

Chapter 1

What and How Are We Sharing?

The Academic Landscape of the Sharing Paradigm and Practices: Objectives and Organization of the Book



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Abstract Sharing of resources, goods, services, experiences, and knowledge is one of the fundamental practices that has been widely embedded in human nature. The advance of information and communication technology has contributed to significant growth in the “sharing paradigm.” In spite of the increasing attention on the new sharing phenomenon and its potential contribution to a sustainable and resilient society, there is a lack of comprehensive understanding of varied sharing practices in the context of sustainability and resilience. This chapter starts mapping out the academic landscape of sharing studies and examines what and how we share by a systematic literature review. The chapter also discusses research gaps in sharing paradigm studies and the potential contribution of sharing to building sustainable and resilient societies. The chapter reviews how sharing ecosystem services and shared/social values of ecosystem services have been captured by recent ecosystem services assessments including regional assessments conducted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). Finally, the chapter illustrates the objectives and organization of the book.

Keywords Sharing paradigm · Information and communication technology · Sustainability · Resilience · Ecosystem services · IPBES · Social values

Things have values, which are emotional as well as material; indeed, in some cases, the values are entirely emotional. Our morality is not solely commercial. We still have people and classes who uphold past customs and we bow to them on special occasions and at certain periods of the year. (p. 63)

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Marcel Mauss (1923–1924) *Essai sur le don*. Available in English as *The Gift: Forms and Functions of Exchange in Archaic Societies*. Translated by Ian Cunnison. Cohen & West Ltd, London, 1966.

1.1 Introduction: Emergence of Sharing Economy and Sharing Studies

Sharing is “to have, use, pay, or take part in (something) with others or among the group, rather than singly; to divide and give out in shares” (*Longman Dictionary of Contemporary English*). Sharing resources, goods, services, space, skills, labor, experiences, and knowledge is one of the fundamental practices that has been widely embedded in human conscience. Sociocultural sharing such as food exchange happens everywhere. Gift exchange can also be considered a form of sharing. On the basis of the profit orientation and ownership transfer, sharing activities have been divided into six types: “selling,” “gifting,” “renting,” “lending,” “servicing,” and “volunteering” (Chasin et al. 2018). Gifting and selling refer to the provision of physical objects, but selling involves payment, whereas gifting does not. Lending and renting give access to tangible resources for no profit and for profit, respectively. Volunteering is the provision of intangible resources for free, whereas servicing requires compensation for such provision.

Mauss (1923–1924) explored forms and functions of gift exchange in archaic societies in his masterpiece, *The Gift*. His book successfully extracts common rules, principles, and three forms of obligations: giving, receiving, and repaying. Gift exchange still plays an important role in our modern society. When you purchase a gift for someone important for you at a department store, the object is treated as a commercial material through a market-based transaction. However, when you present the purchased gift (material) to your important person, your emotional value of gifting becomes more important than its economic value. In this sense, indeed, “Things have values which are emotional as well as material” (Mauss 1923–1924, p. 63).

In the past few years, the concept of sharing evolved into the “sharing economy,” which shapes an “economic model based on sharing assets among groups of people rather than owning them” (Ballus-Armet et al. 2014). Information and communication technologies (ICTs) have advanced and facilitated a number of sharing economy initiatives by seamlessly connecting sharing partners, something that previously required the creation, manipulation, or transport of a physical object. This change not only concerns the economic or cultural domain but also affects scientific and technical practices, management, design, interpersonal communication, public expression, and the media (Aigrain 2012).

In the late 1990s and mid-2000s, online-based sharing became a popular business models. The eBay, an e-commerce corporation founded in 1995, was developed to facilitate the sale of secondhand goods via its website. Home sharing has also been stimulated by online platforms such as CouchSurfing, which provides the

service to arrange free homestays since 2003. In the late 2000s, the success of sharing businesses such as Airbnb (sharing accommodations) and Uber (sharing rides) drew a huge attention to the new sharing phenomenon (Martin 2016). BCycle provides a public bicycle sharing service of bicycles and solar-powered stations. Freecycle and Fashion Libraries offer platforms for sharing secondhand goods. Biobank offers health information from a large number of volunteer participants to approved researchers to improve the prevention, diagnosis, and treatment of a wide range of serious and life-threatening illnesses.

More and more scholars have discussed the evolving sharing activities, resulting in a rapid growth in the volume of sharing studies. Preceding studies explained the new sharing phenomenon using not only the term “sharing economy” but also other terms such as “collaborative consumption,” “access economy,” and “peer economy” (Botsman and Rogers 2010; Dredge and Gyimóthy 2015; Pettersen 2017). Collaborative consumption involves new forms of sharing practices through technology and peer communities, as well as traditional sharing, bartering, lending, renting, gifting, and swapping (Botsman and Rogers 2010). Access economy emphasizes the transition to access regimes, where things can be accessed without owning them individually (Kassan and Orsi 2012; Rifkin 2001). Peer economy, also known as “peer-to-peer economy,” focuses on the monetization of goods, assets, and skills within their possession through online marketplaces (Cheng 2014).

The concept of the “sharing paradigm” was first proposed by McLaren and Agyeman (2015) to provide a comprehensive view of divergent sharing concepts. The sharing paradigm encompasses multiple dimensions of sharing things, services, activities, and experiences. The sharing paradigm consists of four quadrants divided by two axes (Fig. 1.1). The first axis indicates the contrast between sociocultural (or informal) sharing and mediated sharing. An example of sociocultural sharing is lending a book to a friend. Mediated sharing includes posting information on blogs for sharing experience or knowledge. The second axis reflects the contrast between extrinsic (commercial) and intrinsic (communal) motivations. Sharing motivated by

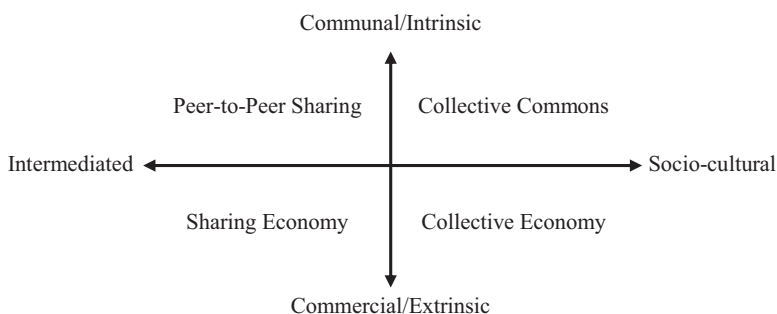


Fig. 1.1 Sharing paradigm (Adapted from McLaren and Agyeman 2015). The vertical axis shows the contrast between intrinsic (communal) and extrinsic (commercial) motivations of sharing. The horizontal axis represents the contrast between intermediated and sociocultural sharing. Major terms in the realm of sharing studies are displayed across the quadrant

extrinsic factors is accompanied by monetary compensation, such as the cases of home sharing via Airbnb and ride sharing via Uber. Sharing practices motivated by intrinsic factors are voluntary based on a sense of community, such as giving a gift for someone's birthday and sharing photos on social media. According to this paradigm, the "sharing economy" falls under the quadrant of intermediated and commercial sharing, whereas "peer-to-peer sharing" includes mediated and communal sharing. "Collective economy" represents sociocultural and commercial sharing, and "collective commons" imply sociocultural and communal sharing.

1.2 The Academic Landscape of the Sharing Paradigm and Practices

A review by Ryu et al. (2018) mapped out the academic landscape of the sharing paradigm by reviewing 1,275 peer-reviewed articles published from 2008 to 2017. Their results showed that commercial and intermediated sharing such as product service systems and the sharing economy drew a lot of attention from academia

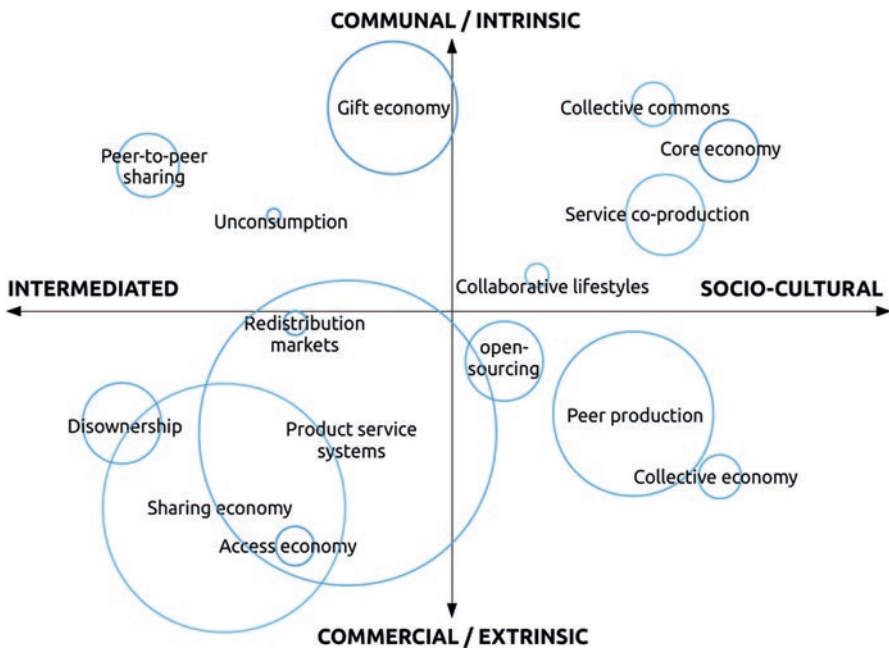


Fig. 1.2 The academic landscape of the sharing paradigm. The vertical axis shows the contrast between intrinsic (communal) and extrinsic (commercial) motivations of sharing. The horizontal axis represents the contrast between intermediated and sociocultural sharing. The size of the circles represents the number of publications on each term published between 2008 and 2017, as retrieved from Scopus. (Ryu et al. 2018)

(Fig. 1.2). Product service systems are those where “the customer pays for using an asset, rather than for its purchase” (Retamal 2017). For instance, car-manufacturing companies such as Volkswagen provide rental services of their products, besides sales, allowing temporary access to their vehicles. Meanwhile, few research studies have been implemented on communally-motivated sharing such as collective commons, peer-to-peer sharing, and service co-production (Ryu et al. 2018). In the past few years, since 2014, studies on the sharing paradigm have increased exponentially, mostly focused on the sharing economy (Fig. 1.3). Meanwhile, only a limited number of studies are available on peer production – a process where individuals collaborate to produce a unit of information or culture without being coordinated by managers nor price (Benkler 2002) – and gift economy (an economy based on gifting rather than profit-oriented transactions).

Sharing is a universal behavior of human beings. However, preceding studies tended to focus on sharing practices in the western culture (Cheng 2016; Ryu et al. 2018). Among the sharing paradigm literature, more than half of the papers discussed cases of sharing in Europe and North America, 37% and 20%, respectively (Ryu et al. 2018). The authors also outlined that the number of studies on sharing in Asia Pacific, including Australia, South Korea, and China, started to increase in 2014, yet these regions remained underrepresented (9%). Only a few studies analyzed sharing practices in Africa and South America (1% each). The underrepresentation of non-western countries in the sharing paradigm literature implies a limited number of

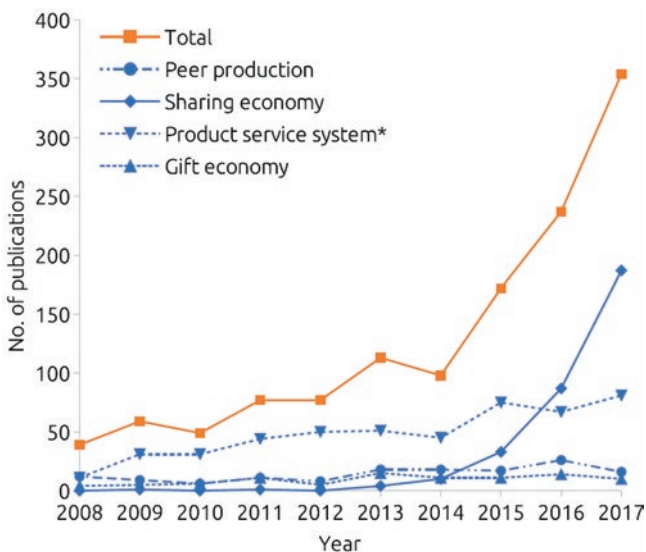


Fig. 1.3 Research trends in the sharing paradigm ($n = 1,275$). Each keyword referring to the sharing paradigm shown in Fig. 1.2 was searched in Scopus. The graph shows the trend in the total volume of sharing paradigm studies and the four most frequently appearing keywords. (Ryu et al. 2018)

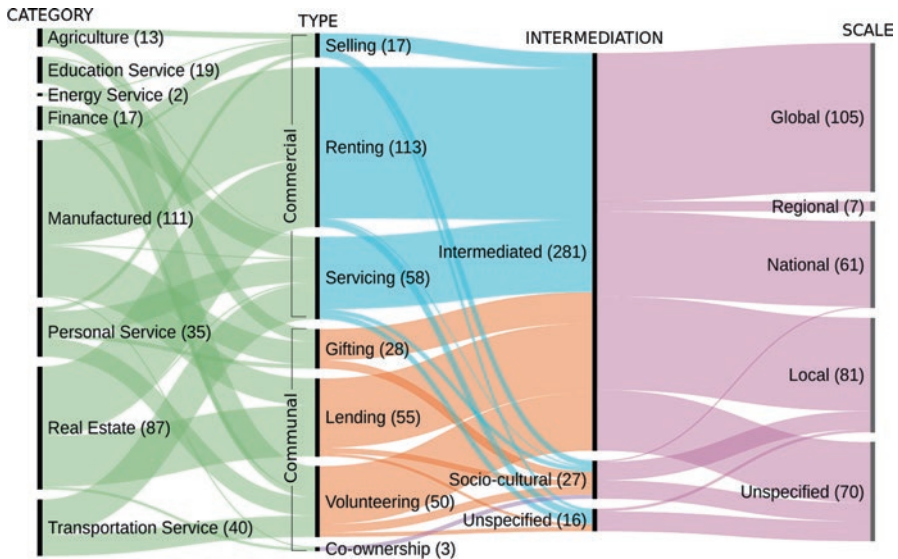


Fig. 1.4 The overview of the sharing practices identified in the sharing paradigm literature ($n = 324$). The thickness of the lines indicates the number of cases, which are also given in the parentheses. (Ryu et al. 2018)

studies on sharing consider the cultural and social context, despite its important role and value in those countries (e.g., Kamiyama et al. 2016; Tatebayashi et al. 2019).

Figure 1.4 presents an overview of what and how we share based on the review of the sharing paradigm literature by Ryu et al. (2018). The authors categorized sharing by sector: agriculture (e.g., home garden products), education services (e.g., knowledge sharing), energy services (heating and electricity), finance (e.g., crowd funding and money lending), manufactured goods (e.g., clothes, tools, and vehicles), personal services (e.g., cleaning, dog walking, and cooking), real estate (e.g., housing, parking lots, farmlands, and offices), and transportation services (e.g., carpooling). Among these sectors, sharing of manufactured goods appeared the most frequently in the literature, and 40% of the cases were rentals of vehicles like cars. Real estate was the second most frequent, mostly accommodations. In this review, the sharing process was analyzed with regard to three features: type (based on profit orientation and ownership transfer), intermediation, and scale (Fig. 1.4). As for motivation, commercial sharing appeared more often than communal sharing in the literature. Among the commercial sharing cases, renting of manufactured goods and real estate were dominant. In terms of the existence of intermediaries in sharing, the majority of sharing practices identified in the literature involved intermediated sharing, for example, via online platforms, accounting for 87% of the cases. As for the scale of sharing, which means the spatial scale of interaction between providers and recipients, sharing cases at the global level appeared the most frequent ones, followed by those at the local level and the national level. On

the basis of Fig. 1.4, we can also observe that most of the sociocultural sharing practices take place at the local scale.

Despite the rapid expansion of studies on the sharing paradigm, there are knowledge gaps in comprehending the sharing phenomenon. First, in the preceding studies, sharing has been explored in a limited range of sectors, such as manufactured goods and real estate. With the success of the business models of Airbnb and Uber, a number of case studies have been carried out using these two well-known sharing practices to explore the behaviors of users and to analyze the socioeconomic impact of these businesses. Car rentals are another common subject in sharing studies, probably due to their dominance in online sharing (Chasin et al. 2018). With the advance of ICT, the diversity of shared goods and services has increased at multiple scales. Internet-based platforms and mobile applications have facilitated sharing activities, allowing the easier matching between potential sharing partners. For example, you can search for available gardens in your neighborhood for growing herbs and vegetables on your own via an online platform such as Landshare. Furthermore, communal sharing at the local level involves exchange of varied things beyond cars and apartments. Boyko et al. (2017) identified 41 different sharing activities in a city, which range from food, plants, and livestock to gardens, rides, and knowledge. For a holistic understanding of the sharing paradigm, more studies need to look into diverse sharing cases, beyond car and apartment rentals.

Second, the analysis of the regional distribution of sharing paradigm studies reveals the underrepresentation of sharing in non-western cultures. Culture is an essential element affecting what and how we share, because culture shapes social norms and motivations for sharing (Mauss 1923–1924; Albinsson and Perera 2009; McLaren and Agyeman 2015; Wittel 2011). For example, a comparison of food sharing between Europe and Japan by Plieninger et al. (2018) demonstrated that sharing occurs in different scales under different motivations associated with social challenges that the countries are facing. The authors found that local food sharing in Europe was motivated by scenery, rural tourism, and nature conservation, whereas food sharing in Japan was culturally embedded as a part of social capital and well-being, which could also contribute to revitalization of local economies. Despite the important role of the sociocultural context in sharing practices, little is known about the sharing paradigm in Asia, Africa, and South America, at least in the global academia (knowledge shared in the English language).

Finally, it is yet far from clear whether the sharing paradigm contributes to the sustainability of our society. A large part of the sharing paradigm, especially the sharing economy and collaborative consumption, has often been considered a global movement toward a sustainable lifestyle (Ala-Mantila et al. 2016; Albinsson and Perera 2012; Martin 2016). Some scholars have argued that sharing increases the efficiency of resource use, avoiding excessive production and consumption (Akbar et al. 2016; Retamal 2017). In fact, according to Ryu et al. (2018), 20% of the sharing studies contain the term “sustainability” in their keywords, discussing sharing as a means of sustainable development and examining sharers’ attitudes toward sustainability and impact on social capital (Fig. 1.5). The few studies that investigated the impact of sharing on ecological footprints, such as carbon emission

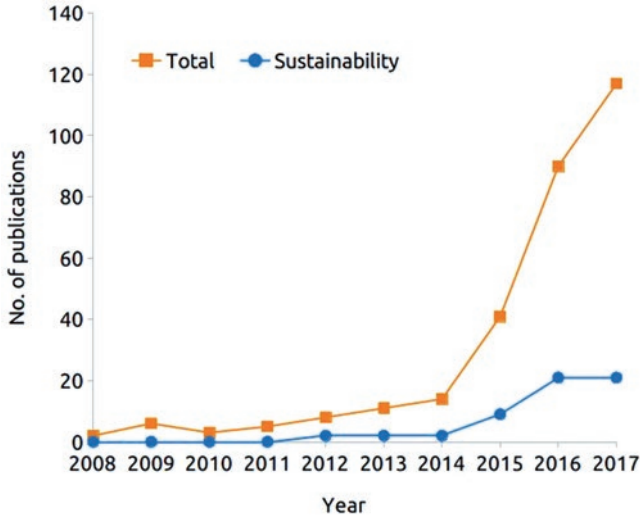


Fig. 1.5. The publication trend in the sharing paradigm studies linked with sustainability between 2008 and 2017 ($n = 297$)

and resource efficiency (e.g., Ala-Mantila et al. 2016; Berners-Lee 2011; Lahti and Selosmaa 2013), suggested the need for more empirical studies to examine whether sharing actually contributes to sustainability or not.

1.3 Sharing Ecosystem Services and Shared/Social Values

1.3.1 *Ecosystem Services and Nature's Contributions to People*

Ecosystem services are defined as the benefits obtained from ecosystems, and they include provisioning services such as food and water; regulating services such as regulation of floods, drought, and diseases; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, and other nonmaterial benefits (Millennium Ecosystem Assessment 2005). The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) was established in 2012 to provide policymakers with objective scientific assessments about the state of knowledge regarding biodiversity, ecosystems, and the benefits/contributions they provide to people, as well as the tools and methods to protect and sustainably use this vital natural capital. IPBES redefined ecosystem services as “nature’s benefits to people” (NBP) to make this concept more inclusive by capturing all the benefits (and occasionally losses or detriments) that humanity obtains from nature (Díaz et al. 2015). The element “NBP” was adopted by the IPBES Second Plenary in 2014. The IPBES Fifth Plenary in 2018 agreed with replacing NBP with “nature’s contribution to people” (NCP) (Díaz et al. 2018) to recognize the central and pervasive role that culture plays in defining all links

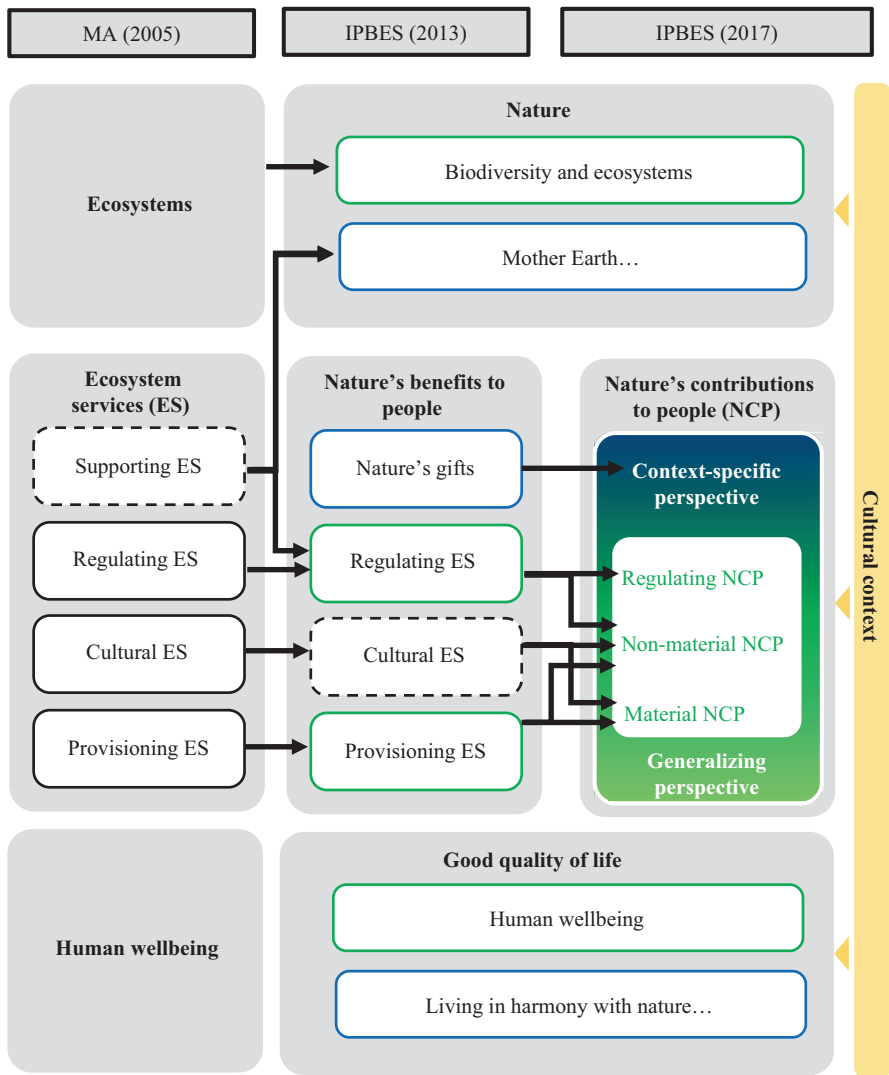


Fig. 1.6 Evolution of nature’s contributions to people (NCP) and other major categories in the IPBES conceptual framework (1) with respect to the concepts of ecosystem services and human well-being as defined in the Millennium Ecosystem Assessment (2). (Modified from Díaz et al. 2018)

between people and nature and to emphasize and operationalize the role of indigenous and local knowledge in understanding NCP (Fig. 1.6). Duraiappah et al. (2014) defined “natural capital” as “the underlying biodiversity, ecological processes, and functions that contribute to human well-being.” Natural capital can produce benefits for human well-being directly as ecosystem services or NCP, such as in the case of regulating services (e.g., climate regulation and pollination), but also indirectly, when the benefits or disservices from natural capital are delivered in combination with humans and produced capital such as timber, fiber, and biofuel. Although

cultural ecosystem services were defined as a separate ecosystem service category in the Millennium Ecosystem Assessment (MA), IPBES instead recognized that culture mediates the relationship between people and all NCP (Fig. 1.6).

Categories in gray are part of the framework, but not the focus of Díaz et al. (2018). Concepts pointed by arrowheads replace or include concepts near arrow tails. Concepts in dotted-line boxes are no longer used; following the present view of the MA community, supporting ecosystem services are now components of nature or (to a lesser extent) regulating NCP.

IPBES identified 18 such categories for reporting NCP within the generalizing perspective (Fig. 1.7), organized in three partially overlapping groups (regulating, material, and nonmaterial NCP), and defined them according to the type of contribution they make to people’s quality of life (Díaz et al. 2018). Material contributions are substances, objects, or other material elements from nature that directly sustain people’s physical existence and material assets (e.g., food, energy, or materials for ornamental purposes). Nonmaterial contributions are nature’s effects on subjective or psychological aspects embedded in people’s quality of life, both individually and collectively. Regulating contributions are functional and structural aspects of ecosystems that modify the environmental conditions.

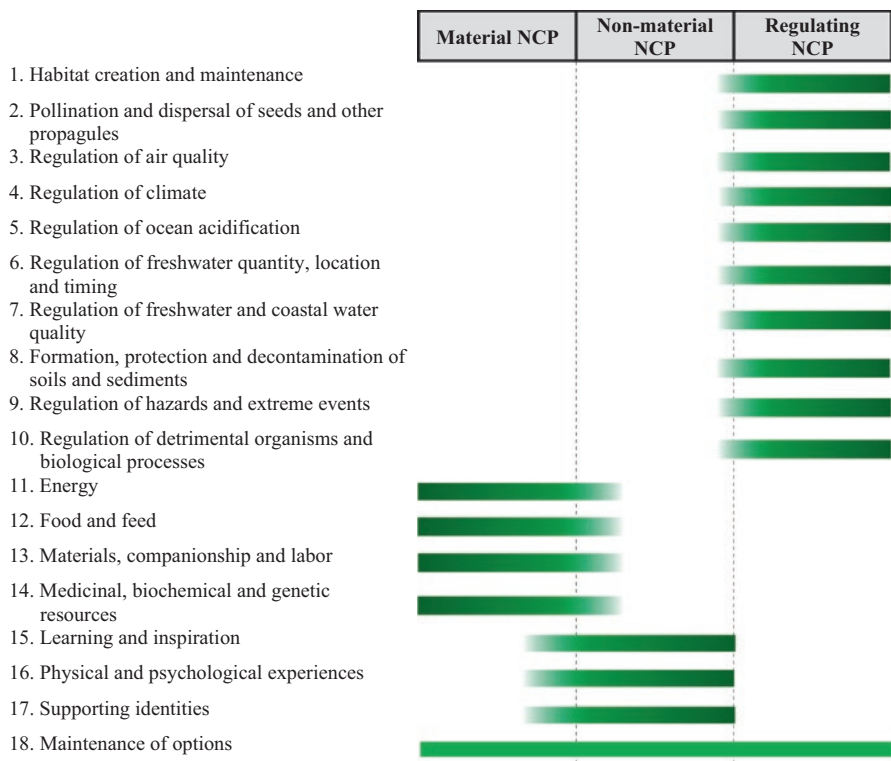


Fig. 1.7 Mapping of the 18 NCP reporting categories used in IPBES assessments onto three broad groups distinguished within the generalizing perspective. (Modified from Díaz et al. 2018)

1.3.2 “Sharing” Concepts in IPBES Regional Assessments

In 2018, four regional assessments, namely, for Africa, the Americas, Asia Pacific, and Europe and Central Asia, were approved by the IPBES Plenary. The overall scope of the regional assessments was “to assess the status and trends regarding biodiversity, ecosystem functions and ecosystem services, and their links; the impact of biodiversity, ecosystem functions and ecosystem services, and threats to them on good quality of life, and the effectiveness of responses, including the Strategic Plan for Biodiversity 2011–2020 and its Aichi biodiversity targets, the sustainable development goals, and the national biodiversity strategies and action plans developed under the Convention on Biological Diversity” (<https://www.ipbes.net/deliverables/2b-regional-assessments>).

Although these regional assessments have not fully captured sharing practices as described under the sharing paradigm, there are some relevant examples and cases. The notion of sharing has been often used and discussed in line with the Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their use, especially in the regional assessments for Africa, Asia Pacific, and the Americas (IPBES 2018a, b, d).

The regional assessment for Africa highlighted an example of community benefit sharing as a widely used livelihood incentive for biodiversity conservation, using revenues generated by protected areas to finance various development activities in adjacent rural areas in East Africa (e.g., in Ethiopia and Kenya) (IPBES 2018a). Africa’s regional assessment also introduced a case demonstrating the role of informal institutions in natural resource management by Afar people, the Cushitic people inhabiting the Horn of Africa. Their institutions and traditions include the *Dagu* as an effective traditional human-based information and knowledge sharing network, through which anything anywhere that is relevant to the pastoral life of Afar is made accessible to individuals and households (Yimer 2013).

The Asia-Pacific regional assessment (IPBES 2018b) identified science and technology as indirect drivers of change in ecosystems and their services and stressed that the increased availability of ICT-mediated information and knowledge sharing platforms is key to promoting socioeconomic development and strengthening environmental governance. In addition, the assessment described the importance of stakeholder empowerment through knowledge sharing and increase in local legitimacy and policy salience when applying participatory scenario building in delivering a sustainable future (IPBES 2018b).

Europe and Central Asia’s regional assessment (IPBES 2018c) grouped future pathways into four distinctive sustainability narratives: *green economy*, *low carbon transformation*, *transition movements*, and *ecotopian solutions*. The *green economy* and *low carbon transformation* narratives share three alternative pathways: *technological innovation*, *land sparing* with strong nature protection in designated areas, and *land sharing* with lower use intensity and diversification of production of NCP. *Transition movement* pathways emphasize change toward relational values, promoting resource-sparing lifestyles, continuous education, new urban spatial

structures, and innovative forms of agriculture where different knowledge systems (including indigenous and local knowledge) are combined with technological innovation (IPBES 2018c). *Ecotopian solution* pathways focus on radical social innovation to achieve local food and energy self-sufficiency and the production of multiple contributions from nature to people (IPBES 2018c). Although the controversy between land sparing and land sharing is not part of the sharing paradigm discourse, these potential pathways should be further explored for our future sustainability.

On the basis of a survey of 1,300 marine divers and recreational anglers in the UK, the Europe and Central Asia's regional assessment indicated that the sharing of knowledge and experience with others is a valued cultural ecosystem service (IPBES 2018c; Jobstvogt et al. 2014). This is essentially important for our understanding of the relationship between ecosystem services and sharing of knowledge and experiences. One of the reasons why IPBES introduced the notion of NCP lies in the fact that NCP can embody such relational values that reflect elements of cultural identity, social cohesion, social responsibility, and moral responsibility toward nature (Pascual et al. 2017).

1.3.3 Sharing Ecosystem Services and Shared/Social Values of Ecosystem Services

In the IPBES regional assessments, the notion of sharing mainly focused on three aspects: (1) access and benefit sharing of genetic resources including community benefit sharing, (2) information and knowledge sharing as both an indirect driver of change and a management tool, and (3) land sharing as a future pathway toward lower use intensity and diversification of ecosystem services production. Even though sharing food, water, medicinal plants, fuel, and non-timber forest products is a common practice in many countries (Kamiyama et al. 2016; Boafo et al. 2016; Saito et al. 2018), empirical studies are quite limited in the current research community of ecosystem services. Among 297 articles of the sharing paradigm studies reviewed by Ryu et al. (2018), none directly mentioned "ecosystem services." There are 14 studies of sharing practices, which partly include ecosystem services such as sharing of farmland, food, and yard work, gardening, and home garden products. Some studies focused on land sharing platforms or initiatives that facilitate finding and lending of land for growing crops and vegetables (e.g., Landshare) (Harvey et al. 2017; Wekerle and Classens 2015). Gifting or exchanging fruits and vegetables harvested from home gardens was explored, while food swap, including giving out leftover meals, was also examined in a few studies (Binninger et al. 2015; Schor et al. 2016; Zurek 2016). A couple of papers investigated TaskRabbit, an online platform that matches freelance labor with local demands in everyday tasks, which include yard work such as gardening and lawning (Schor 2017; Thebault-Spieker et al. 2017). The results show that ecosystem services in sharing literature were

limited to food production. There is clearly a need to investigate sharing practices of a wider range of ecosystem services and understand the knowledge on sharing ecosystem services from around the world.

Through the lens of the sharing paradigm, with its four dimensions (informal, mediated, communal, and commercial sharing), we can further explore and enrich ecosystem services research beyond the current IPBES conceptual framework and assessments. For example, food delivering for low-income households with children was launched in Japan by collecting contributions of rice and canned foods from private business enterprises. This service was initiated by one of the municipalities of Tokyo and now has been increasingly implemented by other prefectures beyond the city. This example can be interpreted as a new form of peer-to-peer sharing, which is intermediated and noncommercial sharing. ICT and advanced distribution systems also facilitate such sharing practices in both developed and developing countries.

In addition to exploring various practices of sharing ecosystem services, we should also investigate “shared/social values” of ecosystem services more explicitly. Kenter et al. (2015) provided a conceptual framework of the different dimensions of shared/social values in order to identify shared values of ecosystem services to enhance legitimacy, effectiveness, and transparency of valuation approaches. The term “shared values” has been used to refer to guiding principles and normative values that are shared by groups or communities or to refer to cultural values more generally. On the other hand, the term “social value” can refer to the values of a particular community or the cultural values and norms of society at large: the public interest, values for public goods, the values that people hold in social situations, the contribution to welfare or well-being, the willingness to pay of a group, or values derived through a social process (Kenter et al. 2015). The term “shared social values” has been used to refer to subsets or combinations of the various concepts described above.

1.4 Objectives and Organization of the Book

Despite the growing attention paid to the sharing economy and household food production, the nonmarket and non-monetized sharing of homegrown food has largely escaped scholars’ attention (Jehlicka and Danek 2017). Reflecting this recent growing attention to the sharing concept and its application in the economic and urban context, this book explores opportunities and challenges to build a more resilient and sustainable society in harmony with nature by the critical examination of sharing practices in rural landscapes and seascapes around the world. The book introduces not only traditional communal and nonmarket sharing practices in different rural areas but also new forms of sharing through integration of traditional practices and modern science and technologies. By using “the sharing paradigm” as described by McLaren and Agyeman (2015) as a guiding concept, the book demonstrates that “sharing” has truly great potential to make rural society resilient,

sustainable, and inclusive through enriching all four sharing dimensions: informal, mediated, communal, and commercial sharing.

Even though IPBES introduced NCP instead of ecosystem services, in this book, the term “ecosystem services” is retained, as it is widely accepted in both science and policy communities and it can be used to capture the benefits (and occasionally losses or detriments) that humanity obtains from nature. We believe that it is not about which term we choose but about how we use the term “ecosystem services.”

The book is divided in two parts. In the first part, we present case studies of sharing ecosystem services in Japan (Chaps. 2, 3, 4, 5, and 6). Then, we present, in the second part, case studies from around the world including Asia-Pacific, South America, and Europe (Chaps. 7, 8, 9, 10, and 11).

Chapter 2 focuses on sharing home-based food provisions and social capital in Japan. In the rural area of Japan, where the natural environment and people’s livelihood have corroborated over many years to create a diversity of sustainable practices and products, it has been empirically found that pervasive practices like sharing or gifting home-based agricultural products with neighbors and relatives are embedded in social structures and principles of reciprocity. This chapter identifies a general trend of home-based food consumption and social links associated with use of natural resources quantitatively in the municipal level based on a web questionnaire survey collecting information from over 1,500 respondents throughout Japan.

Chapter 3 provides a case study of food provisioning services via home gardens and communal sharing in *Satoyama* socio-ecological production landscapes on Japan’s Noto Peninsula. *Satoyama* is a Japanese term encompassing socio-ecological production landscapes and seasces (SEPLSs) with a mosaic of ecosystems along with human settlements that have been managed to produce bundles of ecosystem services for human well-being. Although sharing of food provisions in SEPLSs may substantially promote human well-being by not only maintaining nutrition but also building social relations, few studies have investigated the sharing practices by relating quantities and varieties of homegrown food to localized landscapes. This chapter characterizes the quantity and varieties of home-based foods consumed per household at the community level and discovers how food is shared in social relations based on face-to-face questionnaires and interviews in the Noto Peninsula.

Chapter 4 presents another case study of nonmarket food provisioning services on Hachijo Island, Japan, with its implications for building a resilient island. The resource-consumption pattern of remote islands is assumed to differ from that of the mainland because of the constraints of both material distribution and human interaction. In this chapter, we investigate food production and consumption patterns on remote islands, focusing on the food supply flow, the food sharing network, and food stock for emergencies based on a household questionnaire survey and interviews with the residents of Hachijo Island, Tokyo.

Chapter 5 focuses on sharing experiences and associated knowledge in the changing waterscape, Mikatagoko area (Five Lakes of Mikata), Fukui Prefecture, Japan. In order for ecosystem services to actually flow and provide benefits to people, it is necessary to utilize knowledge on previous practices to manage the supply and flow of ecosystem services. Sharing the traditional and local experiences

and associated knowledge is thus crucial for sustainable use of ecosystem services. The analysis of 986 paintings collected between 2009 and 2014 is analyzed to understand diverse experiences with organisms inhabiting and ecosystem services from the local rivers and lakes.

Chapter 6 investigates sharing tacit knowledge of apiculture and mushroom production with future generations. By exploring the status and trend of the transmission and sharing of knowledge on non-timber forest products, as well as identifying the factors and underlying issues that shape knowledge systems, in two rural areas in separate prefectures in Japan, we elucidate how the proper transmission of traditional knowledge can contribute to the holistic and sustainable management of ecosystems and their services in complex socio-ecological production landscapes (SEPLs) through the case studies on apiculture and shiitake mushroom production.

Chapter 7 explores the integration of digital and traditional sharing practices for managing common natural resources in Palau, Micronesia. The shared economy, driven by advancements in information and communication technology, is becoming increasingly popular, but there is a big gap between the traditional communal sharing practices and the modern digital sharing phenomenon. Through a case study in the Republic of Palau, Micronesia, we examine the contemporary value of traditional sharing practices with the aim to bridge that gap based on an intensive survey of the use of natural resources by urban and rural residents over 10 years.

Chapter 8 focuses on solidarity economy in Brazil toward institutionalization of sharing and agroecological practices. Solidarity economy is often focused on autonomous initiatives outside the regular market system. In Brazil, in the 2000s, the leftist national government supported a number of solidarity economy initiatives by institutionalizing the ideal and practices of sharing and sustainable production and consumption within the regular market system. New actors, policies, and procedures were instrumental in this institutionalization. However, the questions of how the actors, policies, and procedures interact and how this interaction becomes socially and politically relevant remain largely unaddressed. In this chapter, we explore implications of the interactions for the establishment of solidarity economy based on agroecological practices carried out by small family farmers in Brazil.

Chapter 9 introduces a case of sharing knowledge and value for nurturing socio-ecological production landscapes in Rejoso watershed, Indonesia. Payment for ecosystem services (PES) is a policy tool that incentivizes landholders in production landscapes through voluntary and performance-based conservation contracts toward creating SEPLs that benefit all societies living within the landscape. The design of PES covers explicitly defining ecological baselines of targeted landscape, calculating conservation opportunity costs, customizing contract agreement and payment modalities, and targeting agents with credible land claims and threats to ecosystem service degradation. In the context of developing countries, conservation contracts of the PES scheme are mostly assigned to farming groups. Thus, a group-level auction is organized to accommodate collective decision-making in the payment level for the scheme. This chapter discusses how group-level auctions enhance allocation efficiency due to the sharing process during the auctions, as compared with individual-level auctions.

Chapter 10 shows a case study on the loss of suburban landscape to urbanization in India as a sharing place. Suburban landscapes are fast changing with the loss of their own characteristics and transforming into new landscapes with a new mosaic set of characteristics that are strikingly different from the previous ones. There is an increasing trend across the world to transform these suburban areas, just outside the periphery of bigger cities, into satellite towns so that they can accommodate the city's increasing population as well as become development hubs. In this chapter, we investigate how the local communities perceive sharing their land with new residents living in high-rise apartments and how the change in the status of home gardens and sharing of their products has changed the social relationships in the area.

Chapter 11 provides a comparative case study of sharing practices and property rights, in particular focusing on cow sharing and Alpine ecosystems. Sharing is a trending issue, and there is a swiftly growing interest in the sharing paradigm, sharing economy, and its various opportunities, challenges, and impacts. Although new sharing practices mediated via Internet platforms are already established in urban contexts, discussions and practices in rural, landscape, and ecosystem contexts are still in the very beginning. This chapter analyzes a particular type of sharing, i.e., web-mediated cow sharing in the European Alps, which are hotspots of diverse and vulnerable ecosystems.

Chapter 12 revisits and summarizes all case studies from Chaps. 2 to 11 and identifies the positive and negative effects of sharing practices on sustainability and resilience. It also proposes three key approaches toward a sustainable and resilient future: (1) combination of traditional knowledge and scientific knowledge/technologies, (2) coexistence of market and nonmarket sharing mechanisms, and (3) new normative metrics for measuring the multiple values of sharing. Along with new ICTs, web-based platforms and smartphone applications, the sociocultural communal sharing and exchanging of goods and capitals can enhance the mutual satisfaction of people's interests and define those interests without compromising the sustainability and resilience of socio-ecological systems.

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