Knowledge Integration and Open Social Innovation for Sustainable Development

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Abstract

This chapter will consider Goal 11. In particular, Target 11.2 focuses on Inclusive and Sustainable Urbanization. By 2030, it aims to enhance the capacity for participatory, integrated, and sustainable human settlement planning and management. Target 4.7 in SDGs Goal 4 is Education for Sustainable Development and Global Citizenship, which educates people about sustainable lifestyles, global citizenship, and the contribution that culture makes to sustainable development. However, the outcomes of education require a long time. Education changes people's minds, local cultures, and socioeconomic systems. This process requires knowledge integration from diverse sectors, especially for historically accumulated knowledge. It is necessary to develop new theoretical and practical skills for building local context. The case study describes several good practices in Japan.

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1.1 Introduction

This chapter focuses on Goal 11(sustainable cities and communities), and considers that Goal 4 (quality education) can support it, and discusses community development and the Sustainable Development Goals (SDGs) from the perspective of planning studies. Sustainability is an urgent issue for humankind and the Earth. Achieving environmental goals such as the Paris Agreement and the SDGs with current efforts and progress will be quite difficult. Environmental sustainability can be transformed only by the interaction of economic and social sustainability. To accelerate the SDGs, we need to raise awareness of the crisis and involve people at multi-levels, including the community level, and work together to find a sustainable transition pathway. The main field of SDGs from community development is Goal 11 Resilience City. In addition, this chapter focuses on Goal 4 Educational Approach.

## 1.2 Education for Sustainable Development (ESD)

The SDGs consist of 17 targets and 169 targets, and the fundamental goal is to restore the environment (Targets 6, 13, 14, 15). We need to learn how to understand ecologically and change ourselves. The power of education is a driving force

to promote sustainable development. Rockström et al. (2016) proposed a wedding cake model for a better understanding of the structure of the SDGs. From top to bottom, the pyramid is the economy, society, and environment (Fig. 1.1). The goal is to expand the base and restore balance.

'Education for Sustainable Development' (ESD) was advocated by the Government of Japan and NGOs at the Johannesburg Summit in 2002. Shortly thereafter, the 57th United Nations General Assembly adopted 'The United Nations Decade of Education for Sustainable Development (UNDESD)' (2005–2014).

Fig. 1.1 SDGs wedding cake and the ecology of mind
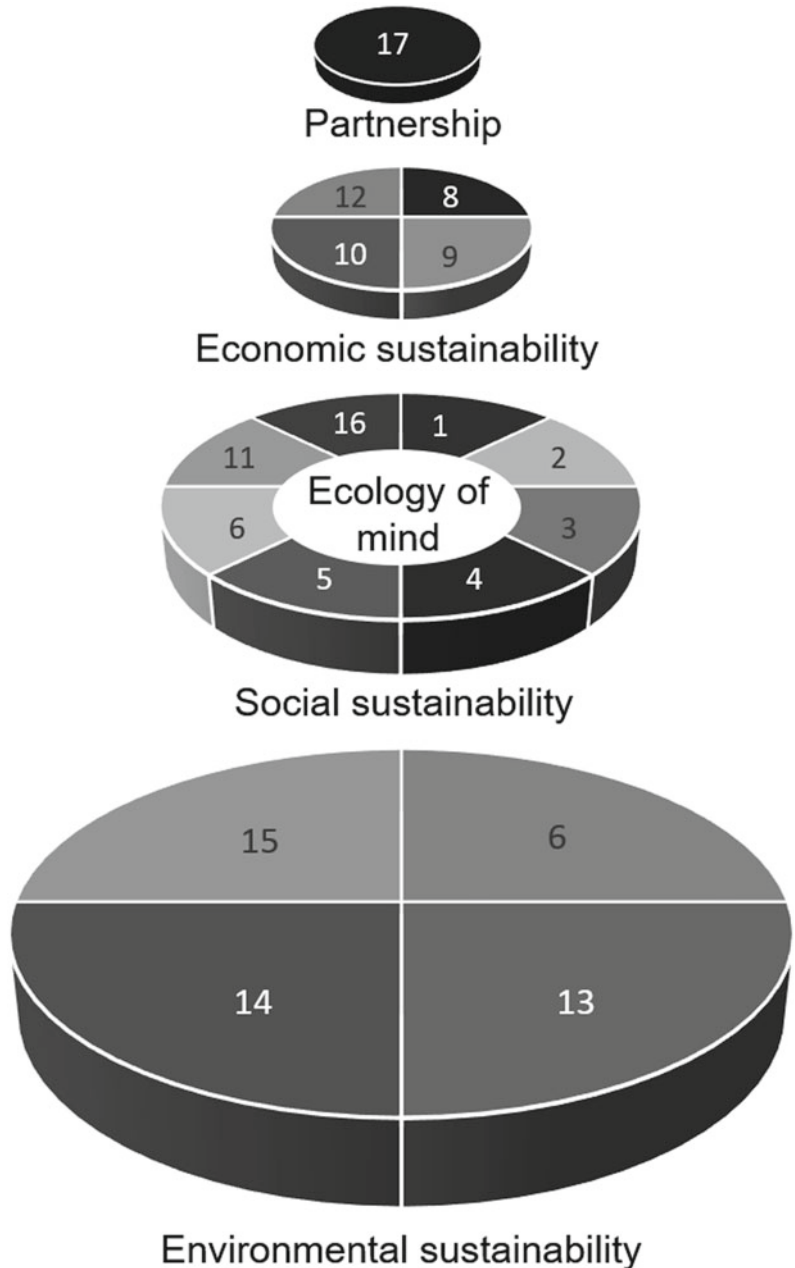
ESD consists of three types of learning: cognitive learning, social and emotional learning, and behavioral learning. Cognitive learning understands complex problems and explores innovative ideas and alternative solutions. Social and emotional learning builds core values and attitudes for sustainability and fosters empathy and compassion for others and the planet. Behavioral learning learns the practical actions for sustainable change in the personal, social, and political arenas.

Ecology of mind is necessary at the core of the SDGs wedding cake. It is ecological understanding, empathy, and preparedness of behavior. It brings the entrepreneurial spirit, technology, and social innovation of the SDGs.

1.3 Community Development

1.3.1 Field and Issues of Community Development

Community development is an academic subject and practical field that focuses on the role of local communities and addresses socioeconomic and environmental problems. Originally, human beings had lived in harmony with nature and the economy since ancient times, but after the agricultural industrial revolutions, those contradictions between man and nature have expanded. Community development was built to address the negative aspects of modern capitalism and development. Today, it is established worldwide as a professional practice and research field. Generally, the research theme focuses on problem solving at the local level. Its major themes include local water, forestry, agriculture, fishery, vulnerable groups, indigenous people's livelihood improvement, poverty, housing, disasters and displacement, infrastructure, sanitation, cooperatives, microfinance, etc. In developed countries, the following are additional major themes: migrants and refugees, voluntary groups, community enterprise, asset-based community

development, community renewal, youth, gender, and ICT.

1.3.2 Social Design Approach

Community development includes an economic mechanism approach, a government approach, and a social design approach. Social design is the theory and practice of design thinking about social values, actors, resources, social structures, social norms, symbols and tools, and social processes, and it develops specialized planning and engagement skills such as regional profiling, civic pride development, value co-creation, scenario planning, consensus building, context building, and transition management.

1.4 Knowledge Integration

As discussed above, community development is an interdisciplinary research and practice area in which diverse stakeholders participate. In order to change the status quo, it is necessary to activate the interaction between the local ecosystem and the practice of management centered on ecological knowledge and understanding.

1.4.1 Various stakeholder's Knowledge

Folke (2006) discussed the framework of social evolution and its elements. From an administrative point of view, social and political leadership, transformability, and systems of adaptive governance are important factors. Socially, the focus will be on strengthening agents and actor groups, adaptive capacity (voluntary sector), and social networks. These elements address the social memory through the social learning process as well as the integration of mental models and knowledge system. Under these social conditions, collaborative visioning can proceed

effectively, and then institutional and organizational inertia will start to change.

1.4.2 Historically Accumulated Knowledge

Layers of historical knowledge have its own knowledge system, which has been upgraded from indigenous knowledge, traditional knowledge, technical knowledge, and recently, a knowledge-based society. All these knowledge systems are aggregated in a knowledge-intensive society. Indigenous knowledge restores new meaning and power within the information sphere. Bohensky & Maru (2011) discussed the dialogue between knowledge systems, methods and processes of integration, social context of integration, and their assessment as being important.

For example, Japanese 'satoyama' is country hills or village forests that are close to human settlements and connected to people's lives. Starting originally from hunting and harvesting, it became a fertilizer supply place in the agricultural society. It was then forgotten in the industrial world, but in the next information society, people realized due to the influence of various media that it was an important place for the ecosystem. Currently, it is becoming a nodal place that raises ecological knowledge and expands the environmental behavior network.

1.4.3 Knowledge from the Inside of Social Memory

As mentioned in Fig. 1.1, ecology of mind is necessary at the core of social reform. The beliefs of individuals and communities will transform society. The ecology of mind and the ecology of society are integrated to create new knowledge. According to Hussein et al. (2020), cultural memory forms the identity of the place and the sense of place, which form the attachment to the community, enhances psychological well-being (quality of life), and contributes to social sustainability.

1.4.4 Local Context Building

Community development emphasizes context building (Fig. 1.2). Herzele (2004) and Soda (2018) considered the integration of civic and expert knowledge in the design of places. Experts try to achieve policy objectives efficiently during the project period, while citizens try to envision the future from the extension of their collective memory. Experts try to promote the planned program, while citizens try to develop new actions in connection with various cultural [political/environmental] movements in other regions. A new story will be built by this dialogue and dynamism.

As a typical example, the Agency for Cultural Affairs of Japan officially recognizes a story that tells the culture and traditions of Japan through the historical charm and characteristics of a region as 'Japan Heritage'. The conditions for certifying a story are a clear theme that conveys the charm of the area, an explanation that anyone can understand, and a composition that people are interested in.

1.5 Context of Community Development in Japan

Community development is influenced by the environment and political economy of each country and region on Earth. Pawar (2012) published a book on community development in the Asia-Pacific region. The field of community development in Japan is wide, but there are few books and dissertations that describe the whole picture. In this chapter, I will try to explain the highlights of Japanese research and practice from the perspective of contemporary Japanese studies.

1.5.1 Land and Climate

It is 3000 km from north to south of Japan, and in the Köppen climate classification, Cfa (humid subtropical climates) is in the south (Tokyo) and Dfb (warm-summer continental climates) is in
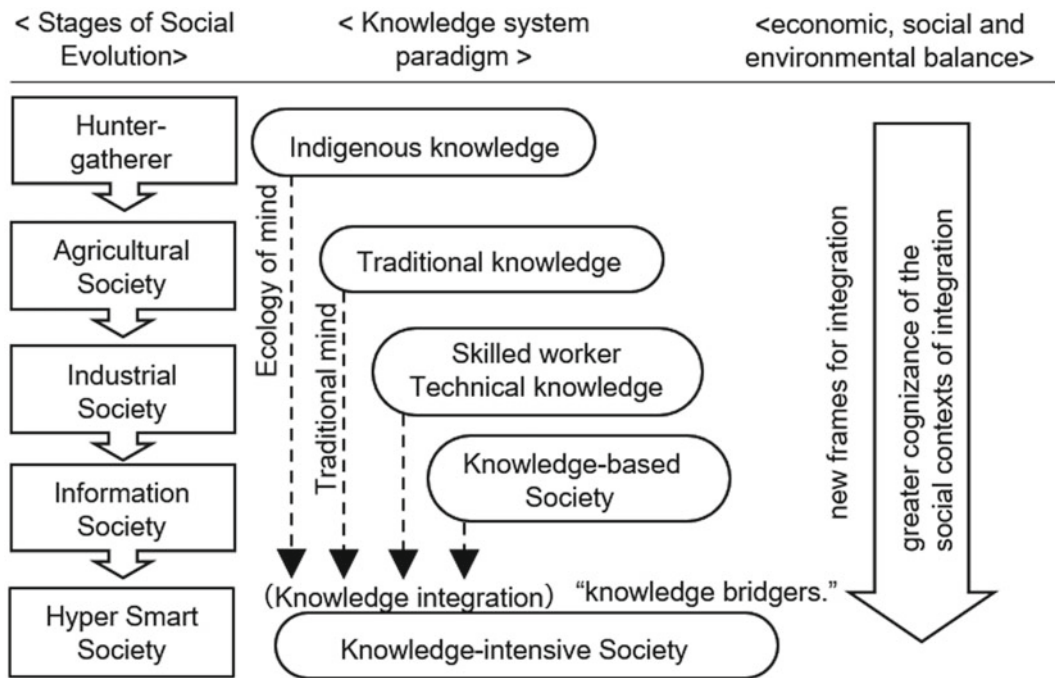
Fig. 1.2 Social evolution and knowledge integration

the north (Sapporo). Due to the hot and humid climate of the monsoon, vegetation grows faster, rice is the staple food instead of wheat and corn, and heavy rainfall causes it to rain 1.5 times more in Tokyo than the Earth's average, thus increasing the risk of flooding. This climate fostered a self-help spirit in which Japanese people can live sustainably as long as they carefully manage their land.

1.5.2 Indigenous People

The Japanese archipelago is basically the Yamato people, but Okinawa has the Ryukyu people. Okinawa has its own culture. There were Ainu people in Tohoku and Hayato people in southern Kyushu. In 2008, a resolution was passed in the Diet (Japan's parliament) to recognize the Ainu as indigenous people. It is said that there is the largest number of people in Hokkaido, about 13,000 and more than 10,000 in the Tokyo metropolitan area. The Ainu have an ecological culture of

hunting and gathering. There is ecological wisdom in words such as 'suy-sukup' (if you cut a branch of a cornus tree and stab it in the ground, the cuttings will grow again), 'iteki-opitta-kar' (never pick all the edible wild plants), and 'a-anu' (leave something for those who come later).

1.5.3 Ancient and Medieval Japan

The population of the hunter–gatherer society was about 270,000, but rice cultivation was transmitted from the continent to Northern Kyushu in the tenth century BC. Paddy rice cultivation spread to the center of Japan at around the seventh century BC. In 743 BC, a law was enacted recognizing the private property and property rights of the land on which the paddy fields were built. Once reclaimed, the lands could be owned by the claimants forever. A peasant and product management system based on a mansion was established, and powerful tribes emerged from each region.

1.5.4 Local Governance of Early Modern

In the Battle of Sekigahara in 1600 AD, Samurai Feudal Lords fought as two powers. General Tokugawa's side won the battle and unified Japan to establish a ruling system. The side that was on the side of the Tokugawa family was called the 'Fudai' daimyo, and the side that was hostile was called the 'Tozama' daimyo. The Fudai daimyo was assigned the territory of the clan, but the Tozama daimyo was assigned to a remote land from Edo to guard against rebellion. Tozama was also ordered to defend the military from other countries. Satsuma Domain (currently Kagoshima Prefecture), Choshu Domain (currently Yamaguchi Prefecture), Tosa Domain (currently Kochi Prefecture), Hizen Domain (currently Saga Prefecture), and Yonezawa Domain (currently Yamagata Prefecture) are Tozama areas.

1.5.5 Local Self-Sufficient Economy

Because the Tokugawa shogunate did not have a national tax system, the clan prospered its own economy. Therefore, its ability to govern independently was questioned. As a result, the plant[/ animal] breeding industry such as processed products and crafts other than agriculture was encouraged. As a result, unique special products of each clan were created, and the distribution economy developed. Eventually, the population at the beginning of the eighteenth century stabilized at about 25 million. Japan reached the limit of its population capacity that can be supported by an agricultural-based society.

1.5.6 Education System Established Based on Asian Thought

A clan school was established in each domain, and scholarship and martial arts were encouraged. The first school was built in 1669 in Okayama. Terakoya also taught reading and writing at a private school in a temple. Even farmers in Japan had a high literacy rate from early on. Reasonable thinking and education were carried out at the clan school. Neo-Confucianism, usually the Zhu Xi theory, became the standard in the Tokugawa shogunate and Fudai domain school. In contrast, the Tozama domain school tended to choose Wang Yang-Ming theory, which seeks the unity of knowledge and action and encourages critical thinking, deliberations, and positive innovation. In the eighteenth century, the Tokugawa governmental regime's central academy of Shoheizaka-Gakuimonjo began teaching both the Zhu Xi theory and Wang Yang-Ming theory. The Matsushiro Domein (now Nagano Prefecture) was one of the first to adopt Western education and abandon Confucianism. During this period, many excellent feudal lords, scholars, and military personnel appeared. Wang Yang-Ming theory scholar Nakae, Toju (1608–1648), Yonezawa feudal lord Uesugi, Yozan (1751–1822), agricultural politician Ninomiya, Sontoku (1787–1856), and Satsuma feudal lord Saigo, Takamori (1828–1877) are the most representative social innovators of Japan.

1.5.7 Mutual Self-Help

There is always a risk of failed crops and famine due to climate change, and in 1838, an early model of agricultural cooperatives was formed by OHARA, Yugaku (1797–1858). KAGAWA, Toyohiko (1888–1960) was a social reformer and activist who established a pre-war labor movement and farmers' movement [established pre-war labor and farmers' movements]. He worked on improving slums and founded the Japanese Farmers' Union. Although Japan is self-help based, cooperatives are highly developed to avoid that risk. Currently, at a total of 105 million people, the added value created by the cooperatives is 5.6 trillion yen. At 100 million yen, more than half of Japan's domestic agriculture, forestry, and fisheries output is shipped and sold through cooperatives. Some 23% of domestic savings are deposited with cooperatives.

1.5.8 'Machizukuri' Emphasizes Civic Engagement

As a compound word of 'machi' (means town) and 'zukuri' (means making), 'machizukuri' means town planning, place making, community development, and community governance, which includes asset management, construction, and environmental actions. Words appeared in the seventeenth century, and after 1970, they are often written in hiragana characters, emphasizing a citizen-centered and community-based approach in contrast to government-led city planning and administrative management. There is a synonym of 'murazukuri'. Mura is a village.

1.5.9 'Kyosei' is the Idea of Coexistence

'Kyosei' means living together. Originally referring to a symbiosis of biology, it means the interaction between different organisms living in close physical association. In Buddhism, it means that oneself and others live together. In the machizukuri field, it means social inclusion or environmental harmony.

1.5.9.1 SDGs and Open Innovation in Japan

In Japan, of the approximately 1700 local governments, nearly half will be promoting the SDGs. Among them, 124 SDGs Future Cities have been selected by 2021. Each has originality, and all plans are shared on the Web. Local governments are raising the level of awareness through collaborative learning. In that process, open innovation occurs, and knowledge coevolves.

1.6 Culture of Public Spiritedness by Region

The public spiritedness of people in the local community is very important due to the human resources of community development. It is an independent variable that does not correlate with the economy (GDP) or society (population size).

Areas with many environmental volunteers are Shiga (7.4% of the population) and Kagoshima prefectures (7.3% of the population) (Fig. 1.3). These areas are rich in nature, and historically, practical civic education has been provided by excellent educational leaders and institutions to form civic pride.

Areas where many people participate in the Japan Overseas Cooperation Volunteers are Kagoshima (884 people from 1965 to 2021 and 56.1 people per 100,000 population) and Shimane (369 people from 1965 to 2021 and 55.5 people per 100,000 population) prefectures (Fig. 1.4). Historically, many people have migrated overseas from these areas, and they still value their connections. A support group has also been established. The data of Figs. 1.3 and 1.4 are correlated.

1.7 Case Study: Context-Building Process of Kagoshima Area

Kagoshima Prefecture is located in the south of Japan and is a gateway to the sea route. The Köppen climate classification is Cfa. The Hayato people lived in ancient times. The active volcano Sakurajima erupts frequently. This land was ruled by the Shimazu clan from the end of the twelfth century. The context of community development is shown in Fig. 1.5.

During the Warring States period, Shimazu, Tadayoshi (1492–1568) (called 'Jisshinko') gained power. He emphasized the practice of wisdom. Shimadzu clan was the first in Japan to purchase a gun from Portugal and use it in practice. They belonged to the Western Army in the Battle of Sekigahara, and after the war, they ruled the Satsuma Domain as Tozama daimyo. However, they did not abandon the consciousness of being equal to the Tokugawa shogunate. The Satsuma Domain in the Edo period established the school 'Zoshikan' (meaning to create ambition, currently Kagoshima University). The basis of learning was 'Jisshinko's thought. Critical thinking, deliberation, and mutual help were emphasized. They offered a unique 'goju' education. The area was divided into 18 sub-units,

Fig. 1.3 Number of environmental volunteers by prefecture. *Data source* Survey on time use and leisure activities 2016
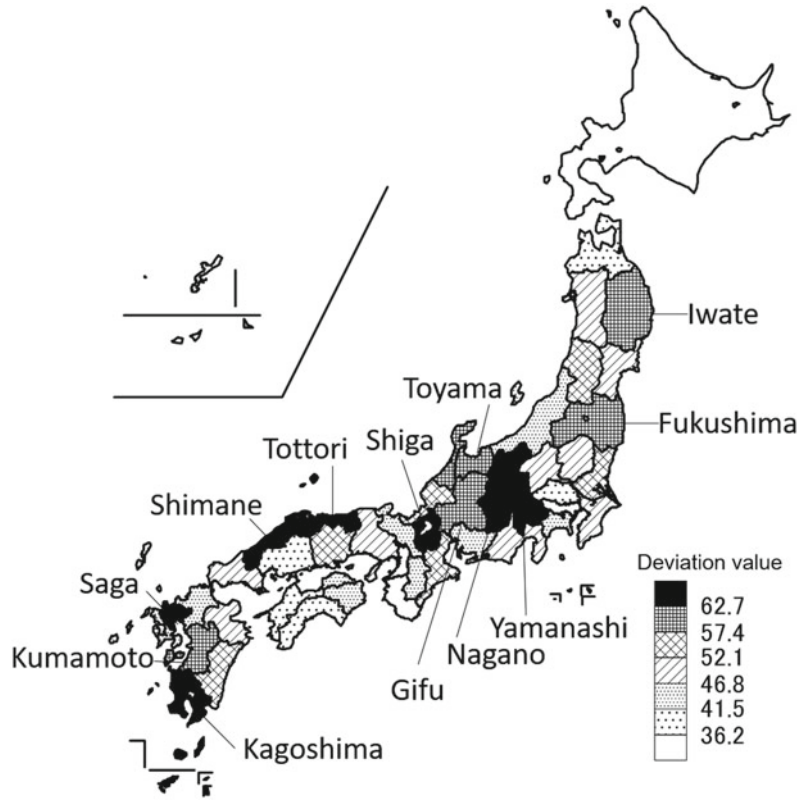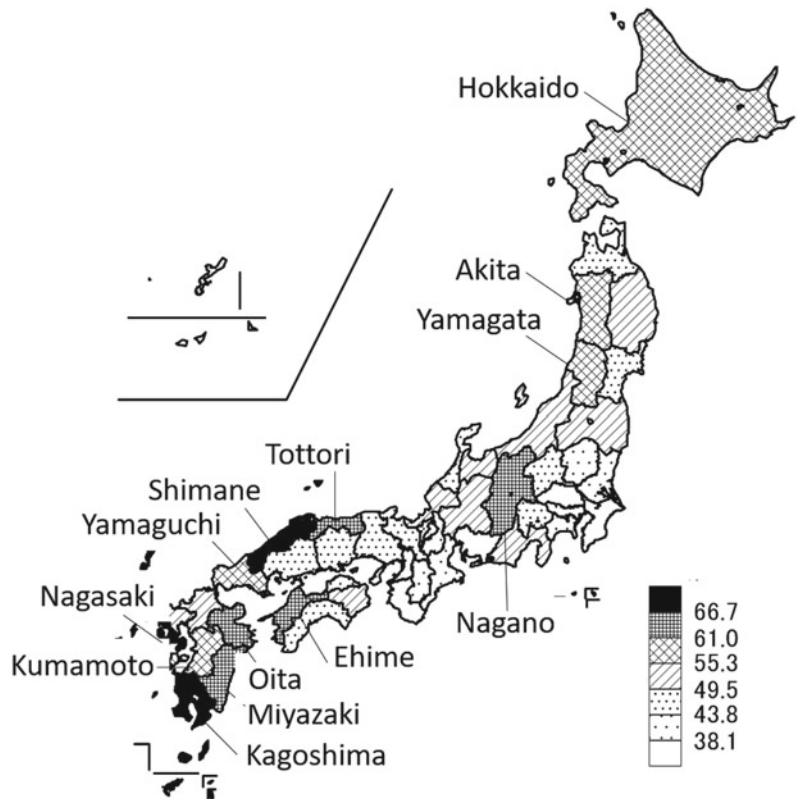

Fig. 1.4 Number of Japan overseas cooperation volunteers. *Data source* Japan International Cooperation Agency 2021
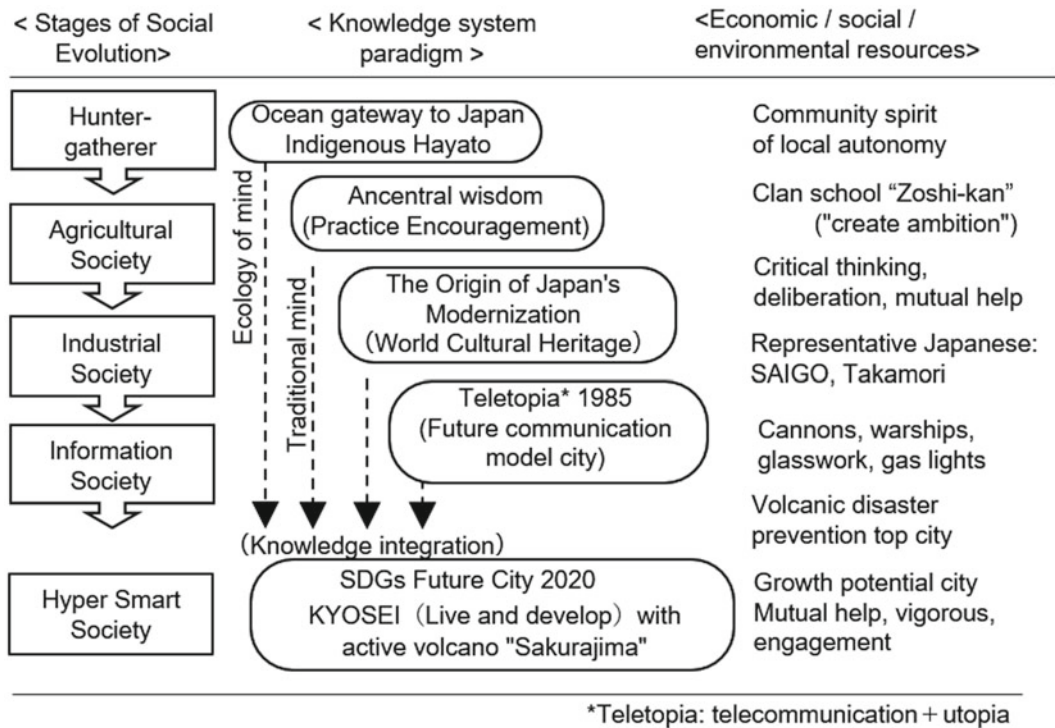
Fig. 1.5 Context-building process of Kagoshima area

and children from 6 to 25 years old were taught martial arts and scholarship by collaborative learning. Satsuma has developed modern technologies such as cannons, warships, glass crafts, and gas lamps and led the industrial revolution and modernization of Japan (World Heritage). Many social innovators such as Saigo, Takamori (1828–1877) and Okubo, Toshimichi (1830–1878) studied at Zoshikan. In recent years, these include Isamu Akasaki (1929–2021), who won the Nobel Prize. In 1985, when the information society began, Kagoshima was designated as a 'Teletopia' (telecommunication + utopia) by the Japanese government. They introduced early warning systems and emergency evacuation policies for volcano eruptions.

In 2020, Kagoshima was selected as a SDGs Future City by the Japan Government. The concept is to 'Kyosei' (coexist) and develop sustainably alongside with the active volcano Sakurajima. Today, Kagoshima is well established as a vital and potential area through civic engagement and mutual help. In Minamisatsuma City, the Jisshinko's 'karuta' (Japanese traditional card game) tournament event for children is held regularly.

1.8 Concluding Remarks

In this chapter, I have explained the theory of Sustainable Development Education (ESD) in community development and its practice in Japan. Goal 4 (quality education) can change people and change the innovative practices of Goal 11 (sustainable cities and communities). As the famous phrase 'Think globally and act locally' suggests, Goal 11 is responsible for creating an arena where people can practice the SDGs. For Goal 11, all 17 goals need to be subsumed within the local community and considered holistically. ESD enhances the interaction between an outside-in approach that motivates people from the transformation of the social

system and an inside-out approach that transforms society by recovering the ecology of mind from social memory and social consciousness. Historically accumulated knowledge is important for the formation of civic pride and the community of practice. In Asian countries and regions, cultural experience is layered in the history of the colony. The socioeconomic environment is becoming more complex, and a framework for temporal and spatial knowledge integration and context building will become increasingly important. International research and the practice of open innovation will be expected. However, knowledge of the effectiveness of education takes time, as clear socioeconomic evidence emerges. Open social innovation can support this effectively.

References

Bohensky EL, Maru Y (2011) Indigenous knowledge, science, and resilience: what have we learned from a decade of international literature on "integration"? Ecol Soc 16(4):6. https://doi.org/10.5751/ES-04342-160406

Folke C (2006) Resilience: The emergence of a perspective for social-ecological systems analyses. Glob Environ Change-Hum Policy Dimensions 16(3):253–267. https://doi.org/10.1016/j.gloenvcha.2006.04.002

Herzele AV (2004) Local knowledge in action: valuing nonprofessional reasoning in the planning process. J Planning Educ Res 24(2):197–212. https://doi.org/10.1177/0739456X04267723

Hussein F, Stephens J, Tiwari R (2020) Memory for social sustainability: recalling cultural memories in Zanqit Alsitat historical street market, Alexandria Egypt. Sustainability 12(19):8141. https://doi.org/10.3390/su12198141

Pawar MS (2012) Community development in Asia and the Pacific, New York & London: Routledge

Rockström J, Sukhdev P (2016) How food connects all the SDGs, opening key note speech at the 2016 EAT Stockholm Forum

Soda O (2018) Information society and community work. In: Hijikata M (ed) Chiiki Keikaku Joho-Ron (information theory for regional planning). Tokyo: Seibundo Pr., pp 131–150

Uchimura, K. (1908). Representative men of Japan. Tokyo: Keiseisha Pr.