

Policy brief: Biodiversity challenges and solutions in Asia and the Pacific

André Derek Mader (Institute for Global Environmental Strategies) and Christmas Uchiyama (Asia-Pacific Network for Global Change Research)

Outline

This policy brief outlines some of the discussions at a series of science-policy dialogues for countries of the Asia-Pacific region, held between February and October 2019. The purpose of the dialogues was to introduce biodiversity policymakers, and other stakeholders from these countries, to the IPBES Regional Assessment for Asia and the Pacific (IPBES 2018a), and in particular to the key messages in the Assessment Report's Summary for Policymakers (see Table 1). This policy brief is aimed at policymakers such as those who attended the dialogues, as well as their counterparts in sectors that have an impact on biodiversity. It is expected to give them an idea of the kind of challenges faced by governments in Asia and the Pacific, and how these challenges relate to the assessment. This is one part of a set of two policy brief that cover the most important aspects of the science-policy dialogues. The other discusses raising awareness about the IPBES Regional Assessment for Asia and the Pacific. **Both policy briefs are statements of the views of the workshop participants.**

The dialogues for the South Asia and Western Asia subregions were held in Kathmandu in February 2019; for the Oceania subregion in Canberra in April 2019; and for the North-East Asia and South-East Asia subregions in Bangkok in October 2019. The dialogues formed the main component of the "Capacity Building Project for the Implementation of IPBES Asia-Pacific Regional Assessment". This project was funded by the Japan Biodiversity Fund through the Secretariat of the Convention on Biological Diversity (CBD), and was implemented by the Institute for Global Environmental Strategies (IGES) and the Asia-Pacific Network for Global Change Research (APN), in collaboration with the technical support unit for the IPBES Regional Assessment for Asia and the Pacific, as well as hosts and other partners.

1. Background

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is an independent intergovernmental body established by States to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development (IPBES 2020). Much of the Platform's activities are concerned with "assessing knowledge". To that end, IPBES conducts assessments of existing knowledge of biodiversity and ecosystem services. A set of four regional assessments were conducted – for Africa, the Americas, Europe and Central Asia, and Asia and the Pacific. The reports produced out of these four assessments were approved, along with the IPBES Thematic Assessment on Land Degradation and Restoration, at the 5th meeting of the IPBES Plenary in 2018. These assessments present the most up-to-date compilation of knowledge on the status and trends of biodiversity; the ecosystem services that they provide; the drivers of change of these trends; future scenarios; and policy options. This information is presented at a relatively coarse scale, but with the intention of passing the baton to governments to perform their own assessments at the national and even subnational level. The reports' Summaries for Policymakers (SPMs) (IPBES 2018b) summarize the report chapters in a series of key messages, intended to facilitate accessibility of findings.

Table 1: Key messages (KMs) of the IPBES Regional Assessment for Asia and the Pacific

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| <p>A. IMPORTANCE OF NATURE'S CONTRIBUTIONS TO HUMAN WELL-BEING AND GOOD QUALITY OF LIFE</p> <ol style="list-style-type: none"> 1. The Asia-Pacific region's rich biodiversity and valuable ecosystem services provide vital support for human well-being and sustainable development. 2. The Asia-Pacific region has achieved rapid economic growth, and is undergoing one of the highest rates of urbanization and agricultural expansion in the world. This has come at a high environmental cost, causing degradation and loss of biodiversity. 3. Although the Asia-Pacific region is succeeding in reducing poverty, mass poverty persists in some subregions. Sustaining the viability of and access to ecosystem services will contribute to poverty alleviation. 4. The diverse values and value systems across the Asia-Pacific region shape interactions between people and nature. There are some significant valuation data gaps so caution needs to be applied during interpretation. |
| <p>B. VARYING TRENDS OF BIODIVERSITY & ECOSYSTEM SERVICES AND THE ROLE OF UNDERLYING DRIVERS</p> <ol style="list-style-type: none"> 5. While biodiversity and ecosystem conditions are declining across the Asia-Pacific region, they are well maintained in some areas. 6. The population of large wild mammals and birds has declined across the region. 7. Invasive alien species have increased in number and abundance, and constitute one of the most serious drivers of biodiversity loss across the Asia-Pacific region. 8. Protected area coverage in the Asia-Pacific region has increased substantially but does not effectively target areas of important biodiversity, and progress is needed towards better overall management effectiveness. 9. Traditional agrobiodiversity is in decline, along with its associated indigenous and local knowledge, due to a shift towards intensification of agriculture with a small number of improved crop species and varieties. 10. People in the Asia-Pacific region depend heavily on fisheries for food, with aquaculture growing by nearly 7 per cent annually, but the capture fisheries sector is threatened. 11. Coral reefs are of critical ecological, cultural and economic importance, supporting the livelihoods of hundreds of millions of people in the Asia-Pacific region and beyond through vital and valuable ecosystem services such as food security or coastal protection, and are under serious threat. 12. Climate change and associated extreme events are impacting species distribution, population sizes and the timing of reproduction or migration; increased frequency of pest and disease outbreaks resulting from these changes may have additional adverse effects on agricultural production and human well-being. 13. The increase of waste and pollution in the Asia-Pacific region is impacting ecosystems and threatening the current and future health of nature and people. |
| <p>C. IMPLICATIONS OF BIODIVERSITY DECLINE AND OPPORTUNITIES FOR SUSTAINING NATURE'S CONTRIBUTIONS TO PEOPLE</p> <ol style="list-style-type: none"> 14. Direct and indirect drivers acting synergistically are accelerating the loss of biodiversity and posing an increasing risk to the sustained flow of nature's contributions to people in the Asia-Pacific region, but there are opportunities to counter them. 15. Continuing economic growth and infrastructure development, in some subregions, are required for achieving the Sustainable Development Goals of eradicating poverty and hunger, and ensuring energy, health, and water security, but need to be pursued in harmony with nature if they are to be sustainable. 16. Progress in forest and protected area management, although not enough to reduce biodiversity loss, increases the probability of meeting the Aichi Biodiversity Targets and the Sustainable Development Goals. 17. Policymakers will benefit from using scenarios adapted to unique local and national characteristics for planning the future of biodiversity and human well-being in the region. |
| <p>D. POLICIES, INSTITUTIONAL FRAMEWORKS, AND GOVERNANCE OPTIONS FOR ACHIEVING GLOBAL GOALS & TARGETS</p> <ol style="list-style-type: none"> 18. Local communities and higher-level stakeholders collaborating in decision-making processes that involve the conservation of nature are the best positioned to ensure the sustainable use of biodiversity and nature's contributions to people. 19. The mainstreaming of biodiversity into development policies, plans, and programmes can improve efforts to achieve both the Aichi Targets and the Sustainable Development Goals. 20. The Paris Agreement on climate change, the Sendai Framework for Disaster Risk Reduction 2015–2030 and the 2030 Agenda for Sustainable Development recommend the use of ecosystem-based approaches. 21. Regional cooperation in devising and implementing the transboundary conservation of threatened landscapes and seascapes is expanding and showing positive results. 22. Partnerships with the private sector, individuals and non-governmental organizations, can help countries meet the growing gaps in funding to finance conservation efforts. 23. Sustainable production, consumption and waste management policies can help to reduce biodiversity loss, including by promoting low-carbon and renewable solutions that are less polluting and more sustainable. |

2. National biodiversity challenges and solutions

In advance of the science-policy dialogues, government representatives were contacted to determine their willingness to present examples of biodiversity challenges faced by their countries. These examples were presented to participants of the dialogues and formed the basis of discussion on related challenges and solutions. Facilitators pointed out when these challenges, and the associated solutions, corresponded with the key messages of the Asia-Pacific Regional Assessment Report. The following sections summarize the presentations and the discussions that they triggered, with abbreviated reference to the key messages indicated in brackets (e.g. KM5). Key messages 18-23, in particular are of particular relevance in this regard as they present options for dealing with the challenges discussed.

2.1. Biodiversity is declining across the Asia-Pacific region (KM5; KM6)

□□ Threatened species in Australia (Oceania)

Nearly 25% of endemic species in Asia and the Pacific are currently threatened, according to the IUCN Red List of Threatened Species, with 19% data-deficient and therefore in need of more research (KM5, KM6). The negative impacts on biodiversity and nature's contributions to people are projected to worsen (KM17). Regional and global collaboration will be required to counter them (KM21). Similarly, the diverse traditions and cultures of the world's 370 million indigenous people (KM9), many of which are known for their harmonious relationships with nature, are increasingly threatened. Legislation on threatened species is often focused on detailed and complex recovery plans. While legislation helps, community interaction and support from all sectors, with identified champions, is the real key to success (KM18). "Conservation advice" is an uncomplicated device that focuses on quickly reducing threats to species. Conservation advice can also give guidance to all concerned, including primary producers, Aboriginal groups, community Landcare, Conservationists, and Scientists. It is helping to make Australia's future conservation more community based.

Related challenges & solutions in the Oceania subregion

Habitat degradation, for example through clear-felling, is driven by extractive industries such as mining, as well as by urban and agricultural expansion (KM2). Tourism is another driver of land-use change in parts of Oceania. A general lack of capacity for the management of threatened species is both a challenge in itself and, perhaps, a symptom of other challenges. A number of solutions do, however, exist. In extreme cases, when habitat is lacking and species are close to extinction, in situ conservation is an option that has long been practiced. Ex situ conservation is, nevertheless, preferable. It is important to consider threatened species as part of ecosystems rather than concentrating too much effort on the conservation of individual species (KM20). The importance of local knowledge solution is often overlooked, and conservation efforts could benefit from co-design and co-management of threatened species populations, between indigenous peoples and local communities, and more formal conservation authorities (KM9). Such cooperation could, furthermore, improve buy-in into natural conservation activities amongst traditional landowners. Other solutions include more, better, and better-integrated data generated through greater attention to assessment and monitoring. Improved capacity could also help to tap existing mechanisms (e.g. technical aid and financial aid) for assessment. Well-established principles like the precautionary principle remain relevant to policymakers. On the other hand, we should not dismiss options that may seem slightly unconventional.

□□ Deforestation and forest degradation in Sri Lanka (South Asia)

Sri Lanka falls within one of the world's 34 biodiversity hotspots – areas of high biodiversity that are under threat. The country's forest ecosystems, which constitute and accommodate much of this biodiversity, are being lost at an alarming rate. Although this rate has slowed down since it was measured at 1.43% per annum between 2000 and 2005, it is widespread and continues to reduce the country's overall forest cover. Forests are important for the livelihoods of many Sri Lankans. Unfortunately, their use of the forest is an underlying driver of its loss and degradation through: unclear land ownership; infrastructure, irrigation and hydro power development; agricultural expansion; forest fires; and even coastal shrimp farming. The loss of forest also means loss of habitat for terrestrial wildlife and disruption of their movement patterns (e.g. elephants and ungulates). There is, furthermore, significant potential loss of threatened and endemic species and unique habitats. Governance

challenges include inadequate facilities for protected area management (KM8, KM16); low capacity of institutions and limited resources for management; fragmented and overlapping responsibilities; a lack of planning that integrates conservation and benefit-sharing of natural resources (KM19); and lack of awareness among those responsible for conservation.

Related challenges & solutions in the South Asia & Western Asia subregions

Similar drivers are found in other countries in the subregions including infrastructure development, agricultural expansion and change in agricultural practices, hydropower plants, mining, population growth, urbanization, and forest fires (KM14). All of these drivers may be exacerbated by climate change (KM12), while institutionally they may be aggravated by a gap in understanding and communication between policymakers and indigenous peoples and local communities (KM9). Documentation of indigenous and local knowledge, such as agricultural practices (KM9) and acknowledgement of community protocols, may encourage indigenous peoples' and local communities' support for conserving biodiversity (KM18). There appears to be a lack of ownership, coordination and coherence among stakeholders, particularly across government sectors, for example between agricultural and conservation priorities (food security versus biodiversity conservation). Some of these challenges may be alleviated by a standardized definition of forests and established and mandatory procedures on environmental impact assessment to facilitate sustainable development. Reforestation, restoration and development of national 2020 targets, meanwhile, are necessary responses that are in line with the SDGs. Placing an economic value on biodiversity and ecosystem services (KM1, KM4) may help to raise political awareness, while the private sector (e.g. through incentives and enforcement) presents an important avenue for partnership (KM22).

2.2. Invasive alien species have increased in number and abundance, and constitute one of the most serious drivers of biodiversity loss across the Asia-Pacific region (KM7)

□□ Managing the eradication of invasive alien species in Kiribati (Oceania)

Kiribati's Phoenix Island protection area spans 408,250 km² of marine and terrestrial habitats in the central Pacific Ocean. The area was closed to commercial fishing in 2015. It was declared a World Heritage Site by UNESCO in 2010 and designated as a Key Biodiversity Area under the Critical Ecosystem Partnership Fund. Six islands were recently included as Important Bird Areas by Birdlife International. Of the total eight islands, seven are uninhabited by people. The islands are home to 50 bird species, including 19 breeding seabird species, some with threatened status under the IUCN's Red List. Invasive alien species including rabbits, rats, and cats are found on all of the islands. Some eradication programs have been successful while others have failed. Rodents prey on seabirds, including the threatened species. In order to control further degradation, stronger border control options are being considered. Entry into the area for fishing will require a permit and compliance with the biosecurity protocols. However, limited financing has led to a lack of quarantine supervision, monitoring and surveillance for illegal landings. The government of Kiribati also lacks the resources (transport, tools, etc.) to effectively manage biosecurity and eradication. Local experts are currently hired for this purpose. The Phoenix Island ecosystems are also under immense pressure due to nutrient runoff, and their corals are affected by iron-enrichment from shipwrecks, causing algal growth and so-called "black reefs" (KM11).

Related challenges & solutions in the Oceania subregion

A stronger and more sustained focus on people, including indigenous peoples and local communities (KM9), and their inclusion in conservation might smooth the path towards successful eradication of invasive alien species. It is often these communities whose livelihoods and well-being are most affected (KM18). An integrated approach is needed, involving all sectors of government (KM19), with more frequent dialogue at and between national and local levels. The public also need to be made more aware of conservation issues so that they are more likely to support conservation policy decisions. In New Zealand, for example, pamphlets were distributed at airports informing travelers about the role of dogs in preventing the introduction of harmful species and pathogens. General environmental education in schools is another area where governments can focus their efforts. Political terms and staff turnover, however, can cause plans to change from one cycle to the next. This also results in the loss of the institutional knowledge that is required to maintain momentum. Some national governments are moving towards long term strategies as a means to secure finance, for example for conservation. This will, however, need to be accompanied by action plans to ensure that implementation follows. Action plans

could, as in Australia, allow the inclusion of public-private partnerships (KM22) and other incentives. The involvement of the private sector is driven by corporate social responsibility and the emergence of “green business”. Its link to environmental actions is an encouraging global development. Such involvement may be further encouraged if an environmental issue affects productivity, as in the case of invasive alien species and agri-business. Agri-business can also help by, for example, having more diverse food systems that are more resilient to invasive species. Building ecosystem resilience may be one of the more effective strategies considering that IAS may never be eradicated completely. A focus on ecosystems may also help to emphasize the relationship between people and the environment.

2.3. Local communities and higher-level stakeholders collaborating in decision-making processes that involve the conservation of nature are the best positioned to ensure the sustainable use of biodiversity and nature’s contributions to people (KM18)

□□ Conserving wildlife in Lebanon (Western Asia)

Lebanon lies on one of the most important migratory flyways in the world, with over a million birds passing through this corridor each spring and autumn, from Europe and Asia to Africa. 395 bird species have been recorded in Lebanon – 28 of them listed as threatened. The country has 15 designated Important Bird Areas, including eight nature reserves. Two of these reserves are conserved by local communities (KM18). A hunting law is in force to protect biodiversity, with certain areas and species restricted, while others allow hunting during designated hunting seasons (KM8, KM16). By regulating the practice, hunting is controlled.

Related challenges & solutions in the South Asia & Western Asia subregions

A number of direct environmental challenges face wildlife in the subregion, including climate change (KM12), population growth and agricultural land expansion over forests with agrobiodiversity loss; incentivization of mono-cropping over traditional crops, and invasive species (KM7). Hunting can be a good basis for conservation because areas designated for hunting may be conserved for that particular purpose. Nevertheless, unregulated and illegal hunting (poaching) is an issue due to weak enforcement of regulations. One means of dealing with that challenge may be to involve indigenous peoples and local communities in the process (KM9). Unfortunately, there has been a lack of funded environmental projects that adequately respect or consider or value customary laws and customs. Intrinsic, spiritual, cultural values of agrobiodiversity need to be captured by policy, and greater recognition given to holders of indigenous and local knowledge and customary laws/customs, in the policy process (KM4). Progress in this area may be achieved by focusing less on implementing international development agendas such as the SDGs, and more on local and specific issues on the ground. Better-coordinated actions from the government, for example more consistent legislation that harmonizes the promotion of indigenous and local knowledge on one hand and food security on the other, is also called for (e.g. community seed banks (KM18)).

2.4. Coral reefs are of critical ecological, cultural and economic importance, supporting the livelihoods of hundreds of millions of people in the Asia-Pacific region and beyond through vital and valuable ecosystem services such as food security or coastal protection, and are under serious threat (KM11)

□□ Coral reef conservation in the Maldives (South Asia)

The Maldives coral reef system consists of thousands of reefs and more than 20 coral atolls, including the two largest in the world, covering a total area of 5,000km². This system forms the basis of the Maldives economy and the way of life of its residents, for example through fisheries and tourism (KM10, KM11). The system has been threatened by the mining of coral and sand, although coral mining is being phased out thanks to the introduction of concrete blocks to replace coral for building purposes. Certain reef species have also been given official protection, including certain fish, corals and marine invertebrates. On the islands of the Maldives land is scarce and population is increasing. The subsequent development, as well as the development of harbors, ports and airports to support the tourist industry, have resulted in the loss of 60% of the vegetation on inhabited islands of the system. Sedimentation and coastal erosion also present major challenges.

Related challenges & solutions in the South Asia & Western Asia subregions

Pollution from shipping, as well as land-based plastics and waterborne pollution brought to the sea by rivers are related challenges in the subregions. Industries have an impact through illegal, unreported, unregulated and unsustainable fishing practices (KM10, KM23). Tourism places an extra burden on reefs, lagoons and small island ecosystems leading to over consumption of freshwater, reduced carrying capacity, and general damage. Environmental degradation and unsustainable consumption (KM23) is also caused by overexploitation of marine resources including biodiversity, oil and gas, and shells (KM14). Environmental impact assessment and policies could be improved by synchronizing the impact of infrastructure with scientific knowledge and local contexts. Greater coherence in decision-making could facilitate crucial environmental program, although environmental ministries may be limited by dependency on other ministries with different goals. Finally, as in other cases, more participatory approaches could help to address challenges on restoration and conservation of corals, as well as mangroves, seagrass beds and lagoons.

- 2.5. **Climate change and associated extreme events are impacting species distribution, population sizes and the timing of reproduction or migration; increased frequency of pest and disease outbreaks resulting from these changes may have additional adverse effects on agricultural production and human well-being (KM12)**

□□ Impacts of climate change on species distributions & ecosystems in Japan (North-East Asia)

In Japan, the major drivers of biodiversity loss (KM14) are defined as 1) development, direct use, and water pollution; 2) reduction in management of human-influenced landscape; 3) invasive alien species (KM7) and chemical substances; and 4) global climate change. The second of these is the result partly of a decline in the country's population, and Japan is taking action to deal with the impact of population decline on biodiversity. With respect to the fourth point, the impacts of climate change on species distributions and ecosystems are considered to be of great concern and are predicted to continue to increase (KM17). Japan has experienced various negative impacts as a result of climate change, including lowered quality of agricultural crops (KM9), increased incidence of heat stroke, expansion of vector habitat area, increase in frequency and volume of natural disasters, and intensification of coral bleaching (KM11). These issues affect species distribution and ecosystems directly or indirectly. Mitigation of these impacts, as well as adaptation to the changes, are therefore urgently needed.

Related challenges & solutions in the South-East Asia & North-East Asia subregions

Extreme weather such as heavy rain, flooding, drought, and forest fire is driven directly by such factors as overuse of underground water, deforestation, and overconsumption of materials, crops and meat. These, in turn, are the result of such factors as economic drivers and land use change (KM2, KM15). Land-use change is, in itself, generally considered to be the main driver of biodiversity loss worldwide, if it is taken to include the loss of habitat. Long-term solutions may include nature-based approaches (KM20), sustainable production and consumption (KM23), multi-ministerial management and cross-sectoral cooperation (KM14, KM18). Understanding the effect of climate change on biodiversity is hindered by methodological challenges include a lack of scientific data and difficulty in monitoring change. The mainstreaming of biodiversity into development policies (KM19) would ensure this to some extent, while innovative partnerships with the private sector could encourage investment in monitoring on climate change (KM22). A lack of determined national policies and consideration of people who have already been affected may also be partly due to a lack of political and economic interest and investment (KM2, KM15). Another potential solution is consideration of rights-holders including indigenous peoples and local communities, as well as high-level stakeholder collaboration in decision making (KM9, KM18) and taking account of contribution of indigenous peoples and local communities in nationally determined contributions reductions in greenhouse gas emissions.

2.6. The increase of waste and pollution in the Asia-Pacific region is impacting ecosystems and threatening the current and future health of nature and people (KM13)

□□ Waste & pollution impact marine ecosystems and threaten marine animals in Thailand (South-East Asia)

Among the most critical issues facing biodiversity management in Thailand, is the increasing waste and pollution that impacts marine ecosystem and threatens marine animals. Thailand is ranked sixth worst in the world for generating marine waste. Evidence shows that marine animals such as dugong, whale and turtle die as a result of contact with marine debris, especially plastic waste. Reduction of the mortality rate of marine animals from plastic waste already features in Thailand's Master Plan for Integrated Biodiversity Management 2015-2021 and the country's National Biodiversity Management Action Plans (NBMAS) 2017 - 2021. The Roadmap on Plastic Waste Management between 2018 and 2030 has also been produced, with strategic plans and targets. For example, Thailand aims to use 100% recycled plastic by 2027. The Thai Government also committed to reducing marine debris at the recent ASEAN Summit, by signing the "Bangkok Declaration". These measures are hoped to make big improvements, but that may take time. One challenge is to engage the general public.

Related challenges & solutions in the South-East Asia & North-East Asia subregions

Chemical pollution from agriculture, mining and other sources pollutes freshwater and soils, affecting biodiversity and human health, as a result of a lack of knowledge, regulations and market incentives. The mainstreaming of biodiversity into development policies, plans, and programmes (KM19) and sustainable production, consumption and waste management policies (KM23) is necessary to deal with chemical pollution from agriculture and mining. Marine plastics, including plastic wastes and micro-plastics, present an additional threat driven by consumer behavior, and a lack of public awareness about the seriousness of the issue. Innovative partnership, particularly with the private sector (KM22), may be the best solution. The dumping of construction waste into the sea is another form of marine pollution that affects marine ecosystems, as are tourism, and waste management capacity. More broadly, and of more immediate consequence to human health, is air pollution including micro-dust and haze. This is ultimately the result of development, which is predominantly economy-driven (KM2, KM15). Haze reduction requires transboundary cooperation, while micro-dust reduction requires partnership with private sector (KM22).

2.7. Development and implementation of biodiversity policy

□□ Enforcing legislation on biodiversity in Vanuatu (Oceania)

The remoteness and inaccessibility of Vanuatu, with 83 inhabited islands in a chain stretching 1,200km north to south, has led to conflicting legislative priorities. While there has been significant progress in the development of environmental institutions and legislation, the focus on economic growth and productivity has taken a toll on the natural resource base and environment (KM2, KM15). Legislation is also difficult to enforce, while a straightforward lack of legislation means that authorities have limited leverage when conflict arises with private developers. Western concepts of non-compliance and penalties are not necessarily understood at the grassroots level in Melanesia. However, society has an influence on politics, partly through social connections. Government departments and their legislation are mandated to achieve sustainable development but, in many cases, pressure is placed on departments to creating revenue through increases in production, rather than on sustainable resource use (KM23). Corruption is an additional concern affecting the implementation of legislation in Vanuatu, while additional challenges include a shortage of funding and human resources in the environmental sector. The latter is caused partly by a limited number of graduates in this field, for whom the closest tertiary education facility is in Fiji. Vanuatu has, nevertheless, stated its commitment to protecting its biodiversity through national policies and plans such as its National Sustainable Development Plan and recent National Biodiversity Strategy and Action Plan under the Convention of Biological Diversity.

Related challenges & solutions in the Oceania subregion

The extreme geographical isolation and distribution of many island states in the Pacific present logistical challenges to many aspects of governance, including conservation. Besides this unique challenge, Pacific island countries are subject to the disconnection between sectors that is common worldwide, and which can lead to data gaps as well as conflicting goals. Another disconnection is "between vision and reality", where implementation is let down by approaches that are not sufficiently holistic and realistic. Sufficient

technical capacity, human resources, funding and logistical support are required to deal with these challenges and raise awareness about the importance of biodiversity.

□□ The need for appropriate policies in Samoa (Oceania)

Samoa is active in a range of multilateral environmental agreements and describes itself as an active agent in tackling climate change (KM19) and protecting biodiversity. The island State considers resilience of its ecosystems to be of great importance, yet this resilience is threatened by habitat loss, degradation and fragmentation; invasive species (KM7); and unsustainable use and management of natural resources (KM23). Some of the underlying causes of these direct drivers are Samoa's small size and its isolation; demographics; lack of access to resources and land tenure systems; economic development (KM2, KM14); changing consumption patterns and lifestyle; and climate change and variability (KM12). The policies required to deal with these challenges face challenges of their own. For example, there is a need to find the right expertise for capacity development. There is also a lack of resources and funding to prepare national reports and research outcomes. Other key challenges include a lack of good information; the need for regular updates of policies; coordination with other sectors; an efficient system of reporting and monitoring; and enforcement and compliance. Over the years, however, significant gains have been made. Samoa's marine protected areas (KM8, KM16) now constitute of 33% of country's marine territory.

Related challenges & solutions in the Oceania subregion

Respect for traditional knowledge systems is in decline. Meanwhile there is a critical need to engage communities in policymaking, particularly through participatory policy development (KM18). Indigenous knowledge systems may have much to offer policymaking, especially in local contexts (KM9). This again suggests the need to engage with indigenous peoples and local communities.

□□ Interconnection among ministries to promote conservation & use of biodiversity in Indonesia (South-East Asia)

Indonesia faces the challenge of building connections among different ministries to promote conservation, sustainably utilize biodiversity, and integrate biodiversity into development plans that have an impact on biodiversity and economy (KM15). Policies among ministries may contradict and hamper the achievement of biodiversity-related goals. There is thus a strong need for coordination. In addition, interconnections between national governments and regional governments also need to be strengthened (KM21), to work towards shared goals and targets. They are also important to improve understanding and enhance awareness among policymakers about the value of biodiversity (KM4).

Related challenges & solutions in the South-East Asia & North-East Asia subregions

Related challenges include collaboration with other countries, and coordination among ministries and sectors. The former may be due to negative impact on neighboring countries where there is competition for natural resources; differing priorities among different sectors; and undervaluation of biodiversity and ecosystem services (KM1, KM4). The latter may be the result of lack of power of the Environment Minister as a final decision-making authority. Both are driven by a lack of information and knowledge-sharing among key actors. The development of platforms for actors to get together could enable participatory processes, while the establishment of pro-environmental top leadership would obviously provide the necessary support. Other possible solutions might include designing actions based on synergies; developing projects across ministries; and institutionalizing ecosystem services (KM19) when designing programmes. Another related challenge is participation, which can be time-consuming and therefore potentially off-putting to some stakeholders. Provision of incentives for participation is a possible solution, while the establishment of legal requirements for participation may be a more proactive approach. The provision of information in local languages is likely to improve accessibility. Other challenges include the long timeframe of biodiversity conservation; weak law enforcement; lack of money for biodiversity and conflicts; weak penalties for violating rules and regulations; and occasionally inappropriate laws and regulations. Responses are hampered by political change and high staff turnover in government; the lack of consistent processes; and a lack of financial resources for capacity building of facilitating and engaging in processes. Ironically democracy, which is a core value for promoting adaptive governance, can also slow down governance processes.

2.8. Human-wildlife conflict

□□ Human-wildlife conflict in *Bhutan* (South Asia)

Seventy-one percent of Bhutan is covered in forest, and more than 50% is protected (KM8, KM16). Among the wild species that frequent these areas are a number of large carnivores, which predate partly on the livestock, and wild herbivores that feed partly on the crops, upon which people depend for their livelihoods. People, therefore, sometimes retaliate by killing these wild animals. The issue is highly polarized between human-centric and animal-centric views. The issue is, furthermore, context specific and therefore universal solutions are elusive.

Related challenges & solutions in the South Asia & Western Asia subregions

Human-wildlife conflict is typically the result of human encroachment on areas where wildlife occurs. This encroachment takes the form of expansion of agricultural areas, infrastructure development and tourism. It can be exacerbated by habitat loss and degradation and the effects of climate change (KM12), as well as the impacts of war and conflicts through, for example, land degradation. The tendency of certain species to migrate also plays a role in certain cases. In terms of informing governance, there is a lack of understanding of the underlying causes (KM14) of human-wildlife conflict. There is also seen to be a lack of institutional guidance, as the issue is context-specific and therefore challenging to come up with universal solutions. The science of wildlife damage management, at least in some contexts, is new. New examples of relevant strategies and policies to promote harmonious co-existence are, therefore, required. Greater awareness of the importance of biodiversity, and incentives for conservation are additional requirements.

3. Conclusion and recommendations

Considering the size of the Asia-Pacific region and the diversity of its constituent countries and ecosystems, it is not surprising that the challenges facing biodiversity are diverse. Many challenges, however, are shared. Although participants of the science-policy dialogues were guided into discussing specific challenges, these discussions overlapped considerably. This is partly demonstrated in the accounts above, despite having been edited to streamline the focus in this brief. This means that countries of the region, and possibly more so within subregions, have a lot to learn from each other. These commonalities allowed the dialogues to introduce the key messages, including both challenges and solutions, of the IPBES Regional Assessment for Asia and the Pacific into the discussions. For many participants this was their first experience of the assessment report. The relevance of the report's key messages is indicated by the frequency with which they corresponded with the challenges and solutions discussed.

Although the discussions were detailed and diverse, the following recurring themes may be observed. These may help to guide policymakers in the region, who are aiming to further the governance of biodiversity and ecosystem services in their countries:

1. A lack of **resources**, including financial resources, remains a central challenge but there are cases in which conservation has succeeded where such resources are scarce, or failed where they are plentiful. A number of other factors, therefore, should be considered.
2. Communication and alignment **between different ministries and sectors** is often lacking, and is believed to be a prerequisite for successful biodiversity conservation.
3. **Participation of various stakeholders**, including indigenous peoples and local communities, in policymaking offers benefits, both in terms of support for policies and information to inform policies.
4. Ecosystem-based approaches may be more likely to succeed than species-based approaches (KM20). **Landscape-based approaches** may be better still, as they consider human use of the landscape as part of the system to be conserved.
5. The IPBES Regional Assessment for Asia and the Pacific provides general information and generic options that could be especially useful if finetuned to various **country contexts** (KM21), for example by conducting national assessments.

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Appendix: Participation

The dialogues for **South Asia and Western Asia** were attended by representatives of the Governments of Afghanistan, Bangladesh, Bhutan, Jordan, India, Iran, Iraq, Lebanon, the Maldives, Pakistan, Saudi Arabia, Sri Lanka, and the Syrian Arab Republic. Other participants represented the Secretariat of the Convention on Biological Diversity, the Asia-Pacific Network for Global Change Research Institute for Global Environmental Strategies, the Institute for Global Environmental Strategies, the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services, the United Nations Educational, Scientific and Cultural Organization

The dialogues for **Oceania** were attended by representatives of the Governments of Australia, Cook Islands, Fiji, Kiribati, Marshall Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Vanuatu, and New Zealand. Other participants represented the Secretariat of the Convention on Biological Diversity, the Asia-Pacific Network for Global Change Research Institute for Global Environmental Strategies, the Institute for Global Environmental Strategies, and the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services.

The dialogues for **South-East Asia and North-East Asia** were attended by representatives of the Governments of Cambodia, Indonesia, Japan, Malaysia, Mongolia, Myanmar, The Philippines, Timor-Leste, Republic of Korea, Thailand (hosts), and Viet Nam. Other participants represented the Secretariat of the Convention on Biological Diversity, National Taiwan University, the Predicting and Assessing Natural Capital and Ecosystem Services initiative, Society for Wildlife and Nature International, the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services, and United Nations Environment Programme World Conservation Monitoring Center.

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