

# Chapter 12

## Environmental Governance as Knowledge Co-production: The Emergence of Permaculture Movements in Indonesia



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**Abstract** Current academic debate witnessed the salience of looking at the epistemic dimension of environmental governance. In such setting, this study learns from how knowledge co-production works in the emergence of permaculture movements in Indonesia. The method of this study departs from the concept of knowledge co-production and situates it within the broader literatures on social movement and counter-hegemonic politics. The data is based on the experiences of four permaculture communities in Indonesia, namely Bumi Langit Institute, Sendalu Permaculture, IDEP Foundation, and Jiwa Damai. This study argues that the formation of permaculture movements in Indonesia involves negotiated boundaries among different ways of knowing in the epistemic relations surrounding permaculture practices. The critical distancing that develops between the movements and the hegemonic knowledge structure seeks to transform agro-industrial knowledge practices toward an alternative knowledge system. The quest of epistemic leadership is constructed through the porous boundaries of knowledge co-production toward defining what permaculture means as a collective project.

**Keywords** Knowledge co-production · Environmental governance · Hegemony · Permaculture · Social movements · Epistemic relation

### 12.1 Introduction

The importance of understanding the political dimensions of epistemic relations in environmental governance literatures is increasingly recognized (van der Molen, 2018; Lemos & Agrawal, 2006; Jasanoff, 2004a; Miller & Edwards, 2001). Environmental governance has mostly discussed about institutional framework that is authoritative to manage the process and consequences of environmental change

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for human society at multiple scales (Jasanoff & Martello, 2004; Lipschutz & Kütting, 2009). How environmental problems is known through different lens and regulated within specific knowledge schemes, however, often lacks attention.

Current environmental governance literatures have covered the question of knowledge production in two respects. The first strand of literature defines environmental governance as knowledge institutionalization. These literatures rely on the presumption of knowledge authority. The presence of expert and professional knowledge supports the methodological foundation of governance practices (Miller & Edwards, 2001). This power to know is central to the conditions of governing because knowledge is assumed to be concentrated in the presence of major institutions, mainly the government (Paavaola, 2007). Academic institutions are constitutive to such mechanism provided their truth-claim authority within the broad culture of scientific knowledge (Eicken et al., 2021). Knowledge dissemination works within the hierarchical structure in societal relations, between the knowledge producer and the knowledge receiver. Knowledge producer is often treated as having relative authority in the formation and internalization of particular rules. Such mechanisms also shape the relations of the knowledge producers and knowledge receivers that demands participation by the knowledge receivers to make the institutions legitimate (Paavaola, 2005). Likewise, this strand of literatures has also discussed some pathologies of institutional formation that accompany governance practices. This is related to the ability of the institutions to achieve particular normative goals given some institutional limits, such as lack of coordination, fragmentation of instruments and process, and substantive complexity. All these limits are considered affecting incentives that drive individual's choice or the consolidation of collective arrangements. Furthermore, it determines the ability of particular institutional arrangement to ensure coherence, centralization, and compliance (Chambers & Green, 2006).

The second strand of literature sees environmental governance as knowledge mobilization. It assumes that knowledge emerges in a decentralized manner, where there is no central authority that drives the formation of knowledge. Such claims can be situated within the broader critics of the core-periphery dichotomy (Hoppers, 2000) and the intellectual attempts to decolonize knowledge domination in the North-South relations (Grosfoguel, 2002). Such position argued for an area beyond the trickle-down and transfer model, which constitutes hybrid spaces in understanding knowledge relationship (Van Kerkhoff & Lebel, 2006). The making of environmental governance involves understanding situated ways of knowing and the particularity of problems facing human-ecology nexus (Collof et al., 2020; Ingram, 2017). In such a decentralized and plural setting, knowledge is produced scattered in various loci, and very often develops quite independently from each other as an epistemic undertaking. Such knowledge is mostly associated with the presence of civil society movements seeking to redefine the epistemic relations driven by state-centered knowledge practice (Ford, 2003). Knowledge travels and transcends various forms of life and navigates various locals. It also problematizes the generalization of science, which has often been treated as a dominant force in the process of legitimizing environmental governance (Bernauer & gampfer, 2013). The impacts of

knowledge production are examined not in terms of the scale of knowledge internalization and socialization, but in the way it is able to trigger individualized strategies of knowing without necessarily leading to large-scale institutionalization. Critics on hegemonic modernity in a Latin American context illustrated how hybridity and heterogeneity are instrumental to the re-articulation of modern political power (Coletta & Raftopoulos, 2018). The contextualized aspect of knowledge, in this regard, is considered much more important than the aspiration toward an overarching knowledge framework that has universal character. The collaborative governance involves the use of the terms such as lay knowledge (Moran & Rau, 2016) and local knowledge in their interaction with positivist science, which contributes to the dynamics of knowledge mobilization (Grineski, 2006).

The existing literatures still provide rooms to elaborate the formation of knowledge that constructs environmental governance by considering the interactions between knowledge institutionalization and knowledge mobilization theses. This study, therefore, seeks to deepen the understanding of environmental governance departing from literatures on knowledge co-production, recognizing the dynamic interactions of knowledge institutionalization and knowledge mobilization, which characterize contemporary landscapes of environmental governance making. Knowledge co-production examines knowledge in its situated-ness against specific socio-political background. Furthermore, it examines the consequences of knowledge production beyond linear logic and very often the deterministic conceptual trajectory by looking at the dialectical aspects of knowledge production as co-constitutive processes. It also seeks to understand its tensions with the other evolving knowledge systems that seek to articulate their influence in the functioning of social order.

This study reflects upon the emergence of permaculture movements in transforming agro-industrial practices in Indonesia. Some questions that motivate this study are as follows: What are the limits of agro-industrial knowledge practices confronting contemporary social and environmental problems? In what ways have dialectical relations shape hegemonic knowledge and its altering forces? What does it take to advance knowledge co-production project in responding to socio-ecological limits of modern society? This study argues the limits of agro-industrial knowledge system as a common sense (Gramsci, 1971) are shaped by critical reflection of the epistemic beings around which socio-environmental problems are being identified. Multiple delineations of knowledge boundaries allow contestation over hegemonic knowledge through knowledge framing, practice, and knowledge enculturation.

To deliver the arguments, this chapter is divided into five sections. The first section elaborates a theoretical framework on the intersection of knowledge co-production and alter-knowledge that seek to transform the limits of hegemonic knowledge toward its normative trajectory. The second section discusses the research method and data analysis method. The third section elaborates the diverging perceptions of knowledge crisis internal to the hegemonic agro-industrial knowledge structure and the emerging foresights toward alternative ways of knowing. The fourth section elaborates the power dynamics of knowledge co-production in which permaculture movements seek to influence each other through their

knowledge practices as they seek common project. The fifth section discusses the implications of knowledge co-production and challenges to environmental governance project.

### ***12.1.1 Knowledge Co-production and Alter-Knowledge: A Conceptualization***

This study seeks to explore the question of environmental governance from the viewpoint of knowledge co-production. As knowledge is never neutral from power relations, it always represents a particular set of political standing upon which it justifies the way to respond to environmental problems and produces authoritative impacts. The methodological framework of this study incorporates the concept of knowledge co-production introduced by Sheila Jasanoff, critics of hegemony introduced by Antonio Gramsci (1971), and the theory of social movements by Alberto Melucci (1995). Knowledge co-production is an idiom that emphasizes the “social dimensions of cognitive commitments and understandings as well as the epistemic and material correlates of social formations” (Jasanoff, 2004, p. 3). The level of social aggregation and the kind of institutional spaces are formative to such co-production (Jasanoff, 2004, p. 5). Furthermore, knowledge co-production entails the stabilization of objects, the emergence of knowledge that becomes established among various competing knowledge, the formation of community of practice, and the presence of legitimate and meaningful cultural practices (Jasanoff, 2004, p. 5). Those elements are mutually constitutive shaping its authoritative effects in regulating the complex relations of human and their existence within the realm of nature as social construct.

Hegemonic knowledge is understood in this study as a product of knowledge co-production characterized with the commodification of the ecology, the separation of the economic realm from popular will, privatization of the public interest as well as the densification of transnational economic relations (Carroll, 2010). Hegemonic knowledge is composed of the diverse elements of state, local, and scientific knowledge. The relations among these elements most of the times are shaped by fractured construction rather than a well-consolidated structure. This creates a contingent power locus in which a transformative knowledge project is possible to pursue (Robbins, 2000).

The political aspect of knowledge production is situated within the broader framework of counter-hegemonic political struggle. Borrowing Gramsci, science and technology is integral in the production of common sense and unquestioned hegemonic knowledge practice (Gramsci, 1971). The normalization of science and technology has the affirmation effects toward public beliefs on what are considered as foundational matrices of the socio-ecological order. Gramscian view of hegemony emphasizes the everyday production of common sense that always involves tensions between class domination and the resistance of subaltern groups (Stoddart,

2007). The stabilization of certain epistemic position from the viewpoint of hegemony involves the coercive exercise of power as well as consent of the governed (Gramsci, 1971; Perkins, 2011, 2012). What sustains hegemonic knowledge is the ability of the knowledge structure and superstructure to orchestrate consent of the subaltern.

The rise of counter-hegemonic movement reflects the capacity of the dominated groups to build leadership, challenging the dominant class in alliance with other subjugated social elements (Andreucci, 2019). Changes within the knowledge structure are possible when the existing structure is unable to endure crisis internal to its epistemological limitations. The rise of organic intellectual, whose position is critical towards the re-conception of dominant knowledge practices (Meek, 2015), is central to the formation of an alternative knowledge system.

Embedded in the counter-hegemony is practice of opposition, yet counter-hegemony needs to be understood beyond romanticizing resistance. Practices of resistance may include behavior, action, and idea to undermine the material and symbolic components that legitimize the hegemonic structures. Counter-hegemony is concerned among others with the articulation of symbolic challenges and challenges to the distribution of material resources and the formation of a collective subject claiming for political power (Filc, 2021). Counter-hegemonic project seeks to destabilize the legitimacy and authority of the dominant order, involving the diversity of subordinate experience and resistances that is increasingly transnational, intersectional, and mediated in terms of how to reclaim the commons through programmatic actions and democratic forms of communication (Carroll, 2010).

The re-organization of knowledge by permaculture communities is assumed to come into being within the logic of conflict, solidarity, and system breaching (Melucci, 1995). These conflict and solidarity elements of social movements are formative to the mediation of knowledge co-production in the socially constituted relations. This study discusses the social convergence and divergence arising out of the permaculture movements. Knowledge co-production develops against the backdrop of particular political rationale. It also represents certain position in relation to the existing way of knowing, which can sustain, challenge or alter its elements. The emergence of permaculture movements in Indonesia is discussed as an indication of knowledge crisis associated with hegemonic knowledge practices that bear the effects of unabated social and environmental problems.

## 12.2 Research Method

This study employs the interpretive analysis to examine the experiences of four permaculture communities in Indonesia, namely Bumi Langit Institute in Yogyakarta, Sendalu Permaculture in West Java, and Indonesian Development of Education and Permaculture (IDEP Foundation) and Jiwa Damai, located in Bali.

Sendalu Permaculture was established in 2017 by Gibran Tragari, a university graduate practicing sustainable living in his resident in Depok, West Java Province.

Bumi Langit Institute was established in 2006 in Yogyakarta Special Region by Iskandar Waworuntu. It starts as family own land developed as permaculture learning center as well as community workshops attended by various domestic and foreign participants. IDEP Foundation is located in Bali Province. It was established following the Indonesian 1998 financial crisis, with the initial aim to strengthen self-sufficiency in providing food, shelter, energy and other needs of the local community throughout the economic recovery process. Jiwa Damai was established in 2010 by Margret Rueffler and is located in Badung, Bali Province. These communities present a converging commitment toward permaculture knowledge in their very diverse communal trajectories. The profile of each permaculture community is presented in Table 12.1.

These communities were chosen for their unique contribution to the diversity of counter-hegemony in Indonesia as practices of resistance and the way counter-hegemonic struggles are situated across different levels of political agency as a collective project. The selection was not merely on the basis of the scope of audience exposed to their political claims, but also on the substantive questioning of the dominant practices through both symbolic and material components of resistance at play.

Data collection is conducted through desk research including in-depth media coverage by various organizations with the founders and members of the respective permaculture communities. The materials for online data collection are gathered by consulting social media platforms and websites developed by each community and recent literatures covering selected communities as case study. The analysis identifies the construct of the hegemonic knowledge as interpreted by selected permaculture movements. It also defines how knowledge co-production emerges through the process of knowledge framing, knowledge practice, knowledge accumulation, and knowledge dissemination. The study further the fluid formation of knowledge boundaries as the movements seeks to advance their permaculture projects at both ideological and practical levels.

**Table 12.1** Profile of selected permaculture communities in Indonesia

Community	Location	Core environmental values	Counter-hegemonic practices
Bumi Langit institute	Yogyakarta	Islamic-inspired environmentalism	Halal and thayib food production and consumption, permaculture training
Sendalu permaculture	Depok, West Java	Urban sustainable living	Sustainable and organic farming
IDEP Selaras Alam Foundation (IDEP Foundation)	Bali	Self-sufficiency in food, shelter, and energy provision for the local community	Counter-business model, permaculture education
Jiwa Damai	Bali	Inner-self ecological transformation and humanity	Vegan lifestyle, socially responsible organic gardening, retreat program

Source: Compiled by Author

### ***12.2.1 Agro-industrial Knowledge and Its Contradictions***

The expansion of agro-industrial knowledge has been a common sense in most industrializing societies. Industrial agriculture is seen as an integral part of modernization of agrarian society in Indonesia that delivers the needs of the population for foods, and provides job opportunities and access to commodity market for rural population. For government, economic growth driven by agricultural sector remains an important element of the national development strategy. This is particularly in the context of addressing poverty in the transition from primary to secondary to tertiary economic growth trajectories. This has also been inseparable from the exponential growth of the world population associated with demands of foods in its quantity and quality. The process is being normalized through the introduction of industrial technology, massive investment, the capacity of industrial employment, and the integration of university-supported research programs that give a way for the dissemination of agricultural innovation.

Along with such processes, there has been a long debate on the impacts of industrial agriculture on the society as well as on the relations of humans and agrarian livelihoods. Agricultural industrialization with its knowledge practice has changed the ecological landscapes and its social and environmental components massively (McCarthy & Zen, 2009; Pichler, 2015). Moreover, modern consumer food culture produces some problems such as unabated pollution from plastic materials for packaging, the use of chemical substance on the land, and debate around the consumption of genetically modified organism (Yngfalk, 2016). These have fostered initiatives around sustainable agriculture. Permaculture came as a growing alternative that is envisioned to provide another trajectory in response to the limits of industrial agriculture in sustaining the future ecological and social and economic bases of the population.

Growing involvement in the permaculture movement in response to shared perception of knowledge crisis is associated with the limits of industrial modes of production in the agricultural sector. There are three intertwined crises that are perceived by permaculture movements as challenges to agricultural modernization practices. This is related to how the connection of human and the ecosystem are being disrupted, how social relation is being reorganized, and how the individual capacity to cope with risks of vulnerability from industrial impacts is being challenged.

The first crisis is described as the dissociation of human from nature in which industrial society is superior to the natural system. In their public statements, permaculture communities under study shared similar views that the introduction of modern technology and massive land use and the use of non-organic materials gradually limit the regenerative capacity of land resources in supporting the future industrial needs. In responding to the immediate needs of land use, industrial agriculture is described as more inclined toward land expansion since the land resources regenerative and recovery capacity tends to go slower than the pressing needs to produce market commodities. In a larger scale, pressure to expand land use in various cases has also led to the gradual degradation of the soil and the displacement of

local communities in the establishment of mega projects. For Bumi Langit Institute, the alienation of human from nature has been accompanied by socially exploitative practices in the agricultural employment, environmental destruction, and other forms of social pathologies. This also appears as undesirable consequences of over-extraction and unmanaged disposal of agricultural material and resources throughout its production cycle (Waworuntu, 2017).

The second crisis is situated in the socio-cultural setting of agro-industrial society. Deeply ingrained consumer culture sustained by market dependence put the population as the consumers of industrial commodities. With the decreasing capability of the population to produce their own foods, the role of industrial agriculture in sustaining food consumerism is increasingly important (Tragari, 2020a, b). Some contradictions have appeared in this process. Food consumption, in particular, is not only a utilitarian practice. Cultural and religious values embraced by communities shape their beliefs on what is considered spiritually desirable living practices. For Bumi Langit Institute, consuming agro-industrial materials is believed to have profound impacts on the quality of individual spiritual and religiosity. Bad food consumption is argued to lead to poor health condition and negative social behaviors and it is against the religious principles (Waworuntu, 2017). Such cultural tension has been quite influential in driving more awareness of the impacts of industrial agriculture.

The third crisis is associated with the weakening of social ties and solidarity. In the view of Sendalu Permaculture, collectivity and communalism Indonesian culture has gradually diminished (Tragari, 2020a, b). Modern society with their individualistic character is believed to lose their social bonds in a way that disrupts the roots of solidarity. Industrial society is argued to have exacerbated the culture of individual pragmatism around consumer-oriented production. The gaps in the conditions of life of farmers, workers, and landowner also lead to deeper social inequality. There are also references to how workers have lived below the wage standard while being exposed to health risks and nutrition deficit in their everyday workplace (Waworuntu, 2017). Against such backdrop of crises, these four permaculture movements are seeking to transform human activities towards an alternative path that is more sustainable.

### ***12.2.2 The Making of Epistemic Boundaries***

The everyday practice of permaculture communities forms the delineation of epistemic boundaries. It centers on the emerging counter-discourse that allows the participants to create certain distance from knowledge practices that they are criticizing. It also involves deliberate claims through which permaculture movements construct an alternative definition of human relations to nature (particularly to land as the component of living system), active construction of collective sense of belonging through being parts of communities of practice, as well as the mutually constitutive elements of rules and consent among individual participants.



### 12.2.3 *Redefining Human Relations to Nature*

The formation of alternative to agro-industrial knowledge is informed by different sources of knowledge references these communities adhere to. For Bumi Langit Institute, such transformation must conform to the *sunnatullah* of Islamic teaching. Iskandar embrace Islamic teachings since the year of 2000, and built Bumi Langit based on Islamic teachings. The main reference is Al-Quran, especially its elaboration on *halalan thayyiban* behavior, including consumptions. It then further derives Islamic teachings on fairness, justice, and care for nature (Jaya, 2017). Bumi Langit Institute uses extensive scientific research to understand the impacts of non-organic agriculture on the human body. They also highlighted the benefit of food nutrition coming from traditional agriculture method to both physical and mental aspects of human and environmental health. Beyond short-term or technical remedy, knowledge practice is oriented toward structural transformation that embeds in the inter-naturalization of a sustainable way of living and changing lifestyle.

For Sendalu Permaculture, permaculture practices are ways to rebuild community engagement that is based on managing land and livelihood around solidarity, minimalism, and zero-waste lifestyle (Sjafari, 2019). The founder of Sendalu Permaculture mentioned the influence of a movie titled “Quite Revolution” and books by Michael Pollan such as “Second Nature”, “In Defense of Food”, “Second Nature”, “The Omnivore’s Dilemma”, and “The Botany of Desire” as some important references that shape the intellectual philosophy of the movement (Ramadhini, 2018).

Sendalu Permaculture shares its view with Bumi Langit Institute, which brings religious values, mainly Islamic values, into permaculture activities. Good food is associated with not only *halal* food, but is also food that meets the principle of *thayib* (does not engage in any actions that is socially and environmentally destructive, and sinful in the context of religious practice). The so-called Islamic ecology inspires these movements to be part of justice to nature and to the environment (Deviane, 2019). Bumi Langit counters the Western doctrines of “freedom” that advocate for individual choices because they suggest that in reality, “things do not become better”. They claim that the doctrine of freedom puts aside the nature rules that govern all mankind, letting greed takes over and violates nature’s law. Islam, on the other hand, gives rules that align with nature and governs the way human must act (Putro & Miyaura, 2020). Islamic teachings on Muslims’ daily lives, holistic sustainable practices, and scientific approach and claims on benefits of sustainable practices to human’s nutrition intake.

Jiwa Damai, meanwhile, focuses on the alignment of self-acceptance with natural metabolism of the earth. The re-identification of the self, furthermore, is a central process in balancing all the elements of human presence in their very broad cosmological space through self-healing, inner peace, self-love, and care for the Earth (Rueffler, 2014).

IDEP Foundation knowledge claims embrace the idea of humanity, respecting all forms of life (IDEP Foundation, 2021a, b, c). Knowledge project is dedicated

toward building community self-sufficiency and resilience in facing the risk of future crisis and disaster. Growing consciousness on the internal crises has contributed to shaping the practical method these communities introduce to their audience. IDEP Foundation engages explicitly with the dominant global development discourse, mainly the sustainable development goals (SDGs) promoted by the United Nations (Putro & Miyaura, 2020). In making their knowledge authoritative and legitimate, therefore, productive engagement with various articulations of environmental discourses is also witnessed as a co-constituting process. The organization makes an explicit reference to Code of Conduct established by the International Federation of Red Cross and Red Crescent Movement and Non-Governmental Humanitarian Organization (IDEP Code of Conduct, n.d). The Program Implementation Manual of the organization also states a reference to Hyogo Framework for Action (HFA) and Sendai Framework for Disaster Risk Reduction (SFDRR) (IDEP Foundation, 2021a, b, c). Multiple scales of knowledge references have played an important role in shaping the knowledge claims of these permaculture movements and later define their scope of knowledge engagement as they pursue particular and collective goals. In such context and with reflection to the experience of societies in other parts of the world, the question of knowledge institutionalization among the elements of environmental movements begs a thorough consideration. For some, institutionalization agenda often results in the state's cooptation and neutralization of a progressive agenda (Meek, 2015). The term institutionalization perhaps demands a re-articulation that it may accommodate the plea of collective agenda brought by counter-hegemonic forces through the so-called "war of position" (Gramsci, 1971), a projection of the long-term alliance building and ideological reform. Navigating through the institutional and mobilization aspects of knowledge co-production, therefore, shapes the political nuance of transformative projects brought about by permaculture movements in Indonesia.

#### **12.2.4 *Communities of Praxis***

The individual and collective dimensions of knowledge system across permaculture communities are translated into various methods in managing the land-human relations as a system of life. Collective strategies have developed to stand distinctively from knowledge practices associated with agro-industrial methods. For the participants of the movements, permaculture is known as a terminology that can serve this purpose by delineating the traditional agricultural methods from those associated with the industrial. Such terminology is articulated in the development of organic farming method, the use of non-industrial fertilizers and substances, and the circular maintenance of local life materials. Other term that is also familiar among these communities is biological gardening, which is understood as a strategy to incorporate knowledge on microorganism for crop planting that will provide vegetables, fruits, and medicinal herbs. Such practice is also complemented by the minimum use of new materials and reliance on recycled and refurbished materials to develop

house construction and farms. Water and energy supply is provided through maximizing the natural cycle of annual rainfall and the use of solar panel and biogas for cooking. Efforts to minimize negative impacts of material use are also present in the form of waste separation, composting and reducing plastic consumption. The urban context, in which land availability is limited, permaculture techniques also adjust with maximizing the function of space.

Collective action is imbued with community-based values and social solidarity. The ecological sense of collectivity shapes the way the participants of the movement identify the implications of their agricultural practices. Collective practices are also informed by the materialization of permaculture in their very particular meaning for these different movements.

Jiwa Damai encourages vegan lifestyle as counter-practices to meet-based consumption, which they considered to increase pressure on land use and is not sustainable in the long term. Most of the activities conducted in these communities involve informal and interpersonal relations that allow participants to interact fluidly across diverse socio-cultural background and social status.

In Bumi Langit Institute, the emphasis on *halal* and *thayib* food consumption seems to represent the boundaries of practices. Knowledge practice, therefore, represents the changing paradigm which demands each individual to gradually distance from over-consumption and other activities that possibly lead to massive and unmanaged waste production (Waworuntu, 2017). For Sendalu Permaculture and IDEP Foundation, the alignment with sustainability values and organic farming method is the way these movements represent their position in relation to the hegemonic agro-industrial knowledge.

For permaculture communities in this study, agro-industrial practices as a hegemonic knowledge order center on the commercialization and commodification of land, labor and monetary resources, which is sustained through the internalization of consumer culture. There are ways to distant their everyday social practice from the monetization of agricultural practices, especially when it comes to managing the economic necessities of individuals and organizations involved. In their effort to sustain their activities in a longer term, these permaculture movements have approached the question economic livelihoods by relying on voluntarism, the involvement of individual donors and institutional partners to mobilize financial resources. As appears in their social media platforms, these communities received some amount of economic contributions in the form of class fees, donation, *awqaf*, *infaq*, *zakah*, and *shodaqoh*. Contributors share the benefits from circulating knowledge on permaculture and permaculture-related products to finance their ongoing activities.

Bumi Langit Institute opens a restaurant serving foods and beverages produced in their farm. They also sell honey, wheat bread, jam, herbal drinks, and other organic products to visitors. To make their products available through cooperative, they attended local organic market organized by their network communities and use social media to invite public participation. To support the staff, these communities also rely mostly on the voluntary in kind contribution and donation from the founders, colleagues, family members, volunteers, trainees, donors, and many other

affiliated individuals and communities. The collective contribution is also used to support partner communities who are within their network.

A more systematic financing is found in the case of IDEP Foundation. Since their programs are more institutionalized, there is a need to support the staffs, trainers, mentors, and other contributors through formal remuneration schemes. This affects how permaculture landscape is designed as a professionalized one in order to be able to produce a certain scale of economic activities (IDEP Foundation, 2021a, b, c). IDEP Foundation develops coconut plantation to produce organic products, such as Virgin Coconut Oil (VCO), dried coconuts, coconut snacks, and soaps (Putro & Miyaura, 2020). As a large foundation with an extensive network, IDEP has been able to establish a counter-business model through their critical engagement with various knowledge producers, be they government and non-government actors through providing permaculture trainings. These diverse strategies construe the everyday tension facing permaculture communities in reflecting upon the weaknesses of knowledge commodification.

### 12.2.5 *Permaculture as the “New Common Sense”*

Being parts of counter-hegemonic knowledge order, permaculture movements seek to fill the porous knowledge boundaries with their collective strategies. Individuals modify and make adjustment of their living practices, which connect them within the larger ideological-knowledge system. Permaculture communities engage in the active process of knowledge enculturation through individual practices, community networks as well as through community-government networks.

Sendalu Permaculture, Bumi Langit Institute, and Jiwa Damai pay attention more to the potential emancipation at the individual level. Knowledge dissemination by Sendalu is mostly targeted at strengthening the capacity of individuals to gain necessary technical skills in permaculture, mostly within the context of radical change experienced by the urban society.

In Bumi Langit Institute and Jiwa Damai, knowledge dissemination methods comprise live-in experience in which the individual participants make sense the scope and the depth of practical knowledge they are introduced to. Participants can stay for several days and interact with the local communities and get the sense of collectivity that inspires the movements. Bumi Langit uses the Islamic term *dakwah* to explain the process of knowledge dissemination within the network. They provide mosque and place to stay for people who want to learn Islamic lifestyle in a holistic and ecological manner (Jaya, 2017). In Jiwa Damai, outreach to individual volunteers is also made possible by internship programs, accommodating individuals from various social backgrounds and scientific disciplines (Rueffler, 2014). In addition to the on-site programs, all permaculture communities have also involved in the utilization of social media to reach out to broader audience in various localities. This is through the dissemination of information regarding their permaculture practices on digital platforms such as Youtube, Instagram, and organizational

websites. The way the social media framed the activities of these permaculture movements have also played an important role in connecting the movements with audience having diverse identities. Gibran Tragari has been framed by several media as a permaculture activist representing the alternative to mainstream urban millennial, who seek to be part of the urban culture as industrial workers. His practices are often categorized as part of the urban farmer culture that is increasingly popular among urban people in big cities in Indonesia (BeritaSatu, 2019).

Knowledge enculturation has become a political arena through which the permaculture movements act on behalf of the broader ecological constituents. Among four permaculture communities being studied, IDEP Foundation has the stronger engagement with knowledge in the government policy domain. They actively participate in policy dialogues and networking with various government representatives and international organizations. Permaculture knowledge is situated as part of the agenda of community resilience, which allows the co-production with actors at various policy domains. In 2018, IDEP Foundation collaborated with local government of Karakelang Island, Talaud Islands Regency, North Sulawesi, in the rehabilitation of coconut plantation (IDEP Foundation, 2018). This can be seen as an affect of multiple issues and multi-scalar scope of their knowledge project.

In all permaculture communities, knowledge enculturation develops through layers linking the closest communities (families, neighbors, and local residents surrounding the permaculture site) to the external affiliates where farmers, schools, local traders, partner institutions, government institutions, and international actors shape the direction of the movements. The relations of these permaculture communities with the government also to a certain extent present different implications to the direction of environmental governance as knowledge co-production.

### 12.3 Conclusion

This chapter has offered a reconceptualization of environmental governance as knowledge co-production, taking into account the salience of epistemic relations in the experience of four permaculture movements in Indonesia. It has shown that the knowledge boundaries developed across permaculture communities are porous, providing the space for dynamic knowledge exchange across binaries: local and global, religious and secular, formal and informal, institutional and non-institutional. Mobilization of individualized practices has contributed to the aggregation of collective knowledge in each community. It also provides spaces for knowledge co-production across these very diverse communities as they develop a sense of purpose in criticizing the hegemonic knowledge order. The interplay of individual and collective practices has actively transformed the movements as they struggle to define their collective epistemological boundaries. This has also shaped how individuals define their epistemic positions as part of the collective. Knowledge co-production can be explained as a way of taking a critical distance with hegemonic practice as a result of collective awareness of the internal crises. The tension between particular

and collective goals implicates toward the need of an epistemic leadership that can make permaculture as counter-hegemonic project stands on behalf of the largest political representations.

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