
What is a sustainable society in Japan?
- An examination of Japan's sustainable future in 2050
NIES JAPAN

To all whom picked up this brochure,

We live wishing our surrounding society and lives were closer to our ideals and desires. These ideals include many values such as financial wellbeing, comfort, having enough mental and emotional space, peace of mind, and safety. Some values come with a **tradeoff**. In other words, if you try to fulfil one of these objectives, then you must give up on another. For example, if you want to live in a convenient location, you may need to give up living in a location surrounded by nature. In other cases, some values have a **synergistic** nature. By synergistic, we mean that working for one value will lead to realizing other values. For example, if you chose to live in an environment surrounded by nature, you may also find there was a hidden benefit such as the groceries costing less.

Here at the National Institute for Environmental Studies, we study technical and policy means to protect the environment. However, we realize we cannot always be only thinking about the environment. No matter how important the environment is, there are times when we face more urgent and serious matters in our lives and need to put environmental concerns aside. Therefore, rather than trying to create a society where people focus solely on environmental conservation, we should aim at creating a society where pursuing financial wellbeing, social tranquility, and a rich environment is not a tradeoff to environmental protection, but rather a matter of synergy. The authors of this brochure consider that creating such a society that can maintain the relationship between these values synergistically is a **sustainable society**.

The motivation behind the study that became the foundation of this report was to see how we could move from the current state we are in to a sustainable society. For this, we came up with a vision of what kind of society we would like to live in, set up measurable goals in achieving this vision, and illustrated what would our lives look like when we achieve this vision. There is not just one ideal vision we must be pursuing. This vision would more likely be expressed in a spectrum. Here, we are envisioning the **year 2050**. Within the spectrum of the possible futures, we chose to illustrate two contrasting societies. Though they may look as though they are opposing visions, it is not meant to be expressed as one being better than the other, but rather to express even within an ideal society there are diverse possibilities.

Supposed readers: We would like to see the following people read this brochure:

- People who are in position to pass down the current society to the next generation, such as those in current public administration and businesses.
- Young people who will be carrying the weight of our future society. Students who are interested in learning about sustainable societies.
- People who are interested in studies regarding the direction Japan should be heading.

What would Japan look like in 2050 if nothing changed?

There are many unknowns in any given future. There are things we can change with our actions and then there are other things that are difficult to avoid, no matter how hard we try. There are at least some areas that are predictable assuming that we stay the current course.

Population As of 2015, Japan has a population of approximately 127 million. By 2050, it is projected to reduce to just 97 million. Japan is expected to become a super-aged society with approximately 40% of this total population be older than age 65. (Figure 1)

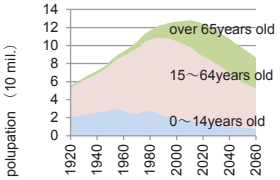
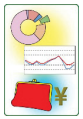


Figure 1. Population by Age Group
(Source: Population Statistics and Population Projection, National Institute of Population and Social Security Research)

Economic Growth Assuming there will not be a major change in the wealth and wellbeing per capita, when there is a decrease in the population, it will likely result in negative economic growth. Since most of the people would already have what they need, it is unlikely to find new market growth.



Finance Japan's financial deficit is only getting worse. As we enter a super-aged society it is not likely to improve the condition anytime soon, even if we raised the tax rate such as of the value added tax. (Figure 2)

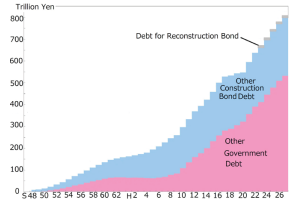


Figure 2. Total Accumilated Government Debt of Japan (Source: Ministry of Finance, Japan website)

Regional Disparity As depopulation continues, there will be more and more hamlets at their limits (genkaishuraku) where more than half of the local population is over the age of 65. People will flock to urban areas and the disparity between the urban and rural areas will become greater. The upkeep of infrastructures such as roads and waterworks may go untended.

Medical and Welfare Medical and welfare needs will only increase as the population ages even further, but with economic austerity what the government can do to assist will be inevitably limited. While there may be more private businesses in this area, there will be a widening gap between those who can receive such services and those who cannot.

Environment and Resources Though the emission of greenhouse gasses will be curbed, the atmospheric concentration of such gasses will be higher by this time, and the effect of global warming will wreak havoc. It is expected that such conditions will contribute to and accelerate the extinction of certain lifeforms.

We can see from this overview that if we do not change anything, we cannot expect to have much of a bright future. At the same time, it is not realistic to imagine we could depict a bright future by ignoring all the current issues that are already underway. The situation calls for making small adjustments little by little, so we can steer our society towards an achievable and sustainable future.

What Society do we Hope for?　Aiming for a Sustainable Japan

What kind of society do you desire? Each person would have somewhat differing views on what they desire. Here, we looked at the various studies on the subject to find out what they list as their goals, and by following the example of the sustainability index for Japan, we separated these goals into four major categories in the areas of the environment, economy, society, and the human wellbeing. Basically, we are looking at the human health and living situation, the quality of one's life and happiness, and his or her goal towards further development on one end. In parallel, we are looking at the goals of sustainability relating to the environment, economy, and society, or also known as the triple bottom-line. We propose on having a society where different types of wellbeing can be sustained.

We will then look at further details of these goals as seen in Figure 3. Researchers have debated over what is most suitable for Japan's future after looking at the various listed goals. As for the human wellbeing, we chose to look at the quality of three aspects of life, as in one's physical life, one's daily life, and one's entire life. To have a rich life, we believe it is important for us all to have a tranquil life with some extra free time on hand. But we also think it is just as important to be healthy, to be able to enjoy the environment which has clean water and air, to have opportunities to develop one's potential, and to be able to create and leave behind good memories. For societal goals, we looked at having close-knit local communities, history, and culture on one end, and on the other, a global perspective on human rights and fairness, and a responsible governance system where these two aspects are harmonized. For the economic goals, not only have we looked at the increase in Gross Domestic Product (GDP), but also fair distribution within a generation through appropriate employment, and fairness between generations through balanced finances and infrastructures. As to the environment, beyond what we already mentioned regarding its relation to human health, we raised goals in the areas of resource circulation, energy savings and use of renewable energy, and conservation of ecosystems and protection of biodiversity. Overall, the list is similar to the eleven dimensions of well-being in the Better Life Index (BLI) by Organization for Economic Co-operation and Development (OECD).　They listed education, work-life balance, health, life satisfaction, safety, civic engagement, community, jobs, housing, income, and the environment. The difference with our list is that we avoided asking directly about life satisfaction and focused more on the environment.

Based on this, as seen in Figure 4, we imagined two possible future scenarios and directions we could be heading towards. One focuses its attention on GDP growth. The other focuses on balance. When we look at the details, the first scenario has more emphasis on longer life, global rules, and resource circulation. The second scenario focuses on health, memories, history, culture, appropriate employment and the ecosystem.

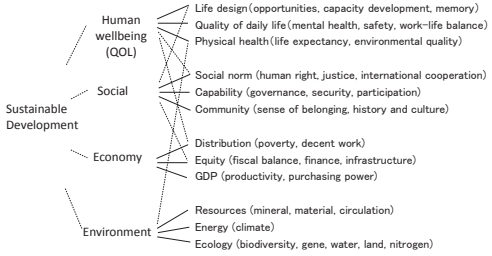


Figure 3. Four Major Goals with Twelve Detailed Goals

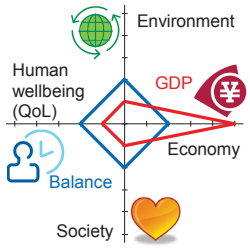


Figure 4. Direction and Goals of the Two Possible Futures

Aiming for Japan's Sustainable Future: Two Possible Visions of Society

How are we able to measure the well-being of Japan? GDP is an index used as an economic barometer of a country, but many have long criticized that it is only able to measure wealth or values based on a narrow definition. Furthermore, with the widening disparity between the rich and poor, plenty of people within that nation remain struggling even while the GDP of a nation increases. Is there a better way to measure the wealth of a society?

People create goods and services using economic capital (money) and human capital (labor), etc. Created goods and services are not only consumed for survival, but to live a more dignified, richer, and cultured life. Therefore, we can say the country is in a good condition when our status achieved is in a desired situation and shown to be supported by healthy capitals. (Figure 5)

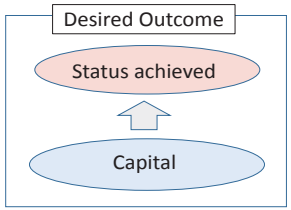


Figure 5. The Two Components in Achieving Goals

We often focus solely on the status of our achievements (represented in pink) and call a society wealthy when greater amounts or higher quality of goods are produced. GDP is such a measurement.

However, when we see too much is accomplished or achieved compared to available capitals (represented in blue), overused capitals could lead to depletion and degeneration. There are certain capitals, such as fossil fuel and forest resources, that could deplete if not used wisely. When capital is depleted, it makes it impossible to have desirable outcomes and accomplishments in the future. Beautiful natural sceneries and connecting with people are surely desired for better lives, but people may overlook such needs at the onset and we may miss out on achieving such a state. Therefore, we think the following two points will be necessary to consider in measuring Japan's healthy and wealthy status.

1. What is truly important within the various values that can be categorized into capitals and status of achievements? How do we measure what is hard to measure, such as, natural sceneries or peace of mind and safety?
2. How should we measure the arrows between the capitals and achievements? What should we be paying attention to when one affects the other?

As a response to the first question, we figured best to look at the environment, economy, society, and the human as the four elements that constitute a society pertaining to capital and achievement, and decided to figure out what needs to be measured within each category. As a response to the second question, we looked at the relation between the capitals and achievements and selected indicators that emphasize "efficient creation of values" (bottom up) and "equitability particularly in terms of distributional equity" (top-down) to show how Japan is functioning as a whole.

Each vision of the desired society will have its own key areas of focus to make that society function well. Different points need to be noted. In the next pages, we will look at two possible sustainable societies in Japan. We then selected appropriate indicators to measure such a society. Though these visions draw a contrast to one another, we are not saying one is better than the other.

A Vision of a Sustainable Society (No.1)

A Society as an Abundant Fountain

This society will use all of Japan's capitals (i.e. environmental capital, economic capital, social capital, and human capital) efficiently to achieve high economic growth. With high productivity, the economic flow that people can tap into will increase. This means the increase in the economic flow is creating its economic richness, but it will also help the society achieve its other goals relating to the environment, society, and human. Of course, part of the economic gain will be poured back into capitals to avoid depletion. As a result, we will be able to reproduce continually and thus, we can say it is a sustainable society.

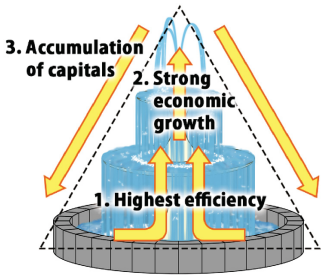


Figure 6. A Society as an Abundant Fountain

Here are the main features of a society akin to a fountain where water gushes upward: 1) Available capitals are used efficiently; 2) It is able to achieve strong economic growth without fail; and 3) The strong economic growth will promote and propel achievements in other areas than the economy itself, and will resupply and conserve capitals effectively. (Figure 6)

Therefore, if we are developing into such a society, we should be mindful of the following as we measure our progress with indicators.

1. **Available capital is used efficiently: Efficiency should be the main focus of measurement to grasp relationship between the capitals and achievements.**
2. **It is able to achieve high economic growth without fail: We must secure high GDP growth.**
3. **The achieved high economic growth will effectively restock capitals: We will measure the various capitals used per GDP and make policy decisions to improve the capitals.**

To measure 1 to 3, we put together a collection of indicators that can be used in Table 1. (We gave priority to chronological data available in Japan, but there are certain data we will need to start collecting as well.) If the indicators show we are at a decent level, we can say Japan is steadily moving towards a society akin to an abundant fountain.

Table1. Indicators we should focus on if we are aiming to be a society as an "abundant fountain." (The items in red are particularly important)

Four Elements that Constitute a Society	Environment	Economy	Society	Human
Status of Achievement	• Share of renewable energy (excluding hydropower) within total energy use • Achievement rate of reaching environmental standards	• Real GDP	• Ratio of women in management positions in the private sector • Crime rate(↓)	• Leisure time available per person • Healthy life expectancy
Efficiency / Equitability	• Greenhouse gas emission / GDP • Gap in accessibility to nature by region(↓)	• Ratio of government debt to GDP (↓) • Unemployment rate (↓)	• Number of non-financial reports published by corporations • Voter turnout for the House of Representatives	• Cost of education per capita until they reach adulthood • The relative poverty rate (↓)
Capital	• Natural capital • Marine Trophic Index	• Total private assets • Produced capital	• Care facilities • The number of people who have the mindset to make a social contribution	• Population

Note: A downward arrow (↓) in this table means the lower the number, the closer we are heading towards the desired outcome.

A Vision of a Sustainable Society (No.2)

A Society as a Rainbow-Colored Shower

In this society, instead of aiming to maintain a high economic growth to restock capitals, people will focus on mutual support through mediums such as social networks. A sound accumulation of various capitals will be equitably distributed across the entire social structure (not only for people but including for the care of the environment, plants, and animals). As the distributed capitals are effectively used, it will make it possible to achieve all the various goals. We deemed this to be a sustainable society as it will focus on achieving its goals by conserving and maintaining a healthy capitals.

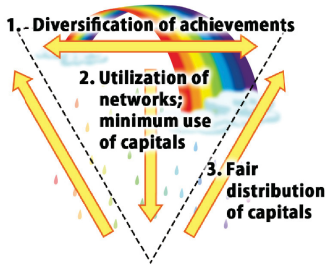


Figure 7. A Society as a Rainbow-Colored Shower

To arrive at a society where the diverse conditions, much like the colors of a rainbow, are equally appreciated while the foundation is being reinforced, we should focus on the following: 1) The diversity in achievement will be fully respected; 2) The diverse capitals will be maintained and be given priority over financial and economic goals; and 3) The healthy, existing capitals will be equitably distributed across all the elements of society and be utilized in diverse ways. (Figure 7)

Therefore, if we are developing into such a society, we should be mindful of the following as we measure our progress with indicators.

1. **There is diversity in achievements: An emphasis on maintaining wellbeing of the environmental, social and human elements.**
2. **The diverse capitals will be maintained and be given priority over economic goals: Do not let any capital deplete.**
3. **The healthy, existing capitals will be equitably distributed across all the four elements of society and be utilized in diverse ways: the equitability indicators will have more weight over efficiency.**

To measure 1 to 3, we put together a collection of indicators that can be used in Table 2. If the indicators show we are at a decent level, we can say Japan is steadily moving towards a society akin to a rainbow-colored shower.

Table 2. Indicators we should focus on if we are aiming to be a society as a "rainbow-colored shower." (The items in red are particularly important)

Four Elements that Constitute a Society	Environment	Economy	Society	Human
Status of Achievement	• Share of renewable energy (excluding hydropower) within total energy use • Achievement rate of reaching environmental standards	• Real GDP	• Ratio of women in management positions in the private sector • Crime rate(↓)	• Leisure time available per person • Healthy life expectancy
Efficiency / Equitability	• Greenhouse gas emission / GDP • Gap in accessibility to nature by region(↓)	• Ratio of government debt to GDP (↓) • Unemployment rate (↓)	• Number of non-financial reports published by corporations • Voter turnout for the House of Representatives	• Cost of education per capita until they reach adulthood • The relative poverty rate (↓)
Capital	• Natural capital • Marine Trophic Index	• Total private assets • Produced capital	• Care facilities • The number of people who have the mindset to make a social contribution	• Population

Note: A downward arrow (↓) in this table means the lower the number, the closer we are heading towards the desired outcome.

Detailed Description of the Two Sustainable Societies

What would the societies as an “Abundant fountain” or a “Rainbow-colored shower” look like in 2050? We illustrated the society structured like an “Abundant Fountain” as a society that puts weight on efficiency and it achieves economic growth through competition, and where life is filled with items or services that make matters easier. For the society structured like a “Rainbow-colored shower,” we illustrated a society where diversity is generously accepted, a life where people can help each other at a more relaxed pace to be self-sufficient. (Table 3)

Table 3. Detailed Description of the Two Sustainable Societies

Society as an Abundant Fountain A Society Focused on Economic Growth & Efficiency		Society as a Rainbow-Colored Shower A Society that Values Independence and Relaxed Pace, Accommodating Diversity
<<Expansion & Growth as Objective>> Primary sector will be comprised of large scale comprehensive industries, A.K.A. “Senary sector” industries. (This term means the primary sector which involves agricultural or fishery related production will also handle secondary sector businesses, such as manufacturing and processing. It will then also handle tertiary sector businesses such as distribution and sales.) The typical secondary sector industry is comprised of automobile industries and infrastructure industries. Tertiary sector industry is comprised of finances, tourism, advanced medicine, and content business to name a few. All these sectors will focus on large scale mass production and continually work on expanding its market (targeting the wealthy in and outside of the country). National wealth is increased through obtaining foreign currency and applying the wealth to restocking current capital. This society will maintain its sustainability through the accumulation of capital, and with it, it will attempt to resolve issues in each of the social, economic, environmental and human wellbeing aspects of itself.	Industry	<<Circulation and Redistribution as Objective>> Primary industry will focus on livelihood at the local level (Senary sector Industry + Local Consumption). Secondary industry (Infra-System etc.) will keep only its core technology and have manufacturing done overseas, but will develop its maintenance capabilities for inside and outside Japan. It will also develop its 3R (reduce, reuse, recycle) technology. Tertiary Sector will focus on the everyday needs (medical, care, distribution, tourism, social business, etc.) of those in and outside of the country. This society will focus on improving its living standard by utilizing, circulating and redistributing the currently available capital. (The targeted market will be at the global scale, from the poorest to the richest.)
<<Economic Growth>> The sources of continued growth will be in selling highly value added, environmentally low impact products and services, and holding on to various system’s core technologies.	Source of Activities	<<Mutual Support>> Products and services that focus on safety and peace of mind with low environmental impact, as well as mutually supportive activities which are beyond economic value is what sustains the standard of living.
<<Acceleration of Blackboxing>> The technology blackboxed even further, but usability will become better though improvement of the user interface.	Technology	<<Increase in Open Technology>> There will be an acceleration in the availability of open technology and the products that are easy for anyone to use and maintain will assist our daily lives.
<<Import Oriented>> To improve the efficiency of economic activities and to maintain labor force, to support internal demand, almost every food except for the value added agricultural, forestry and fishery products, will be imported from cheaper nations.	Food	<<Use Made in Japan Products as Much as Possible>> Basic foods will be supplied internally as much as possible, but where there is a lack, import certified products from overseas.
<<Automation and Outsourcing>> The lack of labor force will be supplemented by outsourcing and automation.	Labor	<<Employing People of Various Backgrounds>> Labor will be secured not only by promoting more women and the elderly to join the workforce but will also be supplemented though personal international relations.
<<Elitism and Class Oriented>> Raising human resources though a top down method with a leaning towards technocrats and elites. Though it is a pyramid shaped class society, the whole pyramid will be elevated higher.	Human Resources	<<Cooperation and Sharing>> Cooperation and sharing, including workshare, among diverse peoples will be the norm, regardless of gender or nationality.
<<Self Sufficiency and Limited Regulations>> Risks in life primarily handled by self and public assistance will be kept to the minimal. Smaller governments with limited regulation towards the private sector are desired.	Social Security	<<Mutual Assistance and Well Structured Welfare>> Risk in life will be handled through mutual support, but where mutual support cannot cover, there will be public assistance. Larger governments are desired to provide extensive welfare.
<<Unhealthy Life Expectancy to be Extended Further>> It is expected that through extended life expectancy, poor health for the elderly will be extended as well.	Life Expectancy	<<Unhealthy Life Expectancy to be Reduced>> Though long life expectancy will continue to be extended, there will be more places where the elderly can remain active and thus, the duration in which poor health will dominate will be reduced.
<<City-centric>> People will move to cities that focus on efficiency and through it super-efficient compact cities will develop.	Population Distribution	<<Dispersion to Various Areas>> People will spread across the land. Compact cities will develop gradually to the extent traffic and distribution will not suffer in its efficiency.
<<Aggressive, Heavy Handed Response Oriented>> When the infrastructure or the system becomes vulnerable, there will be an aggressive response with the use of technology, determined to stamp out any weakness.	Disaster Response	<<Soft Response Oriented>> There will be a soft response to handle weaknesses by limiting vulnerability as much as possible by using people and materials to warding off hazards.
<<Mass Production, Mass Consumption>> Production will be efficient and use the economy of scale. Though products will be mass produced and be mass consumed, technological solutions to the waste problem will be sought.	Consumption	<<Sufficient Production, Sufficient Consumption>> Production will reflect the national and international demand without over producing. The waste problem will be dealt though limiting production and consumption to suffice the demand, and by further developing the 3R activities.
<<Strict Conservation>> Unprofitable man-made forests will be abandoned and be returned back to natural forests. After the forests return to their natural state, there will be regulations to enforce conservation.	Nature	<<Conservation and Wise Usage>> People will be active in the conservation of their natural surroundings. Natural biodiversity of their native mountains, land, and sea will be conserved and the environment will be used wisely.
<<Openness to Nuclear Energy, Focus on System Stabilization>> It will allow Nuclear Power plants to reopen and allow for new plants to be built. By including renewable energy, system stabilization technology (including energy storage) will develop.	Energy	<<Systematic Shutdown of Nuclear Energy, Decentralized Renewable Energy>> Though it may allow for restarting nuclear power plants, it will focus on shutting the plants down systematically and transition into locally produced and locally consumed renewable energy.

Quantifying the Two Sustainable Societies

In a society that is like an abundant fountain, economic growth is desired and people will move to large cities seeking for efficiency. The average number of people in a household will continue to reduce. There will be a well-established medical system and while people will live longer, there will be a lower birthrate. As a contrast to this, in a society that is like a rainbow-colored shower, diversity is respected. People may move to midsize cities but there will be no major migration. While people will live longer, their period in which they are in poor health will be reduced. Birthrate will slightly improve. Figure 8 shows this situation. Specifically, we are showing population based on age and distribution of people across the Kanto Area by the size of cities. Following that, we quantified and put together a model index for Japan reflecting how the environment, economy, society, and human wellbeing will look like in numbers in 2050. Figure 9 is based on the indexes and categories we discussed in previous pages.

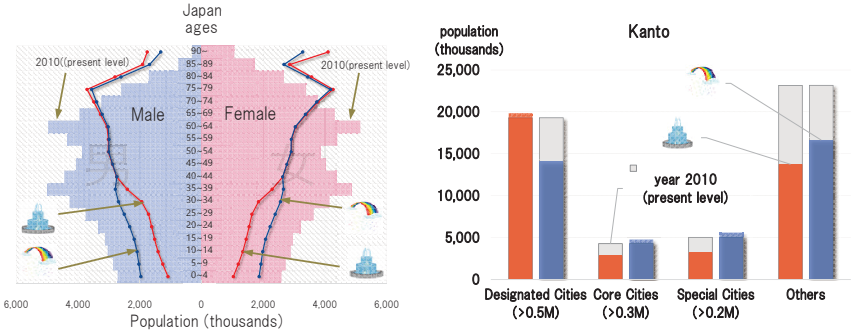


Figure 8. Population based on age and distribution of people across the Kanto Area by city size

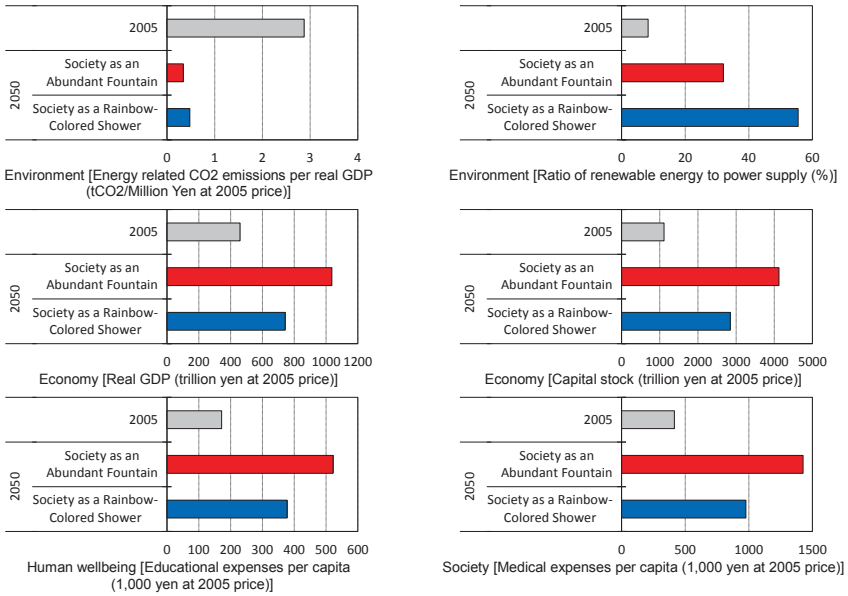
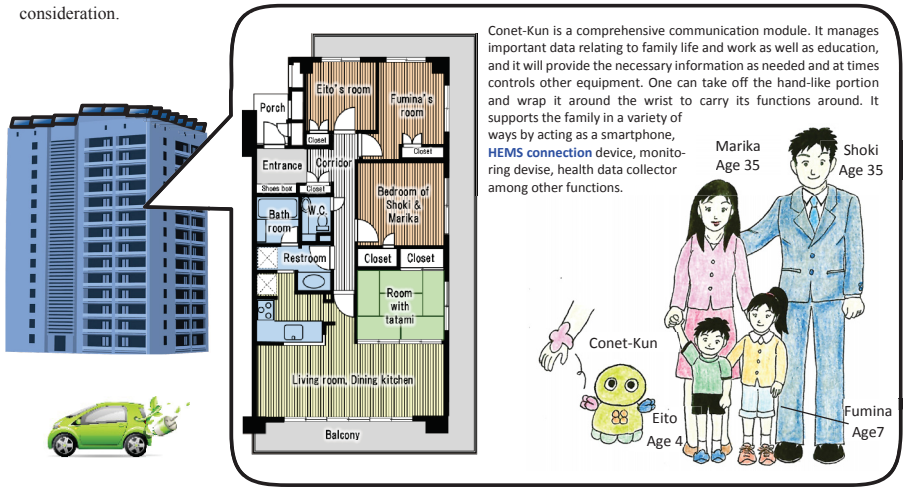


Figure 9. Numerical examples of two possible societies in 2050

The Life of a Family in the Society as an Abundant Fountain in Year 2050

Here, we are introducing a young family who lives in the year 2050. They are tech savvy and use the latest technology to enjoy and enhance their lives. Blue colored sentences are the technologies and services with environmental consideration.



◆ Profile of the Shinkawa Family

✧ Family Structure

Shoki and Marika are both working in general affairs in a company and their annual household income is about 11 million yen. Shoki is responsible for sales in Singapore, but he works from Japan using ICT (Information and Communication Technology). He works in the office three days a week and works from home twice a week. He works an average of eleven hours a day. Marika works from home to balance work and raising children. She has a shorter, six to seven hour average workday. Fumina is in first grade and walks to a public elementary school just 10 minutes away. Eito goes to the public nursery school that is part of the condominium. Sometimes he uses ICT from their condo to join his class for games and studies.

✧ Housing

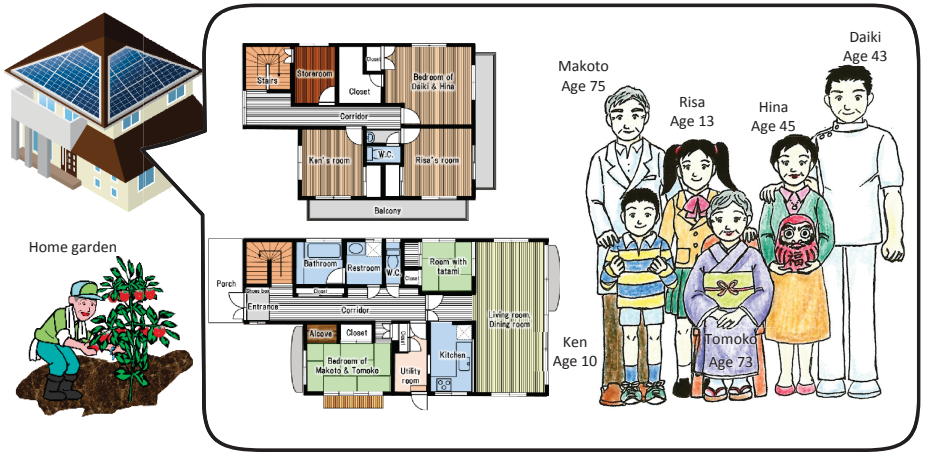
The family bought a four bedroom condominium with living, dining and kitchen area in the suburb of Tokyo five years ago. They have 30 years left on their loan. The condominium structure is equipped with **HEMS（Home Energy Management System）. The Roof, walls, windows are all made of solar panels and the house is complete with energy storage**. Typically, it is used to sell excess energy or be used to charge their **electric vehicle**. In the case of disasters, the energy storage can be used as an emergency back up as well.

✧ Connecting with People

Shinkawa family is a nuclear family, and both Shoki and Marika live away from their parents. They use the web phones equipped with care and support functions over the internet to support their aged parents. In this way, they connect and share information with each other on a regular basis. For social life, beyond the communities their family naturally affiliates with, such as with neighbors and co-workers, or relationships extended through their children, they also actively join global community activities over the web and make new connections and relationships.

The Family in the Society as a Rainbow-Colored Shower in Year 2050

Here, we are introducing a three-generation family who lives in the year 2050. They value friendship and bonding with the local communities.



◆ Profile of the Kawabata Family

✧ Family Structure

Kawabata family is a three generational family. Makoto is 75 years of age. Tomoko is 73. Daiki is 43 and Hina is 45. Risa is 13 and Ken is 10 years old. Makoto worked as a physician until age 70 but now works as an initial consultant at the hospital. Tomoko has been a full time housewife. Daiki is a nurse and Hina works at a shop specialized in Daruma figures. The household income is 14 million yen. As they value time with family and the local communities, they are free to choose how they would work. Risa is in the first year of a public junior high school and Ken is in his fourth grade of the public elementary school.

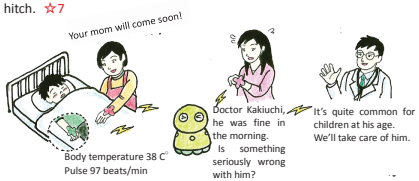
✧ Housing

They have been living in a detached house for a long time by now. The house is just 15 minutes away by foot from Takasaki City's train station. The house was remodeled two years ago to accommodate the changing needs of growing children. They own three **small electric vehicles**. Their house is equipped with **HEMS**, complete with **solar electric generation system** and **energy storage**. They own a large enough property near their home to maintain a home garden and they harvest plenty of seasonal vegetables and share with others.

✧ Connecting with people

Kawabata family likes to save time for their hobbies. They fully utilize automatic home appliances and share in household chores and responsibility. It is a society that finds cooperation in the local community to be the normal way to improve each other's lives. It is commonplace to see the generation that finished raising their own children will give advice to a young couple with a nuclear family that struggles with raising children or for young couples to go and visit and check on older persons living on their own. In such a way, the local community connects with one another across generations.

◆ A Day in the Life of the Shinkawa Family: Living in a Society as an Abundant Fountain in the Year 2050

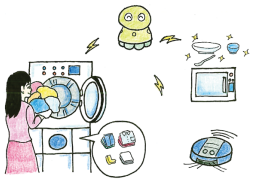
	One Day in the Year 2050
5:30	Marika wakes up. Prepares for the day and for breakfast.☆1
6:00	Rest of the family wakes up. Both husband and wife struggle with preparing and feeding the two children.
7:00	Shoki goes to work. Fumina goes to school. Marika sets the household helper robots and takes Eito to the nursery school in the condominium.
8:00	☆2, ☆3
9:00	Marika starts her work day by telecommuting from home. Meetings with customers are also handled over the web.☆4
10:00	
11:00	Fumina uses an electronic blackboard and a tablet connected to Conet-Kun for her studies.☆5
12:00	Shoki is out with his customer for lunch. Conet-Kun will reserve a restaurant and order meals based on nutritional information and religious restrictions.☆1
13:00	Shoki uses Conet-Kun to review specs of new products using its holograph.☆4
14:00	Eito gets a fever and a rash. Since there was no previous experience with these combinations, Conet-Kun dispatches emergency calls to appropriate places. Marika comes to get him and takes him to the hospital in their car.☆6 With Conet-Kun handling the information and dispatching to the right places, getting a diagnosis and medication is done without a hitch. ☆7
15:00	 Marika tells Shoki through Conet-Kun Eito's condition and requests him to come home early. She then resumes work while having Conet-Kun monitor Eito.☆7 Fumina is done with school. She returns home and goes out to the tennis club.
16:00	Marika watches over Eito's condition and how Fumina is doing through Conet-Kun and starts to prepare for dinner. Normally, she would use ready-made meals, but she chose to make her specialty, beef stew.☆1  She gives Eito some porridge, changes his clothes and puts him to sleep early.
17:00	Fumina and Shoki return home. The father helps the daughter with her homework before dinner. They then have dinner.
18:00	Marika operates the dishwasher and Conet-Kun cleans the tub and fills it with heated water.☆8
19:00	The mother and daughter take a bath. Shoki puts away the folded laundry.☆3
20:00	Marika puts Humina to bed. She then prepares for the next morning.☆1
21:00	Shoki is back to work telecommuting his overtime.☆4
22:00	Husband and wife spend some time together in their bedroom. They share their concerns of the day and gather information off of Conet-Kun as well.
23:00	Conet-Kun reminds with an alarm that the couple has not had enough sleep lately. They make sure the house is secured through Conet-Kun and the couple goes to sleep rather early for them. ☆7

☆Future Features☆

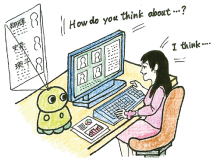
☆1: Meal Planning App + Web Shopping + Delivery Service (which will include consideration of individual's nutritional balance and allergies, and will have labeling showing its **carbon footprint**). Three meals worth of ingredients will be delivered at a time, half prepared, the day after a weeks' worth of meals were selected. It will deliver meals for those who are too busy or for those who are not great at cooking. It will also provide and manage nutritional information for when one eats out. How you use it will be up to you.

☆2: **Super-Efficient Compact Cities** will develop and necessary facilities for life will be incorporated in or adjacent to living quarters.

☆3: There will be many services, gadgets and electronics such as dishwashers and dryers, automated house cleaning robots, automated washer, dryer and folder for clothing, clothing with shape memory fabric to make ironing unnecessary, reducing the time spent on each task. **Household electronics will be controlled by Conet-Kun, connecting to HEMS and makes sure it will use the least amount of energy.**



☆4: Conet-Kun supports all aspects of work, including creating meeting minutes, translations, 3D projections, work management, info searches, electronic payments, etc.



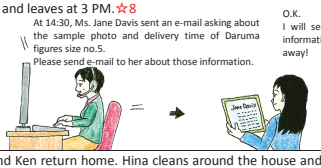
☆5: Conet-Kun can also comprehensively handle education and school related information. It can help analyze the results of test scores and questions and answered in class and figure out one's strengths and weaknesses, and uses that information to create better instructions. It will also be used to record activities and to generate report cards.

☆6: Condominiums' electric generator and **energy storage system** charged the **electric cars**.

☆7: Conet-Kun monitors individual health conditions and will advise as necessary. If there are abnormalities, it will inform the family and medical facilities to support quick action. It is useful for monitoring the elderly as well.

☆8: Kitchen, toilet, and bathtubs are all made of materials that is hard to get dirty. Major cleaning will not be needed more than once or twice a month.

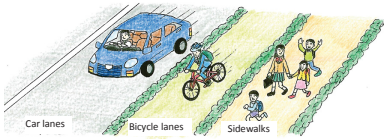
◆ A Day in the Life of the Kawabata Family: Living in a Society as a Rainbow-Colored Fountain in the Year 2050

	One Day in the Year 2050
6:00	After getting up and before breakfast, Makoto and Daiki go out to their home garden and pick vegetables. Tomoko and Hina prepares breakfast and washes clothes.☆1
7:00	All six members of the family clean up after breakfast. Hina goes to work on her bicycle. Risa and Ken walk to school. Makoto and Daiki go to work at the hospital by car.☆2
8:00	
9:00	Makoto (Initial Consultant), Daiki (Nurse), and Hina (Customer Care) start their work.☆3, ☆4
10:00	
11:00	Makoto listens carefully to the pains and aches of the elderly as usual. Daiki works together with his coworker, a female nurse. Risa prepares for the school's cultural event. Ken attends school in person this day as they have practice for their sports day event. ☆5 Tomoko uses the web to learn tea ceremony once a month directly from Kyoto's schoolmaster. The busy schoolmaster sets aside some time especially for her, so Tomoko starts her self-directed study from 9 AM.☆6
12:00	Hina studies to be a care-giver during lunch time. She uses her time efficiently as she uses her lunch hour to learn while eating her bento.☆7
13:00	Makoto and Daiki pair up to go out on house calls to give care. They plan to visit ten homes today.
14:00	Hina enters the necessary information to hand off her work to the next person and leaves at 3 PM.☆8 
15:00	Hina and Ken return home. Hina cleans around the house and prepares for dinner. Ken went out to play as soon as he got home.
16:00	
17:00	Ken returns home from playing and starts his homework.
18:00	Makoto and Daiki return home. Risa will return late after 7 PM due to preparation for the cultural event, so rest of the family starts their dinner together. They watch baseball on television and go wild. Risa returns from school and asks Hina and Tomoko for advice on the costume she is to use during the event. Neither Hina nor Tomoko is good at sewing, so they asked the grandma next door to see if she might be able to help.☆9, ☆10
19:00	
20:00	The grandparents take a bath. The order in which they take baths is always grandparents first. Then Ken, Risa, Hina and finally Daiki. Hina visits three elderlies in the neighborhood every other day. When she asked about helping out with Risa's costume to the grandma next door, she accepted to help without hesitation. Risa will be visiting her next door neighbor to make the costume over the weekend.☆11
21:00	
22:00	
23:00	 Each prepared to go to sleep. Daiki and Hina spend some time together then goes to sleep.

☆Future Features☆

☆1: The family **shares in household chores and responsibilities**, so there is no need to rush in the mornings. It is common place for suburban areas to have their own home garden.

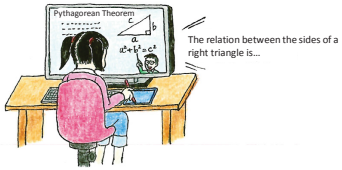
☆2: The town layout will be designed to care for the weakest in society, accommodate for the elderly, children and the physically challenged. There will be **wide sidewalks and bicycle lanes**. With fewer children in the population, **elementary and middle schools will be built close to one another** and will be located in a place to make it easier for the children to walk to and from school in groups.



☆3: By employing people with specialized certificates as initial consultants, people who need to be given priority for a doctor's decision or need emergency care will be given priority as needed. The waiting time in hospitals will be less.

☆4: There will be no gender distinction or disparity in work and there will be more men entering the field of work, like nursing, where women used to dominate.

☆5: It will no longer be necessary for children who live far away to attend class in person. On days there are no hands on activities, the children can attend class through the internet. If one is not feeling too well, they can still attend class from home.



☆6: The elderly also have their passions in life to pursue so there will be less time in front of the television. They will be active in the local community which will assist them in having a healthy, happy, long life.

☆7: It will be the norm to use the web to facilitate learning. Educational opportunities will be available to all no matter what environment one is in, and age or gender will not matter. It is even possible to learn in between breaks at work and it is possible to learn from lecturers from far away.

☆8: Work ends at a time to match the needs of the individual life. ICT technology will be fully utilized to make sure hand off at work goes smoothly.

☆9: Spectating sports can be done from home with a sense of experiencing full immersion.

☆10: Spending time with the family is what everybody enjoys. They each try to schedule their time so they can eat together.

☆11: It goes without question that the elderly, especially those who live alone will be supported and assisted locally. Visiting the elderly neighbors in the evening is a must. Learning the skills and wisdom of the elderly is common, and occasionally it may be decided to go and hang out together.

Aiming for a Japan with Real Wealth and a Healthy Environment

Though the two visions shared here contrast from one another, both these visions make it possible to create a sustainable Japan. However, neither option will be sustainable if any of its key elements go off balance. By balancing human wellbeing and the environment, economy and society, we will be able to create synergy. There is no need to be overly exerting efforts or to hold back in solving environmental issues in a society where synergy exists, as they can be solved while creating economic value and satisfying the needs of the social foundation.

In illustrating a future sustainable society, we have come to recognize once again something fundamental regarding the environment.

- To invest properly into the environmental capital to avoid degradation is not a financial burden; it is the opposite. What guarantees a sustainable future with economic advancement is our ability to sustain a high quality environment, such as water and air, and to use natural resources most efficiently. A society that can maintain environmental capital can also maintain the health of its population. There will be more opportunities for people together outdoors and help develop an affinity towards their community in places where much of nature is preserved and sustained.
- There will be a positive influence on maintaining other types of capital when the environmental achievement status remains high. It is possible to bring about a new industry in a local region while protecting the environment and allows for the construction of necessary infrastructure, for example through promoting eco-tourism. Perhaps, by creating a vision of a bright future, some will find in it, the emotional breathing room they need, and in turn that may help in reducing the speed of the decline in population.
- To create such a desired outcome in the environmental side of the equation, it is necessary to create a place where more people can get involved in decision making (social side) and at the same time, each individual who will participate in the decision making must understand and take responsibility to receive proper education, and to aquire the necessary skills to think for themselves (human wellbeing side).

Going forward, we should not make decisions by taking each policy (for example, how we deal with global warming, waste management, or preservation of the ecosystem if dealing with the environmental policies) in isolation from one another. Instead, it will be crucial for us to compare the policy against the future vision of what society we would like to create and see what steps must be taken to get there. In this report, we offered some indicators to help us determine if we are heading towards our chosen vision of the future. Of course, this does not cover everything. However, we think it could be a new and useful way to measure our steps going forward.

We have been thinking and researching about what would a sustainable society where people can live a truly rich and tranquil life look like. We hope this brochure will become the catalyst for us to think together with you, what is a truly sustainable society.

[Additional Information]

Research Project on Sustainable Consumption and Lifestyles

We also have a sister project that focuses on future lifestyles. In the sister project, we considered that it is necessary to truly tie the environment to our daily lives in order to go a step further our activities for the environment. We set up future lifestyle scenarios that looked at different generations, age groups and lifestyles going beyond the standard two parent two children household model, and related each to various aspects of our lives such as work, housework, education, care, and hobbies. In order to write scenarios dynamically, we used a methodology in which we extended our current trends in lifestyles out to the future and depicted continuous future visions, and then mixed these visions with signs of discontinuous changes we narrowly perceived at present time to foresee less conceivable future visions.

For more details and its results, please visit the following websites:

Homepage for this project: http://www.nies.go.jp/program/psocial-e/pj2/

The brochure of this project: http://www.nies.go.jp/program/psocial/pj2/english_0415.pdf

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January, 2016

National Institute for Environmental Studies, Japan

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December 2015

http://www.nies.go.jp/program/psocial-e/pj1/