The Governance of Renewable Energy Projects and Expanded Distributive Justice

10

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Abstract

Despite an increase in the quantity of renewable energy deployed in Japan, there have been many cases where consensus building in the hosting community has become an issue. This chapter, having clarified the governance issues, introduces efforts being made for their resolution. In Japan, a phenomenon that could be termed polarization of social acceptance is seen, that is, while there has been an increase in cases where local actors have played an active role in renewable energy projects, a large number of opposition movements also exist. This chapter spotlights distributive justice and procedure as problems in the background to this polarization regarding renewable energy projects and indicates that the vast majority of projects are owned by actors from outside the community. Although some attempts to resolve these problems have been seen, it is pointed out that an expanded form of distributive justice, including spillover effects, is necessary to overcome the limits of distributive justice. Concrete examples include the existence of a wide range of projects that contribute to the community, such as community sustainable development, volunteer activities, as well as nature conservation, exchange meetings, and the development of local products. These efforts act as bridges between the resolution of global issues and local issues, are endeavors for "translation" between global and local discourses. As such it is argued that they are crucial measures for simultaneous realization of the resolution of energy issues and for social well-being.

Keywords

Social acceptance · Co-benefit · Community benefit · Sustainable development · Public engagement.

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10.1 Introduction: Social Issues Arising from Renewable Energy

In this chapter, having indicated the current state of and issues surrounding the governance of renewable energy in Japan, some embryonic efforts contributing to sustainable community development are introduced.

A range of benefits are expected to accrue to society as a whole from the long-term use of renewable energy. At the same time, concerns exist in communities where renewable energy sites are planned, and these concerns may cause social friction or conflict. The purpose of this chapter is to seek methods for resolution of these problems while looking closely at the social structures that give rise to them.

While the use of renewable energy sources such as wind energy has a long history, the harnessing of these energy sources by modern scientific technology for electricity generation began only in the 1970s. At that time, the oil crisis was the trigger, but the use of renewable energy was later promoted as a countermeasure to mitigate climate change, aid in nuclear phase-outs or transition from depleting energy resources. The quantity of deployed renewable energy around the world is increasing year by year, and this trend is accelerating due to the decarbonizing strategy under the 2015 Climate Paris Agreement. Renewable energy is also positioned as a major target of the Sustainable Development Goals (SDGs) adopted by the United Nations. This is a concrete method for ecological modernization that resolves some environmental problems by industrializing them, and is also a method for combining reductions of the environmental impacts of energy infrastructure with economic growth in communities where renewable energy projects are sited.

There are also expectations for renewable energy in Japan, where there are communities in which the deployment of renewable energy is advancing rapidly, as a route towards the energy shift after the Fukushima nuclear accident and community revitalization. Compared with the period prior to the earthquake disaster, the deployment of renewable energy generation in 2018 has risen around 3.3 times (8.9 times in the case of solar energy).

Despite these expectations, stakeholders such as local residents and environmentalist groups have expressed concerns. More or less, some changes to the environment associated with installation of the equipment are unavoidable. The issue is the negative impacts, especially at local scales. Table 10.1 summarizes such impacts and issues, taken mostly from newspaper reports, that have been identified regarding problems in locations where renewable energy has been sited. These can be divided into three main types: impacts to the natural environment such as local ecosystem, plants, and animals; people's daily life in relation to local environments; and social and economic activities. Problems such as noise and impacts on birds from wind power generation and deforestation of mountain areas associated with the installation of solar power panels are frequently cited as problems. Even if there are no environmental impacts, it is sometimes necessary to reconcile impacts with existing social and economic activities. The issue of water use rights in small-scale hydropower projects and relations between geothermal projects and thermal spring use are also known. It is also possible to view the balance between solar or wind energy

Table 10.1 Issues associated with renewable energy deployment[a]

	Natural environment (ecosystem, etc.)	Daily life environment	Possible need for adjustment of interests
Solar energy	Vegetation, etc.	Solar irradiation Scenery Light pollution [Water sources] [Landslides] (steep slopes)	[Farmland]
Small- and medium-scale hydropower	Aquatic organisms	Noise, vibration	Water rights [Fishing rights]
Wind energy	Vegetation, etc. Bird strike	Radio wave disturbance Noise, vibration Scenery	[Farmland] [Fishing rights] (ocean)
Geothermal energy	[Vegetation, etc.]	Scenery Noise, vibration Odor	Thermal spring resources [Natural parks]
Biomass	[Vegetation, etc.] [Forest ecosystem] (wood resources)	Noise, vibration Odor [Thermal discharge]	[Food production] (Fuel crops) [Sustainability] (wood resources)

[a]The table is based, with some alterations, on Maruyama 2014. Brackets – [] – indicate items where, depending on the location, concerns do not exist. Parentheses – () – indicate the concrete examples of concerns

projects and agriculture, or the compatibility of offshore wind energy with fisheries as problems requiring a reconciliation of interests.

The energy density of renewable energy per unit area is low in comparison with conventional energy resources. Thus, relatively larger areas are required and site locations are decentralized. As a result, the absolute numbers of people potentially impacted will increase. In addition, projects tend to be promoted in areas that were not previously the targets of development.

It is no surprise that people behave with alarm toward unknown phenomena and novel experiences associated with such changes. Worldwide, problems related to environmental impacts due to renewable energy began to surface around the year 2000. Opposition movements and complaints against renewable energy projects also exist and have become the main cause of the suspension of wind energy and geothermal projects in Europe. In the UK, for instance, despite 80% of citizens being in favor of wind power generation, as many as three-quarters of planned projects have been suspended (Bell et al. 2005). This situation is still continuing, with consensus building becoming an issue not only in cases of individual projects but in advancing the energy transition itself (Bauwens and Devine-Wright 2018). There are also significant numbers of opposition movements and complaints against

renewable energy projects in Japan. In wind energy, for example, it has been reported that environmental conflicts arose in 59 projects at the planning stage and that in 30 cases objections and complaints occurred after the project began operating (Azechi et al. 2014). According to a survey on solar energy conducted by Japan's Ministry of the Environment, problems have been reported at 69 projects. National meetings opposing wind and solar energy have also been held.

10.2 Tension Between Individual Cases and the Overall Situation in Renewable Energy Use

10.2.1 "Suffering" and Uncertainties as Subjective Awareness

The problems are not limited to this concrete dimension. Uncertainties abound in environmental impacts associated with renewable energy use, this being a typical example of "questions which can be asked of science and yet *which cannot be answered by science*" (Weinberg 1972).[1]

In fact, there exist among the various impacts noted by the table above that depend on the subjectivity of the assessor. Smell and noise are typical examples of sensory pollution, but the correlation between the degree of the physical phenomenon that is the cause and the awareness of "suffering" perceived by people as a result may be weak, and individual differences large. For instance, in the general problem of noise pollution, it is reported that people's discomfort varies from 20% to 70% for different sources of the same sound volume (Miedema and Vos 1998). It is thought that between the perception of a certain sound and "suffering" there exist several factors such as tone.

Regarding sensory pollution due to renewable energy, for example, noise pollution from wind energy is known, but it is reported that there is no significant correlation between distance and suffering (Knopper and Ollson 2011). In contrast, people who receive economic benefits are known to show a significant reduction in the level to which they perceive the noise pollution to be annoying (Pedersen et al. 2009), indicating that there are also social factors that influence "suffering." A nationwide survey conducted by the US National Renewable Energy Laboratory (NREL) reports a similar trend. The results of a large-scale survey on wind farms

[1] While not taken up in this chapter as part of the main discussion, it should also be pointed out that in addition to uncertainties, there is also the question of "green vs. green" tradeoffs (Yonk et al. 2012). These are tradeoffs that may occur in biodiversity or the daily life environment associated with the introduction of energy technologies with a low environmental load, and are tradeoffs that exist within the category of "the environment." Differing from the conventional questions of tradeoffs, such as those between environmental conservation and economic growth, the issue here is the control of tradeoffs such as those between the global environment and the local natural environment or the daily life environment of site locations. That is, dilemmas have arisen within the framework of environmental conservation.

also indicate no significant correlation between distance from the site and assessment of the project (Rand and Hoen 2017; Haac et al. 2019).

Similar complexities of "suffering" are also seen with regard to landscape. This is also an example from wind energy, and it is reported that the assessment of wind farms with similar external appearances is also influenced by social factors. Comparing projects owned by local residents and projects set up by external profit-making businesses, the positive assessment that the landscape has been improved is given by the vast majority of people in the former. They also positively assent to expansions of projects with nobody opposing. While the latter is also tolerated, they are not awarded the same degree of approval as locally owned projects (Warren and McFadyen 2010). Even in the case of the same physical phenomenon, social factors also influence the way they are perceived, and the reaction to them by different people is not uniform.

This current situation makes it difficult to deal with the environmental impacts of renewable energy through regulation alone. Naturally, it is necessary to formulate regulatory responses to the levels at which suffering is perceived by the majority of people. At the same time, at or below a certain level, the dispersion of the degree of "suffering" increases. The possibility that multiple factors, including social factors, exist as factors contributing to the cause of suffering has been suggested, but no clear threshold exists. When a simple cause and effect relationship exists between the phenomenon thought to be the cause of suffering and the suffering itself, then regulation is likely to function smoothly, but in the case of multiple causes, regulation is unlikely to function well since the impact of each individual factor is limited. The judgment on where to draw the line will depend more on a value judgement than on science. In reality, even when looking at impacts on ecosystems, factors related to value judgments are frequently included, and whether impacts on a species of an organism are assessed at an individual level or at group level is more a matter of value judgement than science.

10.2.2 The Social Structure of "Suffering" and the Possibility of Change

Nevertheless, the fact that "suffering" is composed of social elements indicates that this may change. As in the case of wind energy noted above, subjective "suffering" can be changed provided that an appropriate social context is constructed, and there have been instances of positive acceptance. Even when diverse interests exist, it is not the case that all of them exist in all areas. The causes of the problems and the interests of the people that might be involved will differ depending on the location. While it may be difficult to set conditions that all people will universally agree to, there is still the possibility of reaching a conclusion that the people involved can agree on at a concrete level by constructing a social context based on local characteristics.

One requirement thought to be necessary for this is the structure of interest distribution. Although the benefits from the promotion of renewable energy accrue

to society as a whole and to the project operators, the suffering (or the possibility of it) is concentrated in the area surrounding the site. This has similarities with the citing of so-called unwelcome facilities, where resistance by local residents is viewed as NIMBY (not in my backyard) by those who are emphasizing the standpoint of "public interest." This view, however, was criticized at a relatively early stage (Devine-Wright 2005). NIMBY is not simply local selfishness, and there is also a necessity to include in the discussion the nature of the "public interest" from which it derives.[2] Further, at least with regard to renewable energy, examples of NIMBY resistance are not a universal phenomenon, and there are numerous examples of positive acceptance, which should perhaps be termed PIMBY (please in my back yard) (Jobert et al. 2007). Or rather, there are societies, Germany, for example, where PIMBY predominates, and where local residents take on the major role in promoting renewable energy, local actors being in some way involved in almost all projects. There are also societies, such as Denmark, where ownership by local residents is stipulated by law as the first option.

Based on the above discussion, the conditions that have been cited for acceptance of renewable energy by the community are tied closely to the notions of distributive justice and procedural justice (Wüstenhagen et al. 2007). The former is the viewpoint that emphasizes the fair distribution of risks and benefits and is pertinent to the phenomenon of the relativization of "suffering," as mentioned above. Whether it be climate change or resource depletion, many of the benefits associated with the introduction of renewable energy become visible when the whole of society is assessed in the long term. While it is not possible to gain a strong sense of these future benefits at the present time, there are often cases where it is possible to imagine the problems people are concerned about in concrete terms. Although avoiding potential losses in the future is beneficial to all, it is not necessarily the case that individual and concrete risks arising from these attempts to seek such benefits are justified. Rather, backlashes sometimes occur when benefits to all are emphasized. On this basis, the viewpoint of distributive justice is crucial as a norm that expresses the notion that there should also be benefits distributed to the people who are actually exposed to the risks.

That said, as the situation in the community and the values of the people are highly diverse, it is not always explicitly clear exactly what are considered to be benefits. In this case, to attain consensus by exploratory means it is vital to ensure procedural fairness. In fact, the reasons for the existence of objections stem not only from the feared impacts. There are cases where the problem lies in inadequate explanation of the existence or degree of concerns, or in the nature of communication, where there has been a lack of or insufficient opportunity to express opinions. From this, therefore, the viewpoint of procedural justice is that it emphasizes the validity of the process that mediates the diverse positions and concerns of diverse groups of people. Furthermore, the entire social process leading to consensus

[2] The first use of the term NIMBY is said to have been in the context of opposition to nuclear power in North America as an expression ridiculing the opposition movement (Encyclopedia Britannica).

formation should also be examined, including the viewpoint of epistemic justice (Jenkins et al. 2016), which emphasizes not only the adjustment of the distribution of expressed opinions but also the nature of burdens of potentially existing ethical values and interests defined in economic terms.

Based on these principles, the World Wind Energy Association and the German Wind Energy Association have put forward the notion of community power, which places importance on ownership, decision-making, and profit-sharing by local actors. The report of International Energy Agency (IEA) Wind Implementing Agreement (IEA Wind Task28 2013) acts as a general guideline. Factors that have impacts on the people at the site location and which are considered important by Task 28, the research team that studies social acceptance, are a fair distribution of profits, procedural fairness in decision-making, introduction strategy, support for people at the site location, and so on. These guidelines are specifically for wind energy, but they could also be applied to renewable energy overall as guides to the nature of the relationship with the site location.

10.3 Social Acceptance of Renewable Energy in Japan

10.3.1 The Current Situation in Japan: Social Friction Easily Aroused

Let us now turn to the situation in Japan on the basis of the foregoing discussion. Looking at profit-sharing, the current situation is that the vast majority of projects are funded from outside the community. From ownership information given in a list of projects that have received government certification,[3] projects in which the project site and the owner are matched at the prefectural level are 39.9% for solar energy and 55.0% for wind energy. In fact, however, there exist cases in which the implementing company is a subsidiary of a firm based outside the area. When assessed with the inclusion of capital composition, as in Figs. 10.1 and 10.2, it is possible to view local ownership as 17.0% for solar energy and 10.0% for wind energy.[4] As the addresses of stockholders of many of the projects are unknown, exclusion of this information shows local ownership to be 34.7% for solar energy and 7.6% for wind energy. It has already been pointed out previously that the proportion of local ownership is low, and that the vast majority of projects are owned by big-city capital, especially by actors in the Tokyo metropolitan area. Thus,

[3] Owner's names and project locations were extracted from a list of projects published by the Ministry of Economy, Trade, and Industry (https://www.fit-portal.go.jp/PublicInfo), address details of the project operator being cross-checked with a company database. Projects were judged to be local if both were found to be in the same prefecture.

[4] In cases where the project company was owned by multiple actors, the total output was divided proportionally based on the proportions of capital composition, etc. For example, for a project of total output of 10 MW, if the capital composition was 30% local and 70% non-local, then the total output was divided proportionally as three megawatts local output and seven megawatts non-local output.

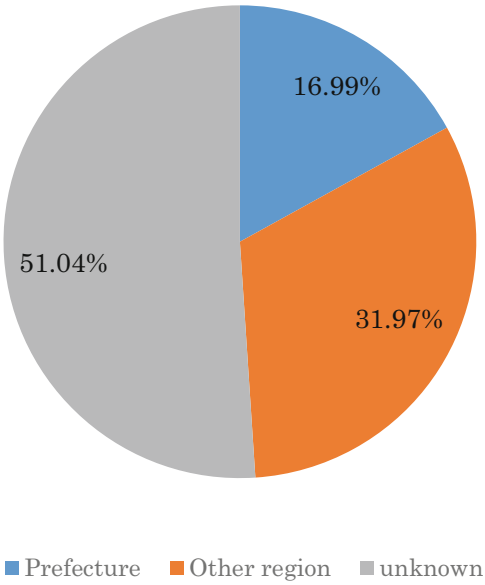

Fig. 10.1 Locality of project owner(solar)

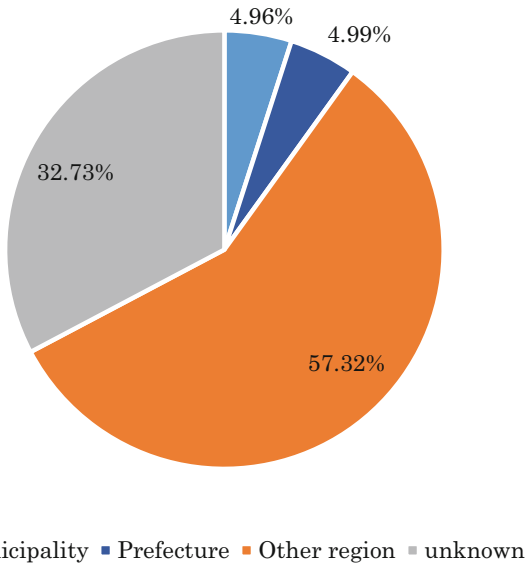

Fig. 10.2 Locality of project owner(wind)

the situation is that the perception that external project operators are stealing local resources is easily aroused. The problem, rather than being one of ownership itself, is the distribution of profits from power generated by the project and the structure of the industry, but the definite economic effect that can be expected by the site location

during the term of operation is the land rent and fixed asset tax, which accounts for nothing more than around 10% of sales.[5] Almost all of the remainder is accounted for by loan repayments and maintenance and management costs, but the economic effect is small when these are not performed in the local area. This has led to projects funded by capital from other areas to be known as "non-native" or "colonial" projects.

There are also issues related to the fairness of procedures. The system governing the approval of installation of electricity-generating plants recommends communication with local residents, but it is not a condition of approval. Solar energy and wind energy plants exceeding a certain scale are subject to the Environmental Impact Assessment Act, which mandates public meetings and information disclosure, but the decision about whether or not to respect local residents' opinions is left to the project operator.

In fact, many project operators hold explanatory meetings voluntarily, but the problem is not whether there are opportunities for explanatory meetings or not so much as their timing and content. Whether mandated by law or voluntary, the explanatory meeting conducted by the project operator is generally held at a stage when the content of the project is to some extent concretely defined. The main topics are also a scientific assessment of the environmental impacts and their countermeasures.

In contrast, stakeholders such as local residents are more interested in what, in the first place, is the significance of the project and its necessity, and the choice of location and its suitability. It would be best if these matters were discussed at a stage before the concrete project plan became clear, but with the exception of a small number of municipalities, opportunities for public hearings and information sharing are limited.

Related to this is the third issue of deployment strategy. Taken in a narrow sense, this refers to the target for the amount of renewable energy to be installed and the roadmap for this, and in relation to the two issues mentioned above, the absence of discussions regarding the significance of renewable energy for the community can be pointed out. Unless this point is understood, it is difficult for the people of the community to make judgments about the pros and cons of individual projects. When determining whether or not to allow a project, or to what degree to allow a project, an assessment should be conducted regarding questions such as where, who, for what purpose, and what risks are involved. However, there are very few cases where, besides the usual questions of climate change and sustainability, these kinds of issues associating the project with the social context of the community are considered concretely.

[5] Provisional calculation based on expenditure items indicated in the "Manual on Operability Assessment, etc. of Renewable Energy Projects in the Regions" published for financial institutions by the Ministry of the Environment (http://www.env.go.jp/policy/kinyu/manual/).

10.3.2 Social Practices Encouraging Consensus Formation

As we have seen thus far, in the current situation, profit distribution, procedures for consensus formation, and deployment strategy all include potentially difficult issues, but there are also embryonic efforts aimed at resolution of these problems.

One of these is an effort to bring distributive justice to bear on a project. In Japan, beginning from the year 2000, there have been activities involving citizens' wind turbines, renewable energy projects to which citizens make financial contributions, the profits also being returned to the citizens. Following the Fukushima nuclear accident, this movement has further developed. Cases in which community people have made autonomous efforts for renewable energy have increased, bringing the formation of local energy associations and the establishment of citizen/community cooperative power plants. According to the report of the NPO Kiko Network (climate change network), as of 2016, roughly 1000 projects with a total output of around 90 megawatts have been confirmed (Toyota 2016). Even in commercial projects, capital participation by local actors and active efforts to make contributions to the community by project operators are also increasing.

Efforts to secure procedural transparency through zoning are also beginning. The Ministry of the Environment is conducting support aimed at wind energy and the preparation of a manual. The first advantage of zoning is that it enables the community members to make prior judgements independently from moves by individual project operators. Another advantage is that zoning makes it possible to predetermine conditions in accordance with local circumstances, not simply by existing regulations alone. Discussions not only on environmental impacts but also including the significance for the community also become possible. For instance, in sightseeing areas, this makes it possible to conduct preventive delineation for scenic beauty and nature conservation, or conversely, in an area that is striving to make renewable energy a local industry it would be possible to define delineations more loosely. Furthermore, there is also a strong possibility that zoning will also be rational for project operators, who push forward their project planning while complying with laws and regulations, but, nevertheless, need to overcome the problem of consensus formation. Since zoning is a visible delineation of conditions and locations that may be problematic, or of locations where the potential for realization is high, the burden necessary for consensus formation will be reduced.

In the actual task of zoning, agreement over the determination of the conditions to be taken into account and delineation of the go/no-go line sometimes faces difficulties. The participation of stakeholders and information sharing among them is necessary to avoid mistrust during this task. In some cases, methods such as cooperative confirmation of facts is effective. This is performed for the purpose of reaching a common awareness at least of the reliability of the data for people who have differing interests. The survey and analysis methodology can be agreed upon in advance and, in some cases, a survey method that involves joint surveying may be implemented.

There are also attempts by municipalities to attract projects that are favorable for the community. In Japan, municipalities (cities, towns, and villages) are able to wield

very little power with regard to planning permission, and the effectiveness of implementing zoning alone is limited. To get around this, there have been attempts to create legal grounds through local ordinances and so on, or to mandate a locally devised environmental assessment. As compliance with laws and regulations is a prerequisite for certification of renewable energy generation facilities, a certain degree of effectiveness may be anticipated from the enactment of local ordinances.

Separate from this regulatory response, there are also examples of activities to put together conditions that are easy to agree on by obtaining a large effect from the site location. There are also municipalities that consider renewable energy resources to be local resources and thus enact local ordinances that enshrine the general notion that renewable energy will lead to local sustainable development. An example of a policy of combining these principles with a mechanism for selecting the general idea and content of a project is that of geothermal power in Hachijo Town, Tokyo. The town has defined renewable energy projects that contribute to the community through a local ordinance. And because it the duty of the administration to support such projects, the town issues public recruitments for proposals to select the partners, with whom they conclude agreements (Maruyama 2017).

10.4 Issues Concerning Distributive Justice and Their Resolutions

10.4.1 Spillover Effects

While the initiatives described thus far exist, there are issues. One of these, as mentioned above, is that these efforts form only a very small part of the total. Another issue is that the realization of the need to engage through distributive justice is not a simple matter. Whether it be financial contributions or the operation of the plant, those who receive direct benefits are limited in number. There may be people in the community who are unable to make financial contributions due to economic circumstances, but these people also have some kind of involvedness. Further, there is a limit to the direct economic effect and, of course, it is impossible to distribute more than the income of the power-generating project. Even if these problems can be overcome, the effect of profit distribution is not always clear. If, for instance, a contribution of one million yen[6] is made, the distribution from profits will be only a few percent a year. It is not always the case that this is assessed as adequate in terms of "nuisance money." Conversely, there are cases in which the profit distribution has been thought of as a bribe (Walker et al. 2015).

There are two ways of overcoming these constraints, one of which concerns spillover effects. Impacts from renewable energy are not limited to external diseconomies such as environmental impacts, and in fact there are also economic effects other than those deriving from project proceeds. If the assessment is

[6]Equivalent to approximately 9300 US dollars and 8300 euros.

conducted to include these, the distributive effect may be enlarged. The kinds of things that have been pointed to as spillover effects thus far include increases in the number of tourists or the branding of agricultural products. Communities that have been active from a relatively early stage have been able to confirm these kinds of effects. There are cases such as Kuzumaki Town, Iwate Prefecture, which has become a location for demonstration experiments involving large-scale wind farms and biomass power plants since around the year 2000, where the number of visitors has increased due to the acceptance of study tours. Around 2000–3000 people visit the town annually on study tours, this rising to around 4500 people immediately after the Fukushima nuclear accident in 2011 (Iwate edition of the Mainichi Newspaper, July 3, 2012). Visitor numbers of those coming to participate in workshop programs, including farm stays, total around 500,000 people, forming an important pillar of support for the town's tourism efforts.

Nevertheless, only communities that have special characteristics as an advanced area can count on these kinds of effects. There is also a relative reduction in effect as the number of communities that establish renewable energy projects increases. As the conversion to renewable energy systems is realized across Japan, the equipment itself will no longer be unusual, and the need for study tours will decline. In cases where features such as the diversity of energy use in combination with agriculture, or collaboration with the town administration do not exist as they do in Kuzumaki Town, the motivation for visiting any specific site will be low. It is the same with branding: As renewable energy becomes universal, there will be nothing new about the fact itself that renewable energy is being used. Even granted that it is desirable for society as a whole to deploy large amounts of renewable energy, the significance for the community where projects have been established the relative scarcity value will be reduced. At present, the situation is that ingenuity is required to generate these effects, and there are, for example, ventures that combine a mechanism for fund procurement. Crowd funding is a mechanism for small-sum financial contributions in the region of several thousand yen to several tens of thousands of yen. These are not financial contributions in the strict sense of the term, but rather take the form of donations that are "repaid" with thanks. These thank-you gifts are provided in the form of local products, and there are examples where these have become triggers for external investors to come to know more about the local area. A broader sense of spillover effect is realized by these kinds of activities, and thus these are methods for the realization of a form of distributive justice that qualifies as profits for a more diverse group of people.

10.4.2 Spillover Effects that Realize Community Sustainability

One further method for overcoming the constraints of distributive justice is to realize spillover effects that qualify as benefits for unspecified large numbers of people, including, in a broader sense, future generations. Not limiting benefits from a project simply to distribution among the present generation, it is also possible to expand the receipt of benefits through efforts such as investments for future generations, natural

environment, and social networks. Let us term this *expanded distributive justice*. One typical example is community contribution program, e.g., scholarships, educational programs, and investment in local businesses. However, more diverse subjects and methods would be possible.

In Japan, there are two types of characteristic cases, one of which is where municipalities or NPOs who are originally making efforts for community-building implement renewable energy projects as a source of funds for continuing their independent endeavors. One further case is that of efforts to create new spillover effects through inter-community exchanges and other activities.

An example of an initiative in which the municipality itself is the project organizer is the case of Suttsu Town, Hokkaido. The town has a municipal wind farm of 12 MW with annual sales of around 750 million yen (Suttsu Town PR pamphlet, August 2013). A part of the profits, after subtraction of operating costs, is returned broadly to the townspeople. In addition to all the townspeople being recipients of subsidies, such as for water bills, a total of around 45 million yen is allocated to shopping subsidies for the elderly, gift vouchers that also act as a measure to promote the local shopping street, and so on. An example of community-building by an NPO is the wind farm enterprise in Hasaki City, Ibaraki Prefecture. This project is one of 14 projects known in Japan as citizens' turbines, and it is supported by funding from the general public in each project community. The NPO that is the owner of the project was originally a volunteer activity group engaged in beach cleaning and other efforts, and the general notion of the project is sustainable community-building. In addition to beach cleaning and tree planting, proceeds from the project are donated to neighborhood watch groups for the purchase of vehicles. The NPO is also investing in solar energy, biomass from rapeseed, and others as further energy projects.

While the number of cases is small, there are also projects that attempt to make contributions to nature restoration. The solar energy project on former salt fields in Setouchi City, Okayama Prefecture, is the largest of its kind in Japan at 235 MW (covering 260 ha) and also takes into account disaster prevention and nature conservation. The disaster prevention consists of excavation and enlargement of the abandoned salt field water channels and an increase in the number of drainage pumps, as well as the reinforcement and new construction of embankments. These are provisions against natural disasters occurring to the installation itself, but also serve to alleviate the risk of inundation of adjacent housing and farmland. As efforts toward natural restoration, a nature conservation area has been established to preserve the salt marsh. An environment suitable as a habitat for small animals is being created by introducing changes to the water channels and depth of water while maintaining the waterfront environment of reed beds. This is also aimed at the protection of sea eagles who feed on the small animals. In cases where tradeoffs with nature conservation become a discussion point, the goal tends to focus on maintaining the status quo, but it is also possible to be proactive about coexistence, as in this example.

There are also cases where systems have been established to promote activities contributing to the sustainability of the community. Iida City in Nagano Prefecture

has enacted a local ordinance that has the goal of sustainable community-building through the introduction of renewable energy. The ordinance defines the right to coexist in harmony between the natural environment and the life of the local residents as the right of community environment, and considers it the duty of the administration to provide support for the use of renewable energy resources in order to exercise this right. The city is implementing a "community renewable energy support program" based on the ordinance. This is a mechanism for selecting and supporting projects that contribute to the community while gaining assistance from energy experts, local financial institutes, and so on. If approved, the project-implementing body is able to access interest-free finance to cover surveying and other costs while taking advantage of specialist advice. Since the nature of the project is shared through opportunities for consultations from an early stage, a credibility for the project content and plan are enhanced. As of 2019, 12 projects have been approved.

10.4.3 "Self-sufficiency" Over an Extensive Area

There are also cases that contribute to the site location while creating diverse spillover effects through exchanges between urban and agricultural areas. Here I would like to introduce some of the activities of Seikatsu Club, a consumers' cooperative union. Seikatsu Club was founded in 1968 and, as of 2019, has a membership of around 400,000. The movement began with collective purchase of milk, later expanded its area of activities to daily life infrastructure such as food ingredients and welfare. At present, Seikatsu Club is also active in the energy field.

The first step in this endeavor was a wind energy project that began operation in Nikaho City, Akita Prefecture, in April 2012. The cooperative, which deals with fresh foods, originally had an awareness of the problem of reducing the environmental load caused by the considerable amount of electricity consumed by facilities such as refrigerators. The direct motivation for the project was the 2008 amendment to the Tokyo Metropolitan Government's Environment Security Ordinance, which imposed a mandate to reduce the total amount of carbon dioxide emissions. In 2010, as the ordinance took full force, methods of obtaining a power supply which did not result in carbon dioxide emissions or make use of nuclear power were considered. It was not easy for Seikatsu Club to gain consent from the members to become involved in an energy project due to doubts about the justification for an energy project and the fear of possibly becoming the perpetrator of noise issue and bird strike. The proposal was once turned down at an annual general meeting, but the attitude of members changed after the Fukushima nuclear accident. Continuing communication regarding the noise issue and the impact on birds turned out to be effective and agreement on the project was finally reached.

The overall image of the project is as shown in the Fig. 10.3, and this represents "self-sufficiency" over an extensive area between Akita and Tokyo (about 600 km distance) through Seikatsu Club Energy, which coordinates the power supply. The power supply side includes power plants installed by producers other than power

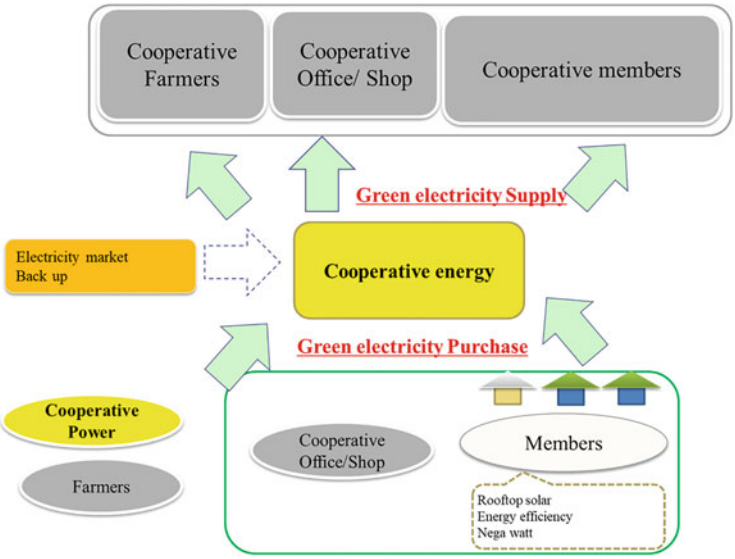

Fig. 10.3 Schema of Seikatsu-club energy

plants operated directly by the cooperative. Seikatsu Club is also scheduled to begin the purchase of power from members' rooftop solar panels. On the demand side are the cooperative members and Seikatsu Club's facilities. By incorporating a method such as this, it has become possible, as a matter of economic transactions, to use renewable energy. As a general argument, in urban areas, the amount of energy consumed is large, but there is a limit on land use. For this reason, self-sufficiency within an area using renewable energy is, in almost all cases, unrealistic.[7] When looking at the goal of the Paris Agreement, to reduce carbon dioxide emissions to effectively zero, the vast majority of urban areas will have little option but to procure power from an extensive area. For areas that supply energy, this suggests the possibility of new industrial development.

10.4.4 Spillover Effects from Exchanges Between Communities

The point to focus on in the activities of Seikatsu Club is not the business model but its expansion of its social network, which goes beyond the effects triggered by the renewable energy policy. A relationship was built up between the wind power generation in Nikaho City and the cooperatives in Tokyo through the supply of energy, but a new kind of connection was also created. Seikatsu Club worked hard to build up the relationship with the local community both before and after construction

[7] For instance, 1.8% of the demand in Tokyo Metropolitan Area is supplied by local renewable energy.

Fig. 10.4 Japanese drumming at the operation start ceremony of the wind farm

of the wind turbine, holding a number of exchange meetings and forums because they did not want to see the risks forced only onto the production site. This was in line with the Seikatsu Club's principle of "equal and mutually beneficial relationships." This principle is a philosophy that took root when thinking about the relationship between producers and consumers regarding agricultural products, and has the sense of having consideration for the other party and not limiting the relationship to the bounds of a mere commercial transaction. The principle is also presented as one which desires to see benefits for both sides, taking care to avoid the power issues that easily rise to the surface in relations between producers and consumers. Seikatsu Club is striving to apply this approach also to its wind energy project.

Seikatsu Club has been actively conducting their initiatives in a way that would lead to benefits for the local community, as mentioned above. A nickname for the turbine was recruited with the help of the local elementary school, resulting in the turbine being named "Yumekaze (Dream Wind)." At the start of operation of the turbine and at the five-year anniversary event, the elementary school also put on a display of "*wadaiko*" Japanese drumming (Fig. 10.4). Nature walks and study tours to a sake brewery were also included as parts of these events. Besides these events, several dozen Seikatsu Club members and staff regularly visit the site each year for sustainable development workshops.

In the Tokyo area, Nikaho City product exhibitions are held regularly in an effort to expand the trade in agricultural produce and processed goods. These product exhibitions provide opportunities for exchanges between the cooperative and the business operators from Nikaho City and also among Nikaho City business operators themselves. Being aware of Seikatsu Club's standards has enabled business operators to gain suggestions for product development and to be able to form a

more concrete image of the consumers, and it is reported that this has become a strong stimulus for their work (Seikatsu Club Turbine Yumekaze News, October 2013).

In 2013, one year after the start of operations of the wind turbine, an exchange meeting was held between local residents who live closest to the wind turbine and Seikatsu Club members, this leading to the establishment of a council to promote cooperation with Nikaho City. The purposes of the council, among others, are to boost public awareness of the Seikatsu Club wind turbine, encourage exchanges between Nikaho City and Seikatsu Club, and to promote local specialty goods and agricultural and fisheries products. Around four million yen has been provided each year from wind energy business profits to cover the costs of exchanges.

The local producers and cooperative members have also collaborated in efforts to develop local specialty goods. Thus far, consumer materials such as Japanese sake, ramen, oil-pickled fish, fig compotes, and fish sauce have been developed and are being supplied under the trademark "Yumekaze Brand." During the development process, producers and consumers hold repeated food samplings and exchange views in order to determine whether or not the products meet the Seikatsu Club procurement standards and quality. This is a very significant experience for producers, who have few opportunities to hear views directly from consumers. The members of the cooperative are, to borrow a local expression "consumers who set the bar high," and with many restrictions on food additives in the cooperative's procurement standards, these are also challenging endeavors for producers. Nevertheless, sales of products developed in this way grow faster than existing commodities and the producing side is also deepening its confidence in these goods.

As well as the development of these kinds of consumer materials, contract farming for soybeans and the commissioning of tomato production to farmers in local communities is also being carried out. While the tomatoes are raw materials for the tomato ketchup handled by the cooperative, the harvest time serves as a special event when Seikatsu Club members come to visit with their children (Fig. 10.5).

These activities are based on the principle of "equal and mutually beneficial relationships," and contain the significance of narratively linking a solution for the energy problem with consumption. Thus, rather than simply being a movement for a nuclear phaseout, this is an effort to realize benefits for diverse stakeholders within that process. Having said that, far from being merely the qualitative manifestation of a social change, there are quantitative effects. Gross sales in the Tokyo area from Nikaho fairs and so on total roughly five million yen each year, and the Yumekaze Brand efforts boast annual sales of 12 million yen. In addition, there are the sales of tomatoes and soybeans. Compared with the average local economic effect from 2 M-class wind power generation of approximately ten million yen, there exists here a roughly 20 million yen effect if exchange meeting costs are included. For this reason, the residents and administration of Nikaho City have recognized the Seikatsu Club approach as being "not just a wind turbine."

This Seikatsu Club approach is a valid concept for building relationships between communities, and is also useful as a viewpoint from which to consider the

Fig. 10.5 Harvest event of Seikatsu Club members

relationships between the locations where renewable energy is produced and consumed. If an economic relation of the two parties were limited only to energy demand and supply, we would have to say that potential of renewable energy is not being fully exploited. That is, without external benefits, there is little difference between their social-benefits model and conventional energy businesses, where the rural areas support, while taking the risk of environmental changes, mass consumption in the urban areas.

10.5 Discussion

In this chapter, having framed a broad overview of the current state of renewable energy governance in Japan, cases of and possibilities for expanded distributive justice have been discussed. The handling of externalities, including environmental impacts associated with the deployment of renewable energy, is an issue that concerns how we might think about tradeoffs that lie within the category of "the environment." Furthermore, it is also a problem of environmental justice across spatiotemporal scales such as the present generation vs. future generations and local society vs. the broader society.

Since the framing of tradeoffs within these broad spatiotemporal scales is very diverse, even when multiple values are shared, relationships that must engage diverse values within each community will be complex. It is possible that resolutions to problems will be fraught with difficulties as evidenced by the current situation in Japan, where we witness the polarized reactions of local communities toward the introduction of renewable energy projects. Even while overall optimization may be crucial in the current situation, the question itself of what factors to emphasize may

not be a simple one. At the same time, while there may be agreement within each overall project framework, this does not mean that individual projects will necessarily be justified. In some cases, discarding individual problems may lead to a backlash.

What, then, is needed is a "translation" that allows a coherent incorporation of diverse social contexts and values such that while overall optimization is respected it is also rational in the local context. The activities of Seikatsu Club taken up in this chapter are one example of this. Multiple social contexts are engaged simultaneously in this project and, as a result, the social context of the resolution of global environmental issues and the context of local sustainability coexist in an indivisible form through myriad values and relations. Wind energy aids the phaseout of nuclear power and fossil fuels, and also contributes as a means of sustainable energy use and climate change mitigation. For the local people, it is, at the same time, an opportunity for exchanges with Seikatsu Club members and product development as well as being a vehicle for autonomous development of their livelihoods and community. Even though wind power generation itself may not necessarily be actively welcomed, the overall assessment, including the values associated with it, has been that this is "not just a wind turbine," but is recognized as something ethically more, and that should be welcomed. In this sense, the "translation," having diverse social values contexts embedded within it, has functioned correctly, and a synergistic effect has been generated between the resolution of local issues and solutions for global challenges.

Japan has a centralized socioeconomic structure with population and capital and thus forms of power concentrated in large cities. It is also not realistic for large cities to be self-sufficient through the use of renewable energy and thus it is necessary for cities to be supplied with energy from the rural areas. Based on this current situation, not only in ownership by local actors but even with projects pursued by urban actors, there will be an awareness of the necessity and effectiveness of ingenuity to realize multiple values simultaneously in one project through "translation." At that time, the distribution of economic benefits is one form of "translation," but it is also necessary to realize that this has limitations. In fact, diverse forms of "translation" are possible, such as community sustainable development and volunteer activities, or nature conservation and social exchanges. The practical efforts of Seikatsu Club are the result of pursuing the principle of "equal and mutually beneficial relationships" in a situation where they, being based in an urban area, had little option but to rely on other areas for their energy supply.

As renewable energy is generated from decentralized resources, it is also possible to employ renewable energy to resolve community issues in accordance with the diverse circumstances of the community. Not only consent building in the narrow sense of the term but the simultaneous resolution of the energy problem and realization of social well-being may also be anticipated from an increase in endeavors of this kind.

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