakawa City?	○Business hours ●Dissatisfaction with a number of items
	Attractiveness of the city	Do you feel that Arakawa City is so attractive that people from other areas want to visit it?	○A number of visitors to Arakawa Amusement Park ○ A number of visitors to Rose Festival ○A number of visitors to facilities and events in the city

4. Tentative environmental indicators

Tentative SWB indicators			Related indicators (Examples)
Tentative indicators		Tentative questions	
Environment	Satisfaction with the living environment	Do you live comfortably in the local community?	
	Convenience and universal design — Barrier-free facilities	Do you feel that the aged and disabled persons are considered in the business and public facilities in the local community?	○ Proportion of barrier-free facilities
	Kindness	Do you feel that citizens actively help persons having trouble in the local community?	○ Proportion of citizens knowing movement of kindness in the city
	Convenience of transport	Do you feel that transport is convenient in the local community? (By transport, we mean movement by train, by bus, by car, by bicycle, and on foot.)	○ A number of bicycles parked wrongly ○Time to the nearest transport ● Proportion of citizens feeling convenience in driving and parking a car ● Proportion of citizens feeling convenience in transport within and beyond the city ● Proportion of citizens feeling comfortableness in walking in the city
	Comfortableness — Beautiful sights of the city	Do you feel that the sights and greenery are beautiful in the local community?	● Proportion of citizens feeling uniformity in a row of houses ●Proportion of citizens feeling that sight of the city is beautiful ○Proportion of the green
	Comfortableness of the living environment	Do you feel uncomfortable in the living environment? (By "uncomfortable", we mean noises, bad smells, vibrations, bicycles thrown away, littering of cigarette butts, and so on.)	○A number of complaints about noises ○A number of complaints about bad smells ○A number of complaints about vibrations ○A number of citizens smoking in the street near a station ○ A number of bicycles thrown away
	Sustainability — Sustainability	Do you feel the global environment by saving electricity and lessening garbage?	○A quantity of retrieved resources ○A quantity of discharged garbage ○Recycling rate ○A number of households leading an ecological life

5. Tentative cultural indicators

<table>
<tr>
<th colspan="4">Tentative SWB indicators</th>
<th rowspan="2">Related indicators
(Examples)</th>
</tr>
<tr>
<th colspan="2">Tentative indicators</th>
<th colspan="2">Tentative questions</th>
</tr>
<tr>
<td rowspan="7">Culture</td>
<td colspan="2">The extent that you feel satisfied with leisure time and contact with culture</td>
<td colspan="2">Are you satisfied with your leisure time and contact with culture?</td>
<td></td>
</tr>
<tr>
<td rowspan="2">Leisure activity</td>
<td>Satisfaction with leisure time</td>
<td colspan="2">Are you satisfied with your leisure time?</td>
<td>●Chances of leisure activities and cultural activities
● Whether or not citizens have leisure time
○A number of cultural facilities
○ A number of cultural or recreational events</td>
</tr>
<tr>
<td>Satisfactory lifelong study facilities</td>
<td colspan="2">Do you feel that there are satisfactory facilities where you can study during your whole life in your community?</td>
<td>○ A number of visitors to the library
○ A number of participants in sports events
○ How many times lectures of lifelong study are held</td>
</tr>
<tr>
<td rowspan="4">Local culture</td>
<td>Attachment to the local community</td>
<td colspan="2">Do you feel attachment to and pride in culture and characteristics of Arakawa City?</td>
<td>●Satisfaction with participation in the local events
●Proportion of citizens interested in culture of Arakawa City
●Proportion of citizens feeling that Arakawa City is attractive
● Interest in local brands of Arakawa City</td>
</tr>
<tr>
<td>Satisfaction with relations with others in the local community</td>
<td colspan="2">Do you exchange satisfactorily with others in the local community?</td>
<td>● Satisfaction with chances that citizens can have relations with others in the local community
● Satisfaction with places of recreation and relaxation</td>
</tr>
<tr>
<td>Reliable acquaintances</td>
<td colspan="2">Do you have reliable acquaintances in the local community?</td>
<td>● Whether or not citizens can consult or rely on others about child rearing
●Proportion of citizens feeling that they and their neighbors help each other on disasters</td>
</tr>
<tr>
<td>Generosity to different cultures</td>
<td colspan="2">Do you feel that residents in the local community have kindness and generosity to foreigners?</td>
<td>● Interest in multicultural symbiotic societies</td>
</tr>
</table>

6. Tentative safety and relief indicators

Tentative SWB indicators			Related indicators (Examples)
Tentative indicators		Tentative questions	
Safety and relief	The extent of safety and relief	Do you feel that the local community is safe? (In safety, safety against crimes and disasters is included)	
	Crimes / Anxiety about crimes	Do you feel anxiety about crimes in the local community?	○A number of recognized crimes ○A number of stolen bicycles ● Proportion of citizens feeling anxiety in darkness ○A number of street lights ○A number of security cameras ○A frequency of safety patrol
	Accidents / Traffic safety	Do you feel danger of traffic accidents related to bicycles, cars, and so on in the local community?	○A number of citizens killed and injured in traffic accidents ○A number of bicycle accidents ○ A number of participants in traffic safety campaign ●Proportion of citizens feeling that traffic rules are obeyed ○ A number of citizens having bicycle licenses
	Accidents / Safety for living	Do you feel danger of accidents besides traffic accidents while you are at home or school or work? (In accidents mentioned here, falling due to no handrail or no fence, and accidents of babies are included.)	○ A number of accidents while leading a daily life reported to the police ● Proportion of citizens feeling there are near-miss incidents while leading a daily life
	Disaster / Personal preparation	Do you sufficiently prepare for disasters such as earthquakes, fires, or storm and flood damage and feel relieved?	○ Proportion of earthquake-resistant houses ○ Proportion of citizens fixing furniture so it will not fall down from earthquakes ○Proportion of citizens stocking up on food for three days ○ A number of participants in disaster prevention practice ○ Proportion of citizens knowing evacuation sites
	Disaster / Ties and mutual help on disasters	Do you think that you and your neighbors can help each other on disasters?	○Frequency of disaster prevention practices ○A number of citizens belonging to volunteer fire brigade ● Proportion of citizens having reliable persons in case of disaster ● Proportion of citizens having neighbors they can speak to
	Disaster / Protection against disasters	Do you think that the local community is disaster-resistant?	○ Proportion of noncombustible area ○Rank of danger of local area ○Proportion of old houses ○The extent that food is stocked sufficiently ○A number of evacuation sites

Ⅲ. Examples of happiness indicators in foreign municipalities

GAH is an indicator for the local area of Arakawa City, as its name shows. It is important to know how happiness studies are in progress now in local areas of the world. In this chapter, we introduce trials to make happiness indicators in foreign municipalities, compare them with GAH, and discuss their characteristics.

We obtain two implications for the future study on GAH. The first is that happiness indicators are studied not only by governments of many countries but also by local municipalities of many countries. The second is that happiness indicators are shown in various ways inherent to each municipality.

GAH is an original SWB indicator different from existing happiness indicators. Its originality consists in the following three points: First, GAH has been made and checked mainly by city workers belonging to the GAH working group and project team. Second, it consists mainly of SWB indicators. Third, its purpose is improving SWB of citizens and making policies and causing movement of citizens and organizations to improve happiness of citizens.

Investigation of happiness indicators by foreign municipalities

Indicators	Nation and municipality	A number of dimensions	A number of indicators	Main dimensions	Presentation of results	Purposes
Community Indicators Victoria(CIV)	Victoria, Australia	5 domains, 23 dimensions	93	Healthy safe and inclusive communities Dynamic resilient local economies Sustainable built and natural environments Culturally rich and vibrant communities Democratic and engaged communities	Subjective wellbeing surveys. Existing data were shown for each field. Not integrated.	To provide a community wellbeing indicator framework with local level data.
The Seattle Area Happiness Initiative (SAHI)	Seattle, USA	8 domains, subjective happiness on top	Subjective 9 Objective 19 (2011 Seattle)	Overall wellbeing (Affect (feeling) and satisfaction with life, not a composite of all the domains) Psychological wellbeing Material wellbeing Health Community vitality Cultural vitality Governance Ecological vitality Time balance	Subjective survey results. Objective indicators. Not integrated. Presented simply as report cards and radar charts.	The project provides policy makers with information, awareness, tools, technical assistance and services. It also provides individuals with a guide for deeper awareness and a means for a more thoughtful assessment of their own lives.
Community Wellbeing Monitor	Onkaparinga, South Australia, Australia	23 items	44	Environment Economic development Social development Health	Objective indicators. Not integrated.	Essential part of "Community Plan 2028." Happiness of community is also goal of "the South Australian State Strategic Plan 2014."
Wellbeing Watch Hunter happiness wellbeing index	Hunter Valley, New South Wales, Australia	10 dimensions, 40 items	—	Demographics Employment Education Income and assets Family and social relationships Housing and neighborhood Crime and safety Health Health services and medicines Key predictors of wellbeing	A wellbeing index was created by averaging the scores of all six questions. The wellbeing index has a range of 1 to 5. The trends for each field were seen.	The key aim is to identify issues significantly associated with wellbeing in the Hunter. The secondary aim is to track how residents are living by comparing findings for the Hunter Region over time with the rest of NSW.
Minnesota Milestones	Minnesota, USA	19 goals	70	Citizens Community and democracy Economy Environment	Objective indicators. Not integrated.	To help citizens, communities and public officials track progress toward 19 goals.
Oregon Benchmarks (OBMs)	Oregon, USA	3 goals, 7 dimensions, 91 indicators	91	Goal 1: Quality jobs for all Oregonians (Economic happiness) Goal 2: Engaged, caring, safe communities (Social happiness) Goal 3: Healthy, sustainable surroundings (Environmental happiness)	Objective indicators. Not integrated.	To measure progress in strategic "Oregon Shines Goals."

We have seen various happiness indicators at foreign local area level. As a result, we learned many useful points. Simultaneously, we also recognized that GAH has many original characteristics different from foreign indicators.

Ⅳ. Data analysis of the opinion survey on GAH and future investigation

In this chapter, we show analytical results of the opinion survey on GAH. We also show details of questionnaires which are planned for the future.

1. Data analysis of the opinion survey on GAH

Investigations on GAH have been made in the opinion survey of Arakawa City since 2006 till 2011. From analysis of them, we showed how SWB was affected by various attributes of respondents and how SWB was related to satisfaction on living, safety and relief, ties with the local community, something to live for. We showed relation between respondents' attributes and frequencies of participation in local activities and events which are one GAH movement. We showed what respondents of each local area desire for administration. In the future, we need to grasp citizens' SWB in detail by using indicators as well as by the opinion survey.

2. Future investigations on GAH

In future questionnaires, we plan to include workers and students who live in Arakawa City only in the daytime as respondents in addition to Arakawa citizens. We also plan to include foreign citizens. We plan to investigate happiness of children. There are the following ways to choose respondents from all Arakawa citizens. (ⅰ) random sampling every year, (ⅱ) to investigate the same persons for several years continuously (panel survey), (ⅲ) to investigate persons having clear needs. We plan to use random sampling mainly, while we plan to use methods (ⅱ) and (ⅲ) complementarily. We plan to investigate SWB indicators on the initiative of our institute, while we plan to use results of questionnaires by each section of the city office on related indicators in case of need. Answers of respondents are generally measured by four categories, five categories, and seven categories. Considering merits and demerits of each option, the optimal option needs to be chosen. We want to grasp citizens' consciousness from descriptions by free writing and interviews, as well as from multiple category questions.

Ⅴ. Plans to use GAH indicators

In this chapter, we show how GAH indicators are useful for forming and improving policies and GAH movement. Below we show our present thinking, and expect it to be improved in the future.
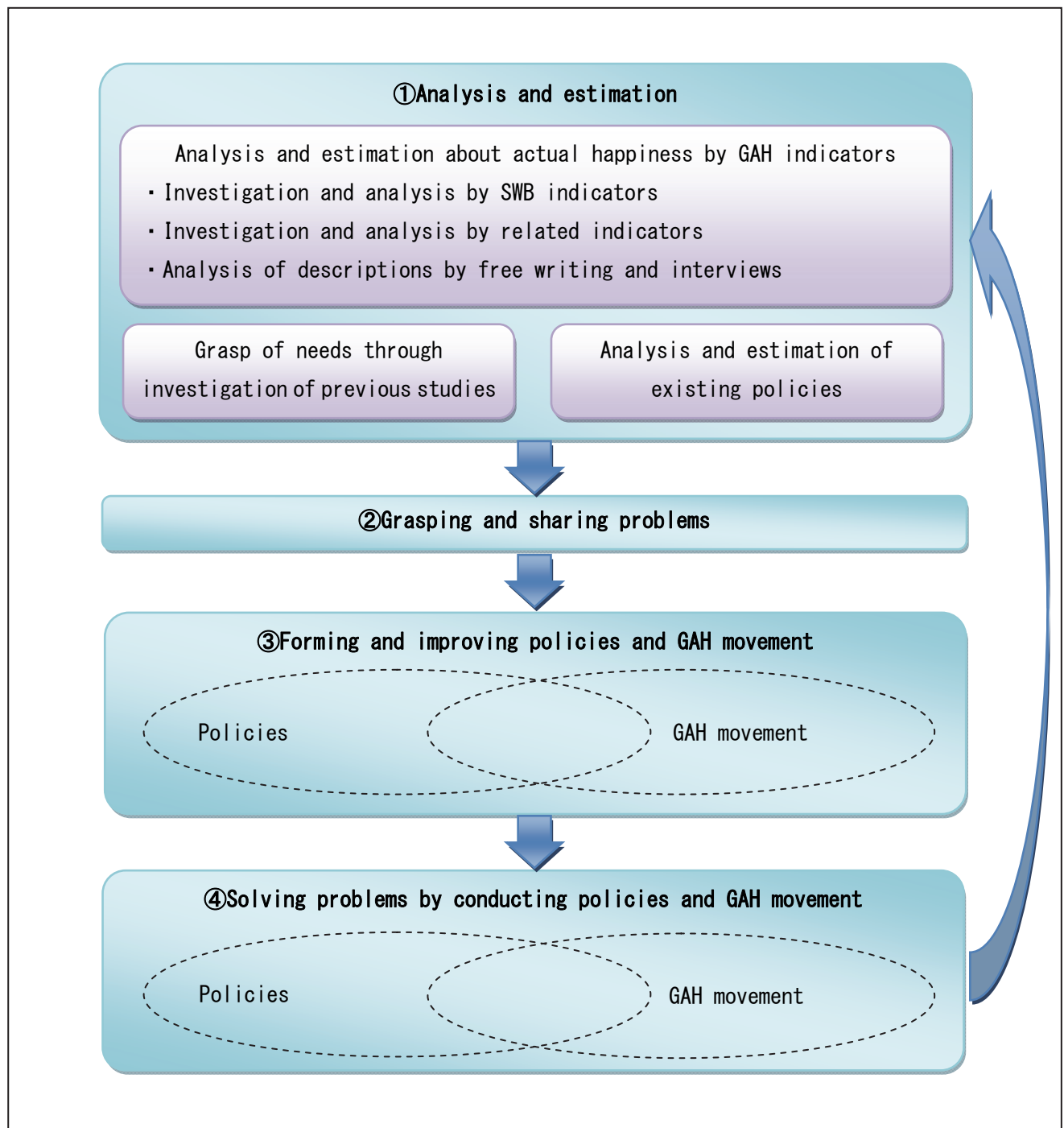
1. GAH indicators as a tool to support detecting and sharing problems and decision making

By analysis of SWB indicators and related indicators, we can find obstacles to citizens' happiness, and find and share problems occurring in the local community. Not only administration but also all people and organizations related to the city are involved in detecting and sharing problems in the local community. A quantity of information supporting decision making must be sufficient to determine optimally what policies are needed to solve shared problems. Analysis of GAH indicators would provide such information. GAH indicators would be a tool for all people and organizations related to the city to detect and share causes of citizens' unhappiness and anxiety, and problems in the local community. GAH would be also a tool for providing information that supports decision making for solving problems. Our standpoint is using GAH indicators as such a tool, which would lead to improving GAH indicators and GAH movement.

2. Ways to make use of GAH indicators and analyze them

Based on concepts mentioned above, we show a tentative analytical method of GAH indicators which would lead to forming and improving policies and GAH movement. We mention such a method in detail as shown in Fig.1.

Fig. 1 Relation between Gross Arakawa Happiness (GAH) and policies or GAH movement

①Analysis and estimation

Analysis and estimation about actual happiness by GAH indicators
・Investigation and analysis by SWB indicators
・Investigation and analysis by related indicators
・Analysis of descriptions by free writing and interviews

Grasp of needs through investigation of previous studies

Analysis and estimation of existing policies

②Grasping and sharing problems

③Forming and improving policies and GAH movement

Policies

GAH movement

④Solving problems by conducting policies and GAH movement

Policies

GAH movement

① Analysis and estimation

We analyze and estimate citizens' actual happiness by GAH indicators to find obstacles to citizens' SWB and problems in the local community. For this purpose, we proceed as follows:

（ⅰ） Analysis of happiness indicators

Based on actual numerical values measured by SWB indicators calculated from answers by questionnaires for citizens, we can detect obstacles to citizens' SWB and problems in the local community. Below we show five examples of analytical methods as follows:

The first is to analyze correlation among 46 SWB indicators. From correlation analysis, we can know which indicator affects happiness, and which would help to form and improve policies.

The second is to analyze relation between respondents' attributes and SWB indicators. By this, we can know attributes of citizens who do not feel happy. The image of this analytical method is shown in Fig. 2. We calculate numerical values by SWB indicators for each group of citizens having the same attributes such as sex, age, and residential area. By comparing these numerical values, we can know attributes of citizens who do not feel happy and have problems and difficulties.
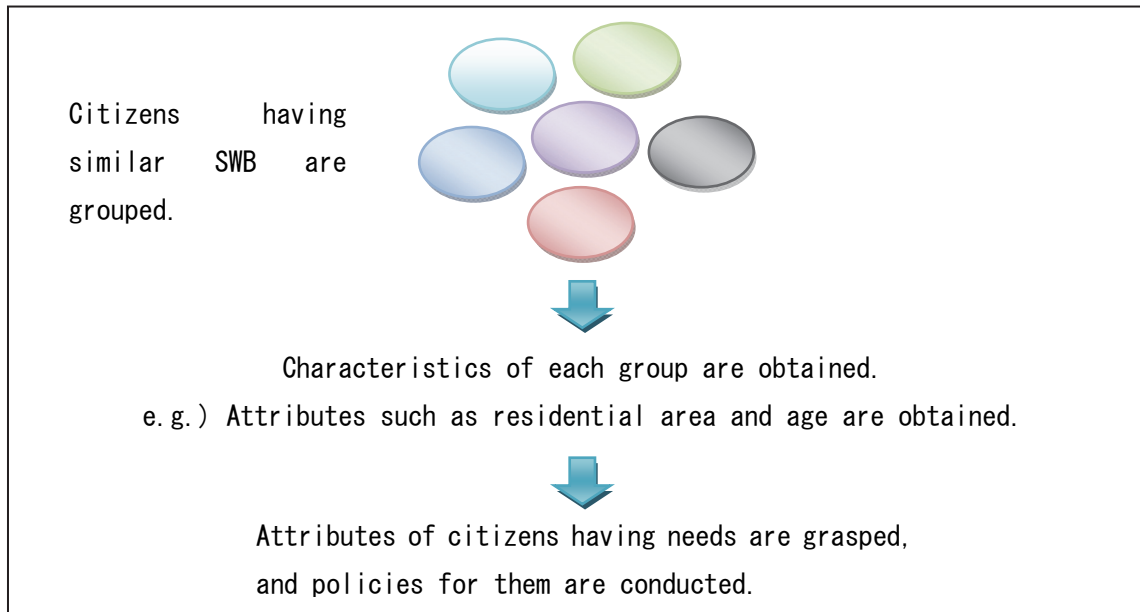
Fig.2 Methods to analyze SWB indicators for each attribute
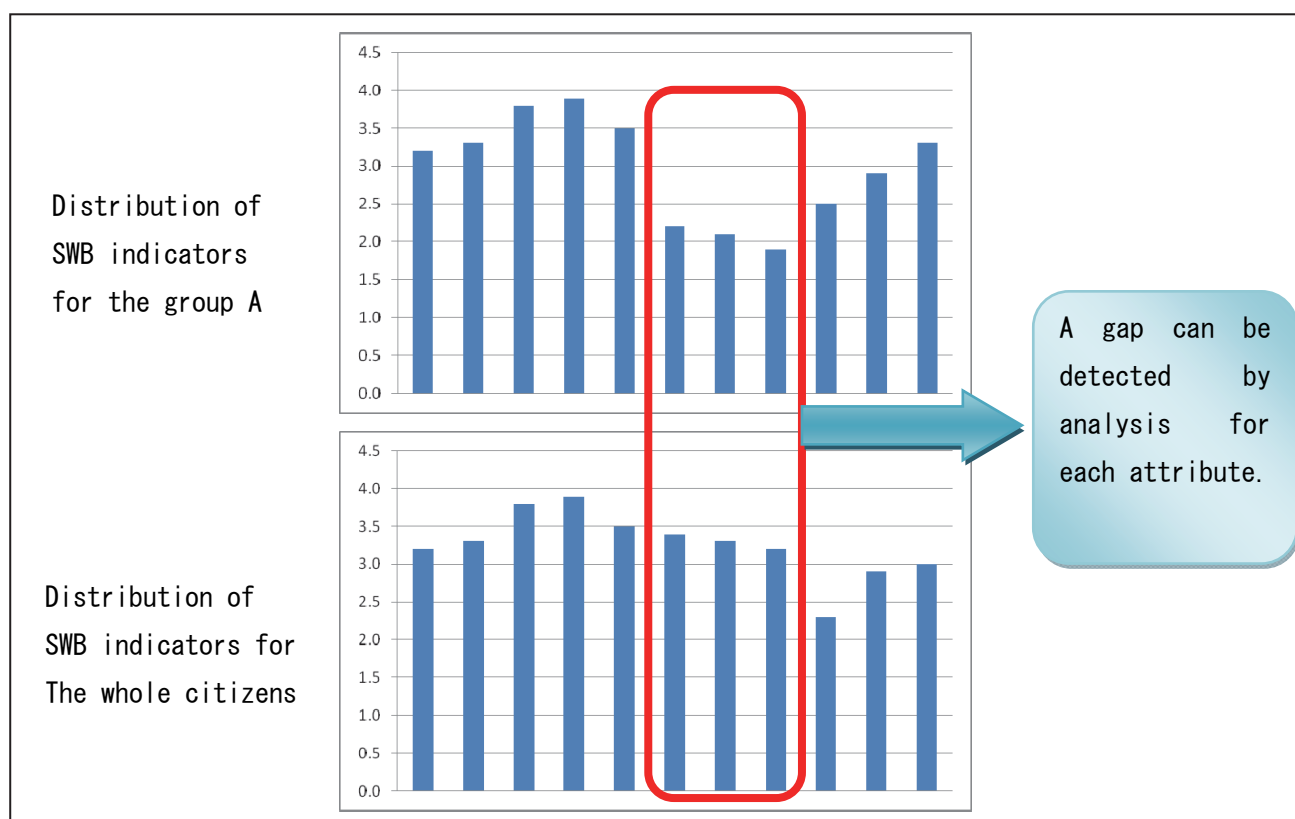
The third is to find citizen groups who have similar numerical values of SWB indicators, as shown in Fig. 3. By analyzing attributes of groups having similar numerical values, we may concentrate on administrative services exclusively for such citizen group having specific needs. For

example, we assume that citizens, having low numerical values of safety and relief feeling, live particularly in certain local areas. Then we can form and improve policies for such local areas.

Fig. 3 Methods to grasp attributes of citizens having similar SWB.

Citizens having similar SWB are grouped.

Characteristics of each group are obtained.
e.g.) Attributes such as residential area and age are obtained.

Attributes of citizens having needs are grasped, and policies for them are conducted.

The fourth is to make a radar chart of SWB indicators for each group of citizens having similar attributes. We can follow up changes of the radar chart over several years. As we can see in Fig. 4, we make radar charts of SWB indicators for the group A at a certain point in time. We want to know how this radar chart changes over five years. By combining radar chart and interviews with those belonging to the group A, we can possibly know what factors cause change in SWB.

Also, when we continuously investigate the same citizens by panel survey, we want to make a radar chart of SWB indicators for each individual and know how the radar chart changes over time. The radar chart for each individual might not change very much over a short period. However, it would be important to investigate changes over a long period of 5 to 10 years.

Fig. 4   Methods to analyze changes in SWB indicators by radar chart.

Changes in trends of radar chart over years can be found.
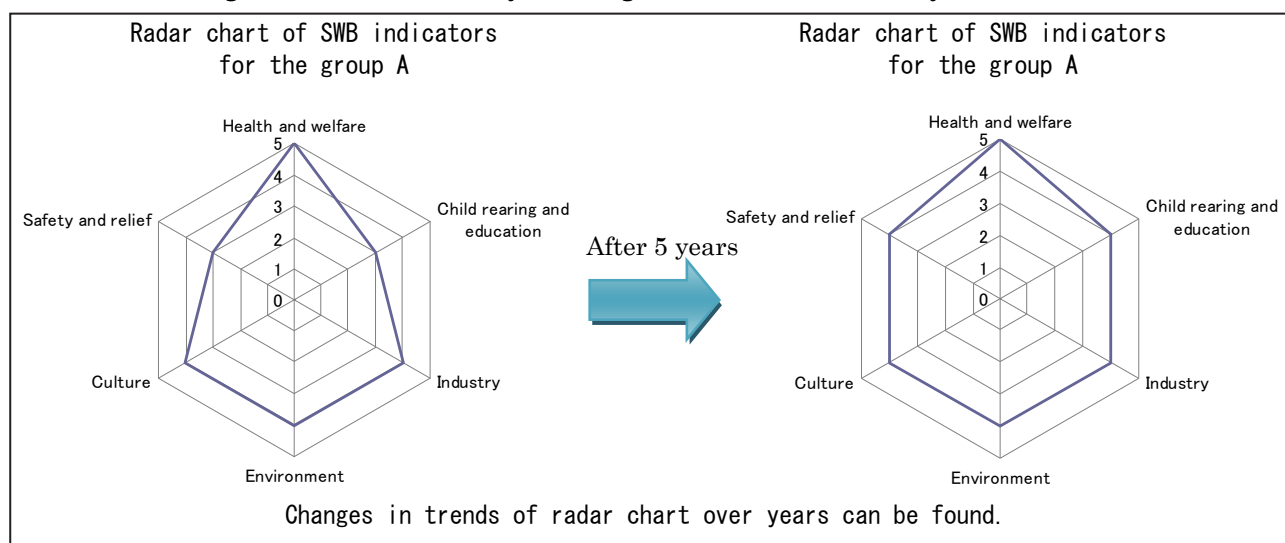
（ⅱ） Investigation and analysis of related indicators

By making use of related indicators, we can grasp problems, which are detected by analyzing major SWB indicators, in detail.

（ⅲ） Analysis of descriptions by free writing and interviews

In future questionnaires for citizens on GAH, we plan to have citizens describe their opinions by free writing. Then we could grasp citizens' happiness and problems in the local community which would not be grasped by multiple category questions. Text mining would be useful for analyzing descriptions by free writing. By text mining, sentences described by free writing are divided into some words. Frequencies of use of a specific word and correlation with other words can be obtained. It would be possible to grasp latent wants and needs of citizens and problems of administrative services. Interviews with citizens would be also useful for grasping citizens' happiness and problems in the local community.

（ⅳ） Grasp of needs and investigation of previous studies

We can grasp what needs citizens have not only by analyzing results measured by SWB indicators and related indicators but also by supplemental questionnaires and hearing surveys conducted about specific issues. It would be also necessary to investigate previous studies and understand problems thoroughly.

（ⅴ） Analysis and estimation of existing policies

We investigate whether existing policies are sufficient or not and how existing policies contribute to solving problems.

It is possible to conduct five methods of analysis and estimation shown in （ⅰ）～（ⅴ） simultaneously. It is also possible to conduct some of the five prior to others. It is desirable to adopt proper methods of analysis and estimation and to grasp problems comprehensively.

② Grasping and sharing problems

We expect not only that our local government makes use of analytical results and estimation obtained in ①, but also that all people and organizations related to the city read the report, and understand GAH problems in the local community. Then they can grasp what factors cause citizens' unhappiness and anxiety and problems in the local community.

③ Forming and improving policies and GAH movement

Based on the above analytical results, we examine methods to solve comprehensive problems we grasp and share. Policy issues which administration must decide and improve are included in these problems. Also, GAH movement, in which all people and organizations related to the city are involved, is included. Policy-making and GAH movement are conducted together or separately. When problems cannot be solved only by existing methods, we plan new methods. In case of need,

we set our objective to act for solving problems, and raise target numerical values to improve SWB indicators and related indicators.

④ Solving problems by conducting policies and GAH movement

We make and improve policies and conduct GAH movement. They may be conducted on the initiative of administration. Policies may be formulated by administration and conducted in cooperation with citizens and organizations in the local community. All people and organizations related to the city may hopefully commit to problems in the local community and collaborate for solving them.

After policies are decided and GAH movement are conducted, we go back to the process ①, and analyze and estimate results. By rotating the above processes ①-④, we aim to remove causes of citizens' unhappiness and anxiety and solve problems, which would lead to improving happiness of citizens and making a warm local community.
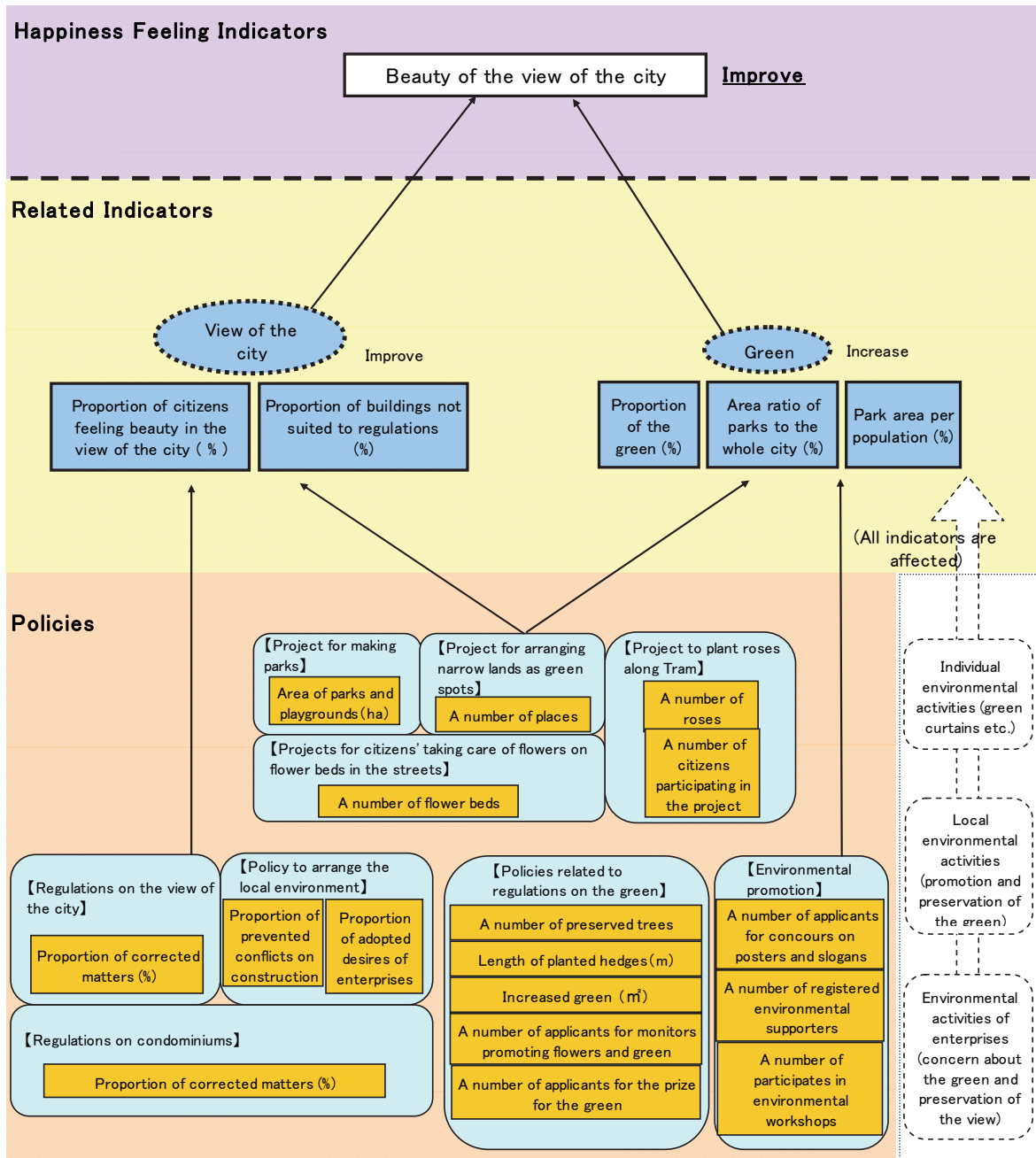
3. Images of using GAH indicators

To make and improve policies for improving happiness of citizens, we need to consider how policies lead to improvement of happiness. Below we show how policies lead to improvement of SWB indicators and related indicators, which is based on the following considerations:

- For each city image, we pick up one SWB indicator and show policies which would contribute to improvement of it and its related indicators in Fig. 6.
- We do not show the causal relationship between indicators and policies, but flow of results expected from implementation of policies.
- We mainly examine policies which administration makes, taking activities of citizens, enterprises, and non-profit organizations into account.

In Fig. 5, we show how implementation of policies is related to SWB indicators and related indicators for "the city of advanced environment."

Fig. 5 Relation between environmental policies and SWB.

Happiness Feeling Indicators

Beauty of the view of the city | **Improve**

Related Indicators

View of the city | Improve

Green | Increase

Proportion of citizens feeling beauty in the view of the city (%)

Proportion of buildings not suited to regulations (%)

Proportion of the green (%)

Area ratio of parks to the whole city (%)

Park area per population (%)

(All indicators are affected)

Policies

【Project for making parks】
Area of parks and playgrounds (ha)

【Project for arranging narrow lands as green spots】
A number of places

【Project to plant roses along Tram】
A number of roses
A number of citizens participating in the project

【Projects for citizens' taking care of flowers on flower beds in the streets】
A number of flower beds

Individual environmental activities (green curtains etc.)

【Regulations on the view of the city】
Proportion of corrected matters (%)

【Policy to arrange the local environment】
Proportion of prevented conflicts on construction
Proportion of adopted desires of enterprises

【Policies related to regulations on the green】
A number of preserved trees
Length of planted hedges (m)
Increased green (㎡)
A number of applicants for monitors promoting flowers and green
A number of applicants for the prize for the green

【Environmental promotion】
A number of applicants for concours on posters and slogans
A number of registered environmental supporters
A number of participates in environmental workshops

Local environmental activities (promotion and preservation of the green)

【Regulations on condominiums】
Proportion of corrected matters (%)

Environmental activities of enterprises (concern about the green and preservation of the view)

（ⅰ）Outline
   As we can see in Fig. 5, we pick up the SWB indicator of beauty of the view of the city, and arrange its related indicators and policies related to them.

（ⅱ）Consideration
   We examine two viewpoints of the view of the city and green which affect beauty of the view of the city very much.

  （a）View of the city
       Whether or not citizens feel beauty in view of the city depends on their subjective feeling. It is necessary to ask each citizen if the view of the city is beautiful. Proportion (%) of citizens feeling that the view of the city is beautiful is one subjective indicator for measuring beauty of the view of the city.
       Also, we can objectively judge beauty of the view of the city from whether or not regulations controlling the view of the city are formed and obeyed. When builders make houses and buildings, it is important to control the view of the city by regulations so that it matches a row of houses. In this point, administration plays an important role.
       In fact, regulations were enacted for conserving the beautiful view of the city. Various trials are in progress for keeping the view of the city beautiful. In regulations on building up and managing condominiums, the beautiful view of the city is considered.
       If such regulations are obeyed, the view of the city expects to improve little by little. Then we can raise what proportion of buildings is suited to regulations as objective indicators on the view of the city. Also, what proportion of buildings not suited to regulations are corrected is an objective indicator on the view of the city.

  （b）Greenery
       Greenery in the local area brings citizens relief, and also improves the view of the city. In the urban area such as Arakawa City, it is necessary to increase the greenery on the public lands such as parks and streets. It would be also useful to increase the greenery everywhere in the city by activities and mutual cooperation of citizens. As indicators of the greenery, we can raise proportion of the greenery, area ratio of parks to the whole city, park area per population. To improve these indicators, extension of parks and arranging narrow lands as green spots would be effective. Also, it is important for citizens themselves to take care of flowers on flower beds in the street.

   We showed how implementation of policies is related to SWB indicators and related indicators above. The implications from the above examination are as follows:

・ Above we showed an example of flow so that implementation of policies contributes to improvement of SWB indicators and related indicators. In the future, we need to investigate

21

relation between individual indicators and policies in detail.

- ・ Improvement of SWB indicators and related indicators would be possible only when various policies are simultaneously implemented. Then it is important to examine and implement policies in collaboration with all sections of the city office.
- ・ It is important for individuals and various organizations in the local community to cooperate and collaborate for improvement of happiness. Then GAH movement would play an important role. For this purpose, we need to link GAH movement and policies more strongly in the future.

We tentatively examine relation between GAH indicators and policies or GAH movement at present. When we conduct questionnaires for citizens and analyze and estimate them in the future, we need to reexamine how to make use of GAH indicators.

Ⅵ. Movement for GAH improvement

As mentioned in Ⅰ, there are two sides of GAH: indexing and movement. In this chapter, we mention GAH movement. Administration assists citizens in becoming happy. Not only Arakawa citizens but also all people and organizations related to the city need to consider happiness of themselves, persons close to them, and local community and act together for pursuit of happiness.

If citizens and all people and organizations related to the city are involved in the movement to make the city better, it would be possible to construct a warm local community where everyone can feel happy. For this purpose, it is important to promote movement to improve GAH (GAH movement) in the future.

Below we introduce examples of movement to improve GAH.

① Activities of neighborhood associations, residents' associations, and welfare commissioners, commissioned child welfare volunteers

Various local activities are performed in the local community by citizens and organizations mainly on the initiative of neighborhood associations and residents' associations. For example, citizens and organizations participate in watching the aged persons, child rearing, and protection against disaster in collaboration with the city office. Neighborhood associations, residents' associations welfare commissioners, commissioned child welfare volunteers, probation officers, sports associations, youth development associations, volunteer fire brigades, non-profit-organizations, enterprises, and so on participate in such activities.

② Activities of eating places within the city to serve healthy food and drink

Some eating places within the city provides special menus so that citizens can have a healthy meal. Eating places, Kagawa Nutrition University, and the city office collaborate mutually and try to promote health in the all citizens. Each eating place provides delicious and healthy menus characteristic of each eating place.

③ Activities of aged volunteers in fall prevention exercise

The city office developed the original fall prevention exercise for aged persons in collaboration with citizens and Faculty of Health Sciences of Tokyo Metropolitan University. This exercise was made for aged persons to maintain muscles, sense of balance, and walking ability. Aged volunteer leaders spread this exercise: They arrange venues, demonstrate exercise, and speak to participants, which contributes to vitalizing the local community.

④ Activities of aged volunteers in watching children

For ensuring safety and relief of children, the employment service center for older people dispatches staffs who attend to children going home from elementary schools or after-school child day-care centers, and watch gates and surroundings of nursery schools. In addition to this activity,

neighborhood associations, residents' associations, non-profit-organizations, mother associations, youth development associations, and people concerned with schools participate in watching and so on voluntarily in each local area.

⑤ Activities of universities, the local community, and administration to relieve isolation in child rearing

A volunteer circle rents a private house and provides childcare services. Visitors feel relieved as if they were at home due to support of devoted volunteers. The house is crowded with many parents and children.

⑥ Activities of citizens to relieve isolation in child rearing

Young parents engaged in child rearing have the following opinions: "There are no places where parents feel relieved with children." "Parents cannot feel at ease at restaurants with a baby carriage." Managing commissioned child welfare volunteers provided a resting place in the district of Shioiri in support of management associations of condominiums, Arakawa Council of Social Welfare, and the city office. There parents engaged in child rearing interact mutually and exchange information, drinking coffee or tea. There is a playroom with toys. Therapies, music therapies, and English plays are also held.

⑦ Activities to make new sightseeing spots

The 13,000 roses of 140 kinds are planted along Tram Arakawa Line which is the symbol of the city. Colorful roses bloom in spring and autumn. Many people outside the city visit Arakawa City to see roses. A volunteer group in Arakawa City takes care of roses.

⑧ Activities of citizens to rescue others in case of disaster

Disaster-preventive organizations of citizens are formed in neighborhood associations and residents' associations of Arakawa City. In some organizations, rescue system of carrying others on the back and rescuing them in case of disaster is established. System of evacuating vulnerable people safely in case of emergency is established in each area.

⑨ For bringing up people conducting local activities

For making the warm local community where ties with others are regarded as important, it is essential to bring up people conducting local activities. Arakawa Community College opened in 2010 in order that people conducting local activities can acquire necessary knowledge and skill. It is expected that movement to make the city better spreads by efforts of people of various careers.

As mentioned above, various local activities are performed in Arakawa City at present. It is expected that such local activities will increase in the future, which would lead to realization of a warm local community.

Ⅶ. Tasks to be examined in the future

Finally we show tasks to be examined in the future.

1. Tasks for indicators and how to examine them

（1） Examination and implementation of questionnaires on GAH

We need to examine survey subjects, sampling methods, and questions for the future questionnaire on GAH. Answers of respondents expect to change corresponding to a little modification of questions. Then questions must be examined sufficiently. In many previous works, a number of answer choices was four, five, seven, and so on. We need to choose the number of answer choices optimal for grasping citizens' SWB. It would be effective to investigate change in happiness of the same persons over the years. It is necessary to examine which methods from various methods are adopted. Citizens of less than twenty years old are not included as subjects of the present survey. It must be examined whether these citizens are included in the subjects of the future survey.

（2） Examination of GAH indicators

In this report, we showed tentative GAH indicators for each of six city images. In the future, it needs to be examined whether or not tentative GAH indicators reflect citizens' SWB properly. For this purpose, we need to make use of analytical results of questionnaires, descriptions by free writing, and interviews with citizens. When we detect problems in tentative GAH indicators or questions as a result, we need to modify tentative GAH indicators or questions suitably and reflect modification in the future questionnaire. Also, citizens' happiness can possibly change with time, and be affected by social situations. From such viewpoints, we need to examine and modify GAH indicators suitably.

（3） Examination of integrating GAH indicators

Hereafter we need to examine whether tentative GAH indicators are presented separately or integrated into the numerical value. In the latter case, it is desirable to integrate individual indicators by using the weight which reflects citizens' SWB properly. For this purpose, we need to ask citizens' weighting for individual indicators for six city images in the future questionnaire. When GAH indicators are integrated, it also needs to be examined whether GAH indicators are integrated into one numerical value for each city image or all GAH indicators are integrated into one numerical value.

When indicators are integrated, calculated numerical values represent citizens' SWB roughly. Then it would become difficult to grasp SWB in detail. Even if the calculated numerical value rises, citizens' happiness does not always improve. A minority of unhappy citizens may live in Arakawa City. It is important not to overlook such a possibility and to decrease the number of unhappy citizens.

It is desirable to grasp citizens' happiness roughly by integrating indicators and to detect and

solve problems in detail by analyzing SWB indicators and related indicators.

2. Relation between indicators and policies or movement

（1） Relation between indicators and policies

We need to analyze results of the questionnaire, and to form and improve policies. We also need to investigate various methods to analyze indicators and to adopt better methods.

（2） Relation between indicators and movement

First, GAH movement makes Arakawa city workers' motivation increase. It is important for city workers to be proud that they positively participate in a GAH movement in which citizens become happy.

Second, it is important for citizens to consider happiness of themselves, persons close to them, and the local community through GAH movement. To consider others and help each other and display citizens' own abilities would lead to improvement of citizens' happiness and realization of a warm local community.

In Arakawa City, there are already movements which would lead to improving GAH. City workers always work considering what they can do to improve happiness of citizens, so that such movements succeed hereafter. We transmit plenty of information so that citizens, all people and organizations related to Arakawa City can understand significance of GAH.

Summary

By measuring happiness of citizens, we want to provide administrative services, and decrease citizens' unhappiness as much as possible and construct a local community where every citizen can feel happy. That would lead to citizens-centered administration. We regard features where citizens help each other as important for the future. We want to decrease unhappiness and increase happiness and construct a local community where every citizen can feel happy.