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The way to the 'comedy of commons' of a new business model-finding from Naples in Italy, and Jeju Island in South Korea

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ABSTRACT

In this study, we seek to examine the success factors of the classical common goods of various capitalist economies and to apply them to diverse platforms that appear as new common goods. Our research question is as follows: *Are there any common success factors that can be applied to produce and use common goods across economic conditions?* With the goal of identifying the grounded theory of common goods, the study employed the interview method using a semi-structured questionnaire. Furthermore, it conducted participatory observation and a literature review of case studies as well as a comparative study of 20 Korean commons and 20 Italy commons. According to cases of common goods in Jeju, South Korea, the coupling effects of several public policies could motivate the privatization of common goods. Second, an empty area in common goods consists of a high level of participation with democratization and a low level of common condition. High participation with democratization can avoid privatization and increase new open business models of common goods. Third, active open innovation with a high participation in democratization and expansion of new business models based on tacit knowledge of common goods could be the activating engine of regional innovation systems.

KEYWORDS

Common goods; open innovation; business model; regional innovation system; grounded theory

1. Introduction: research question, and research method

1.1. Research question

Innovation ecosystems or regional innovation systems, whose successful examples are Silicon Valley in the United States, JungKwan Chon in China, and the Cambridge area in the United Kingdom, share similar institutional characteristics and organizational dimensions (Cooke, Uranga, and Etxebarria 1997). Members of these successful entities consider new technologies, business models, or patents as a type of commons with self-regulatory processes, and agents in the systems communicate with one another in a

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democratic and mutually participative manner to arrive at creative open innovations (Nambisan and Baron 2013; Oh et al. 2016; Yun et al. 2020). In addition, platform firms, such as Uber and Airbnb, which are based on two-side network effects (i.e. sharing and social economies) and on information or digital commons with the emergence of platform corporatism, promote a re-thinking of the comedy of the commons instead of the tragedy of the commons (Halbert 2010; Papadimitropoulos 2021; Scholz 2016).

Against this background, the study aims to determine the success conditions and factors of classical common goods from the perspectives of different capitalist economies and to apply these at venture ecosystems, regional innovation ecosystems, or sharing platforms, which are emerging as new common goods. Thus, the study intends to answer to following research question.

'Are there any common success factors that can be applied to the production and use of common goods across economic conditions?'

With the advent of digital transformation, the interweaving of commons-based production and redistribution is emerging in diverse sharing platforms (Bauwens and Ramos 2018; Constantiou, Marton, and Tuunainen 2017). Determining collective actions and the evolution of social norms, which are considered common in diverse common goods across countries will be the core answer of the research question (Ostrom 2000).

1.2. Research method and scope

With the goal of identifying the grounded theory of common goods, the study used the interview method with a semi-structured questionnaire and participatory observation. In addition, it conducted a literature review of case studies and comparative study (Table 1) (Glaser and Strauss 2017). Although the positivism paradigm considered qualitative research methods as less capable of demonstrating the production of scientifically reproducible facts and its sensitivity in determining facts about social structures and systems, the naturalistic paradigm highlighted these methods not because the paradigm is anti-quantitative, but because qualitative methods use humans as an instrument (Glaser and Strauss 2017, 15; Lincoln and Guba 2007, 198).

By using multiple research methods, this study aims to identify common theories through interviews with practitioners in real situations and organizations within places of common goods in South Korea and Italy, which present entirely different histories from those of capitalist economies (Avison et al. 1999).

First, this study conducted a literature review to build up the interpretive research framework and interviews using a semi-structured questionnaire with participant observation.

Second, the study employed the case study method, which refers to a strategy that intensively focuses on individual cases, to draw insights about causal relationships in a broad population of cases. Specifically, the study focused on small-N cases, such as 20 Korean commons and 20 Italian commons, to examine commons (Appendixes 2 and 3) (Poteete, Janssen, and Ostrom 2010, 31, 33). By comparing between 10 common fishery cases and 10 common pasture cases in Korea or between Korean commons and Italian commons, this study aimed to find an accurate evidence of grounded theories

Table 1. Research scope and method.

	Research Method		
	Interview		
Research Scope	Interview Date	Interviewee Job	Participatory Observation Date
10 Common Fisheries and 10 Common Pastures at Jeju Island in South Korea			
10 village common fisheries in Jeju Island, South Korea	2020. 7th–11th September	Fishing village chief	2020. 16th–20th November
10 village common pastures in Jeju Island, South Korea	2020. 8th–11th September 2020. 17th–20th November	Head of village, or former head of Gasi-ri village (current village community research institute director), or union president or member of village common pasture union or	2021. 5th–8th October
13 Common Goods (3 Food Ingredients, 7 Common Tourism Locations, and 3 Common Territories) at Naples and Sorento in Italy			
(1) Naples Pizza;	2021. 4th April	CEO of the brand 'Johnny-takeu'	2022. June 24th–30th
(2) Sorrento Slow Food;	2021. 13th April	President of Slow Food Sorrentto Coast and Capri	Field research in Naples and Sorento
(3) Amalfi common raw material	2021. 15th April	CEO of VIDA Consulting, a food and beverage company	Mainly participatory observations with partial additional interviews.
(4) Town of Lettere;	2021. 28th March	Hiking guide	
(5) Lattari mountain area;	2021. 9th April	Project and event manager	
(6) Lettari regional park;	2021. 18th March	President of Lattari mountains regional park authority	
(7) Amalifi coasts;	2021. 28th March	Hiking guide	
(8) Pompeii ruins;	2021. 10th April	President of Skal	
(9) Pompeii and Vesuvian Area;	2021. 15th April	Hotel CEO	
(10) Naples city Stadium	2021. 12th April	CEO of travel agency	
(11) Confcommercio (Downtown Common Stage);	2021. 30th March 2021. 12th April	President of a local Confcommercio Founder and CEO of the museum	
(12) MAVV wine art museum;	2021. 12th April	Co-owner of the company	
(13) (13) Common vineyards-Sorrentino Vini (winery)			

and draw empirical generalizations of the findings (Glaser and Strauss 2017, 24, 25). The criteria used for case selection were (1) cases which are useful for quality assurance (2) snowball or chain sampling identifying cases of interest through people with knowledge of which cases are rich in information (Creswell and Poth 2016, 159).

Third, this study conducted interviews and participant observation at the state of non-participant or observer as participants with semi-structured questionnaire like in Appendix 1 (Creswell and Poth 2016, 168; Horton, Macve, and Struyven 2004). The Korean research team interviewed members of 10 common fisheries in Jeju Island during September 7–11, 2020, and conducted additional participatory observation from November 16 to 20, 2020 (KwonHoo and Kwon SangCheul 2016). In addition, the Korean research team interviewed members 10 of common pastures in Jeju Island from September 8 to 11, 2020 and conducted participatory observation from November 18 to 20, 2020. The 20 common goods are located at Jeju Island in Korea (Appendix 2) (Ahn Kyeongah, Han, and Jung 2018).

The Italian research team interviewed 13 common goods in tourist attractions, three common goods in raw materials, one common goods in territory, and three common goods in agriculture and food from March 30 to April 18 in 2021. In addition, the Italian and Korean research teams conducted participatory observation about 13 common goods in Italy from June 24, 2022, to June 30, 2022.

2. Literature reviews and research framework

2.1. The boundary of common goods and its characteristics

A common resource is a good that is non-excludable but rival in consumption such as fish, clean air, water, and diverse animal and plant species (Krugman and Wells 2009, 469). Common pool resources, which are used by multiple individuals, generate finite quantities of resource units, where one person's use subtracts from the quantity of resource units available to others. Example include natural and human-made systems such as groundwater basins, irrigation systems, forests, grazing lands, mainframe computers, government and corporate treasuries, and the Internet (Ostrom 2002). Common-property resources are defined as a class of resources for which exclusion is difficult, and joint use involves subtractability (Berkes et al. 1989). In other words, common-property resources share two important characteristics, namely, they have low levels of excludability (or control of access, that is, the physical nature of the resource in controlling access by potential users may be costly) and low levels of subtractability, that is, each user is capable of subtracting from the welfare of other users (Feeny et al. 1990).

Economics for common goods has several characteristics which are different from other economics in several factors, such as (1) an agent who is not always rational or homo psychologicus, (2) contrary to personal self-interest (we feel empathy), (3) pro-social behaviour (reciprocal altruism) in addition to constant changes in all aspects of platforms, different business models, challenges of two-sided markets, or new forms of employment due to digitalization (Tirole 2017, 123, 378, 401). The time is right for moving beyond simple models of property to develop a descriptively accurate and analytically useful theory of property in natural resources (Cole and Ostrom 2010). The

iterated prisoner's dilemma helps to establish the prevalence of cooperation based on reciprocity, which occurred as benefits of the commons in several cases (Axelrod and Dion 1988; F. J. T. b. o. t. c. Berkes, Nature). One can observe levels of property arrangement that cover the spectrum from 'completely common' to 'completely private' property rights (Anderson and Hill 1975). Apart from natural resources, new knowledge can also be a common pool resource, which is well known as the knowledge commons. In this regard, a relevant community can create and enforce governance rules to facilitate cooperation and avoid the traps of social dilemmas in the peer production of knowledge and to further contribute to the discovery and development of new technologies (Allen and Potts 2016; Potts 2018). With the increases in knowledge and information values due to the digital transformation brought about by the fourth industrial revolution, the circumstances appropriate for the existence of efficient common-property regimes are likely to be more extensive in developed and developing economies (Wilson 1995).

The area of common goods, which refers to goods that are non-excludable and rival in consumption (common-property), is moving toward and expanding to being partially excludable and nonrival in consumption, as influenced by digital transformation as well as the emergence of knowledge common (Figure 1) (Hess and Ostrom 2007; Vial 2019). With the expansion and movement of common goods, determining the motivating factors of common goods in the open innovation paradigm will be one of the starting points of the co-evolution between technological and social innovations for the way to the entrepreneurial state (K. Choi 2020; Yun et al. 2019).

The theories of commons that developed in the middle of the twentieth century emphasized the difficulty of collective action and suggested that the overexploitation of shared natural resources is inevitable (Poteete, Janssen, and Ostrom 2010; Sandler 1992). The tragedy of the commons explicitly addresses the challenges of avoiding the overexploitation and degradation of shared natural resources, that is, from Hardin's logic to deep-sea fisheries (Gordon 1954; Hardin 1968; Scott 1955). Solutions, such as the private property of

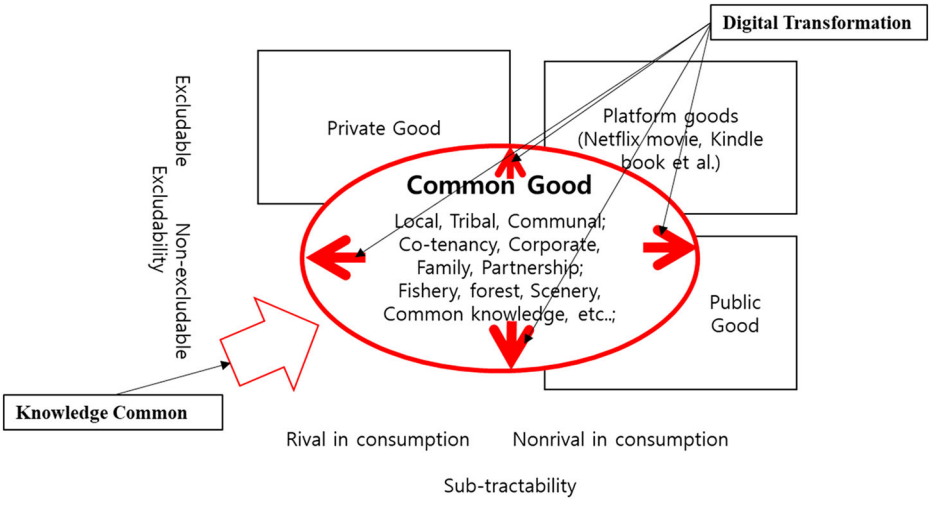

Figure 1. Movement and expansion of common goods with knowledge common and digital transformation. Source: adapted from Cole and Ostrom (2012); Krugman and Wells (2012, 461).

individual resource users (i.e. privatization, and governmental intervention) were proposed to solve the tragedy (Ciriacy-Wantrup, Bishop, and Andersen 2019).

However, under specialized conditions, such as sufficient common goods, non-central control, or sufficient participation of related agents, common goods can be new clues to the comedy of the commons according to cases in the United States, Japan, and Switzerland (Ostrom 1990). In fact, throughout human history, helping and supporting one another contributed to the evolution of social institutions and the culture of mankind (Kropotkin 1914). According to recent studies on humans helping one another in a repeated game of prisoner's dilemma and the co-evolution of parochial altruism and war in human history, possibilities exist for the use of common goods at present and in the future without the tragedy of the commons (Choi 2007; Choi 2009; Choi and Bowles 2007).

2.2. Privatization of the commons

In certain cases, if the market wishes to pay a price for the value of common goods (e.g. social value), the price could eliminate the social value of common or public goods (Sandel 2012, 130). According to the divided use of the commons, common land is, in fact, divided into pieces for individual co-owners to use as they seek profit, which is akin to privatizing the common. Although co-owners do not own allotments, they must abide by limits in the use of the commons and are unable to sell their pieces to others (McKean and Cox 1982).

In the common good economy with high network externality and incomplete contracts, the traditional three factors of economy, namely, land, labour, and capital, can be substituted by brain calculation, information, and reputation, respectively, with the expansion of common goods economy (Bowles, Edwards, and Roosevelt 2005, 477). Similar to the appearance of capitalism without capital, intangible investments are appearing, such as software, databases, R&D, entertainment, design, training, market research and branding, and business process re-engineering, along with new issues, such as intangible scalability, sunk cost, and spillovers, which are related or similar to common goods, collaboration, and open innovation, respectively (Haskel and Westlake 2018). In fact, the commercialization bias of the fetishism toward new commodity produces social limits to growth, especially to those of traditional and new common goods, which are derived from information and networking (Hirsch 2005, 146).

The development of full ownership rights in common goods is facilitated by the public, which views former users as legitimate owners of the new rights, the homogeneity of former users, and lessening conflicts on intragroup equity, among others (Welch 1983).

2.3. Management of the commons: democratization with participation as open innovation

Common-property regimes range from communal systems of resource use among hunter gatherers to enormous collective farms in socialist economies, and even to community and other broadly shared rights in the regulation of environmental consequences of individual behaviours in industrial economies (McKean 2000). Local-level arrangements and rules for the allocation and management of fish resources provide a feasible

set of institutional arrangements for the sustainable management of coastal fisheries in Aegean and Mediterranean fisheries in Turkey, including inshore small-scale fishery, trawlers, purse-seiners and beach seiners. The condition is that the resource is being used by one relatively small and homogeneous group of users (Berkes 1986). According to data on forest commons from nine countries, high levels of local enforcement exhibit a strong and positive but complex relationship with the probability of forest regeneration, even when considering the influence of various factors such as user group size, subsistence, commercial importance of forests, size of forest, and collective action for forest improvement activities (Chhatre and Agrawal 2008). Regular monitoring and sanctioning of rules are a necessary condition for the successful management of common goods resources (Gibson, Williams, and Ostrom 2005). Research in multiple disciplines finds that certain government policies accelerate resource destruction, whereas other resource users invest time and energy to achieve sustainability (Ostrom 2009).

According to several social experiments, if the reputation for indirect reciprocity is maintained, then public goods, including common goods, can be maintained at unexpectedly high levels, which meets the conclusion of another research group, that is, communication in a commons can motivate cooperation without external enforcement (Milinski, Semmann, and Krambeck 2002; E. Ostrom and Walker 1991). Local communities apart from government or private agencies, can play an important role in achieving positive forest conditions; however, full management responsibilities are required to achieve these results according to a research on 46 forests located in six countries (Coleman 2009). In the situation of a heterogeneous co-management institution, transaction costs related to heterogeneity may exert a significant influence on the successes or failures of co-management (Ray and Bhattacharya 2011).

2.4. New business model of common goods based on tacit knowledge of open innovation

Diverse industries range from smart grid communications to healthcare, inventory management, and even mobile data; the commons, including peer production innovates faster and captures large market shares than the proprietary spectrum has (Benkler 2017). Many culture studies focus on incentives that compel individuals to participate in commons-based peer production, the governance of peer production communities, and open innovation process (Schmidt 2009, 23 October). From the institutional perspective, open innovation can be considered a private-collective innovation model because the free revealing of inventions, such as open-source software development, findings, discoveries, and knowledge, is a defining characteristic of open innovation instead of the private investment model of innovation that considers Schumpeter's temporary monopolistic profits (Gassmann, Enkel, and Chesbrough 2010).

A central tenant of open innovation is the free revealing of proprietary information and knowledge regarding information-based and physical products developed, which is a 'private-collective model for innovation incentives.' The model is called as such because, by proving of public goods, innovators can gain higher profits than those of free riders from freely revealed innovation due to the tendency of certain sources of profits to remain private (Von Hippel and Von Krogh 2006). Open-source software projects are a form of 'private-collective model of innovation and they are not pure public

goods' – they have significant private elements even after the contribution is freely revealed (Hippel and Krogh 2003). As a form of open innovation, peer production, which includes open-source software and several platform production in digital transformation, is far from the centrality of property but near to the interaction between property and commons (Benkler 2017).

Open innovation assumes the cooperation of two or more organizations – at least one generating an innovation and at least one utilizing it – with a viable business model for each and motivates the introduction of new business models in the value network (West 2006). The environment for open innovation can be exploited as a form of the reverse tragedy of the commons, such as knowledge and unused patents, and can include traditional common goods such as fishery or meadows (Piirainen et al. 2018). With the emergence of digital capitalism, the new commons, which is generated by the global real subsumption of ordinary life processes, are supporting similar forms of commons-based production (Arvidsson 2020). In fact, common properties may continue to be efficient and equitable, which complements and combines with private rights in a manner consistent with the resource endowments of village economics (Runge 1986). In institutions that manage the use of common goods, the rule on opening of information among members decreases the use and value of common goods (Ostrom 1986).

2.5. Research framework

The directions of commons goods can have several candidates. For examples, they may be in privatization, maintenance of weak and strong common goods, or maintenance of strong common goods with expanded business models (Figure 2) based on several cases in the literature, such as common goods meadows or forests in Japan and Switzerland; watering institutions and systems in Huerta areas, Spain; watering community of Ilocanos, the Philippines; and the logic of the water-right game of the metropolitan water district case of the United States, among others (Coward 1985; Maass and Anderson 1978; McKean and Cox 1982; Netting and Netting 1981; Ostrom 1990, 202).

The natural conditions of common goods for original use (e.g. fishing, sea farming, cattle breeding, watering, or irrigating) decide the evolution direction of common goods, although the detail of natural conditions of common goods is extremely diverse and changeable according to social–economical contexts (Berkes 1986; Blomquist 1989).

The volume and democratization of participation in the usage of common goods as a form of open innovation decide the maintenance of the value and the expansion of the usage value of common goods. This scenario is well known as expanding business models. An autonomous organization for the management of common goods is the best example of participation, democratization, and open innovation of common goods (E. Ostrom and Walker 1991). From collective action theory for public goods, such as orthodox theories of pressure groups and of state and class to autonomous management theory of common goods by Ostrom, many theories are proposed on participation in the management of common goods (Olson 2009; Ostrom 1990). Details about participation, democratization, and open innovation are diverse according to situations and economy conditions.

The transfer level of knowledge will be the trigger of the business model expansion of common goods. Among the diverse forms of knowledge, tacit knowledge is the main

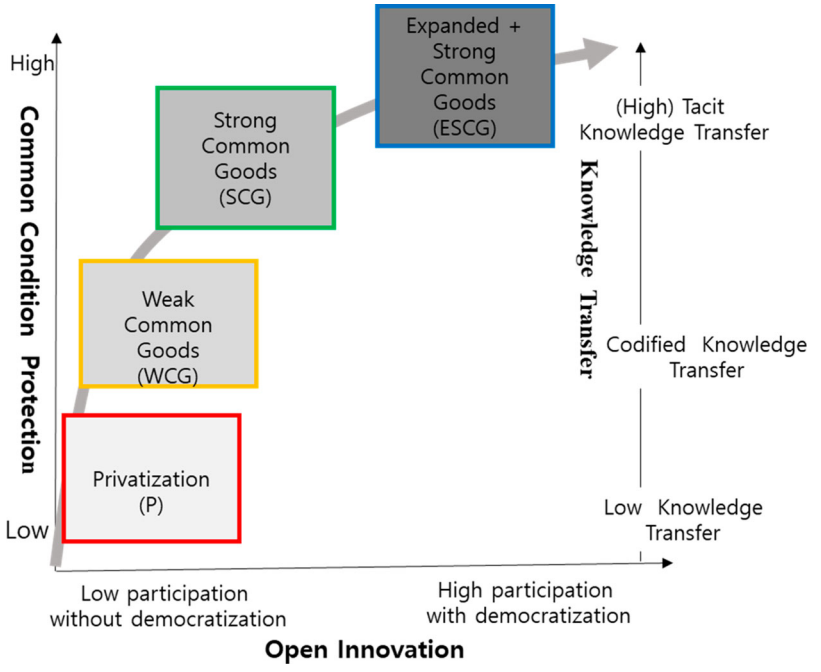

Figure 2. Research framework and diverse evolution direction of common goods.

trigger of expanded strong common good (ESCG) because it could be produced with additional value from social capital, which is based on deep social communication among persons related to common goods (Nonaka and Von Krogh 2009). However, weak common goods (WCG) will present more codified knowledge because it is produced from internalization, which stems from the formal communication among persons related to common goods.

Similar to Figure 2, common goods can be located in different positions among privatization (P), WCG, strong common goods (SCG), or strong common goods with expanded business models (ESCG). These positions differ according to (1) the difference in open innovation, including participation and democratization of users of common goods; (2) common and natural conditions of common goods under the context of government policy, and (3) knowledge transfer. The study aims to determine the concrete locations of cases and the dynamics of details from common goods in two countries as case studies.

3. Common goods in South Korea

3.1. 10 common fisheries in Jeju Island, South Korea

We interviewed 10 common fisheries in Jeju Island in South Korea. The participants were selected using the snowballing method and communicated with them with a semi-structured questionnaire in addition to participatory observation (Appendix 1) during September 7–11 and November 18–20.

The results indicated that the Siheung-ri village common fishery (⑦) exhibits a high level of participation among members in a democratic manner and high common characteristics as a type of ESCG (Figure 3). All decisions are made by a pool of 15 representative members from 116 members. However, any members can join, talk, and poll at decision meetings on the autonomous restaurants or affairs of female divers. At the moment, a vast amount of tacit knowledge, which was accumulated by members, is transferred among one another. The president can work for only one term of 4 years. Several sea products can be found 1 km away from the coast and are unpolluted through human behaviours because this fishery has a shallow and concave-type coast. From more than 30 years, female divers who obtain sea products manage restaurants autonomously, use their products as ingredients, and share the benefits. In addition, this fishery built an artificial island for leisure sea sports in addition to ocean par and scuba diving facilities.

Second, the common fishery in Haegnwon-ri village (⑧) is located between ESCG and SCG. The fishery produces a large number of products from the sea with low levels of pollution at the coast, which has a enough height gap between ebb and flow in addition to benefits from 12–15 small fishing boats. At general meetings, nearly all-important issues, such as the tenure of the president, rental fee of restaurants, and sum of all product revenues, are decided despite the presence of a representative committee. At general meetings, among more than 100 members, always more than half of them joined. Every 1–3 years, approximately 500–1000$ is disseminated to all members.

Third, common fishery in Jongdal-ri (①), Dodu (②), Hado-ri (⑤), and Goseong-Shinyang (⑨) belong under SCG (Figure 3). Jodngdal-ri has a harbour for fishery ships in addition to coasts for activities and profitable products for female sea divers, which supply autonomous restaurants. Moreover, pollution and the decrease in communication

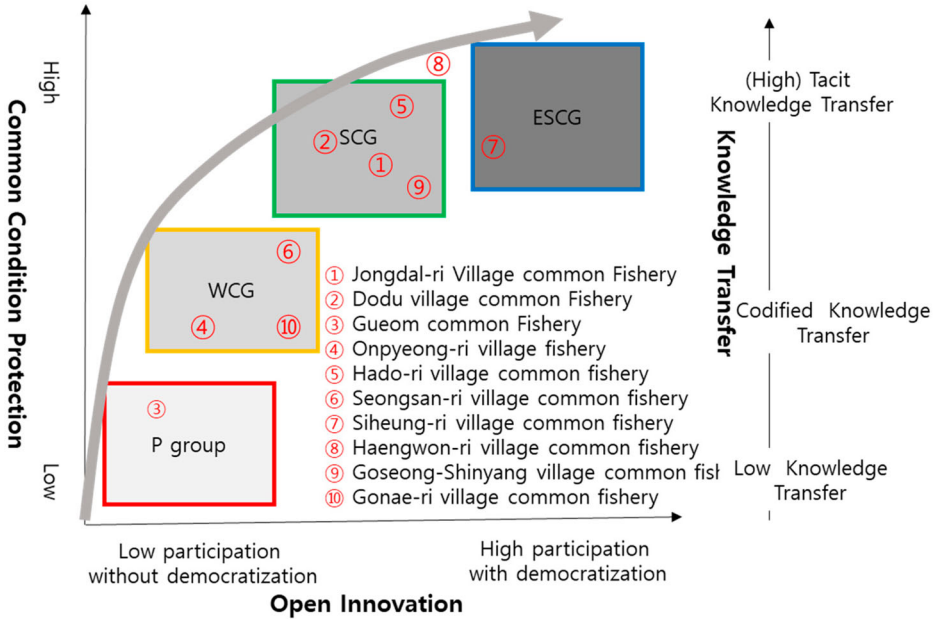

Figure 3. Ten fisheries in Jeju Island from the common * participation research framework.

among members are increasing. At a meeting with members of the common fishery in Dodu, nearly more than 30 members, including three young female divers, attended. The membership fee for female divers and village members was the highest among all common fishery at 7000$, which indicates that the common condition of the fishery is very good. The fishery has a show team of international female sea divers and produces a souvenir, which is the identity of the fishery. This idea is engendered in open innovation among young new members. The community of female divers is a type of culture, life, and economic communities according to comments from the interviewees. The common fishery in Hado-ri has the longest coast line among all common fisheries in Jeju with a very high gap between ebb and flow. This motivates the development of the works of female sea divers but not shop work related to fishery. In Hado-ri, the representative committee includes seven sub-village representatives of divers, 15 representatives of the fishery, and the president of the fishery, where all decisions on events are made. The first account of coastal business in Jeju or in South Korea began at this fishery. The common fishery in Goseong-Shinyang has fishery ships and female divers in parallel. Decisions, such as shows offered by two autonomous restaurants featuring female sea divers and rental houses, among others, are made during non-regular general meetings that occur four to five times per year. However, the products of this fishery are decreasing due to sea pollution and three sea farms.

Fourth, the common fisheries in Onpyeong-ri (④), Seongsan-ri (⑥), and Gonae-ri (⑩) belong to WCG (Figure 3). The fishery in Onpyeong-ri is becoming poor due to pollution from 10 aquatic firms and the non-regulated use of non-members. Although the president has been in place for 7 years, the participation of members is insufficient because the common fishery does not provide sufficient revenue to members. The common fishery in Seongsan-ri has several fishery ships and a narrow coast for female sea divers. In only one autonomous restaurant, all female sea divers work together in rotations to obtain additional benefits due to the poor revenue from the sea output. The community of female sea divers does not express their opinion directly because this fishery community is controlled by owners of small fishery ships. In other words, only copied knowledge is being transferred. In front of an autonomous restaurant, a female sea diver gives shows for free, which had been done in Canada on 2019. The common fishery in Gonae-ri is an extremely small one, where production is decreasing due to pollution and the non-regulated use of non-members. Furthermore, it lacks a business model and income due to the lack of restaurants. In this fishery, however, the level of communication among members is high because they are all working together during all processes.

Fifth, the common fishery in Gueom (③) belongs to the P group. The community members of this fishery are composed of only six female sea divers, although the total number of members from 20 to 30 years ago reached more than 50–60. The reason is that this fishery has nearly no products from sea divers due to pollution, the unregulated use of outsiders, and poor cliff conditions, which are unsuitable for diving. It does not have any public community channels for fishery ships to regulate all fisheries, including one small autonomous restaurant. Therefore, new knowledge for building a new business model is not produced.

In these common fisheries, powerful anti-motivating policies for commons are observed. The Korean government is motivating the free use of non-members, which

exacerbates the depletion of the sea near the coast of Jeju Island and worsens pollution along the coast of Jeju. Although the study observed no tragedy of commons among members, they maintain their own rules to work at the commons. Alternatively, non-member users exhibit the tragedy of commons in using the common fishery because they do not think of the future of the commons, according to interviews with members and the results of participant observation.

3.2. Ten common pastures in Jeju Island, South Korea

The study selected 10 interviewees from common pastures in Jeju Island, South Korea, using the snowballing method. The participants were invited to fill up a semi-structured questionnaire, and participatory observation was conducted (Appendix 1) from September 8 to 11 and from November 17 to 20 in 2021.

First, the common pasture in Gasi-ri village (ⓑ) displayed a high level of participation of members in a democratic manner and characteristics of the pasture commons under ESCG (Figure 4). This common pasture protected its original size at 1.65 million m^2 without selling the land to golf clubs or other organizations because it is located very high in Hanla mountain. This scenario is the opposite of privatization; the level of communication among members is high, and they actively and freely join the decision-making process of the common pasture. This community separated the use and ownership, and prohibited the selling of the commons under an autonomous agreement. It has several communication channels, such as active general meetings, 70 representative meetings, a board of directors, a common pasture cooperative, and a village community laboratory, among others, which motivate the production of tacit knowledge about the concepts of new business models. It expanded its business model from pasture to diverse business

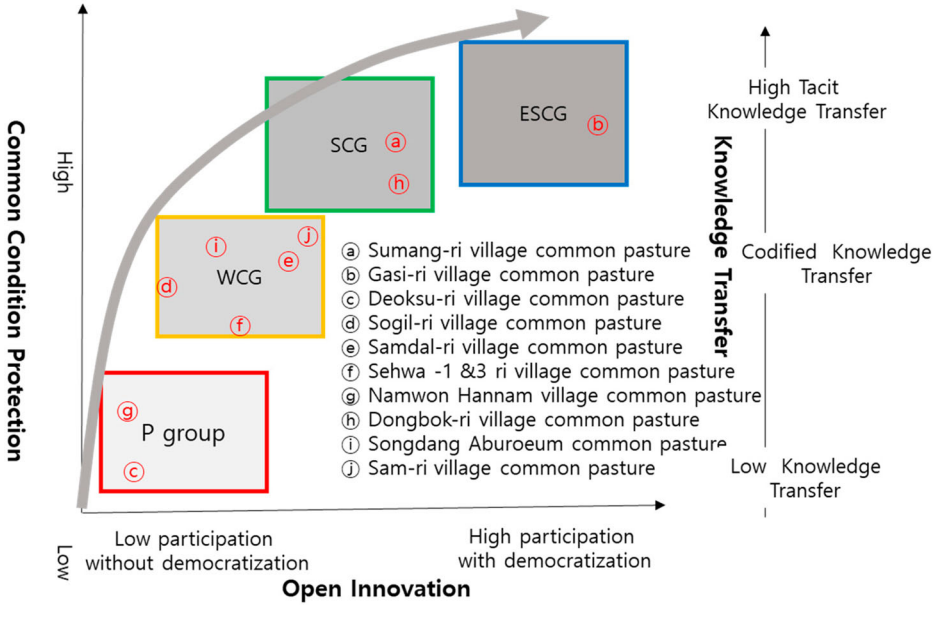

Figure 4. Ten common pastures in Jeju Island from the common * participation research framework.

models (BMs) through open innovation due to the participation and democratic process of communication, such as traditional horse pastures, wind power plants, solar power plants, biodiesel, lodging facilities, guest houses, and village museums. The revenue is distributed to communities of the elderly, women, student scholars, and members, which are seemingly the basic income of this community for common goods.

Second, the common pastures in Sumang-ri village (ⓐ) and Dongbok-ri village (ⓗ), belong to SCG. Sumang-ri village (ⓐ) preserved 1.65 million m^2 of pasture despite selling a few parts. This community holds a general meeting once a year, development committee meeting (6–7 times per year), and one autonomous meeting of 10 farm owners. Although it is located high in the mountain and lacks common cooperatives, it expanded its business models into pastures, rental buildings, revenues from wind power plants, and payments for golf course damage. The common pasture in Dongbok-ri village (ⓗ) is preserving common goods by encouraging participation and the democratic process for the development of new business models although its location is near the coast, and the privatization requirement is high. Despite its location, it did not sell the common pasture; instead, it attempted to develop new business models, such as wind power plant, crematory, and the construction of facilities for the tourism industry of the village.

Third, the common pastures in Sogil-ri (ⓓ), Samdal-ri (ⓔ), Sehwa-ri one and three (ⓕ), Songdan Aburoeum (ⓘ), and Sam-ri (ⓙ) villages belong to WCG. The common pasture in Songil-ri (ⓓ) only has 0.33 m^2 million ranch because all others were sold out through privatization. It has nearly no general meeting, no pasture cooperatives but has a development committee. Conflicts exist among members about selling the remaining commons. Any additional BMs lack sufficient development. The common pasture in Samdal-ri village (ⓔ) is a small, well-maintained common pasture. In addition, original members join public communication meetings. However, the new citizens of the common village do not join the communication well. Conflicts arise between original and new members on various topics. The common pasture in Sehwa-ri village one and three (ⓕ) feature small common pastures because the community previously sold other common pastures. Although several channels of communication are present, such as 20 representative committees, eight board director meetings, and one total general meeting, these conventions are scarce due to conflicts between young members who want to maintain the common pastures and old members who want to sell the common pastures. Songdan Aburoeum (ⓘ) has nearly no common pasture because two were changed into forestry because members did not manage farms. In addition to nearly no communication between members, the nature production zone in the pastures disturbs the development of new business models in these commons. In the case of Sam-ri village (ⓙ), although it has a big common ranch in three villages, which belong pasture cooperatives, conflicts among members emerge because a few members want to sell their pastures. Only the rental fees for pastures are being distributed to the three villages, additional business models are not being developed. At several communication meetings, such as those of pasture cooperatives, village, or representative community among the three villages, only publicly codified knowledge, such as the distribution of benefits among the three villages, is communicated.

Fourth, the common pastures in Deoksu-ri (ⓒ) and Namwon Hannam (ⓖ) belong to the P group. Deoksu-ri provides an example of privatization, which includes the sale of

common pastures for the use of members, the lack of use by firms and the transformation of common pastures into forests, the lack of membership of the common pasture and the introduction of a new membership system, and endeavours by minor elite groups to build new business models and lack of support from the community. This common pasture is located near the sea, which provides high privatization values in real estate. Namwon Hannam (⑨) does not have any common pasture designated for real estate although a pasture cooperative exists and is newly operating with 10 big firms. In this common pasture, the local government motivated privatization because it earned ownership of the common pasture for real estate and lent it to the cooperatives from the perspective of marketing. In these two pastures, evidence of the production and communication of knowledge on new business models is lacking.

In these pasture commons, the study observes powerful anti-motivating policy for commons. The Korean government is retaining a high level 'nature protection zone' policy, which cites that if any pasture commons lacks maintenance, such that many trees thrive in this area, then the common pasture is considered a 'nature protection zone,' which consequently prohibits horse or cow pasture farms. Through this policy, many pasture commons are disappearing in Jeju Island. Another anti-pasture policy for common goods is the extremely negative 'real estate tax system,' which is well known as the 'total real estate tax system,' in which nearly all pasture common communities lack funding to pay. Toward this end, many pasture commons sell real estate, which leads to the destruction of the common community.

4. Common goods at Naples and Sorrento in Italy

The research team in Italy interviewed 13 related persons from March 18 to April 19, 2021, and conducted participatory observations on the respondents on June 23–30, 2022 (Table 1).

First, ESCG in Naples and Sorrento, Italy, includes three common food ingredients, namely, (1) raw materials (Neapolitan pizza), (2) food and agriculture (Sorrento-Slow-Food, an international non-profit association), and (3) raw materials in Amalfi (Figure 5).

In the case of (1) Neapolitan Pizza, the development of a new business can refer to the valorization activities of the territory, including commercial activities and the involvement of the glocal community (global and local) for the provision of human resources in the management of activities. In particular, Neapolitan Pizza introduced the art of 'Pizzaiolo' (pizza maker) and has been included in the UNESCO List as an Intangible Cultural Heritage of Humanity. To obtain this result, a shared process is activated between pizza companies and the local community. Culinary knowledge about pizza production, which includes gestures, songs, visual expressions, local jargon, and the ability to handle pizza dough, is an indisputable cultural heritage and, hence, common goods of humanity. Neapolitan Pizza makers share tacit knowledge on how make pizza healthier and more digestible although pizza makers and restaurants retain their secret recipes without creating a knowledge-sharing process. A regional innovation ecosystem exists that maintains the quality of Naples pizza and continuously develops it. For example, the format Johnny Pizza of Portafoglio in JohnnyTakeUé stems from the development of a new creative pizza dough through a collaboration with the University of Mediterranean Diet. Naples pizza is currently under development from the well protection of the original

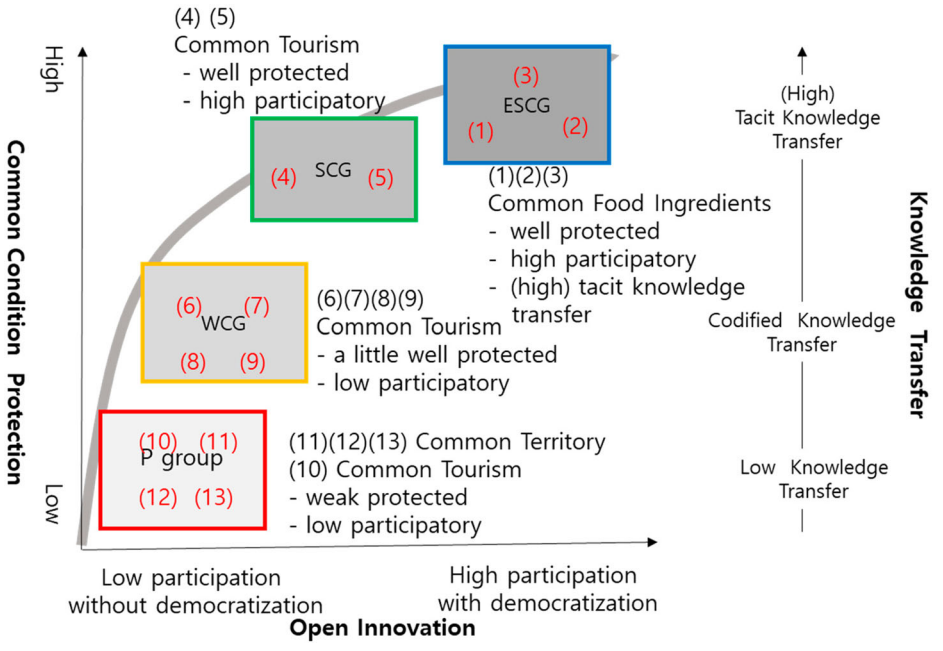

Figure 5. Common goods in Naples and Sorrento, Italy, at the commons * participation research framework.

aspects of Naples pizza, high participation and communication among Neapolitan Pizza shops, ingredient producers, and related agencies, and the transfer of high levels of tacit knowledge on Neapolitan Pizza and continued introduction of new business models.

Another interesting case is (2) Slow Food, which protects the commons related to agriculture and related raw materials in Naples and Sorrento. The agriculture of Sorrento coast owns the identity of these places, the biodiversity of Mediterranean cuisine, the care and health of the landscape. Slow Food uses an open approach, where municipalities, families, schools, and local producers organize shared activities for the protection of the commons. Alternatively, it introduces initiatives such as the protection of school gardens or other local common goods. The Slow Food association and local producers promote biodiversity and sustainable agriculture, which assigns value to small-scale agriculture and artisans. It adopts a new business model with the creation of the so-called 'Biodistretto' (district of biodiversity), where producers, consumers, economic operators, trade associations, schools, and public bodies can share common goals, such as a healthy and future-oriented territory, apart from political agendas.

In the case of (3) common raw materials in Amalfi, commons refer to certain goods, such as lemons or olives, which are typical of this Mediterranean area. Nineteen is strongly involved in the process of decision-making at the levels of producers and policy makers. For example, 19 and local producers have been involved in the Indicazione Geografica Protetta (Protected Geographic Indication), which is a certification body for lemons produced in Sorrento. They promote the network logic of cooperation for the promotion of food products and beverages produced in Sorrento and Amalfi coasts. For example, chefs and restaurateurs share their culture and vision,

which involve selected producers in a type of cooking show suitable for promoting quality. In different periods of the year, menus in restaurants are dedicated to local food and wine from organizations that are partners of the project. In addition, an important synergy is characterized by shared initiatives and four-handed dinners with two important chefs per dinner, which is a form of co-marketing activity for the valorization of local excellence and commercial activities. The Solo Food association, which started from Naples and Sorrento, is based on the high levels of protection of natural ingredients derived from Naples and Sorrento, the high levels of participation and communication among restaurants in these regions, ingredient producers, and consumers of food from Naples, and Sorrento, and the transfer of tacit knowledge in the Slow Food system, which introduces new business models that may be sustainable.

Second, SCG in Naples and Sorrento includes two commons related to tourism, namely ad (4) the Town of Lettere including the Lettere Castle, and (5) Lattari mountain area (Figure 5).

In the case of (4) town of Lettere, local tourism attractions refer to natural resources and historical sites. Local associations (e.g. restaurants, social activities, and shops) collaborate for the promotion, valorization, and protection of tourism attractions. They organize initiatives, festivals, and events for disadvantaged people. This area is home to many restaurants; thus, the municipality and restaurants sign an agreement for the use of the Castle of Lettere for private events such as weddings or conferences. For example, only catering services by local companies can obtain access to the Castle of Lettere to preserve the local economy and the valorization of local products. This open approach between local authorities and economic actors is based on monthly meetings, where local stakeholders can propose new ideas to promote the region. Citizens and the government take action to improve the collective use of common goods and share responsibility for their care and protection.

In (5) the Lattari mountain area, the focus is on intangible common goods that highlight history and the local culture. For example, events create a development path that is culture-driven. The local community and economic actors of the territory involved policy makers. Indeed, involving the local community and local actors is the first step for the success of an event. Together, they create the format of the event. In addition to generating costs, an event exerts direct and indirect economic impacts, which create an induced local economics, whose effects spread throughout the region (from farmers to butchers and printing houses). Important events also generate profits for partners involved. The relevance of medium-term investments must be considered, such as the modernization of the existing infrastructure (e.g. new leisure offers and expansion of public transport). To valorize and protect the entire system of common goods, a strong cooperation among different municipalities, commercial activities, associations, and local communities is necessary. The result of this collaboration is the organization of events that promote the identity and culture of the entire area.

Third, WCG in Naples and Sorrento includes four items related to common tourism, namely, (6) Lattari regional park, (7) the Amalfi coast, (8) Pompeii ruins, and (9) Pompeii and Vesuvius. Policy makers and other stakeholders that intend to protect (6) the Lattari mountains regional park include small members that communicate to create events in the region. Although, the small group efficiently protects the regional park, it lacks

sufficient communication with local associations and provides less chances of participation for regional agencies. This park, which is sourced from Naples Kingdom, presents many heritage items that could be used to develop the local society and economy. However, without sufficient communication with regional agencies and associations, it could not be used as a common goods with high value. To preserve the natural resources and the landscape of Lattari mountains, restrictions are imposed regarding the fruition of the park, and permission is required to build and renovate. The authoritative body for the Lattari mountains regional park authority only adopts a top-down approach without involving other actors in the decision process.

(7) The Amalfi coasts refer to natural resources derived from the Amalfi coast. In 2020, the local municipality established a permanent roundtable on the development and management of tourism attractions. The 12 municipalities along the Amalfi coast do not involve local communities and economic actors of the territory during their decisions. According to the vision of valorization and preservation of natural resources, diverse and active participation of regional agencies are required, according to the interviews and participatory observation. The nature and the natural and social environments of Amalfi lack interconnection with the regional innovation system.

(8) The Pompeii ruins refer to the Archaeological Heritage of Pompeii, Herculaneum, and Stabiae. The archeological areas of Pompeii and Herculaneum are included among the 55 sites in Italy protected by UNESCO through the World Heritage List. These archeological sites are dependent on the Special Superintendence for the Archaeological Heritage of Pompeii, Herculaneum, and Stabiae and belong to the World Heritage List; thus, the decision-making process is hierarchical and closed. Alternatively, a form of openness is observed for the fruition of archeological sites. Indeed, a few private companies introduce 3D glasses to offer a view on the ancient Roman cities. According to the Vice-President of the Vesuvian Hotel Association, Common goods belong to our culture, they are born with our history or with the vocations of the territories; they should be available to all, but, they, too often, have high limitations in use, neglect the requirement of local, and are be abandoned. One interviewee stated that 'The common goods are the testimony of the history and memory of a place, they narrate its roots and identify the communities to which they belong, and to which they accompany.'

(9) Pompeii and Vesuvius refer to the natural, cultural, and architectural riches of the Vesuvius district. They are goods of general interest that belong to the community. For this area, local and regional policy makers periodically propose round tables on the topic of local tourism attractions. Although this process requires a strong collaboration among actors of this tourism offer, local community, and policy makers, participation and communication among local communities and policy agencies are rare without the protection of the common goods of the region. Thus, policy makers and other stakeholders related to the protection of common goods do not invite sufficient diverse actors to create events or to enhance the tourist offer. This initiative is poor in terms of the co-creation process, where all stakeholders of the tourism industry participate through associations of category.

Fourth, the privatization of commons (P group) in Naples and Sorrento includes one tourism commons (10) the Naples stadium, and three common territories, namely, such as (11) Confcommercio (downtown common stage; common goods of the territory), (12)

MAVV wine art museum (common tourism attraction), and (13) Sorrentino Vini (winery; common vineyards).

Although (10) the Naples stadium is considered common goods of Naples, regular but relatively sporadic meetings do not occur at the regional level. The objective of these meetings is to share ideas to translate them into initiatives for the promotion of commons even if participation at these round tables is low. Conversely, collaborations occur only between economic actors of football leagues. In addition, football leagues do not protect the Naples stadium, including the inner museum because the protection of commons is opposite to the profit-oriented football leagues. In the case of the lack of participation by local communities or associations, the Naples stadium could not motivate the local economy based on several interactions such as concerts, local artist events, or participative activities for local citizens. The Naples stadium and the related common goods are becoming real private real estate which operates only for the interest of capital.

(11) Confcommercio refers to the urban process of development. The protection of nature is weak because local policy makers do not create plans to protect the commons and do not systematize rules that allow private bodies and associations to take care of the commons. In the case of Cassa Armonica, which is located in front of the Castellamara station, local associations and regional actors could not join in the process of the developing and connecting it with local social–economical activities because the local government does not consider it as a common good of the region but as part of their job. In this manner, participation is weak. Round tables are sometimes organized to plan the future of common goods; however, no subsequent actions are undertaken. In addition, the urban common good, which is connected with local associations, cannot be protected enough. Currently, Cassa Armonica is not used for its original purpose as a downtown stage.

(12) MAVV wine art museum refers to the vineyards of Sorrento and the Napoli areas through the creation of the MAVV wine art museum. Even if MAVV wine art museum collaborates with the Department of Agriculture of the University of Naples Federico II and other associations (i.e. Italian Association of Sommeliers), participation in the management of this common good is weak. Furthermore, although the museum is located in a common territory, its main role pertains to the brokerage between local wine producers, including related specialists, and global consumers of wine from Sorrento. This scenario refers to the private use of the common good concept. In addition, the museum does not play any role in motivating the participation of local associations in activities related to wine. The protection of Sorrento wine as a type of common good is also not a mission of the museum.

(13) Sorrentino Vini refers to common vineyards in the Vesuvius area. In this area, collaboration is observed in the creation of events with companies in the same industry. For example, Cantine Aperte (Open cellars) is an event implemented in May, where wine companies launch a shared calendar of visits to promote the brands of the area instead of featuring a single firm. Meetings are held between wine companies and local actors to create events that can be containers of ideas and activities to support and promote the quality of wine tourism. Several wineries, including Maria Paola, are traditional examples of the privatization of common goods. Although vineyards are located inside the Vesuvio National Park, the protection of nature is weak due to the lack of participation from local associations and of specific rules on the preservation of the environment and nature.

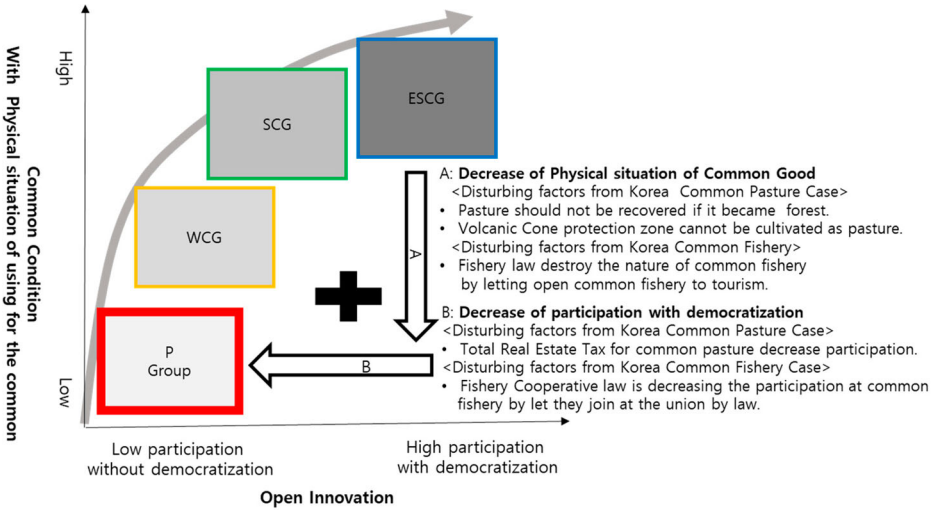

Figure 6. Coupling effects of public policy that motivates the privatization of common goods.

5. Discussion: identifying grounded theories

5.1. Coupling effects of public policies on the privatization of common goods

The impact of local government policy on innovation ecosystem is big specially at the knowledge resource scarce region like nature common areas in this study (Ma et al. 2019). Several coupled policies could exert serious negative effects on common good though policy makers do not individually consider the negative effects on common goods (Figure 6). For example, Jeju Island implements two policies on pasture commons. The first is that pasture should not be recovered if it became a forest. The second is the total real estate tax for common pastures, which decreases participation and could motivate the privatization of common pastures, which is similar to the situation in Jeju Island. Similarly, two other policies are in place, namely, the fishery law is open to common fishery in tourism and the law lets common fishery members join the fishery union, which could trigger the privatization of common fisheries in Jeju Island. This study found grounded theory that the coupling of several policies could motivate the privatization of common goods.

5.2. 'Empty areas' in common goods

The study reviewed 40 cases of common goods in two countries and found two empty areas, namely, (1) high participation with democratization and (2) low common condition with a physical situation of using the commons (Figure 7). These areas denote three implications. First, although participation with democratization is high in the management of any common goods, such goods cannot exist if its physical situation is not protected. Second, although any common goods is in poor physical condition, the increase of participation with democratization in the building of new business models, the common goods could be reinforced by weak or SCG until it transforms into SCG.

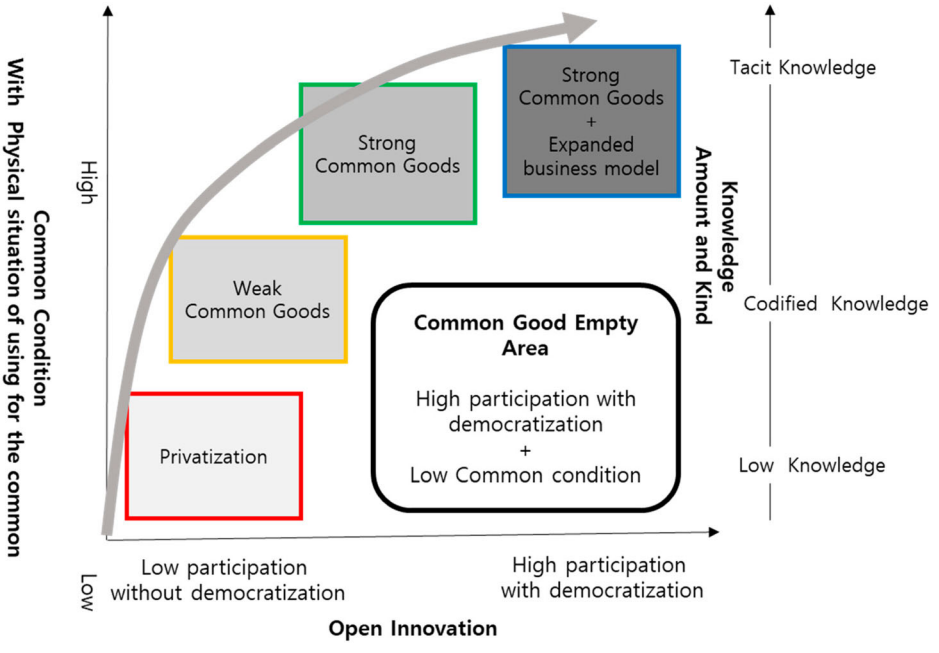

Figure 7. Empty areas in common good.

In the process of the management of common goods or the development of new business models, increases in participation with democratization and in tacit knowledge will prevent the poor conditions of common goods, such as privatization. According to the four ESCGs and seven SCGs in Sorrento, the study found evidence of grounded theories. In addition, another evidence is that the difference in the seven SCGs and five WCGs in common tourism in Naples and Sorento indicate a gap in participation with democratization for the management of common goods.

Another evidence of grounded theory is the Jangodo common good, which the research team from South Korea visited in October 25, 2021, and interviewed the director. Guy Standing introduced the common fishery in Jangodo through his book as one of top global examples of successful common goods (Standing 2019). The fishery was destroyed before it appeared as one of global representative cases of successful common goods with high levels of participation from all members in all the management process and a wide distribution of basic income from revenue at 15,000–20,000$ per year to members.

5.3. Activating engine of regional innovation system

Based on the common pasture in Gasi-ri, the common fishery in Siheung-ri, and the four raw materials from Naples and Sorrento, the research teams identified the activating engine of regional innovation systems (Figure 8).

By organizing feedback from (1) the protection of the physical condition of common goods and (2) high levels of participation with democratization on the open innovation of common goods to (3) the motivation for the transfer of tacit knowledge on common

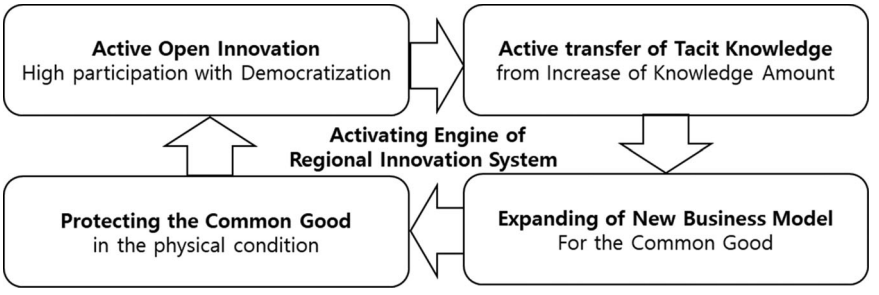

Figure 8. Activating engine of regional innovation systems.

goods and the (4) expansion of new business models of common goods, regional innovation systems, which are based on common goods, could be activated. In the changing social relations between science and society, the common good open innovation could be the activating engine of regional innovation system (Krishna 2014).

6. Conclusion

6.1. Implication

First, the theoretical implication of this study is that 'the comedy of the commons' remains possible during the Fourth Industrial Revolution through the motivation of open business models derived from the sufficient transfer of tacit knowledge through active and open communication. Similar to the free viewing of knowledge in open-access journals, open software, or open science, opening and expanding the communication process to internal/original, additional, and external members is crucial to the development of new business models with open innovation dynamics, which could motivate the comedy of the commons (Hess and Ostrom 2007). The tragedy of the commons before the Fourth Industrial Revolution, which was based on H/W could be achieved through digital transformation.

Second, the platform economy, which is becoming a new dominant design in digital transformation and is the representative of knowledge commons, could be activated through a sustainable expansion of business models and active open innovation dynamics. The active open innovation dynamics and open business models of common goods are possible through active participation with democratization and sufficient creative tacit knowledge.

6.2. Limitations and future research topics

First, additional studies should be conducted on other nations and other types of common goods, especially on platform knowledge commons, which are required to compare differences in the grounded theories identified by the current study. By comparing diversity in common goods, such as natural, knowledge, or platform commons, further identifying new grounded theories on open innovation dynamics and open business models for common goods will be possible. In addition, by comparing

common goods across capitalist economies will render possible the search for new meanings of the identified grounded theories.

Second, in-depth studies on each grounded theory are required to substantiate the findings of the current study and to develop them as detailed hypothesis or theories. In particular, the open innovation dynamics and open business models in platform common goods could provide new ideas because digital transformation is expanding the platform economy in terms of quantity and quality.

Third, to determine the dynamics of open innovation in the development process of common goods and the closure of the process through privatization, evolution processes that stem from individual human actions to mature common goods could be examined in future studies. In addition, new open business models for common goods from the diverse and creative tacit knowledge could be analysed in detail.

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References

Ahn Kyeongah, K., S. Han, and K. Jung. 2018. *Actual situation of Village Cooperative Ranches in Jeju*. Jeju Research Institute, 2018-04.

Allen, D., and J. Potts. 2016. "How Innovation Commons Contribute to Discovering and Developing new Technologies." *International Journal of the Commons* 10 (2): 1035. doi:10.18352/ijc.644

Anderson, T., and P. Hill. 1975. "The Evolution of Property Rights: A Study of the American West." *The Journal of Law & Economics* 18 (1): 163–179. doi:10.1086/466809

Arvidsson, A. 2020. "Capitalism and the Commons." *Theory, Culture & Society* 37 (2): 3–30. doi:10.1177/0263276419868838

Avison, D., F. Lau, M. Myers, and P. Nielsen. 1999. "Action Research." *Communications of the ACM* 42 (1): 94–97. doi:10.1145/291469.291479

Axelrod, R., and D. Dion. 1988. "The Further Evolution of Cooperation." *Science* 242 (4884): 1385–1390. doi:10.1126/science.242.4884.1385

Bauwens, M., and J. Ramos. 2018. "Re-imagining the Left Through an Ecology of the Commons: Towards a Post-capitalist Commons Transition." *Global Discourse* 8 (2): 325–342. doi:10.1080/23269995.2018.1461442

Benkler, Y. 2017. "Peer Production, the Commons, and the Future of the Firm." *Strategic Organization* 15 (2): 264–274. doi:10.1177/1476127016652606

Berkes, F. 1986. "Local-level Management and the Commons Problem: A Comparative Study of Turkish Coastal Fisheries." *Marine Policy* 10 (3): 215–229. doi:10.1016/0308-597X(86)90054-0
Berkes, F., D. Feeny, B. McCay and J. Acheson. 1989. "The Benefits of the Commons." *Nature* 340: 91–93. doi:10.1038/340091a0
Blomquist, W. 1989. "The Performance of Groundwater Management: Volume 8, the Mojave River Basin." Paper presented at the Workshop in Political Theory and Policy Analysis, Bloomington: Indiana University.
Bowles, S., R. Edwards, and F. Roosevelt. 2005. *Understanding Capitalism*. New York: Harper Collins.
Chhatre, A., and Arun Agrawal. 2008. "Forest Commons and Local Enforcement." *Proceedings of the National Academy of Sciences of the United States of America* 105 (36): 13286–13291. doi:10.1073/pnas.0803399105
Choi, J. 2007. "Trembles may Support Cooperation in a Repeated Prisoner's Dilemma Game." *Journal of Economic Behavior & Organization* 63 (3): 384–393. doi:10.1016/j.jebo.2005.07.002
Choi, J. 2009. *The Appearance of Altruistic Human*. Seoul: PURIWA IPARI (In Korean Language).
Choi, P. 2020. "A Need for Co-Evolution Between Technological Innovations and Social Innovations." *Journal of Open Innovation: Technology, Market, and Complexity* 6 (3): 54. doi:10.3390/joitmc6030054
Choi, J., and S. Bowles. 2007. "The Coevolution of Parochial Altruism and War." *Science* 318 (5850): 636–640. doi:10.1126/science.1144237
Ciriacy-Wantrup, S., R. Bishop, and S. Andersen. 2019. ""Common Property" as a Concept in Natural Resources Policy." In *Natural Resource Economics: Selected Papers*, edited by Ciriacy-Wantrup and V. Siegfried, 25–37. London: Routledge.
Cole, D., and E. Ostrom. 2010. "The Variety of Property Systems and Rights in Natural Resources." In *Elinor Ostrom and the Bloomington School of Political Economy*, edited by Daniel H. Cole and Michael D. McGinnis, Vol. 2: 123–160. New York: LEXINGTON BOOKS, A division of ROWMAN & LITTLEFIELD PUBLISHERS, INC.
Cole, D., and E. Ostrom. 2012. "The Variety of Property Systems and Rights in Natural Resources." In *Property in Land and Other Resources*, edited by Daniel H. Cole, and Elinor Ostrom, Vol. 2, 37–64. New York: Lincoln Institute of Land Policy.
Coleman, E. 2009. "Institutional Factors Affecting Biophysical Outcomes in Forest Management." *Journal of Policy Analysis and Management* 28 (1): 122–146. doi:10.1002/pam.20405
Constantiou, I., A. Marton, and V. Tuunainen. 2017. "Four Models of Sharing Economy Platforms." *MIS Quarterly Executive* 16 (4): 236–251.
Cooke, P., M. Uranga, and G. Etxebarria. 1997. "Regional Innovation Systems: Institutional and Organisational Dimensions." *Research Policy* 26 (4-5): 475–491. doi:10.1016/S0048-7333(97)00025-5
Coward, E. 1985. "Technical and Social Change in Currently Irrigated Regions: Rules, Roles and Rehabilitation." In *Putting People First: Sociological Variables in Rural Development*, edited by Michael M. Cernea, 27–51. London: Oxford University Press.
Creswell, J., and C. Poth. 2016. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. New York: Sage publications.
Feeny, D., F. Berkes, B. McCay, and J. Acheson. 1990. "The Tragedy of the Commons: Twenty-two Years Later." *Human Ecology* 18 (1): 1–19. doi:10.1007/BF00889070
Gassmann, O., E. Enkel, and H. Chesbrough. 2010. "The Future of Open Innovation." *R&D Management* 40 (3): 213–221. doi:10.1111/j.1467-9310.2010.00605
Gibson, C., J. Williams, and E. Ostrom. 2005. "Local Enforcement and Better Forests." *World Development* 33 (2): 273–284. doi:10.1016/j.worlddev.2004.07.013
Glaser, B., and A. Strauss. 2017. *Discovery of Grounded Theory: Strategies for Qualitative Research*. London: Routledge.
Gordon, H. 1954. "The Economic Theory of a Common-Property Resource: The Fishery." In *Classic Papers in Natural Resource Economics*, edited by C. Gopalakrishnan, 178–203. London: Springer.

Halbert, M. 2010. "The Information Commons: A Platform for Innovation." *Journal of Library Administration* 50 (1): 67–74. doi:10.1080/01930820903422107
Hardin, G. 1968. "Garrett Hardin: The Tragedy of the Commons." *Science* 162: 1243–1248. doi:10.1126/science.162.3859.1243
Haskel, J., and S. Westlake. 2018. *Capitalism Without Capital: The Rise of the Intangible Economy*. Princeton, NJ: Princeton University Press.
Hess, Charlotte, and Elinor Ostrom, eds. 2007. *Understanding Knowledge as a Commons: From Theory to Practice*. Cambridge, MA: MIT Press. (51).
Hippel, E., and G. Krogh. 2003. "Open Source Software and the "Private-collective" Innovation Model: Issues for Organization Science." *Organization Science* 14 (2): 209–223. doi:10.1287/orsc.14.2.209.14992
Hirsch, F. 2005. *Social Limits to Growth*. London: Routledge.
Horton, J., R. Macve, and G. Struyven. 2004. "Qualitative Research: Experiences in Using Semi-structured Interviews." In *The Real Life Guide to Accounting Research*, edited by C. Humphrey and B. Lee, 339–357. Amsterdam: Elsevier.
Krishna, V. 2014. "Changing Social Relations Between Science and Society: Contemporary Challenges." *Science, Technology and Society* 19 (2): 133–159. doi:10.1177/0971721814529876
Kropotkin, P. 1914. *Mutual aid: A Factor of Evolution*. North Chelmsford, MA: Courier Corporation.
Krugman, P., and R. Wells. 2009. *Microeconomics*. Broadway: Worth Publishers.
Krugman, P., and R. Wells. 2012. *Microeconomics*. Broadway: Worth Publishers.
KwonHoo, K., and K. Kwon SangCheul. 2016. "Community Based Natural Environment Sustainaility Usage Method: Jenu Island Woman Diver's Common Good Management Case (In Korean)." *Journal of The Korean Association of Regional Geographers* 22 (1): 49–63.
Lincoln, Y., and E. Guba. 2007. Naturalistic inquiry.
Ma, L., Z. Liu, X. Huang, and T. Li. 2019. "The Impact of Local Government Policy on Innovation Ecosystem in Knowledge Resource Scarce Region: Case Study of Changzhou, China." *Science, Technology and Society* 24 (1): 29–52. doi:10.1177/0971721818806096
Maass, A., and R. Anderson. 1978. *And the Desert Shall Rejoice: Conflict, Growth, and Justice in Arid Environments*. Cambridge, MA: MIT Press.
McKean, M. 2000. "Common Property: What Is It, What Is It Good For, and What Makes It Work." In *People and Forests: Communities, Institutions, and Governance*, edited by Clark C. Gibson, Margaret A. McKean, and Elinor Ostrom, 27–55. Cambridge, MA: MIT Press.
McKean, M., and T. Cox. 1982. "The Japanese Experience with Scarcity: Management of Traditional Common Lands." *Environmental Review* 6 (2): 63–91. doi:10.2307/3984155
Milinski, M., D. Semmann, and H. Krambeck. 2002. "Reputation Helps Solve the 'Tragedy of the Commons'." *Nature* 415 (6870): 424–426. doi:10.1038/415424a
Nambisan, S., and R. Baron. 2013. "Entrepreneurship in Innovation Ecosystems: Entrepreneurs' Self–regulatory Processes and their Implications for New Venture Success." *Entrepreneurship Theory and Practice* 37 (5): 1071–1097. doi:10.1111/j.1540-6520.2012.00519.x
Netting, R., and R. Netting. 1981. *Balancing on an Alp: Ecological Change and Continuity in a Swiss Mountain Community*. New York: Cambridge University Press.
Nonaka, I., and G. Von Krogh. 2009. "Perspective—Tacit Knowledge and Knowledge Conversion: Controversy and Advancement in Organizational Knowledge Creation Theory." *Organization Science* 20 (3): 635–652. doi:10.1287/orsc.1080.0412
Oh, D., F. Phillips, S. Park, and E. Lee. 2016. "Innovation Ecosystems: A Critical Examination." *Technovation* 54: 1–6. doi:10.1016/j.technovation.2016.02.004
Olson, M. 2009. *The Logic of Collective Action: Public Goods and the Theory of Groups, Second Printing with a New Preface and Appendix* (Vol. 124). Cambridge, MA: Harvard University Press.
Ostrom, E. 1986. "An Agenda for the Study of Institutions." *Public Choice* 48 (1): 3–25. doi:10.1007/BF00239556
Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. London: Cambridge University Press.

Ostrom, E. 2000. "Collective Action and the Evolution of Social Norms." *Journal of Economic Perspectives* 14 (3): 137–158. doi:10.1257/jep.14.3.137
Ostrom, E. 2002. "Reformulating the Commons." *Ambiente & Sociedade* 10: 5–25. doi:10.1590/S1414-753X2002000100002
Ostrom, E. 2009. "A General Framework for Analyzing Sustainability of Social-Ecological Systems." *Science* 325 (5939): 419–422. doi:10.1016/j.worlddev.2021.105694
Ostrom, E., and J. Walker. 1991. Communication in a Commons: Cooperation without External Enforcement, 287–322.
Papadimitropoulos, E. 2021. "Platform Capitalism, Platform Cooperativism, and the Commons." *Rethinking Marxism* 33 (2): 246–262. doi:10.1080/08935696.2021.1893108
Piirainen, K., T. Raivio, K. Lähteenmäki-Smith, L. Alkaersig, and J. Li-Ying. 2018. "The Reverse Tragedy of the Commons: An Exploratory Account of Incentives for Under-Exploitation in an Open Innovation Environment." *Technology Analysis & Strategic Management* 30 (3): 268–281. doi:10.1080/09537325.2017.1308479
Poteete, A., M. Janssen, and E. Ostrom. 2010. *Working Together: Collective Action, the Commons, and Multiple Methods in Practice*. Princeton, NJ: Princeton University Press.
Potts, J. 2018. "Governing the Innovation Commons." *Journal of Institutional Economics* 14 (6): 1025–1047. doi:10.1017/S1744137417000479
Ray, B., and R. Bhattacharya. 2011. "Transaction Costs, Collective Action and Survival of Heterogeneous Co-management Institutions: Case Study of Forest Management Organisations in West Bengal, India." *Journal of Development Studies* 47 (2): 253–273. doi:10.1080/00220381003706692
Runge, C. 1986. "Common Property and Collective Action in Economic Development" *World Development* 14 (5): 623–635. doi:10.1016/0305-750X(86)90128-2
Sandel, M. 2012. *What Money Can't Buy: The Moral Limits of Markets*. London: Macmillan.
Sandler, T. 1992. *Collective Action: Theory and Applications*. Michigan, MI: University of Michigan Press.
Schmidt, J. 2009 23 October. "Commons-based Peer Production and Education." Short Essay for the Free Culture Research Workshop, Harvard University.
Scholz, T. 2016. *Platform Cooperativism: Challenging the Corporate Sharing Economy*. Belin: Rosa Luxemburg Foundation.
Scott, A. 1955. "The Fishery: The Objectives of Sole Ownership." *Journal of Political Economy* 63 (2): 116–124. doi:10.1086/257653
Standing, G. 2019. *Plunder of the Commons: A Manifesto for Sharing Public Wealth*. London: Penguin UK.
Tirole, J. 2017. *Economics for the Common Good*. Princeton, NJ: Princeton University Press.
Vial, G. 2019. "Understanding Digital Transformation: A Review and a Research Agenda." *The Journal of Strategic Information Systems* 28 (2): 118–144. doi:10.1016/j.jsis.2019.01.003
Von Hippel, E., and G. Von Krogh. 2006. "Free Revealing and the Private-Collective Model for Innovation Incentives." *R&D Management* 36 (3): 295–306. doi:10.1111/j.1467-9310.2006.00435.x
Welch, W. 1983. "The Political Feasibility of Full Ownership Property Rights: The Cases of Pollution and Fisheries." *Policy Sciences* 16 (2): 165–180.
West, J. 2006. "Does Appropriability Enable or Retard Open Innovation." In *Open Innovation: Researching a New Paradigm*, 109–133.
Wilson, J. 1995. When are Common Property Institutions Efficient?
Yun, J., K. Park, G. Gaudio, and V. Corte. 2020. "Open Innovation Ecosystems of Restaurants: Geographical Economics of Successful Restaurants from Three Cities." *European Planning Studies* 28 (12): 2348–2367.
Yun, J., K. Park, S. Hahm, and D. Kim. 2019. "Basic Income with High Open Innovation Dynamics: The Way to the Entrepreneurial State." *Journal of Open Innovation* 5 (3): 41.

Appendices

Appendix 1. Semi-structured questionnaire and focal points of participant observation

1. Semi-structured questionnaire
   Interview subjects on common goods
   Name:

(1) How can one become qualified to use common goods?
(2) Are you involved in decision-making for the management of common goods? If so, how do you get involved?
(3) Are there restrictions and rules for using common goods?
(4) What is the process of proposing new ideas or enacting new rules for the management of common goods?
(5) What is the allocation of profits generated from common goods? Please provide specific examples.
(6) What are the limitations and restrictions imposed for the sustainable use of these resources?
(7) How is a new business model for common goods developed? Please provide examples.
(8) How many times do insiders violate the rules for using common goods? What are the penalties for these violations?
(9) Are there outsiders who violate the rules for using common goods? If so, how often and what are the penalties for these violations?

2. Focal points of participant observation

(1) Frequency of daily usages by internal users
(2) Use pattern of internal users
(3) Collaboration and communication methods among internal users
(4) Frequency of daily use by external users
(5) Use pattern of external users
(6) Compliance rules of external users and external trends and reasons

Appendix 2. Locations of the 10 common fisheries and 10 common pastures at Jeju Island, South Korea

Appendix 3. Locations of the 13 common goods in Italy