

CHAPTER 9

Using the Sustainable Development Goals to address unsustainable land transformations in the Asia-Pacific region

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Key messages

- *Inherent complexity in the Sustainable Development Goals (SDGs) is a barrier to their application to land management. A better conceptual understanding can guide governments and other actors in the Asia-Pacific region to develop a coherent view of how the SDGs apply to land.*
- *Reorganisation of the SDGs and their targets related to land into meaningful groupings can be useful for understanding how the SDGs can help to guide sustainable land management.*
- *To address unsustainable land transformation, strategies that promote harmony between nature and people are needed. The interdependent concepts of natural capital and inclusive human wellbeing are proposed to guide the development of such strategies within the framework of socio-ecological systems (SES).*
- *Sustainable land management depends on synergistic interactions between three pillars – governance, natural capital and inclusive wellbeing – within a SES. The SDGs, as a compilation of targets and indicators, can help in assessing progress on achieving these synergies.*

9.1 Introduction

Unsustainable land transformation in the Asia-Pacific region and other parts of the world is an outcome of human interference in an important component of the biosphere in the pursuit of economic development. Human engineered land transformation has endured despite many counter responses at different levels, including environmental protection legislation, treaties, multilateral agreements, and the establishment of specialised ministries, national and international agencies and environmental planning commissions. Various international initiatives promoting sustainable development and addressing major environmental challenges related to natural resources have been formulated since the Stockholm Convention on the Human Environment in 1972 (UN 1972). These include major bilateral and multilateral agreements and conventions such as Agenda 21 and its successors (Johannesburg Plan of Implementation and Rio+20), the United Nations Environmental Assembly (UNEA), the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the United Nations Convention to

Combat Desertification (UNCCD), among others (UN 2012, 2018). Notwithstanding these initiatives, progress on arresting the degradation of the Earth's environmental support system has been reported as disappointing (IPBES 2018, UNEP 2019).

In 2015, the international community agreed on the 2030 Agenda for Sustainable Development (Agenda 2030), which includes a broad set of 17 transformational Sustainable Development Goals (SDGs) and 169 targets that cover prominent sustainability challenges, including those related to land (United Nations General Assembly 2015). Other major agreements that address land issues include the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai DRR), the Paris Agreement on Climate Change, and the Aichi Biodiversity Targets under the Strategic Plan for Biodiversity 2011-2020 (CBD 2010; UNFCCC 2015; UNISDR 2015). "Land degradation neutrality" under the UNCCD, the New York Declaration on Forests, and the New Urban Agenda (Habitat III) are other global aspirations relevant to land (UN 2014, 2016; UNCCD 2015).

There are hopes that the SDGs could permanently transform the world's development paradigm, with environmental and social sustainability, rather than growth, becoming the defining characteristics of economic activities (United Nations General Assembly 2015; Stevens and Kanie 2016). Agenda 2030 envisions that the world will be transformed if all aspirations are met (United Nations General Assembly 2015).

While transformation will be difficult, humans do have transformative capacity. This can be seen in how during the "Anthropocene" human actions have resulted in planetary scale changes, exceeding some "planetary boundaries" (Rockström et al. 2009). Transformations in economic systems are required to ensure critical thresholds of a "safe operating space" are not breached, including thresholds associated with global nitrogen, sulphur, carbon cycles, and natural resource availability (water, land, energy) (Rockström et al. 2009; Westley et al. 2011).

The SDGs, as global goals for sustainable development, provide a broad view of global sustainability aspirations. They aim to trigger changes on a broad range of issues. It is expected that the SDGs can help to move economic systems into a safe operating space. Sustainability requires creating a safe and just space between societal foundations and ecological ceilings (Raworth 2017). This will require paradigm shifts in the prevailing discourses driving land-use decisions. The SDGs can be called upon to assist with these shifts.

This chapter examines the content of SDG targets and assesses them to advance conceptual understanding from the perspective of sustainable land management. Its objective is to make the SDGs, including their 169 targets, more comprehensible for governments and other actors working towards sustainable land management.

After this introduction, this chapter provides further explanation on the need for transformative change. It then groups the targets under SDG 15 – Life on Land into "sustainability", "actions" and "means" groups to aid their interpretation. The chapter next places the other relevant SDGs under five headings based on their primary relationship with SDG 15. It explains that the many and diverse targets related to land are essentially captured by two concepts – natural capital and inclusive human wellbeing – that stakeholders can use to further guide their actions to strengthen sustainable land management. Based on Ostrom's diagnostic framework of a socio-ecological system (SES) (Ostrom 2007), natural capital, inclusive human wellbeing and governance are presented as the three pillars for sustainable land management. Integrative approaches are needed to understand and direct actions to strengthen these pillars and their synergies. This chapter concludes that

strengthening governance is key to the transformations required for moving from a state of a vulnerable SES to a resilient SES, or from unsustainable to sustainable land management.

9.2 Need for and challenges to transformative change

Contemporary policies for improving human wellbeing focus on economic growth, which is mainly founded on resource-intensive production. A dilemma is that while economic growth has contributed to poverty reduction on the one hand, it has also led to resource-intensive lifestyles on the other. The dominant economic strategy found in Asia-Pacific developing countries is to aim for high economic growth, overlooking sustainability concerns during the transition to a “developed” state. The idea is to adjust the strategy later to mitigate negative impacts, such as loss of natural capital and ecosystem services, by progressively toughening the regulatory levers and other policy instruments. However, various regional and global assessment reports such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services Regional Assessment Report on Biodiversity and Ecosystem Services for Asia and the Pacific (IPBES-AP), the 6th Global Environmental Outlook-Asia-Pacific Regional Assessment (GEO6-APRA), the Fifth Assessment Report of Intergovernmental Panel on Climate Change (IPCC AR5), as well as case studies in this report, indicate that the environmental externalities of economic growth are placing the region’s future peace and prosperity at risk (Hijioka et al. 2014, UNEP 2016, IPBES 2018). Mass production, mass consumption-based economies have led to the net loss of natural capital to the extent that it could ultimately threaten human security (UNCCD 2017). IPBES-AP found that the region’s rapid economic growth (annual average of 7.6% between 1990-2010), coupled with the highest global rates of urbanisation (2.0-3.0%/year) and agricultural expansion, has come at a high environmental cost, including accelerated and permanent loss of biodiversity (IPBES 2018). Similarly, GEO6-APRA is unequivocal on intensified land degradation threatening ecosystem integrity and biodiversity, a massive decline in natural forest areas in Southeast Asia and the Pacific, a rise in the number of threatened mammal and plant species, and displacement of indigenous people due to extensive agriculture, oil palm, and rubber plantations (UNEP 2016). Climate change will exacerbate these human stressors and increase vulnerabilities related to land resources, such as decline in agricultural productivity and increased risk of crop failures, and increasing water scarcity, floods and droughts (Hijioka et al. 2014).

Continuing with the current resource-intensive growth patterns is unsustainable. The existing policy narratives to reciprocate between consumption and economic growth cannot continue endlessly without confronting systemic failures (Wijkman and Rockström 2012). Achieving sustainability is possible only by protecting and strengthening the fundamentals of the natural support system that underpin livelihoods, economies, societies and cultures.

The region requires transformative shifts towards sustainable land management. More broadly, this involves moving SES, i.e. coupled ecological and social systems (as described in Chapter 1), to a different, inherently more desirable regime by changing the structures and processes that define the system (Walker et al. 2004). The processes of transformation require introducing drivers that displace entrenched forms of governance and provide space for innovation, thereby fostering fundamental, positive change in the nature of a SES (Chaffin et al. 2016). A shift towards sustainable land management and resilient SESs will require transformation of governance and institutions at all levels (Griggs et al. 2013). The required transformations also include shifts in deeply held values and beliefs and patterns of social behaviour (Westley et al. 2011).

The SDGs are expected to help to achieve these transformations. Management of land and landscapes is essential for many SDGs, especially those pertaining to the state of natural capital and nature's contributions to people (NCP) (Pascual et al. 2017; Díaz et al. 2018).

However, the SDGs are very complex, and in the land management community, the role of the SDGs may not always be clear. Moreover, there is a danger that countries and actors using the SDGs will focus on collecting data and reporting on indicators, rather than using them for transformational change (Elder and King 2018). There is also a risk that countries may cherry-pick high priority targets while overlooking others to suit their short-term development and political objectives. Another risk is that with 17 SDGs and 169 associated targets, countries may fail to fully appreciate how the SDGs other than SDG 15 relate to land.

To assist governments and other stakeholders develop a coherent view of how the SDGs apply to land, the following section introduces a framework and concepts that can make it easier for them to recognise land-relevant targets and understand their interlinkages.

9.3 Conceptualisation of the SDGs for sustainable land management

The SDGs were developed through a unique and inclusive goal-setting process. They are characterised by their voluntary nature, comprehensiveness and flexibility for national choices and preferences (Biermann, Kanie, and Kim 2017). Capitalising on opportunities that could be provided by an agreed set of development goals for both developing and developed countries is important for shaping the future governance regime, including for land use and management.

However, there are many challenges to realising the SDGs (Stevens and Kanie 2016; Biermann, Kanie, and Kim 2017). A complex web of interlinkages is one of the trademarks of global goals and many of the SDG targets are vague and difficult to quantify. Moreover, Elder and Olsen (2019) argue that the indicators tend to exclude the environmental dimensions of the targets. SDGs are ambiguous on, and lack guidelines for, the entry points for their implementation, means and ends are mixed, and how to evaluate cause-effect relationships between goals or targets is not clear. There are also numerous "blind spots", i.e. targets that countries have limited knowledge on in their national contexts (UNESCAP, ADB, and UNDP 2018). The SDGs, as a compilation of sustainability issues and challenges, could serve as a reference to determine whether some synergies or trade-offs have been overlooked to realise sustainable development, but they provide few clues on how this should be done.

In principle, the SDGs are universal, applying to all countries, but in practice, some SDG targets are more relevant to some countries than others. Several SDG targets (e.g. 1.a, 2.a, 7.b, 8.a, 9.2, 9.b, 10.b, 14.7, 17.2, 17.3, 17.4, 17.11, 17.12 and 17.18) pay special attention to the problems and issues of developing or least developed countries (LDCs), small island developing states (SIDS), and Land-Locked Developing States (LLDCs), many of which are located in the Asia-Pacific region. Some SDG targets (e.g. Targets 1.4, 1.5, 1.b, 2.1, 2.3, 4.7, 6.2, 8.5, 11.2, 11.5, 13.b and targets under SDG 5) are directed at people experiencing poverty and vulnerability, including women, indigenous peoples, persons with disabilities, children and youth, and older persons. Such vulnerable groups account for many people in the Asia-Pacific region, so for the region "no one is left behind" (United Nations General Assembly 2015) means addressing the concerns of these groups, including improving living standards, building resilience and securing rights.

The SDGs address issues highly relevant to land governance, including institutions and processes, participation, gender and equity, management, partnership, finances and resource mobilisation. There are many targets relevant to land, and these are found under many of the SDGs, not just SDG 15 – Life on Land. The following section examines and reorganises the contents of the SDGs relevant to land in a way that can help stakeholders develop a coherent understanding of them, which is important because of strong interlinkages between many of the land-related targets. It does this by examining SDG 15 and interlinkages between its targets and with targets of the other SDGs.

9.1.1 Reorganising the SDGs to guide sustainable land management

SDG 15, along with its 14 targets, is dedicated to land. SDG 15 aims to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.” The SDG 15 targets are broad in scope, and it can be helpful to dissect them in terms of sustainability aspirations, actions to promote sustainability, and means to implement the actions. In Figure 9.1, the key issues covered under SDG 15 and its targets are arranged into these three groups.

The “sustainability” group refers to sustainable and healthy ecosystems, including forests, water (river, lakes and wetlands), drylands, mountains and others (such as grasslands). These sustainability objectives can also be found in various other international agreements. SDG 15 consolidates them in one place.

“Actions” refers to broad and general actions to achieve the objectives in the “sustainability” group, managing ecosystems and mitigating threats to sustainability, such as actions to halt deforestation, restore degraded forests, increase reforestation and afforestation, combat desertification, etc. (e.g. Targets 15.2, 15.3, 15.5 and 15.7) and to prevent the introduction and significantly reduce the impact of invasive alien species (Target 15.8). The actions also include designing plans and activities to reduce, restore, preserve/conservate or improve the state of land, mountain ecosystems, forests and biodiversity (e.g. Targets 15.1, 15.3, 15.4). They also include actions to achieve land degradation neutrality (Target 15.3). The underlying issues that these actions address are major concerns for land governance and pose an imminent risk to the stability of land resource systems.

“Means” are resources, institutional arrangements, planning and policy frameworks, and international cooperation. SDG 15 targets finance and resource mobilisation (Targets 15.a and 15.b) and international support (Targets 15.b and 15.c). These resources and processes to mobilise them are the means to implement the “actions” in order to achieve the objectives of the targets under SDG 15.

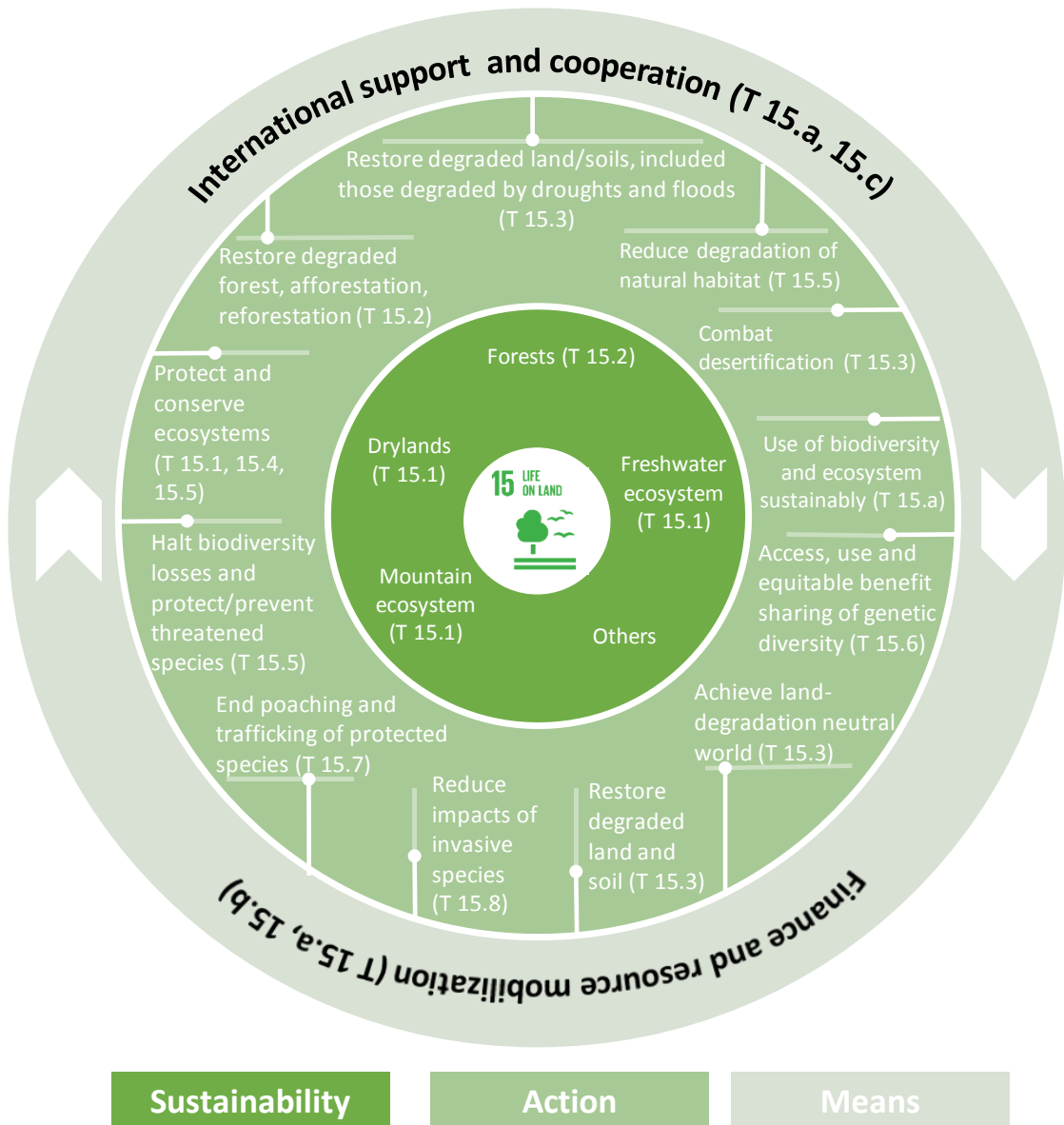


Figure 9.1 Issues under SDG 15 arranged into sustainability, action and means groups

Note: The numbering in the parenthesis (T #.#) refers to the target number. Source: Author

There are targets under other SDGs that are also highly relevant to land. Understanding how these various land-related targets are interlinked can help in developing a holistic approach to land management. Figure 9.2 attempts to connect Goal 15 and its targets with relevant targets under the other 16 SDGs. It distinguishes two types of linkages between targets – direct and indirect. Direct linkages are linkages where terms immediately relevant to land, such as land resources, ecosystem, nature, agriculture, rural, urban and peri-urban, are specifically mentioned in the targets and there is clear interdependency or overlaps between these targets and targets under SDG 15. A direct linkage, for example, exists between SDG 15 and “land and resources access/ownership” (Targets

1.4, 2.3, 5.a) as land and resource access/ownership regimes can have a significant and obvious impact on the health of terrestrial ecosystems. Another example is the obvious overlap between Target 6.6 and Target 15.1, which both mention “protection and restoration of freshwater ecosystems”. Yet other examples of direct linkages are those between SDG 15 and food production (Target 2.3) and SDG 15 and agricultural productivity (Target 2.4). Indirect linkages, on the other hand, do not include terms related to land, are less obvious and are characterised by various process nodes. Despite the less clear and more difficult to measure relationships of these targets with land, they are critical to achieving SDG 15. For instance, decoupling economic growth from environmental degradation (Target 8.4) would contribute to reducing pressure on land, though it does not explicitly refer to land. To visualise how this would be possible requires thinking on a suite of actions. Other examples are Targets 7.2 and 7.a, which promote the use of renewable energy, such as wind, hydropower, solar and biogas. While they do not mention land, they could reduce reliance on fuelwood for cooking, thereby contributing to SDG 15 (as well as SDG 3 on human health).

Based on careful examination of the contents and scope of relevant targets in each SDG, the SDGs are grouped below under five headings to distinguish their linkages with SDG 15. The five headings are (i) basic needs, wellbeing, and poverty reduction cluster; (ii) economy and livelihood support cluster; (iii) enabling cluster; (iv) climate change action; and (v) life below water (Figure 9.2).

“Basic needs, wellbeing and poverty reduction” cluster

The “basic needs, wellbeing and poverty reduction” cluster comprises six SDGs (#1, 2, 3, 4, 6 and 7). While the scope of each SDG is wide, the clustering concentrates on the central theme of each SDG, that is ending poverty (SDG 1), food security (SDG 2), healthy lives and wellbeing (SDG 3), quality education (SDG 4), water and sanitation (SDG 6), and affordable and clean energy (SDG 7). The aspirations under these SDGs are at the core of modern development challenges. To meet these challenges poses a dilemma, as the strategies that are most easily adopted can result in unsustainable land transformation. For instance, “access to and ownership of land and resources” (Targets 1.4, 2.3) is highly significant for poverty reduction and food security. However, access to land and resources can be organised in ways that contribute to poverty reduction and food security in the short term but incur significant environmental trade-offs. To counter this likelihood, targets for sustainability have been included under the SDGs in this cluster. These include “improved land and soil quality” (Target 2.4), “maintenance of ecosystems” (Target 2.4), “efficient use of water” (Target 6.4, 6.a), “improved water quality and pollution control” (Target 6.3), “improved access, use and management of genetic diversity” (Target 2.5), and “education for sustainable lifestyles” (Target 4.7). SDGs under this cluster could serve as reference points to evaluate the relative contribution of sustainable land management practices to poverty reduction, improvement in access to basic services, and human wellbeing vis-à-vis impacts on land resources and ecosystems.

“Economy and livelihood support” cluster

The “economy and livelihood support” cluster is a set of four SDGs (# 8, 9, 11 and 12) that address a range of sustainability issues involving processes and practices related to business, manufacturing, infrastructure, markets and supply chains, jobs, human habitats, consumption and lifestyles. Economy and livelihood actions are both underlying drivers and proximate causes shaping patterns of land use. At the same time as contributing to SDGs under the “basic needs, wellbeing and poverty reduction” cluster, they can act against SDG 15 by, for example, generating waste and pollutants, and degrading land. For this reason, a key sustainability target and condition

set by the SDGs under this cluster is “decoupling of economic activities from environmental degradation” (Target 8.4). A major shift away from resource intensive consumption patterns, such as reduction in “food loss and food waste” (Target 12.3) at each point from “field to plate”, towards a closed resource cycle is stressed. This cluster promotes a range of actions directly supportive of SDG 15, including “sustainable tourism” (Target 8.9), which can provide incentives for maintaining and restoring landscapes, “sustainable natural resources management and resource efficiency” (Target 12.2), “sustainable infrastructure” (Target 9.1), and “sustainable natural and cultural heritage” (Target 11.4).

“Enabling” cluster

The “enabling” cluster comprises four SDGs (#5, 10, 16, and 17), which mostly share indirect but nevertheless highly significant linkages with land management issues. They are the means and enablers for facilitating actions to achieve sustainability. This cluster collectively covers institutions, accountability, participation, leadership, reducing inequality, transparency and gender empowerment, all of which are enabling factors for improving land governance and sustainable land management. Financial flows through different channels, including private, public, or international sources (Targets 17.1, 17.2, 17.3), are vital to all targets, including those under the “action” group of SDG 15. Co-operation across sectors, administrative levels, and beyond national boundaries is necessary for co-ordinated action on the SDGs. Co-operation in the form of “North-South, South-South and triangular regional and international cooperation” (Target 17.6) would help in addressing issues relevant to SDG 15, such as the illegal wildlife trade and trade in illegally harvested timber. “Developing effective, accountable and transparent institutions at all levels” (Target 16.6) is also highly relevant to SDG 15, as weak governance has long been recognised as an underlying driver of unsustainable natural resource exploitation (Chapter 2).

“Climate action”

SDG 13 – Climate Action stands alone and is not clustered with any of the other SDGs. It has significant links with SDG 15. Land-based production systems, such as agriculture and forestry, and ecosystems are highly sensitive to climate change. Land (land cover and land use) also impacts climate in various ways, especially as a source and sink of greenhouse gases. Moreover, SDG 13 and SDG 15 can interact in various ways to impact other SDGs. For example, the way land is managed under altered climate conditions is significant to resilient agriculture, buildings and infrastructure, and enhanced resilience against disaster and natural shocks (e.g. Targets 1.5, 2.4, 9.1, 9.a and 11.b).

People relying on land-based production systems, especially subsistence farmers, smallholders and indigenous people, are particularly vulnerable to climate change impacts on land. It is anticipated that in many areas climate change will expose economies, cities and communities to more frequent and intense natural hazards such as tropical storms, floods, sea surge and droughts (Hijioka et al. 2014). Reducing exposure and vulnerability to natural hazards induced by extreme weather events and enhancing disaster risk reduction (DRR) are included among the SDG 13 targets as well as those of other SDGs (e.g. Targets 1.5, 2.4, 11.5, 11.b and 11.c). SDG 15 contributes substantially to these targets, as when land is managed well soil is protected, which reduces the risk of landslides, and run-off is reduced and delayed, reducing flood risk.

In terms of climate change mitigation (Targets 13.2 and 13.3), SDG 15 can make important contributions through sustainable agriculture and improvements in forestry.

“Life below water”

SDG 14 – Life below Water is to conserve and sustainably use oceans, seas and marine resources for sustainable development. Although oceans/seas and land are two distinct systems, they are highly interdependent. For example, changes in ocean circulation and temperature variability are responsible for El Niño and La Niña, which are increasingly associated with the rise in high intensity water-related disasters on land such as droughts, floods and cyclones. Also, sea level rise due to climate change will expose coastal communities to inundation and storm surge. Conversely, terrestrial activities impact ocean systems. For example, improper disposal of wastewater, solid wastes, especially plastics, agricultural run-off and over-fishing are severely degrading ocean systems (UNEP 2017). SDG 14 touches on two issues relevant to land – pollution from land and food supply.

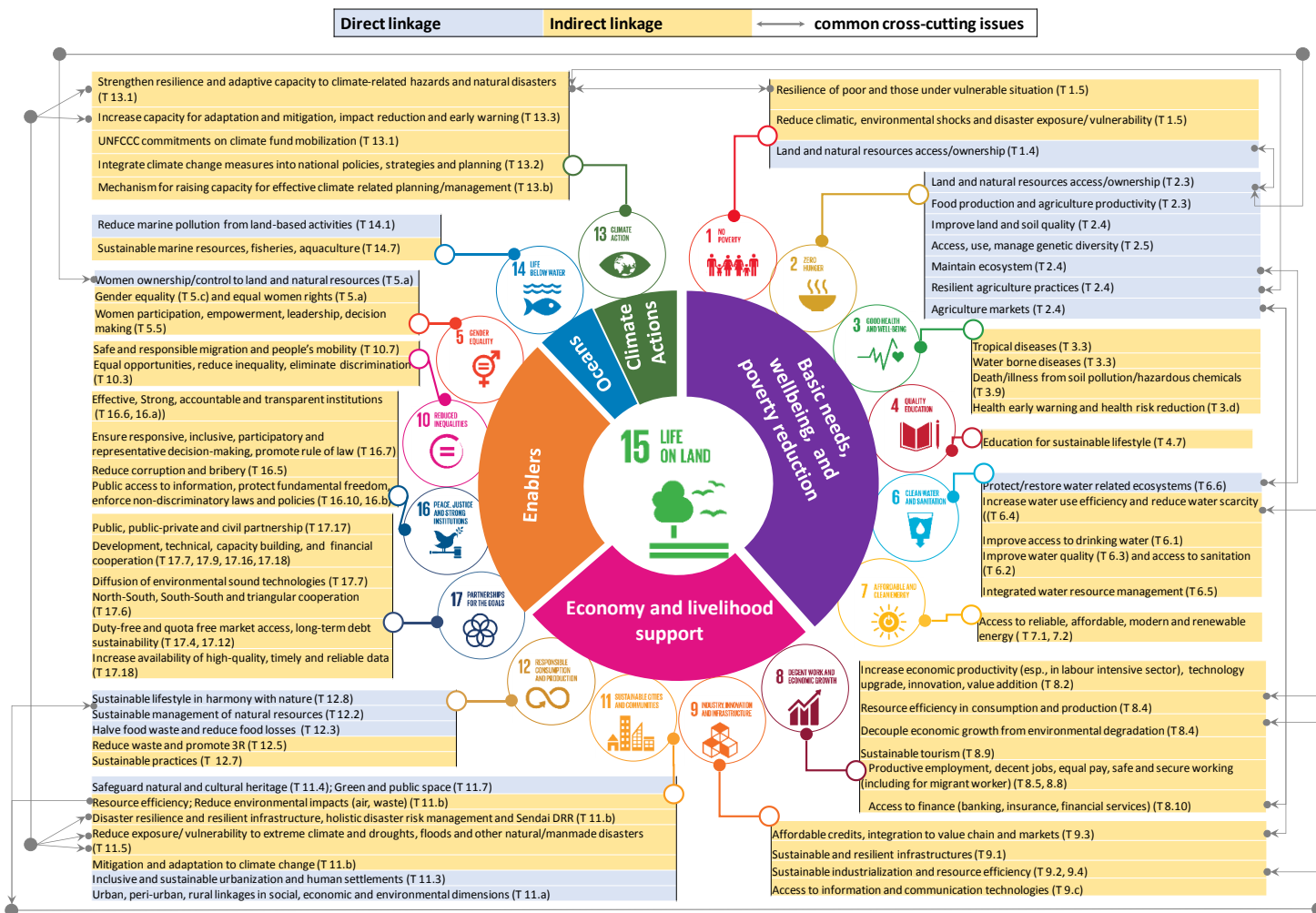


Figure 9.2 SDG 15 and its direct and indirect interlinkage with other SDGs grouped under five headings.

Note: The numbering in the parenthesis (T #.#) refer to the SDG target number. Source: Author.

9.1.2 A conceptual guide to the SDGs for sustainable land management

This grouping of the SDGs could be used as a guide to leverage synergies between the ecological and social dimensions of land use and management and visualise their interdependency clearly. Maximising the synergies is necessary to address the core problem of unsustainable land transformation, which is the exploitation of ecology to achieve economic development. Calls for action on targets under SDG 15, such as restoring degraded forests, halting biodiversity losses, combating desertification, and conserving ecosystems, reflect the need for greater efforts to strengthen the ecological dimension (Fig 9.1).

The reorganisation of the SDGs and their targets in Figure 9.2 helps to make them more useful as an overarching guide for those working on sustainable land management. Nevertheless, the sheer number of targets makes coordinated action on them challenging, and it may be useful to identify existing general concepts that capture the essence of the SDG targets related to land management that stakeholders can use. The interdependent concepts of natural capital (representing the ecological dimension) and inclusive human wellbeing (representing the social dimension) are proposed to guide sustainable land management within the framework of SES.

9.3.1 Natural capital and inclusive wellbeing as concepts for guiding strategies and actions on sustainable land management

Natural capital describes the stock of renewable natural resources, habitats or ecosystems that generate a flow of benefits or ecosystem services (NCC 2018). Natural capital is an extension of the economic idea of manufactured capital and includes environmental goods and services, both renewable and non-renewable. Renewable natural capital refers to “stocks of natural assets (e.g. soils, forests, water bodies) that yield a flow of valuable ecosystem goods or services into the future” (Dominati, Patterson, and Mackay 2010, NCC 2018). In a broad sense, renewable natural capital can be understood as the state and quality of ecosystems and their goods and services (Pascual et al. 2017; Díaz et al. 2018). Natural capital is vital for national wealth, economic development and human wellbeing (ADB 2015). A World Bank assessment found that natural capital constituted 47% of assets for low-income countries and 27% for lower-middle-income countries in 2014 (Lange, Wodon, and Carey 2018). Natural capital is thus an important metric to evaluate progress towards sustainable land management.

Efforts to enhance natural capital, including stocks and productivity, are indispensable to progress on the SDGs. Monitoring and measuring changes in natural capital is an urgent concern for all countries in the region to ensure that use of natural capital to build other assets will not compromise prospects for maintaining renewability of the resource system over the long term (Lange, Wodon, and Carey 2018). Some governments in the region have made efforts to generate natural capital accounts over the last two decades, however, such efforts are undertaken by line agencies and are not well-coordinated across government departments (SANDEE 2014).

Indicators for assessing natural capital could be useful to assess the progress on the SDG targets relevant to land in addition to the official indicators. The existing indicators are rather narrow (focused only on the target itself) and do not directly contribute to an integrated approach linking the targets in SDG 15 with related economic and social targets under other SDGs. In some cases, the indicators only include part of the target and exclude others.

Different indicators are being used for defining and measuring changes in natural capital. The World Bank's Wealth of the Nation report uses agricultural land (cropland and pastureland), forests (timber and some non-timber forest products), and protected areas to assess renewable natural capital. Lusardi et al. (2018) have suggested a short and long list of indicators and potential data sets to measure natural capital. The Natural Capital Coalition has issued "the Natural Capital Protocol" to help generate trusted, credible, and actionable information to inform business decisions, and this also outlines how to measure changes in natural capital (NCC 2016). The Natural Capital Project, a global partnership, has developed the Integrated Valuation of Ecosystem Services and Trade-offs (InVEST) tool, which has models for mapping and valuing ecosystem services (Ehrlich et al. 2012, NCP 2018). Agreeing and establishing a system to monitor and evaluate the state of natural capital using these various initiatives as a reference would be useful for many of the SDG targets.

The concept of inclusive human wellbeing can also facilitate the implementation of SDGs in an integrated manner. Inclusive human wellbeing refers to wellbeing that is shared equitably within and across generations. Inclusive human wellbeing is at the core of several SDGs. Improvements in natural capital should go hand-in-hand with progress towards inclusive human wellbeing as part of efforts to build resilient SESs. Efforts to realise society in harmony with nature while progressing on inclusive human wellbeing can be guided by the concepts of "sustainable lifestyle" and "resilient lifestyle", which are both highly relevant to the SDGs.

Sustainable lifestyle stresses the need to sustain NCPs such as provisioning, regulating, supporting and cultural services. The SDG targets that contribute goods and services for sustainable lifestyles include "sustainable industrialisation" and "sustainable practices" by companies, "resource efficiency", "decoupling economic growth from environmental degradation", and "sustainable agriculture". Progress on these targets are closely linked with targets relevant to natural capital, including those related to natural resources, ecosystems and biodiversity, and for "sustainable forest management".

Resilient lifestyles are connected to the resilience of SESs. A resilient SES, as a complex adaptive system, is able to remain within a stability domain, continually changing, adapting and transforming yet remaining within critical thresholds (Folke et al. 2010; IPCC 2014). Resilience to climate or disaster risks has been highlighted in the targets of several SDGs (e.g. #1, 2, 11 and 13). In a resilient SES, vulnerability is reduced, including that of vulnerable groups identified in the SDGs, e.g. indigenous people, smallholders, internally displaced people and migrants, dwellers in slums and other informal settlements, low income earners, women, disabled, elderly, and children.

Figure 9.3 shows how the concepts of natural capital and inclusive human wellbeing can link the SDGs together, thereby facilitating a more integrated approach to the SDGs by making it easier to see the economic and social benefits of actions to implement the targets under SDG 15.

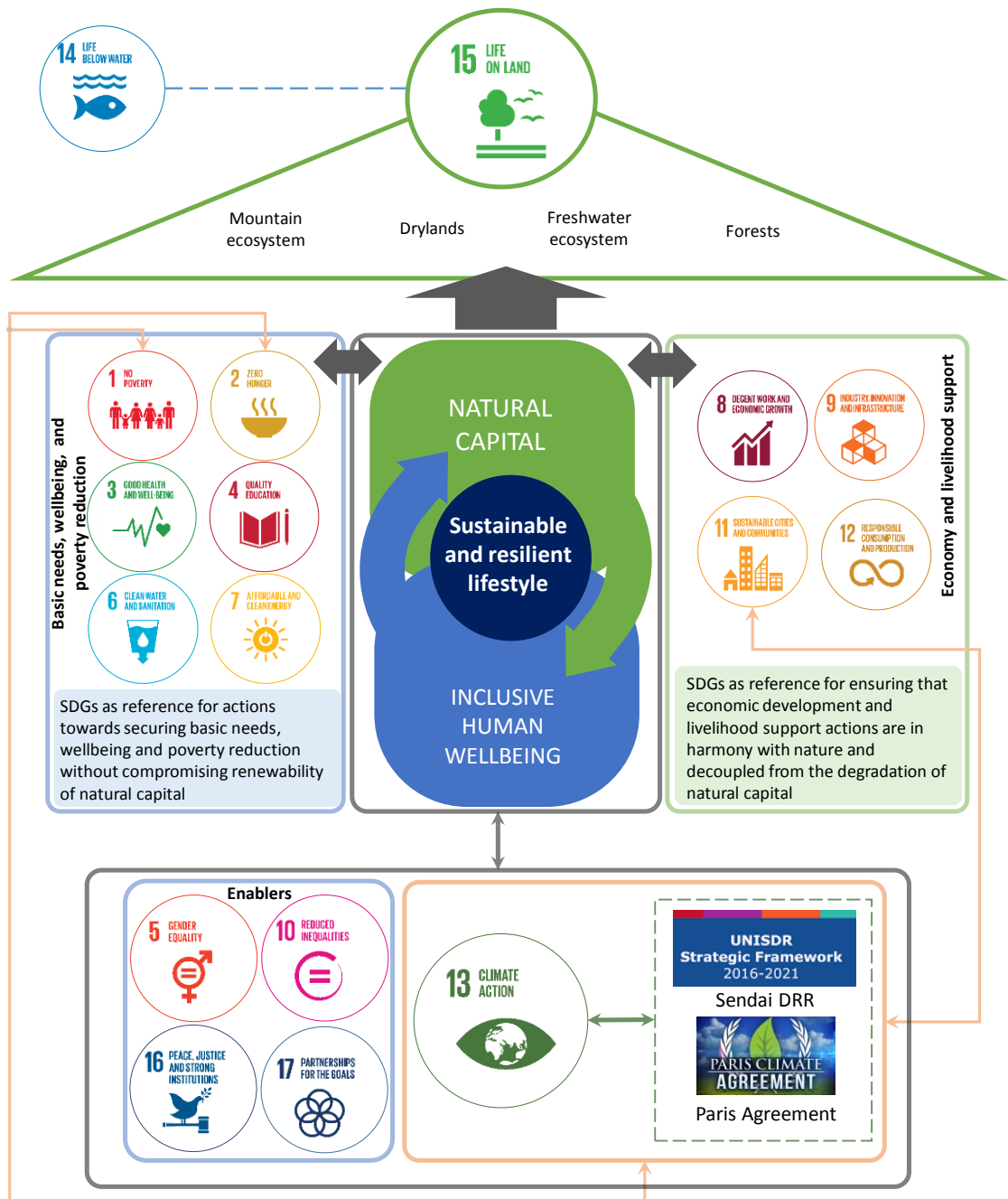


Figure 9.3 Reorganising relevant SDGs and identifying their relationship with natural capital and inclusive human wellbeing as a reference for decisions on sustainable land management

Source: Author.

The interdependence between natural capital and inclusive human being is shown in the middle of the figure. The left side of the figure shows SDGs that emphasise securing basic needs, wellbeing

and poverty reduction. Linking these with natural capital will help ensure that they are achieved without compromising the renewability of natural capital. The right side shows SDGs emphasising economic development and livelihood support actions. Linking these with natural capital will help ensure that actions taken to implement these SDGs are in harmony with nature and decoupled from the degradation of natural capital. In the lower part of the figure, SDG 13 – Climate Action, together with the goals of relevant global agreements (the Paris Agreement and the Sendai Framework for Disaster Risk Reduction), interact directly with natural capital and inclusive human wellbeing and indirectly vis-à-vis their impacts on other SDGs. Actions to address climate change contribute to both natural capital as well as inclusive wellbeing. The SDGs that act as enablers of resilient and sustainable livelihoods are also placed at the bottom of the figure. Inclusive human wellbeing and natural capital are interconnected and contribute to SDG 15 sustainability aspirations, as shown at the top of the figure. Implementing SDG 15 also enhances natural capital as well as inclusive wellbeing. At the top of the figure, SDGs 14 and 15 are seen to interact, as explained above.

9.4 Strengthening the pillars of sustainable land management

Natural capital and inclusive human wellbeing are two pillars of sustainable land management. Governance is a third. Each of these pillars can reinforce or act against others. This notion is drawn from Ostrom’s proposed diagnostic framework showing how “attributes of a resource system, the resource units generated by that system, the users of that system, and the governance system jointly affect, and are indirectly affected by, interactions and resulting outcomes achieved at a particular time and place” (Ostrom 2007).

As apparent from earlier chapters, without adequate and appropriate governance, land will be managed for a limited set of interests (or SDG targets) at the expense of others. Decisions to enhance human wellbeing primarily focusing on wealth creation through economic growth usually involve unsustainable exploitation of land and thus carry high externalities for natural capital. Lack of progress on SDG 15 illustrates this fact, as forests and other natural habitats have declined in area and quality at regional level since 2015 (UNESCAP 2018).

Disconnects between the three pillars, as depicted in the left side of Figure 9.4, are characteristic of a vulnerable SES, with unsustainable land management being an outcome. The reasons for the disconnects include little incentive for the governance of natural capital, unprepared institutions and governance structures, and a focus on wealth creation. Over the long term, weak governance and degraded natural capital places human wellbeing at risk. Weak and unresponsive governance results in externalities, contributes to unbalanced access to land and its resources, and increases vulnerability. Strengthening governance is thus key to addressing the disconnects between the three pillars.⁴⁹

Transformational change is required to move towards a resilient SES, which is depicted on the right side of the figure. In a resilient SES, synergies between governance, natural capital and inclusive

⁴⁹ As explained in Chapter 1, governance, as one pillar of sustainable land management, consists of “rules, processes and structures through which decisions are made about access to land and its use, the manner in which the decisions are implemented and enforced, and the way that competing interests in land are managed” (Palmer et al. 2009). The governance system within the diagnostic framework of SES jointly affects and is indirectly affected by interactions (between users of the system and attributes of resources systems, and generated resource units) and resulting outcomes (Ostrom 2007).

human wellbeing are realised, providing the foundations for sustainable land management (an outcome).

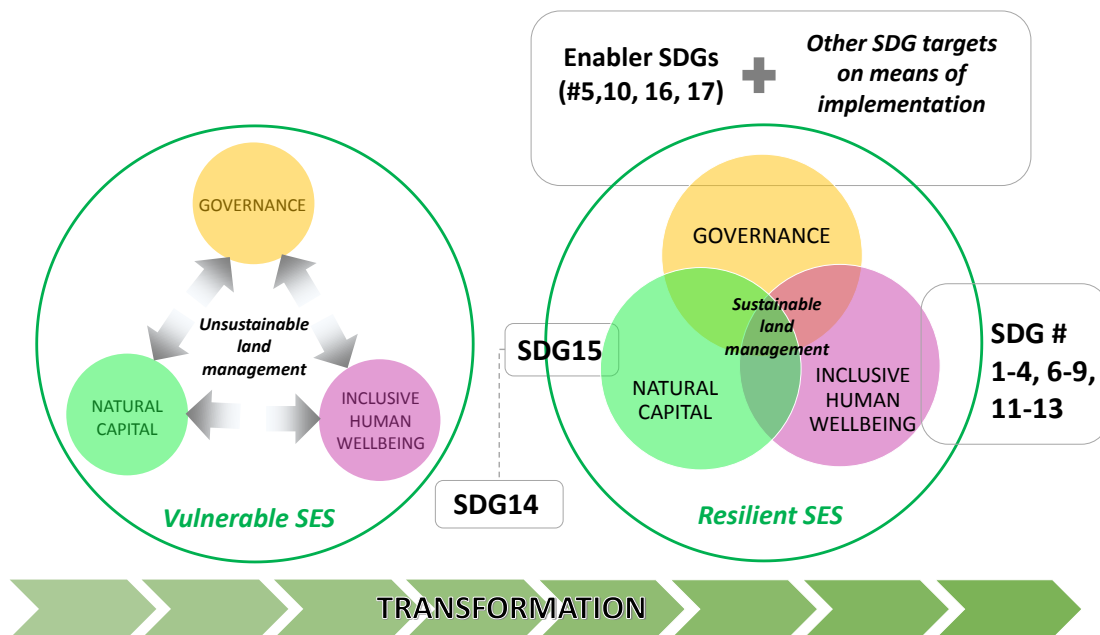


Figure 9.4 Relationship between pillars of sustainable land management within vulnerable and resilient SES and their outcomes for land management

Source: Author.

To address the disconnects between the three pillars of sustainable land management, a comprehensive understanding of causal interactions between them is required. An integrated approach is needed to provide this understanding and ensure better resource mobilisation, meaningful stakeholder participation, and equitable access to opportunities, resources and services. This is also in line with the need to follow an integrated approach for the implementation of the SDGs. The SES provides a systemic concept for understanding and monitoring the interaction and outcomes resulting from policies and actions supporting the SDGs (Selomane et al. 2019). SDG 15 and relevant indicators of natural capital could be used to examine the outcomes on natural capital. Several targets within the SDGs, in particular targets under the enablers (Figure 9.2), as well as targets from other SDGs that provide means of implementation, serve as references to assess the intended as well as unintended outcomes on the other two pillars. Other SDGs could help in assessing the outcomes on improving inclusive human wellbeing and resultant impacts on natural capital due to the interactions between these two pillars within a SES.

Several integrative approaches were discussed in Chapter 8, including the challenges they face and possible ways forward. Although the design of integrative approaches will be influenced by specific features of the SES, an overriding aim of integration is generating synergies between governance, inclusive human wellbeing and natural capital. The strength of these three pillars and their synergistic interactions are what makes a SES resilient and provides the basis for sustainable land management. Over the long term, the success of integration can be evaluated against the

interactions between the three pillars and their non-counteracting outcomes. The SDGs as a compilation of targets and indicators could help in assessing the progress on sustainable land management over time as well as across scales.

A resilient SES is a complex adaptive system that needs constant nurturing. Moving a SES from a state of vulnerability to a state of resilience will take time. Strengthening the pillars and building synergies between them is a continuous process involving experimentation, adaptation and transformation. In complex systems, learning comes from experimentation and “tinkering” (Elmqvist et al. 2018). The case studies and reviews of regional trends and their consequences in this report indicate that efforts to strengthen governance for land management should focus on meaningful participation, transparency and accountability, horizontal and vertical coordination, and institutional stability/functioning.

9.5 Conclusion

The SDGs, as a compilation of goals supplemented with targets to realise sustainability, can serve as a reference for assessing progress on sustainable land management and formulating approaches for transformative changes. With 169 diverse targets under 17 SDGs, making sense of these for sustainable land management is challenging. The targets relevant to land management must somehow be brought together to ensure they are tackled in a holistic manner that minimises trade-offs, maximises synergies and ultimately drive transformative change. This chapter aimed to assist with this challenge by reorganising the SDGs into meaningful groups, identifying some basic concepts that capture their essence, and setting out the pillars of sustainable land management.

The task of reorganising the SDGs for sustainable land management began with SDG 15 – Life on Land. To make sense of them, the SDG 15 targets were broken down and their elements were placed in “sustainability”, “actions” and “means” groups. To capture the relationships between SDG 15 and targets relevant to land under other SDGs, a distinction between direct and indirect interactions was made and the SDGs were grouped under five headings: basic needs, wellbeing, and poverty reduction cluster; economy and livelihood support cluster; enabling cluster; climate change action; and life below water. The many and diverse targets related to land were found to be essentially captured by two concepts – natural capital and inclusive human wellbeing.

Based on Ostrom’s diagnostic framework (Ostrom 2007), natural capital, inclusive human wellbeing and governance were identified as the three pillars of sustainable land management. Integrative approaches are needed to understand and direct actions to strengthen these pillars and achieve synergistic interactions between them. In a vulnerable SES, these pillars are weak and unsustainable land management is a likely outcome. Transformation to a resilient SES and, as a corollary, sustainable land management, requires continuous efforts to strengthen governance, which underpins the state of natural capital and progress on inclusive human wellbeing. As SESs are complex systems, experimentation and learning are vital to strengthening governance. The SDGs as a compilation of targets and indicators can help in assessing progress on sustainable land management in terms of the strengthening of its three pillars and synergistic interactions between them.

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