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## FRAMING TRANSFORMATION FOR SUSTAINABLE DEVELOPMENT

### KEY MESSAGES

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Transformations towards more sustainable development will occur only if policymaking frameworks recognize the environmental limits at the different scales, from local to planetary.

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The world, including the Asia-Pacific region, is moving to a polycentric governance system in which no individual, organization or government has full control of development decisions and outcomes. The forces for transformation and solutions for collective-action problems will be both “top-down” and “bottom-up”, bringing about a combination of efforts in different scales.

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Countries in the Asia-Pacific region have led many innovations to better integrate the environmental limits into their respective economy and society in the past decades that are rich with insights for future initiatives and possibilities for scaling up.

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In addition to high-level leadership, transformations require fostering further innovation, scaling up niches and building alliances among diverse stakeholders at the subnational level and in civil society.

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## 2.1 INTRODUCTION

As Chapter 1 describes, the changing development context, environmental challenges and regional megatrends define the prospects for achieving the SDGs within Asia and the Pacific.<sup>1</sup> The region's development model and economic system have brought about large socioeconomic benefits, such as a reduction in the level of poverty, but they have also introduced significant risks to human and planetary health.<sup>2</sup>

Decoupling the economies from the environment is needed to achieve sustainable development. However, decoupling implies a large change in the political and economic systems, which are not likely without large societal transformation at both the top (national) and the bottom (local) levels, which in turn would need a radical change in governance structures, stronger institutions and capabilities to support the transformation at the global, regional, national and subnational levels. Total decoupling is not possible for the whole system and ecological boundaries are necessary in many cases. ♦

## 2.2 TRANSFORMATION CHALLENGES AND POTENTIAL

Social scientists have long studied transformational processes in society.<sup>3</sup> Some disciplines, such as sociology, are concerned with societal transformations because they are necessary to make changes in the way society functions.<sup>4</sup> The transformations emphasized here include changing institutions from the top rungs of society to initiate system changes at the national or regional level and to facilitate the creation and dissemination of innovative yet sustainable alternatives at the bottom rungs (subnational governments, consumers, civil society organizations and industry players).

The challenges of transformation differ across countries. The transformations needed to reshape the relationship between nature and people in the context of economies that are challenged by high population densities and pressures to meet basic needs, such as in Bangladesh where social development goals are still to be met, cannot be compared with those in other countries where the interactions between nature and society are stressed by large per capita use of natural resources, consumption

and emissions. In those countries, transformation for sustainable development will mean a focus on sustainable consumption and production.

The urgency of transformation in all countries cannot be overstated. While the benefits of previous transformations, such as the industrial revolution or the green revolution in agriculture, took decades to emerge, the transformation to sustainable development has a much tighter time frame—less than one generation to make the changes needed to prevent drastic climatic change.<sup>5</sup>

The goals of the 2030 Agenda for Sustainable Development for the twenty-first century encompass the achievement of human development for all while maintaining essential life-supporting systems for the next generations. Yet, the region is far from having the comprehensive governance and policy mechanisms for transforming the development processes to achieve some of those goals.

Nevertheless, the diversity of the region and its policy and other innovations create unique opportunities for the exchange of experiences, resources and ideas and for cooperation and collaboration, such as sharing policy frameworks, capacity building, joint regional mechanisms and technology exchange. This could put the region in a position to lead large transformations worldwide. ♦

## 2.3 TRANSFORMATIONS FROM THE TOP AND FROM THE BOTTOM

The physical environment, the economy and society are intrinsically interrelated and constantly interacting, shaped by economic, social, technological and political systems. The way individuals, organizations and institutions influence those systems reflects how they understand the environment-economy-society relationship, which also evolves over time. For instance, early discussions on the environment-economy relations found them to be in conflict, leading to proposed “limits to growth” to solve the environmental problems.<sup>6</sup> The concept of sustainable development was coined with the proposal that economic development could be compatible with environmental protection and social equity.<sup>7</sup>

More recently, the green growth paradigm, which is widely recognized and adopted in Asia and the Pacific, proposed the possibility of decoupling the economy from the environment to achieve sustainable development. However, the absence of ecological boundaries limited the results in the long term, and economic growth offset the environmental efficiency gains.

There are some evolving national initiatives that seek to establish alternative development that are worth exploring, such as Gross National Happiness in Bhutan (Box 2.1), which has attracted considerable international attention. In the Pacific, leaders committed to set up large-scale marine protected areas, including the Phoenix Islands Protected Area in Kiribati, the Palau National Marine Sanctuary, the Cook Islands Marine Park and the Natural Park of the Coral Sea in New Caledonia.<sup>8</sup>

There are also multiple bottom-up niche initiatives emerging from civil society, businesses and subnational governments, such as Tokyo's cap-and-trade scheme for

carbon emissions (Box 2.2), which should be nurtured and expanded. The Tokyo Metropolitan Government has worked with neighbouring Saitama Prefecture to replicate the cap-and-trade scheme.

Global society is evolving to a polycentric governance system of collective action<sup>9</sup> in which no individual, organization or government has full control of the development decisions and outcomes for all stakeholders. The forces for transformation and the solutions for collective action problems will not be top-down or bottom-up but a combination of both in different scales. The final outcome, an ideal transformation, will be the result of the synergies of those initiatives.

Thus, individual initiatives by local, national and regional organizations as well as joint efforts to maximize resources and impact and promote coordination among different levels of networks are essential to transformation and for avoiding zero-sum approaches and the perpetuation of social injustice.<sup>10</sup> ✦

#### Box 2.1 Alternative development in Bhutan

Bhutan has had unique experiences in guiding its development policies. The country is well known for initiating the Gross National Happiness approach to development, which includes a multidimensional assessment of the quality of life and well-being of its citizens, based on four pillars (sustainable and equitable socioeconomic development; environmental conservation; preservation and promotion of culture; and good governance). The Government has used Gross National Happiness rather than economic growth to steer its development policies. The concept of Gross National Happiness is now on the agenda of many other countries.

One important component of Bhutan's development strategies is the articulation of environmental limits. The country's Constitution recognizes the importance of the environment to the culture and well-being of citizens. It mandates that forests should cover 60 per cent of Bhutan's territory, guaranteeing the functioning of the ecosystems for future generations. The Government has used a series of policies to follow through on the guarantees contained in the Constitution, such as the establishment of a network of protected areas covering more than 40 per cent of the country's territory. Bhutan has developed hydropower as its main source of modern energy, whose sales to India also provide revenue for supporting the development policies. And the country has started to experiment with electric vehicles to use the vast hydropower resources to boost a more sustainable transportation fleet in the growing urban areas around the capital.

Certain political and institutional conditions have facilitated these innovative initiatives. The political transition process from an absolute to a constitutional monarchy led the country to a more democratic society in which many issues can be discussed openly. The concern to protect Bhutan's distinctive culture and environment (and to avoid irreversible losses in its natural and cultural heritage) led to the inclusion of several safeguards in the Constitution. Bhutan's unique political and administrative systems, in which religious affairs are interwoven with administrative affairs in the bureaucracies at the national and local levels, prioritize the issues that determine cultural values in development policies.

Source: Based on field work carried out by Jose A. Puppim de Oliveira in April 2015.

Box 2.2  
Tokyo  
innovations in  
urban climate  
policy

In 2010, the Tokyo Metropolitan Government (TMG) introduced a mandatory CO<sub>2</sub> emission reduction and a cap-and-trade emission trading scheme. It is the world's first such scheme that sets binding targets for buildings. The scheme has made a transformation in the city's emissions, with the total greenhouse gas emissions reduced by 23 per cent on average from the base years and 10 per cent below the average of other parts of the country before the end of the first compliance period of five years (2010–2014). By the end of fiscal year 2013, total emissions were reduced by 23 per cent on average from the base years; 90 per cent of nearly 1,350 regulated facilities achieved the first reduction target, and 69 per cent of them even met the 2019 targets. The policy innovations from the world's largest city and the capital of Japan are rich with insight on the potential barriers and opportunities for introducing mandatory greenhouse gas emission reductions in cities, such as the following essential components that enabled successful policymaking and implementation.

#### FACTORS FOR SUCCESS IN POLICYMAKING

*Administrative leadership and capacity of public administration.* The design and implementation of Tokyo's mandatory carbon reduction and emission trading scheme was based on the accumulation of administrative capacity to lead the way in pollution control, dating back to as early as the enactment of the Tokyo Industrial Pollution Control Ordinance in 1949.

*Fair involvement and facilitation of stakeholders in policy design.* A range of stakeholders were involved with the design of the mandatory schemes from the early stages, which resulted in their legitimacy and support for climate policy. Stakeholder participation is regarded as the principal factor behind the acceptance of the policy and subsequent compliance to the mandatory scheme.

*Availability of historical data to support the discussions.* The TMG had decade-long data to analyse industrial activities and existing reduction plans, which informed the detailed institutional design and allowed it to match local conditions. The ultimate acceptance of the mandatory framework by the industrial sector was also possible because of the open policy discussions with stakeholders, which were supported by the factual data.

#### FACTORS FOR SUCCESS IN IMPLEMENTATION

*Transparency in monitoring and enforcement.* One of the reasons for the high compliance for the Tokyo scheme was the monitoring and enforcement mechanisms and their transparency. Even though detailed data for individual buildings are not released to the public because they contain business strategy information, the reporting, reduction calculations and associated trading processes of each large facility are monitored by the TMG and verifying organizations. For the facilities that have difficulty fulfilling the requirements, simple diagnostic and advisory services for energy use are provided for free by the TMG to assist them.

*Gradual implementation.* The gradual implementation of the policy in the main phases led to a learning process for both the TMG and regulated agents, which helped to adjust the policy as it moved ahead. The process also raised awareness and habituated emission reduction as part of regular business activities. Obligatory reduction, therefore, did not come out of the blue for compliance facilities; the eight years of prior reporting prepared them to set their own realistic goals.

*Flexibility.* Regulators were flexible in the policy design after listening to stakeholders; they also created categories with different compliance requirements. Stakeholders were invited to present their opinions, and the pros and cons were extensively discussed. Suggestions for the mandatory measures and flexible arrangements, such as differentiation of compliance factors among facilities, were included due to the concerns and opinions raised by stakeholders.

The scheme helped to identify areas for further improvement. The availability of historical data and the gap between reporting and enforcement helped many regulated agents to better understand the functioning of their facilities related to greenhouse gas emissions and identify areas for improvement. According to the TMG, as much as 90 per cent of the regulated facilities plan to continue emission reduction measures even after reaching the targets; 80 per cent of them said their decision to change their everyday business environment was stimulated by the TMG's climate policy.

Source: Roppongi, Suwa and Puppim de Oliveira, forthcoming, 2016.

## 2.4 BUILDING CAPABILITIES TO INNOVATE FOR TRANSFORMATION

Transformation will mean developing or changing the institutions and capabilities to promote changes (at the national or regional levels) to support and unleash the potential for the creation and expansion of innovative niche initiatives at the bottom rungs (subnational level). The role of the State and international organizations is to build institutions that encourage the creation and clustering of good practices or innovative niches for transformation at the different levels of governance. Changes in institutional frameworks must reshape unsustainable incentives, harness existing stakeholder efforts and provide direct support for technological, policy and societal innovation. Structural changes from the top must be complemented by specific action to scale up and nurture niches—areas for sustainability innovations, such as renewable energy, cleaner transportation, organic food and sustainability-themed investing. Thus, the sustainable niches will become mainstream practices that displace unsustainable practices rather than remaining marginal.

Specific actions to foster the scaling up of niches include the sharing of information, networking and awareness raising. This process should be powerful enough to impact global policy norms. The role of education is crucial to change the mindsets of future generations. Through the spread of ideas and financial and other support, niches can grow and evolve to become the norm. The abolition of slavery, for instance, was the result of a social movement against slavery, fostered by niches comprising religious and campaign groups that came together to spread awareness around the world between the eighteenth and the twentieth centuries. It evolved to become a political movement and over a century resulted in the recognition of freedom as a human right by Article 4 of the Universal Declaration of Human Rights in 1948.<sup>11</sup>

Enabling the clustering of niches through new coalitions, partnerships and networks could create social movements that enable changes in the political and market arenas that lead to structural changes, resulting in a transformative process.<sup>12</sup> Mechanisms for rapid learning among individuals, organizations (including governments) and societies can facilitate the scaling up of niches and spread transformative changes across countries and regions.<sup>13</sup>

There are several other strategies that could be used to favour and manage the creation of niches. One involves the provision of resources, such as knowledge, finances, skills, participation in decision-making, providing physical space for experimentation and putting in place institutional or other policy changes that influence mindsets and increase viability and acceptance. Monitoring and evaluating the transition process provides valuable feedback to change agents or helps anticipate a different course of action to be taken.<sup>14</sup> Adaptive and inclusive governance approaches are critical for fostering the emergence of niches, providing important support to enabling actors to access resources, impact on decision-making and build alliances with like-minded niches and coalitions of stakeholders. There is extensive literature on innovation and learning processes, with most of the studies centred on firm-led, high-end technical innovation through patents and new products for the market.<sup>15</sup>

A general problem with the studies of transitions in the growing literature on sustainability transitions<sup>16</sup> and innovation systems that focus on technological innovation<sup>17</sup> is that they assume that the capabilities and governance for innovation and transformation already exist. The literature presents interesting conceptual frameworks to understand societal transitions through descriptive cases but does not make clear under what conditions<sup>18</sup> and how to create the capabilities to make such transitions.

In the context of developing and emerging economies in the Asia-Pacific region, capabilities for transformation for sustainable development can build on the inherent competencies that have been responsible for transformations in other arenas over the past few decades.<sup>19</sup> At the same time, transformations for sustainable development require wider participation by individuals, companies and other kinds of stakeholders than has been previously encouraged.

The potential of technology to facilitate transformations should be harnessed by science and by innovative policy; investments in research and development should be guided by the interests of the wider society and the potential of such technology to bring benefits to diverse groups of stakeholders, in particular those who are most marginalized or underserved in society. The industrial revolution, the information technology revolution

and the emergence of the knowledge economy provide examples of the role of technology in this regard, in many cases supported by government initiatives, such as the internet. An emerging sustainability revolution, with large-scale use of sustainable technologies, such as renewable energy and energy-efficient equipment, should be backed with relevant investments in science, technology and innovation. ✦

## 2.5 MULTILEVEL GOVERNANCE AND CIVIL SOCIETY

**R**eforms to support transformation must be underpinned by shared values and a broad understanding that change needs to happen. A government acting alone does not often succeed—transformations need dynamic alliances between different kinds of stakeholders (the private sector, engaged citizens and active civil society organizations) and different kinds of institutions (academia, think tanks and those responsible for monitoring and accountability, among others).

Change can be brought about when alternatives are grounded in the political and social forces of participation through democratic processes and social movements, particularly at the grass-roots level.<sup>20</sup> These local movements can generate viable alternatives to ecological commodification and degradation. Innovative ideas in many sectors, such as moving “from ownership to access” in the discussions on intellectual property and forests,<sup>21</sup> provide important impetus to such movements. These movements, however, often end up marginalized and disempowered, co-opted by mainstream unsustainable movements over time or blocked by political systems when they do not have support from the top.<sup>22</sup>

Thus, larger societal transformations require supportive governance structures in order to scale up viable opportunities or niches. In previous decades, the discourse on governance had a tendency to allocate large proportions of responsibility to the private sector and civil society and/or to establish structures parallel with governmental ones in response to perceived weaknesses and incapacities in the public domain. But this created an accountability gap in public decision-making and implementation.

Transformation implies a more accountable and responsible role for all actors, including the State. At the international level, such as in the Asia-Pacific region, investment cooperation and trade agreements may boost economic growth. But trade per se is unlikely to automatically provide the solutions to the environmental problems and can even intensify some problems, such as climate change, if the proper institutional frameworks are not in place.<sup>23</sup>

Transformation should also be built on the basis of scientific information and broad dialogue with scientists and different stakeholders. Strengthening the policy-science dialogue would help guide what action to take.<sup>24</sup> The participation of a broad range of stakeholders and transparency in decision-making would help give legitimacy to the transformation process and help to overcome obstacles in the political economy. ✦

## 2.6 ENABLING CONDITIONS AT THE TOP AND BOTTOM

A radical change in the institutional environment at the different levels of governance is fundamentally necessary for safeguarding the planet from possible catastrophic environmental changes and their social and economic consequences.

Initiatives from the top may be vulnerable to changes in governments if they are not rooted in acceptance by local institutions and organizations. The Republic of Korea, for example, established the idea of green growth as a national policy. The Government pushed a series of green projects and investments with some good results. Nevertheless, the limited links with grass-roots movements led to some resistance, and a new administration (after elections) recognized the limits and slowed down the green growth efforts (Box 2.3).

Likewise, if initiatives from local governments or civil society do not have institutional support from the top, they may find it difficult to continue in the long term. The Sustainable Living Initiative in Malaysia (SLiM) was a civil society-led attempt to integrate ecological footprints into household or government planning. Even though the movement inspired some portions of the society and Government towards the goals of Rio+20, it faded away

after 2012 because it could not garner support from the top to sustain its initiative (Box 3.4).

In the realm of economics, alternatives to “prosperity without growth” or keeping the economy in a “steady state” have been proposed by some well-known ecological economists and critics of the ecological situation.<sup>25</sup>

Keeping the current economic system, even in a de-growth situation, will lead to continuous ecological degradation and exacerbation of many social problems. Even though economists do not point to any definitive solution, some proposals ask for a post-consumerism or even a post-capitalist ecological economy: “Either we save capitalism or we save ourselves.”<sup>26</sup> Thus, the underlying logic for

### Box 2.3 Green growth in the Republic of Korea

The Republic of Korea’s green growth policies have transformed the way the country has confronted its environmental challenges: promoting the idea that economic growth and environmental protection go hand in hand and that environmental protection can become a new driver of growth.

Based on those policies, the Government launched a series of green projects and investments that led to some improvements, such as in energy efficiency. But those efforts have not been sufficient to decouple greenhouse gas emissions and use of natural resources from economic growth. Many green growth policy targets have yet to be realized. The hoped-for transformation in investment flows and positive environmental outcomes is still in progress.

Political change (after national elections) in 2013 led to reflection on the implementation of green growth, with recognition of the achievements and limitations. The relaunched Green Growth 2.0 aims to ground the green growth efforts in a more bottom-up approach to sustainable development. The case of the Republic of Korea underscores that even with strong government commitment, leadership and policy support, the transformative potential requires stakeholder engagement and an explicit focus on fostering innovation. The complexity of sustainable development challenges, for example in the restoration of a major river system that had unintended environmental consequences (the Four Rivers Project), requires a science-policy interface that engages scientists and environmentalists in design and implementation.

Broad consensus on overall green growth strategies and a clear understanding of the aspirations and expectations of local groups now will be needed to reverse opposition to green growth in some quarters of Korean civil society, which had claimed that top-down innovations were not in line with their interests and did not take into account their views.

Nonetheless, as a policy and technological innovator, the Republic of Korea continues to provide important green growth policy lessons for countries across the region.

Source : Bluemling and Yun, 2016; Korea Energy Economics Institute, 2013.

### Box 2.4 Sustainable living in Malaysia

Sustainable Living in Malaysia (SLiM) is a concept developed by the Environmental Protection Society Malaysia (EPSM), one of the oldest NGOs in the country. SLiM is based on ecological footprint analysis to understand the impacts of human activities in Malaysia and include ecological limits in the development agenda. ESPM launched a campaign to disseminate the SLiM concept to government, businesses and civil society in 2007, organizing several workshops, conferences and publications. SLiM received significant attention from the media and civil society, leading many organizations to disseminate the concepts and to apply them in practice.

EPSM has led national efforts to quantify carbon, food and water footprints in households through surveys, leading to a better understanding of people’s lifestyles and showing that Malaysia’s footprint was larger than its biocapacity, with global impacts as well. ESPM initiatives contributed to the Rio+20 discussions in Malaysia by incorporating the impacts of human activities resulting from development patterns. EPSM and other NGOs used the results to advocate for sustainable lifestyles and better integration of the environment into national development planning strategies, as well as natural resource accounting and management. The long-term success of this initiative will partly depend on sustained government support.

Source: Based on field work carried out by Jose A. Puppim de Oliveira in September and October 2015.

finding alternatives that will lead to transformations is to move beyond the mainstream position that the solution to the ecological and social crises of the twenty-first century can be found only through free-market capitalism.

Radical societal transformations ask for an overall change in the economic system and have many components because “the required transformation goes far beyond innovation and structural changes to include democratization of the economy, better distribution of income and wealth, power over markets, and a culture of sufficiency”.<sup>27</sup> ❀

## 2.7 RECOGNIZING ENVIRONMENTAL LIMITS IN POLICYMAKING

Proposed ecological modernization<sup>28</sup> alternatives, such as green growth, are better than the traditional “brown growth”. However, evidence has shown, both in theory and practice, that green growth and other efforts are insufficient to move the Asia-Pacific region beyond its path of unsustainability.<sup>29</sup> China is a prominent example of strong commitment to improve efficiency and promote renewable energy. China has become one

### Box 2.5 Our urban anthropocene

Cities have been recognized as key to the governance of climate change.\* As the world takes an unprecedented rural-urban population tilt, the twenty-first century poses a challenge for tackling disparities in access and allocation of carbon between urban and rural areas. Urbanization is historically correlated with the massive use of fossil fuel initiated by the industrial revolution. Some carbon accounts are strongly associated with production and consumption of energy within cities, indicating that more than 70 per cent of the global greenhouse gases are produced within urban areas and consume 60–80 per cent of final energy use globally.

In addition to the global North-South economic divide, there is a stronger component of urban-rural spatial disparity in the making. Evidence based on analyses of data from more than 200 countries over five decades shows that the rates of urbanization are more correlated with carbon emissions than with wealth (GDP per capita). Urbanized middle-income countries emit carbon per capita similarly to richer countries. This urban-rural divide is likely to further precipitate into a much local but complex dynamic, particularly relevant to the developing world, which faces the double challenge of rapid urbanization and environmental sustainability. This has implications for designing a fair global regime for tackling climate change and achieving the Sustainable Development Goals due to ethical, empirical and governance gaps related to the urban-rural carbon dynamic.

The issue is of serious concern for urban areas in the developing world. As these countries urbanize, the contributions of carbon emissions and greenhouse gases from their cities become disproportionately high in comparison with their population share and wealth. Most of the population growth for the remainder of this century reportedly will occur in urban areas of low- and middle-income nations. UN-Habitat and ESCAP’s *State of Asian and Pacific Cities 2015* report has pointed out that Asia alone added one billion urban dwellers in 30 years (1980–2010), more than the population of Western Europe and the United States combined. And it is expected to add another billion by 2040.

Thus, a radical and urgent transformation in the way we build our cities is necessary to avoid a disproportional increase in carbon emissions and inequalities between rural and urban emissions. The inclusion of cities in Sustainable Development Goals 11 offers an opportunity to promote solutions for sustainable cities globally. It also hands leaders the responsibility to impose ecological limits that affect people and the environment beyond their borders.

There are immense barriers in changing urbanization paths, however. For example, India, the next large urbanization frontier, has many political, financial and institutional challenges to changing its urbanization patterns. There is an urgent need to catalyse and scale up innovations that provide adequate housing, energy access, transportation and economic opportunities for its growing urban population in a sustainable manner. The climate co-benefits would be immense from changes towards more sustainable urbanization patterns, but the institutions and capabilities in place need to be strengthened to lead the transformation.

Note:\*See Bulkeley and Betsill, 2005.

Source : Sethi and Puppim de Oliveira, forthcoming 2016a; Sethi and Puppim de Oliveira, forthcoming 2016b.

of the world's leaders in both wind and solar power, with several tangible co-benefits. In the Xinjiang Uygur Autonomous Region, the use of wind energy generated tremendous co-benefits, including the mitigation of CO<sub>2</sub> and air pollutant (SO<sub>2</sub>, NO<sub>x</sub> and PM<sub>2.5</sub>) emissions and water savings, during the eleventh Five-Year Plan period (2006–2010). This led to nearly \$1.4 billion, or almost 0.5 per cent of GDP, in energy savings, as discussed in Chapter 5 (Box 5.4). The country pledged ambitious targets in the 2015 Paris Agreement under the United Nations Framework Convention on Climate Change. Yet, even though China reduced its carbon emissions from fuel combustion per unit of GDP by 55 per cent between 1990 and 2011, emissions per capita tripled in the same period<sup>30</sup> and are larger than the EU-27 average, though China is still much poorer. The Republic of Korea more than doubled its emissions per capita in the same period, although it reduced its carbon emissions from fuel combustion per unit of GDP by more than 14.5 per cent (Box 2.3).

Transformations for environmental sustainability require, as a basic condition, the recognition of ecological limits at different scales, from local to global, as the 2015 Paris Agreement specifies.<sup>31</sup> Countries in the Asia-Pacific region have led many innovative initiatives to better integrate the environmental limits into their economy and society in the past decades that provide important lessons for future initiatives. In Bhutan, for example, constitutional provisions require minimum forest cover (Box 2.1).

Tokyo's mandatory carbon reduction scheme (Box 2.2) is one of the most innovative initiatives to address greenhouse gas emissions from urban centres; the scheme comprises an emission cap that includes buildings. Urbanization rates are more correlated to carbon emissions than income per capita, creating an urban-rural divide in carbon emissions (Box 2.5). Thus, climate co-benefits in urban Asia, such as achieving climate and other development goals at the same time in cities, is fundamental to change the path of the urbanization megatrend in the region and reduce carbon emissions globally.<sup>32</sup> If replicated by other cities in Japan and elsewhere in the region, the policy innovation used in Tokyo could curb the growing impact of urbanization on climate change. ♦

## 2.8 CONCLUSIONS

The way megatrends evolve in the region can undermine or support the achievement of the SDGs. Transformations must be supported from the national government level (top-down) but also fostered from subnational governments, consumers, civil society organizations and industry players (bottom-up) to change the quality of the region's development in the long term. Several Asian and Pacific countries have strengthened their regulations and tailored certain policies towards more sustainable development in different degrees. Many developing countries, however, do not have the human, technical and financial resources to implement those actions or leapfrog in terms of their development process to avoid the mistakes of the past in other countries. Thus, international cooperation is important for providing political leverage, government capacities, resources and technology to make transformations viable.

In addition to high-level leadership, transformations require fostering further innovation, the scaling up of niches and the building of alliances among diverse stakeholders at the subnational level and in civil society to achieve enduring change and long-term impact on development patterns. The right institutional environment is needed to nurture the bottom-up efforts, including local support and legitimacy for the top-down initiatives.

National and subnational efforts that recognize the ecological limits in the development process will succeed in the long term only if there is strong cooperation and coordination with other countries within the region to avoid leakages, such as an exodus of polluting industries from one country to another. The leakages could undermine individual efforts for transformation and lead to a continuing increase in the total carbon emissions in the region, despite some countries taking the lead to change their development path.

Building regional rules for cooperation in recognizing the ecological limits and institutions to support the functioning of those rules would incentivize individual countries, sectors or local initiatives and produce optimal results. The development of regional institutions would also facilitate the linking of Asian and Pacific countries with global actions and strengthen the participation

of regional leadership in global regimes, which could attract external resources to the region. The 2015 Paris Agreement could be a good opportunity to spur the needed transformations because countries will have to commit to ecological limits, and funding and technological cooperation will be available to facilitate the transformative processes.

The transformative changes in systems should include a transition that does not ruin the economic and social achievements of the past decades. The participation of a broad range of stakeholders and transparency in the decision-making processes ensures legitimacy and helps to overcome political economy obstacles, such as powerful economic interests that might be opposed to the changes. But the new systems need a governance regime that will ensure that the region does not end up worse off by losing the democratic freedoms and material well-being gained in the past decades. The argument that the current systems are the best political and economic systems is not sufficient excuse to not improve the current systems. ✨

## ENDNOTES

- 1 United Nations, 2015a.
- 2 Whitmee and others, 2015.
- 3 For example, see Polanyi, 1944.
- 4 O'Brien, 2012, pp. 667–676.
- 5 IPCC, 2012.
- 6 Meadows, Meadows, and Randers, 1972.
- 7 Brundtland Commission, 1987.
- 8 ESCAP, 2015b.
- 9 Ostrom, 2010, pp. 550–557; Ostrom, 2010, pp. 641–672.
- 10 Puppim de Oliveira, 2014, pp. 108–129.
- 11 WBGU, 2011, pp. 96–97.
- 12 Fischer-Kowalski and Rotmans, 2009, p. 3.
- 13 Argyris and Schon, 1978; Mezirow, 2000; Tschakert and Dietrich, 2010.
- 14 Fischer-Kowalski and Rotmans, 2009, p. 3.
- 15 Freeman, 1982; Lundvall, 1988; Nelson, 1993; OECD, 2005.
- 16 Geels, 2002, pp. 1257–1274; Geels, 2005, pp. 681–696.
- 17 Figueiredo, 2001.
- 18 Meadowcroft, 2011, pp. 70–75.
- 19 Amsden, 2001; Kwack and Lee, 1982, pp. 358–393.
- 20 Khotari, 2016.
- 21 Sunderlin, Hatcher and Liddle, 2008.
- 22 Martinez-Alier, Temper and Demaria, 2016.
- 23 Hoffmann, 2011.
- 24 UNDESA, 2015.
- 25 Daly, 2003, 1997; Jackson, 2011.
- 26 Jackson, 2009.
- 27 Smith, 2014.
- 28 The idea that the environmental problems will be solved by the continued modernization of the economy and society through new technologies and management tools.
- 29 Puppim de Oliveira, Dale, and Mathai, 2016.
- 30 ESCAP statistical database.
- 31 UNFCCC, 2015.
- 32 Puppim de Oliveira and others, 2013, pp. 1–6; Puppim de Oliveira, 2013, pp. 7–14.