Policy Development for Reconfiguring Consumption and Production Patterns in the Asian Region

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Abstract

Ensuring sustainable consumption and production (SCP) patterns in the Asia region is a high-priority policy issue but challenged by a number of obstacles and the emergence of the coronavirus pandemic in 2020. This article argues that not only conventional policy approaches but also alternative approaches are needed in Asia to decouple socio-economic development and increases in environmental loads from people's sense of well-being. To achieve human and planetary well-being under the situation of compressed development, four strategic courses of SCP policy are presented. These four courses are SCP policy expansion, enhanced linkage of consumption and production (CP), system transition and bottom-up approaches. Policy makers in Asia should keep these courses of action in mind and utilize opportunities, 13 of which are outlined here, to mainstream SCP. The 13 SCP opportunities, the key words of which include among others experience, genuine wealth, local design, digitalization, infrastructure, indigenous wisdom, collaboration and challenges, indicate entry points for Asian SCP policy development in the 2020s. Finally, based on these, the authors have devised an SCP case matrix and produced 43 example SCP cases for better application of the suggested SCP policy approach in the Asian region.

Key words: Asia, evidence-based policy making, sufficiency approach, sustainable consumption and production (SCP), Sustainable Development Goals (SDGs), system transition

1. Introduction

Economic growth over the past few decades has brought affluence to people around the world and reduced poverty. The extreme poverty rate has dropped considerably in most developing regions in the last two decades, reducing rates by between 46% and 94% in Asia (UN, 2015a). Significant negative impacts on the environment and societies have surfaced, however. Global resource consumption and environmental loads such as greenhouse gas (GHG) emissions and waste discharge have increased to support a wealthier consumer lifestyle, and economic disparities among regions and countries are rising. These tendencies are expected to increase and expand even further in the future.

Today, the Asian region is the world's cradle of production. Its economic growth is remarkable, with consumption and accompanying environmental impacts expanding at a rapid pace (UN ESCAP, 2021a). Between 2000 and 2017, the material footprint of the Asia-Pacific region increased at the largest and fastest pace in the world, and GHG emissions in the Asia-Pacific region were also remarkable (IRP, 2017). Per capita income is still low (UN ESCAP, 2021a), and environmental impacts in the Asia-Pacific region will continue to increase at the fastest pace in the world for now, with the region's share in global environmental impacts expected to rise.

One course of action for the future is the expectation that the conversion to high-value-added industries and industries with high levels of resource productivity will

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continue. With a focus on intellectual capital, the number of patents worldwide almost doubled from 14 million to 30 million over the past 19 years from 1992 to 2010 (Yagi & Managi, 2017), but the proportion from developed countries decreased from 97% to 88%. The application of intellectual capital in developing countries is expected to increase in the future.

In addition, future changes in technology will be notable, such as digitization, including ICT (information and communication technology), AI (artificial intelligence) and IoT (Internet of Things). Although these technologies may lead to a reduction in environmental impacts as a result of improved efficiency, there is also a danger that they will result in an increase in environmental loads due to increased consumption of new kinds.

By contrast, rapid economic growth has exaggerated economic disparities, for example, between urban and rural areas. More developed countries in Asia have higher shares of older rural residents and the urban-rural gap in services such as electricity can be wide, particularly in less developed countries (UNDP, 2016). Attention must be paid to these types of unstable elements among Asian societies. In addition, along with the growth of agribusiness, relocation of industries to rural areas, development of local cities and increased numbers of migrant workers, it is possible for households even in rural areas to enjoy a consumer lifestyle that is not much different from those of urban residents, making a living using products from domestic cities and foreign markets (Rigg and Vandergeest, 2011; Rigg et al., 2012). As such, the driver to maintain "self-sufficient"-type farm villages in these areas is weakening.

Using only the roads taken by developed countries as a reference will result in a failure to stay current with global trends. There are two significant differences with the paths taken by developed countries: (1) (latent) changes in consumer lifestyles and values and (2) changes in production patterns based on technological changes as represented by digitization. Whittaker et al. (2010) also pointed out differences in development, focusing on the speed of development and associated consequences, calling it "compressed development."

As described in the 2030 Agenda for Sustainable Development and indicated as the twelfth of the 17 sustainable development goals (SDGs) (UN, 2015b), the shift to sustainable consumption and production (SCP) patterns is an urgent agenda in Asia. Asian countries have already introduced many policies to accelerate the transition to SCP patterns in areas including, but not limited to, cleaner production, waste management and green public procurement. However, against the backdrop of rapid industrialization resulting in the urbanization and expansion of the middle-class, those conventional policy measures contribute mainly to efficiency of production. They will not be enough to address the challenges mentioned above.

In addition, the COVID-19 pandemic starting in 2020 changed consumption and production (CP) patterns all over the world significantly. According to the IEA (2021), global energy demand in 2020 declined by 4%, the largest decrease since World War II. Many attempts have been made to understand the influences of COVID-19 and foresee CP patterns in the future. For example, Echegaray (2020) described changes in 12 domains of daily practice (such as work, education, leisure, mobility and housing) qualitatively and discussed their potential future. Boons et al. (2020) also discussed the effect of the COVID-19 on eight types of practices and various levels of retaining new practices: (1) recovery, (2) collapse, (3) accelerated transition to digitalization and (4) accelerated transition to sustainable development, as well as rebound effects. In fact, a projection by the IEA (2021) indicated a rebound of global energy demand in 2021 exceeding the pre-COVID 2019 level. Tasaki et al. (2021a) applied a workshop method and identified 48 changes in five domains, distinguishing between those likely to return to the "old normal," which accounted for 48% of the changed CP patterns, and those likely to become the "new normal." With regards to policy for recovery from the COVID-19 pandemic, UN ESCAP (2021b) discussed recovery strategies of Asia-Pacific cities taking this opportunity to build back better for sustainable, healthy and resilient urban development. SCP policy has to consider the influences of the COVID-19 pandemic on top of its evolution in the past.

This article argues SCP policy development to ensure SCP patterns in Asia. We will first explain the authors' research project on SCP, called "Policy Design and Evaluation to Ensure Sustainable Consumption and Production Patterns in the Asian Region (PECoP-Asia)," and then present four strategic courses for SCP policies which policy makers should keep in mind. Then, we present 13 opportunities to mainstream SCP in Asia and their application.

2. Development of Courses of SCP Policy

Figure 1 illustrates the SCP concept. It is vital to

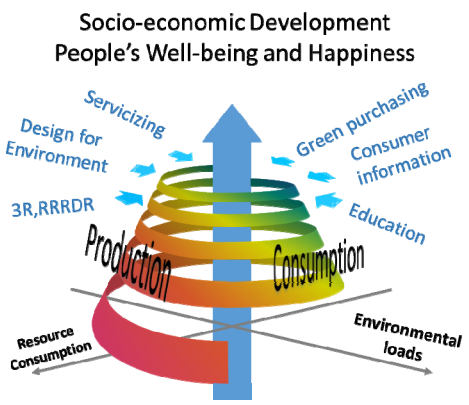

Fig. 1 Concept of Sustainable Consumption and Production (SCP).

establish SCP patterns that decouple socio-economic development and increases in environmental loads from the real sense of securing people's well-being and happiness.

The PECoP-Asia project is a research project launched in 2016, gathering 11 research groups in Japan from different fields: systems engineering, urban engineering, sociology, policy science, environmental economics and business administration. The project aims to design policy packages for achieving SCP patterns in the Asian region. Each group approaches this common goal from its field of expertise using various stakeholders' practices and considering characteristics of respective areas, including their economy and lifestyles.

A task force established during the project made a draft policy report for SCP policy makers by integrating research results and policy recommendations of all research groups. The Asia-Pacific Roundtable on Sustainable Consumption and Production (APRSCP) reviewed the draft and proposed several viewpoints that it had found lacking, e.g., the importance of bottom-up approaches.

The first version of the policy report proposed four courses of SCP policy and 12 opportunities for SCP policymaking (PECoP-Asia, 2018). Based on the policy report, a policy brief was compiled and publicized in a side event of the United Nations High-Level Political Forum on Sustainable Development 2018 (PECoP-Asia & APRSCP, 2018). In 2020, we revised the first version considering the effect of the COVID-19 pandemic as described in the Introduction.

3. Four Strategic Courses of SCP Policy

To respond to the environmental, economic, and social problems mentioned in the introduction and to achieve the SDGs all over the world, it is necessary not only to treat the "symptoms" of individual issues, but also to transform human activities fundamentally and change our governance (Kanie & Biermann, 2017). Geels et al. (2015) explained that there are three different positions for SCP: reformist, revolutionary and reconfigurative positions. The latter two positions take transformation into account, paying more attention to it.

This section proposes four strategic courses that SCP policies shall pursue to achieve the SDG 12 goals with a target year of 2030 as described below. These courses of action are in line with future mid- to long-term policies in the "Asia Pacific Regional Roadmap for Sustainable Consumption and Production" (see UNEP and APRSCP (2017) for the latest version) and the Cebu declaration of APRSCP (2021).

3.1 SCP Policies are Expanding from the Environmental Policy Domain to the Socio-economic Technology Domain

SCP policies must include contents suited to the context of each country, as argued by Tasaki and Kojima (2021) in this special issue. Many Asian countries have strengthened SCP policies covering areas such as cleaner production, renewable energy, waste management and consumer information. These policies cover the conventional targets among the range of the SCP policies that have expanded for the last four decades. SCP policies have also changed institutional and regulatory structures to some extent, as reflected in SCP National Action Plans, providing the platform for inter-ministerial coordination and partnerships with the private sector and other stakeholders.

Figure 2 illustrates policy goals and the growth of menus according to the expansion of policy issues based on Hotta et al. (2021). As shown in the first column, SCP

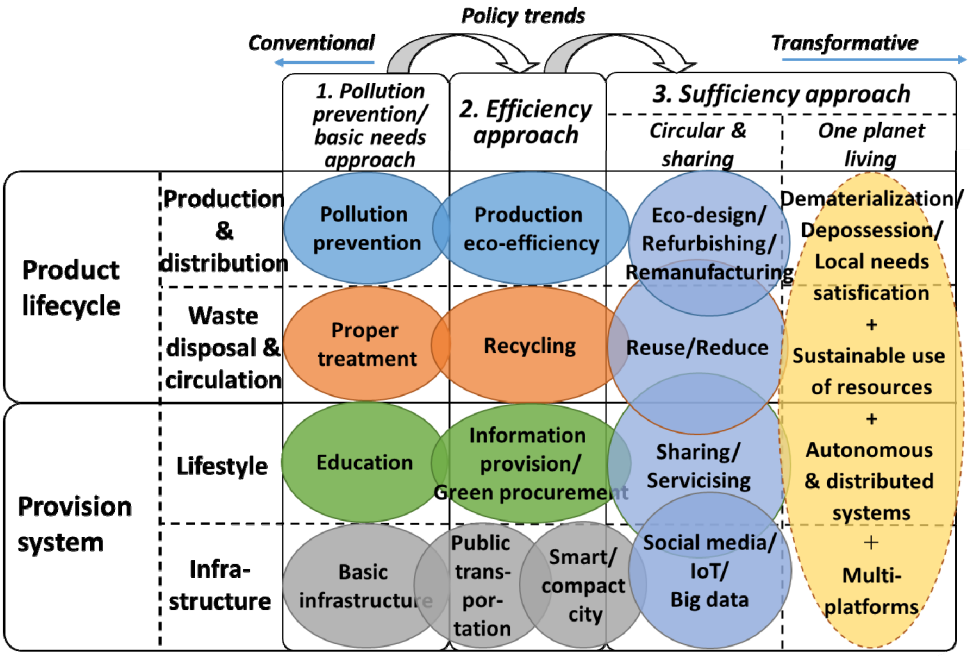

Fig. 2 Expanding focus and menu of SCP policies.

policies have conventionally focused on pollution prevention such as cleaner production and proper treatment by introducing so-called end-of-pipe measures into industrial processes. This version of SCP policies is named SCP 1.0. In the second column, it then includes an efficiency approach for products and services shown for separating environmental loads and economic growth associated with the use of energy and resources. This version is referred to as SCP 2.0.

Recently, alternative approaches beyond pollution prevention and efficiency have gained wider attention as a result of the SDGs and the Paris Agreement, which have fostered momentum toward decarbonization. This version is referred to as SCP3.0. As shown in the third column, circular economy (EC, 2015) and sharing economy (Belk et al., 2019) are contributing to the decoupling of consumption of non-renewable, natural resources from the welfare and well-being of society as a whole, and have become popular. In the meantime, societies in Asia are witnessing the emergence of innovative business models based on digitization, contributing to a substantial reduction of resource and energy use in the production process, as well as alternative models for meeting demands of the people. SCP 3.0 is thus oriented for one-planet living, employing more integrated systems thinking as shown in the third column. In SCP3.0, consumption and production are the means for prosperity and sustainability. SCP policies focus on transforming lifestyles and business models from efficiency to sufficiency, and thus contribute to human and planetary well-being. Figure 3 shows the hierarchical structure of these three versions of SCP policies.

It is very important to emphasize here that SCP is not anymore limited to the environmental policy domain such as pollution control, waste management and recycling, cleaner production, eco-labelling or consumers' awareness but has expanded to the socio-economic-technology policy domain such as infrastructure building, welfare, business development, local development and innovation. Two SCP workshops have also confirmed this point (Tasaki et al., 2021b).

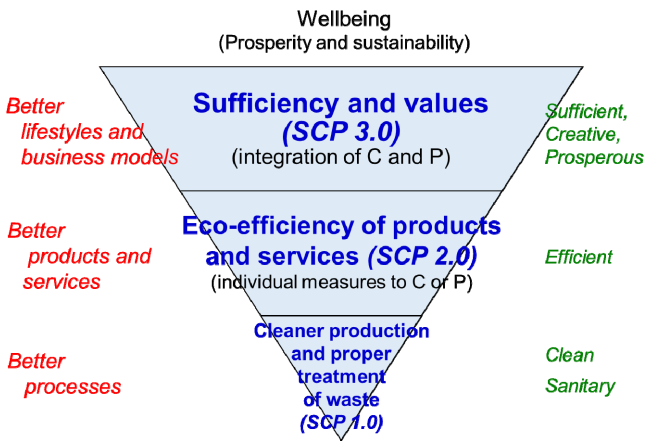

Fig. 3 Three versions of SCP.

A policy mix to achieve specific policy goals does not have to be uniform, but must be able to maximize the effects of SCP policies effectively through flexible and strategic combinations depending on the industrial, consumption and urban structures of each country. Roughly speaking, developed countries have responded to changes from SCP 1.0 through SCP 2.0 to SCP 3.0 gradually. In Asian developing countries where economic growth is rapid, however, all three versions are necessary. SCP 1.0 is for local Asian communities, placing importance on safe local living spaces. SCP 2.0 is for global Asian exporters of products for globalized markets. Without globalized eco-commodities, the current global economy cannot be sustained. SCP 3.0 is for Asia itself, calling for a sufficient, creative and prosperous Asia in the future without compromising sustainability.

3.2 Strengthening Linkages between Consumption and Production is a Key Emerging Movement

The conventional pattern of economic development is driven by mass production and consumption. Value chains have expanded across the world through specialization and subdivision. Consequentially, the distance between consumers and producers has become wider. In these circumstances, improved efficiency at each point will not be enough to achieve SCP, and the linking of the subsystems of consumption and production (referred to as "CP linkage") will play an important role.

Conventional policies have tried to strengthen the CP linkage by providing better information such as through environmental labelling, certification and footprint indicators. Alternative approaches have been introduced recently. Figure 4 shows five types of linkages for strengthening CP linkages for the case of a CP system regarded as constructed of four subsystems: processing and manufacturing (including natural resource extraction), provision, consumption, and circulation. Three of the linkages (blue, green and red) are to strengthen CP linkages between final consumption and the other three elements, and two (purple and yellow) are to strengthen the CP linkages within each consumption or production subsystem.

The first linkage (green) is feed-back from consumption to design and production which enables proper quantities to be produced and on-demand production and localized/customized production to be achieved. The second linkage (red) is circularity, and enables circular production, remanufacturing, recycling and life extension, considering lifecycle management of products/parts/materials. The third linkage (blue) is product use without ownership, and enables implementation of product service systems, function provision, sharing, lease and servicizing. The fourth linkage (purple) is within consumption, and makes C2C sharing and reuse possible. The fifth linkage (yellow) is industrial symbiosis, in which material, by-products,

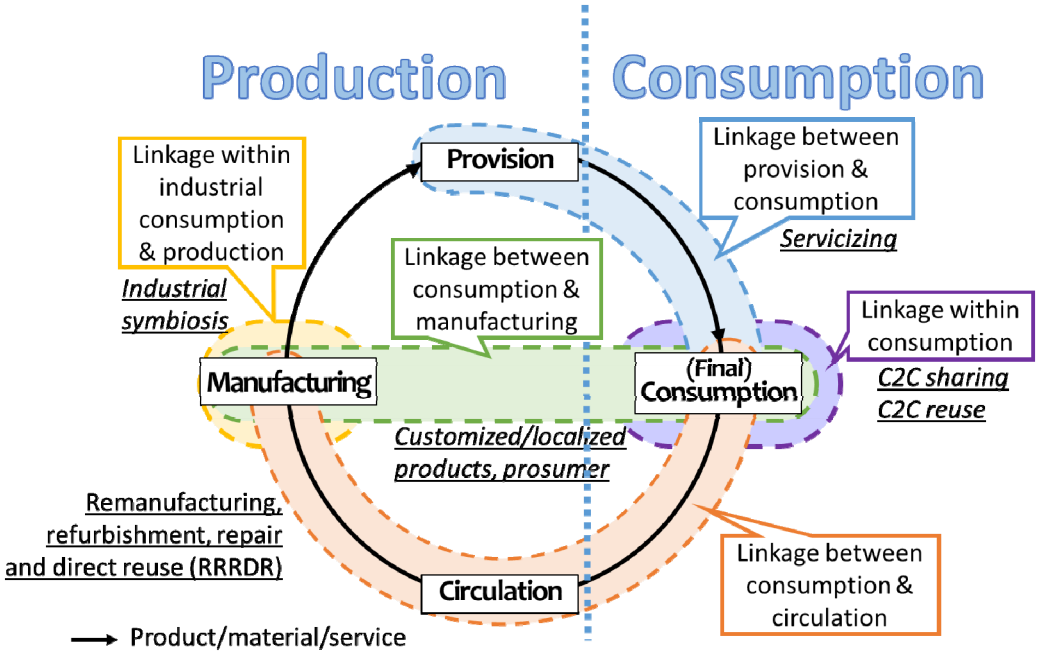

Fig. 4 Five types of linkages between consumption and production.

waste, water and energy are exchanged and utilized, between industries in as efficient a way as in natural systems.

3.3 Transition to SCP is a Socio-technical Regime Shift Requiring Successive Changes in Social Practices, Technology Use in Daily Life and Associated Infrastructure

CP patterns are framed by and embedded in existing regimes, such as taxation and education, and infrastructure, such as logistics and energy provision systems, and maintained/updated by the accumulation of daily practices of people and organizations (Spaargaren, 2011; Shove, 2016; Spurling et al., 2013). Raising the awareness of consumers can sometimes influence their behavior for the time being; however, behavioral changes will not take root unless they are associated with changes in the wider contexts of their day-to-day living, including moving, eating, caring for family, working, learning, resting and so on.

Therefore, it is necessary to transform our socio-technical regimes/systems in such ways as has been attempted repeatedly in the transition research field (Köhler et al., 2019). This includes changing social mechanisms and modes of technology use to create and provide services and new infrastructure and institutional settings. The recent Cebu declaration (APRSCP, 2021) also paid much attention to this approach in the Asian context, referring to two courses of action: 1) innovative transition through green future development and 2) systematic transformation through a green development agenda. Examples include mobility and energy; resource- and energy-saving practices in workplaces; community-based initiatives to build capacity for reducing; reusing and recycling; and others.

3.4 Bottom-up Approaches are Necessary for Enhancing Effectiveness and Acceptance of SCP Policies across the Region.

The above-mentioned SCP courses need to be triggered by local- and community-level initiatives in addition to national/international-level agenda setting. However, there exist huge gaps between international/national agendas (long-term and mid-term goals) and local concerns. Actions therefore need to be incubated in "arenas" where multi-stakeholder partnership is formulated and various buds of co-creation grow in collaboration beyond the boundaries of the conventional stakeholders, as opposed to simply upscaling successful initiatives, to enhance the effectiveness and acceptance of SCP policies.

4. Emerging Opportunities for SCP

This section discusses 13 opportunities for SCP based on the strategic considerations raised above.

4.1 Opportunity 1: Experience Matters

In the long term, experiential or intangible consumption is even more important in pursuing people's happiness. CP patterns that contain both tangible and intangible elements create well-being.

According to the results of a questionnaire survey (Tsurumi et al., 2020a), material consumption increases subjective well-being to a certain level, while relational (non-material) consumption continues to increase the level of subjective well-being as consumption increases. That is, intangible experiential consumption plays an important role for our subjective well-being in an affluent society, which Asian emerging countries are becoming. It also widens opportunities for a sharing economy,

Opportunity 8, and dematerialization. In addition, among people who take better care of their possessions, this effect was reversed (Tsurumi et al., 2020b). Therefore, if people own fewer products but have a strong attachment to them, they can retain happiness while decreasing material consumption. This opportunity is in line with the traditional way of life in Asia in aspriing for a better life.

4.2 Opportunity 2: Genuine Wealth

Measuring society's genuine wealth and its components as needs, including risk avoidance needs, in a form that accords with the present time, is the basis of creating a new CP pattern.

In the future, perceptions of social change will be transformed, which means that a new evaluation axis will be needed. There are also trends that measure the subjective conditions of people, such as their degree of happiness and anxiety (Tasaki et al., 2010). From an economic perspective, new indicators are being proposed based on a discussion called "Beyond GDP" that captures wealth as stock (e.g., inclusive wealth, new capital wealth indicators) rather than capturing wealth as flow. These indicators convert different types of capital, such as infrastructure, human resources and the natural environment into monetary units and comprehensively measure them, with attention paid to the accumulation of capital for sustainability (Dasgupta et al., 2015; Managi, 2016). The inclusive wealth indicator (Managi & Kumar, 2018; Yamaguchi et al., 2019) has recently been utilized in both developed and developing countries (Dasgupta, 2021; UNEP, 2021). Even local governments use the indicator to rely on and sustain precious local capital (Managi & Tanaka, 2018). By replacing GDP, the new measurement of genuine wealth can change the course of development.

4.3 Opportunity 3: Environmental Policy Reinforcement

The trends exemplified by the Paris Agreement and ESG (environment, social and governance) investments reinforce the policies at the government level while promoting environmental measures such as decarbonization and corporate initiatives. The loss from delayed action to initiatives and criticism toward the managerial short-termism is intensifying.

There are emerging trends that encourage the development of environmental policies, such as the Paris Agreement and ESG investment, with increased attention to the necessity of accelerating global movements towards decarbonization and sustainability. The recognition that current environmental measures will increase competitiveness in the market is expanding. In this way, the "game change" phenomenon is already occurring. A growing number of companies are involved in advancing SCP, the SDGs and ESG with increasing popularity across the globe. Active participation by developing countries, especially emerging economies, is inevitable, and it is crucial to ensure such actions are practical.

Attention has to be paid to insufficient management resources at companies in Asian developing countries. Yagi and Kokubu (2020) therefore proposed a phased corporate management framework with five stages. It is necessary to consider not only the external environment of companies but also their internal situation for effective actions for SCP with the understanding that delayed actions have become a company risk.

4.4 Opportunity 4: Circular Economy

The CE (circular economy) and sustainable value chain concepts upgrade environmental and industrial policies toward integrated measures. The concept also advances cross-border standardization and collaboration, and promotes CP patterns that reduce adverse effects from raw material extraction to the end of life.

The CE concept involves material selection that makes little or no distinction between primary materials and secondary recycled materials. It also promotes improvements in the quality of secondary materials, components and products through RRRDR (remanufacturing, refurbishment, repair and direct reuse) (see Matsumoto et al. (2021) for remanufacturing in Asia). Value chain management seeks to enhance product designs to better suit consumer lifestyles while enhancing overall environmental efficiency across the lifecycle.

Promoting industrial symbiosis is also key to a circular economy. In Asia, there is a sufficient margin for recycling through inter-industrial and transboundary symbiosis for steel slag, aluminum dross and waste (Cravioto et al., 2021). Impacts on the environment and humans can be reduced by symbiosis utilizing industrial waste as resources. Additional effects can be generated through the transboundary movement of waste for symbiosis while proper measures are taken under frameworks such as the Basel Convention, because not all industries presumed to be present in developed countries necessarily exist in those countries in Asia (Ori et al., 2014).

For a circular economy, material sorting plays an important role. It is necessary to consider ways to use human resources and infrastructure in the informal sector and reorganize formal systems, since there is a possibility of affecting poverty and labor.

4.5 Opportunity 5: Sophisticated Information Provision

Knowledge about designing and customizing information provision for a behavioral shift is progressively accumulating.

Simple information provision alone has limited power to change consumer behaviors (e.g., Thaler & Sunstein, 2008; SWITCH-Asia, 2014). Recent developments in fields such as behavioral economics have

emphasized new and diverse ways to provide information and influence consumer choice. Such insights, including tailoring environmental information to guide consumer's decisions, can be utilized in SCP policies to make them more effective.

It is necessary to devise ways to provide more effective environmental information. Specifically, it is important to provide relevant environmental information at each stage of decision-making by consumers and others for purchasing or selecting a product or service.

4.6 Opportunity 6: Design for Local Needs

Product and service design that reflects people's needs in a local context and the "new normal" era moves the consumer market.

A disproportionate focus on product quality can lead to overconsumption as well as diminish consumer satisfaction through function fatigue. Product design should seek to improve human sufficiency by not only adding new features but also streamlining and simplification. Such designs should cohere throughout the entire product lifecycle without undue emphasis on the optimization of production processes. Localized product design is an entry point for SCP to achieve appropriate quality at a reasonable price while preventing overconsumption.

In local-oriented design that corresponds to regional diversity, the following two perspectives are important: (1) that of what should be cut from functions and structures of products in developed countries (concept of subtraction) or what should be recognized as minimum necessary requirements (concept of addition), and (2) that of improving sufficiency throughout life, not the optimization of individual products. Support techniques and tools for local-oriented product design have been put forward by Kobayashi et al. (2021) in this special issue.

4.7 Opportunity 7: Digital Transformation

Digitization technology is a powerful tool for reforming CP patterns and generating diverse options and values.

If emerging economies in Asia follow along the path of economic growth taken by developed countries, consumption of resources and energy can be expected to rise with an increase in the number of products owned, making the realization of SCP increasingly difficult. However, there is a potential to achieve leapfrog development (cf. Fong, 2009). For instance, IoT (Internet of Things) and AI (artificial intelligence) both comprise promising technologies that effectively link digital opportunities to SCP efforts. Integration of such technologies with renewable energy and appropriate technology (Hazeltine & Bull, 1999), and making data accessible to users helps formulate new systems for SCP practices in line with the four strategic courses of SCP policy. In addition, such technologies can expand stakeholders' capacities for changing ways to measure and mainstream SCP implementation.

4.8 Opportunity 8: Sharing Economy

A sharing economy is one pathway to strengthening CP linkages. Take advantage of this opportunity while implementing infection prevention.

With the widespread use of mobile terminals, electronic payment systems, and IoT, it has become easy to connect consumers who want others to use unused possessions and consumers who want to use them. In addition, there are more customs of sharing in Asian countries compared with Europe and the United States (Belk, 2010). The penetration of the sharing economy may increase resource efficiency in the form of increased availability of products. However, whether the environmental load will decrease or increase as a result of sharing depends on the lifecycle characteristics of the products to be shared and sharing systems (Amasawa et al., 2020). Promoting sharing activities and understanding the conditions under which such activities can reduce environmental loads are important tasks of SCP policy and CP transformation.

4.9 Opportunity 9: Infrastructure for SCP

Urban planning, infrastructure development, rules and customs greatly influence the pursuit of lifestyles that align with SCP patterns. It is necessary to balance the development of digital infrastructure supporting online lifestyles and other infrastructure supporting activities that are difficult to perform online.

In many emerging cities in Asia, the development of infrastructure, such as public transportation, sewerage and waste disposal, are far from sufficient and generate problems, such as traffic congestion, air pollution and water pollution. Even if such infrastructure exists, maintenance and operations may not be performed properly. Further improvement and development of infrastructure enabling sustainable lifestyles and support for people having low accessibility to such infrastructure are therefore needed. It is also important to combine various infrastructures properly including digital infrastructures and alternative infrastructures that suit the era of decarbonization. In this sense, existing gaps in infrastructure in Asia provide opportunities for building low-carbon, resource-efficient and inclusive energy, transportation and housing systems because the emerging Asian cities would not have to eliminate old-fashioned infrastructure as cities in developed countries have to.

Rules and customs can inhibit people from practicing more sustainable behaviors as much as infrastructure can. SCP policy should pay attention to such "soft" infrastructure, too.

4.10 Opportunity 10: New Rules & Indigenous Wisdom

New rules and customs that envisage a risk society are emerging with the coronavirus pandemic. Together with traditional regional wisdom like "*mottainai* (wastefulness)" and "sufficiency economy," they are driving the creation of new CP patterns.

The coronavirus pandemic urges people to establish a "new normal." Changing behaviors by changing tacit rules or utilizing indigenous wisdom is an ongoing and enhanced course of SCP policy. One example of the former is the Cool-Biz campaign of Japan, which encourages lighter dress to alleviate the discomfort associated with hotter temperatures brought about from efforts to reduce the energy consumption of air conditioning in offices, trains and other public spaces. This policy was guided by multi-stakeholder partnerships.

The latter, utilizing indigenous wisdom and embedding it into SCP policies, is an approach for improving policy effectiveness. People may not know the term "SCP" but recognize the orientations and importance of SCP policies and tend to embed them into their daily lives. New codes of sustainable business practices should also reflect people's cultural backgrounds. Material Flow Cost Accounting (MFCA) can be seen as one way to reflect *mottainai* in corporate management processes.

4.11 Opportunity 11: Enhancing Collaboration

Cooperation, co-creation and collaborative relationships among stakeholders, both regionally and internationally, are the key to SCP's success.

Multi-stakeholder engagement processes and facilitation mechanisms for good governance are vital for implementation of policies and they enhance ownership of action. (For creating partnerships, see the guidelines by UNU-IAS & UN ESCAP (2018), for example.) There has been significant progress in promoting and implementing SCP in the region through stakeholder involvement, through a continuous effort for knowledge sharing and private-public partnerships. Existing regional policy platforms such as APRSCP, SWITCH-Asia SCP Facility, business entities and expert networks such as PECoP-Asia are valuable channels for driving networking efforts between different SCP-related initiatives

4.12 Opportunity 12: Challenges & Safety Nets

Ensuring a social safety net for people with the courage to try new consumption and production patterns will generate diverse SCP patterns.

Taking on challenges is a key to transforming CP patterns: A challenging spirit helps one envision a nonexistent CP pattern and motivates experimentation with the new CP pattern in a real society. However, challenges fail with a certain probability. If failure brings a high cost to challengers, they will not undertake the challenge. The existence of a social safety net for challengers is therefore important for generating diverse SCP patterns. The scope of SCP policy should thus be expanded to include a variety of attempts to ensure social safety nets.

4.13 Opportunity 13: Social Justice

Proper handling of inequality and social conflicts is the fundamental basis for realizing SCP. New inequality and injustice problems caused by digitalization must be resolved promptly.

Neither benefits nor costs of SCP transitions are necessarily distributed among people evenly. This can cause social conflicts and prevent SCP transition. The coronavirus pandemic has elucidated vulnerable people in our society who may face a more severe situation during a sustainability transition. For example, to switch our society toward decarbonization, coal and oil industries have to be transformed and some workers in these industries will have to change jobs. Thus job/skill training and other programs will be needed to support such workers (e.g., EC (2020) put forward the "Just Transition Mechanism" targeting a fair and just green transition and would mobilize at least €100 billion in investments to support workers, companies and regions most impacted by the transition). Adequate care should also be paid in digital transformation to unfair use of personal information and disproportionate risks to system crashes in the online world. New injustice problems should be identified cautiously and then prevented promptly.

5. Application of Opportunities to SCP Policy Design

To ensure SCP patterns in Asia, we need to have a concrete image of them and then proceed to experiment as the concept of envisioning-based policy making (EnBPM) suggests (Hotta et al., 2021). In this process, continuous and strategic changes are necessary. The 13 SCP opportunities are entry points to the process and are suggested to be incorporated into the experimentation. Figure 5 shows specific example cases of SCP patterns and actions using some of the 13 opportunities for SCP in Asia.

Many ideas can be generated from such cases in line with the context of a target country or region, and it would be preferable that this visioning process itself be implemented in each country or region. We thereby compiled a table called the SCP Case Matrix to serve as a reference for that localized/regionalized process. The matrix shown in Fig. 6 not only presents the ideas of 43 SCP cases but also enables users to search through three aspects: CP patterns, SCP opportunities and stakeholders.

First, the CP patterns and their categories are listed as headings on the left side of the matrix. If users are interested in *what* kind of CP patterns they wish to realize, they search through this left-hand column. If they are

interested in *how* to work on it, they search through the opportunity columns in the middle for an entry point of action. If they are interested in *who* works on it, they search through the right stakeholder columns.

Each of the 43 specific cases is categorized into one of the following seven categories:

- Localized design and utilization of local wisdom
- Circular economy (product and resource circulation)
- Integrated system design of products, businesses and infrastructure (including sharing and digital transformation)
- Policy approaches based on experiential consumption
- New EBPM (EnBPM) for sustainable lifestyles
- Co-creation and social experimentation
- Improvement and importation of conventional SCP policies

These are notable future courses of action for Asian SCP policies. Their further elaboration in line with Asian contexts is expected in Asian countries.

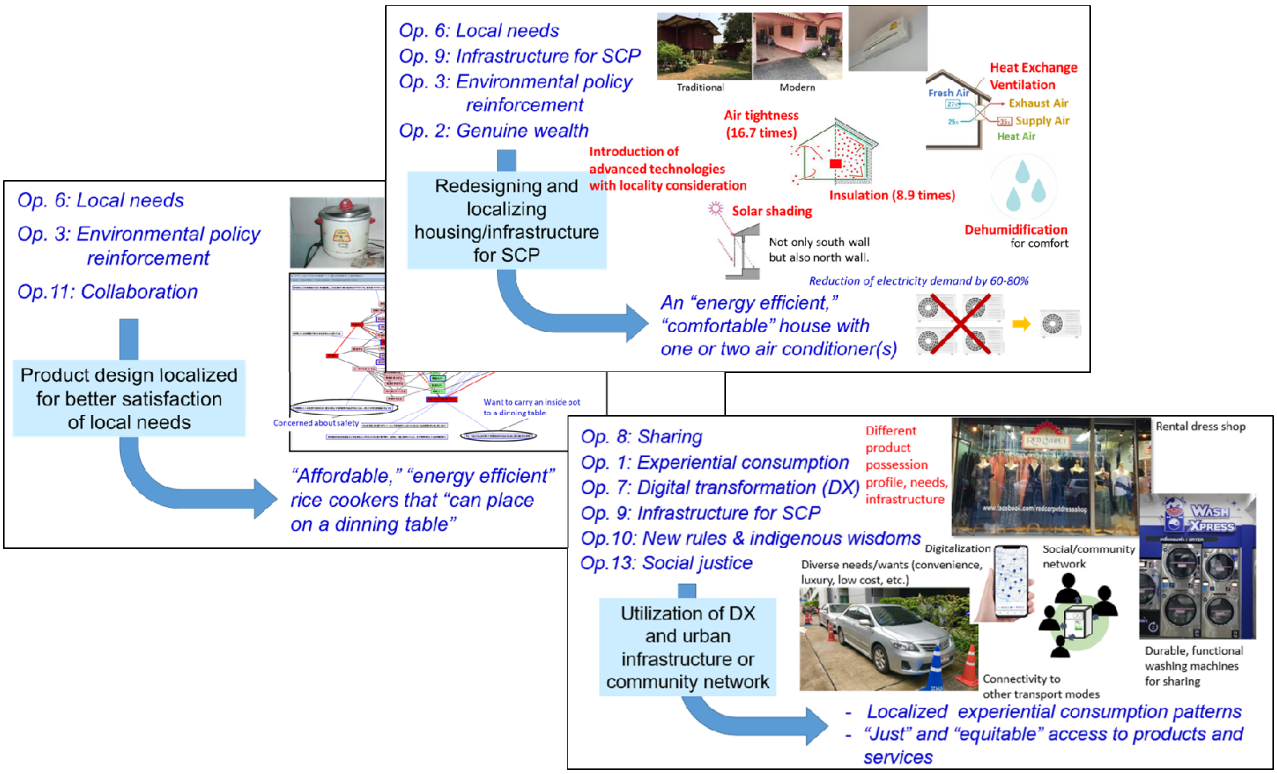

Fig. 5 Specific example cases of SCP patterns and actions using some of the 13 opportunities for SCP in Asia.

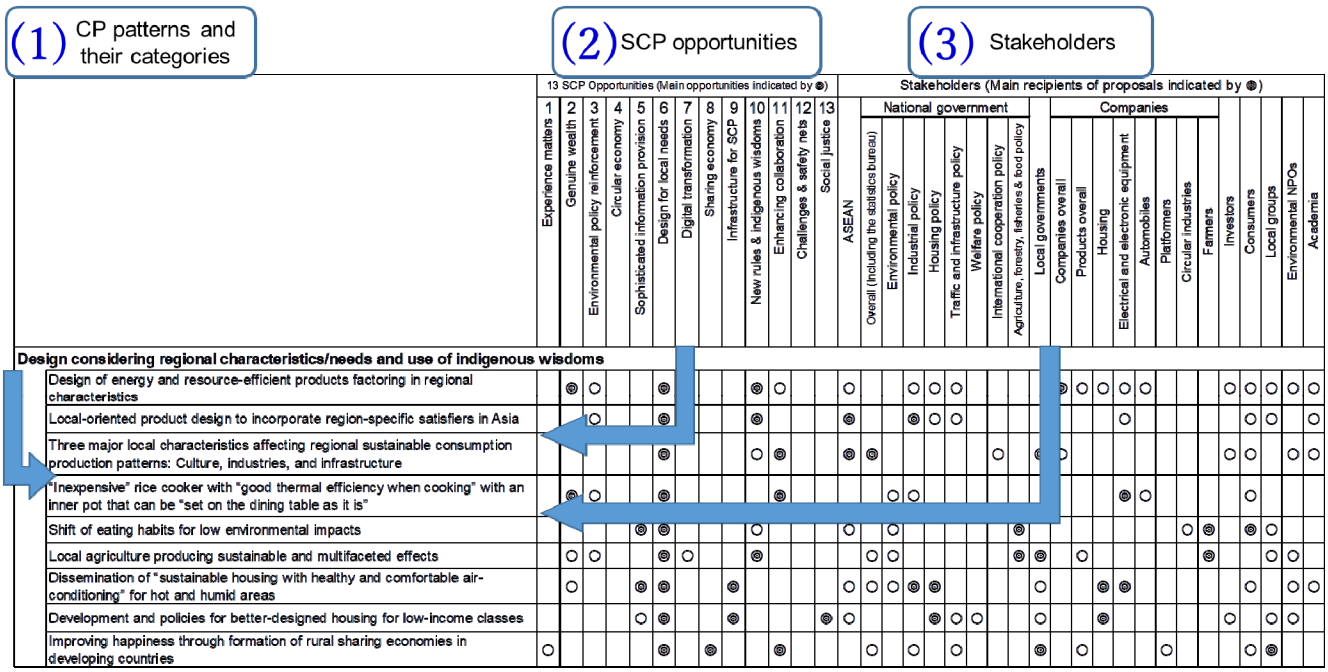

Fig. 6 SCP case matrix.

6. Conclusion and Outlook

Promotion of SCP in Asia is a high-priority issue, and if successful, can make a significant contribution to the prosperity of the world and humankind. This article presents four courses of action for future SCP policies and 13 specific opportunities. All of the 13 opportunities indicate promising entry points for SCP policy development and implementation in the 2020s.

The 13 SCP opportunities shall be supported by two means. Firstly, they should be linked to the SDGs implementation process at local, national and international levels. Such implementation would promote the achievement of Goal 12. To obtain outcomes tackling a wide range of SCP targets, it will be necessary to address efforts comprehensively, not only to implement initiatives in individual sectors in a silo manner. Inter-ministerial coordination as well as stakeholder consultation processes will be the key to SCP.

Secondly, it is necessary to have facilitation mechanisms at the regional level. Existing regional policy platforms such as APRSCP, SCP regional facilitation mechanisms such as the SWITCH-Asia SCP facility, business entities, expert networks such as PECoP-Asia as well as leading national and local governments can put forth an effort to network different initiatives at the regional level. Enhancement of facilitation mechanisms shall play an important role in accelerating the achievement of the SDGs.

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