THE STATE OF BIODIVERSITY IN ASIA AND THE PACIFIC

A MID-TERM REVIEW OF PROGRESS TOWARDS THE AICHI BIODIVERSITY TARGETS

UNEP

Convention on Biological Diversity

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Preparation

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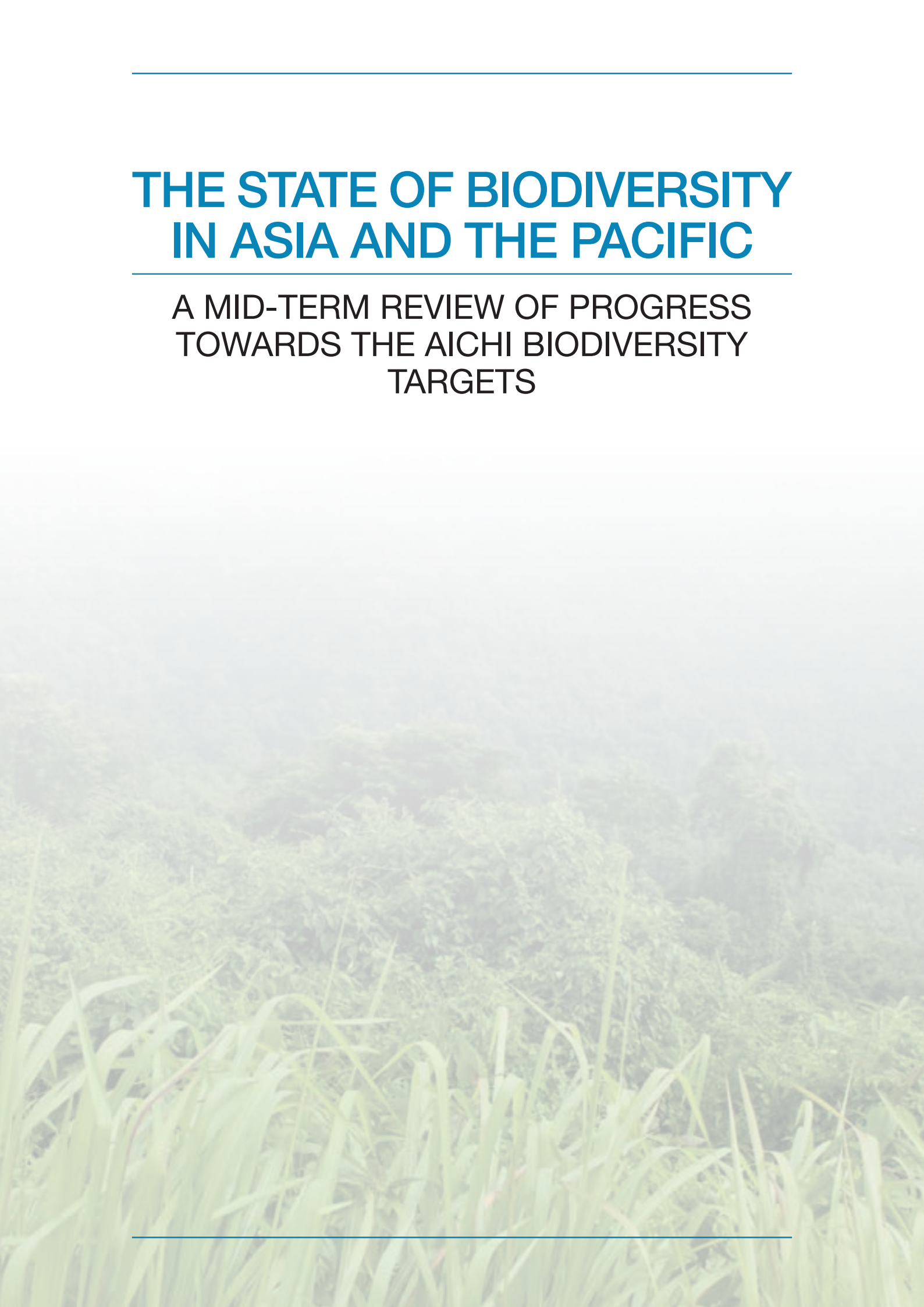

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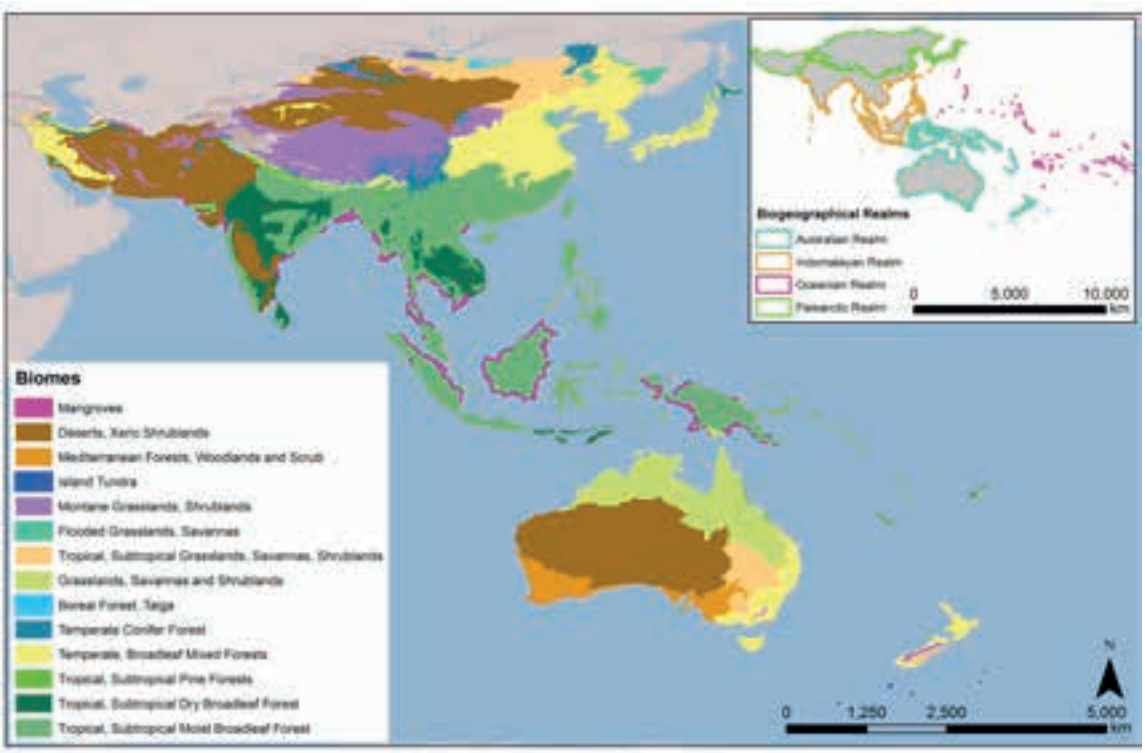
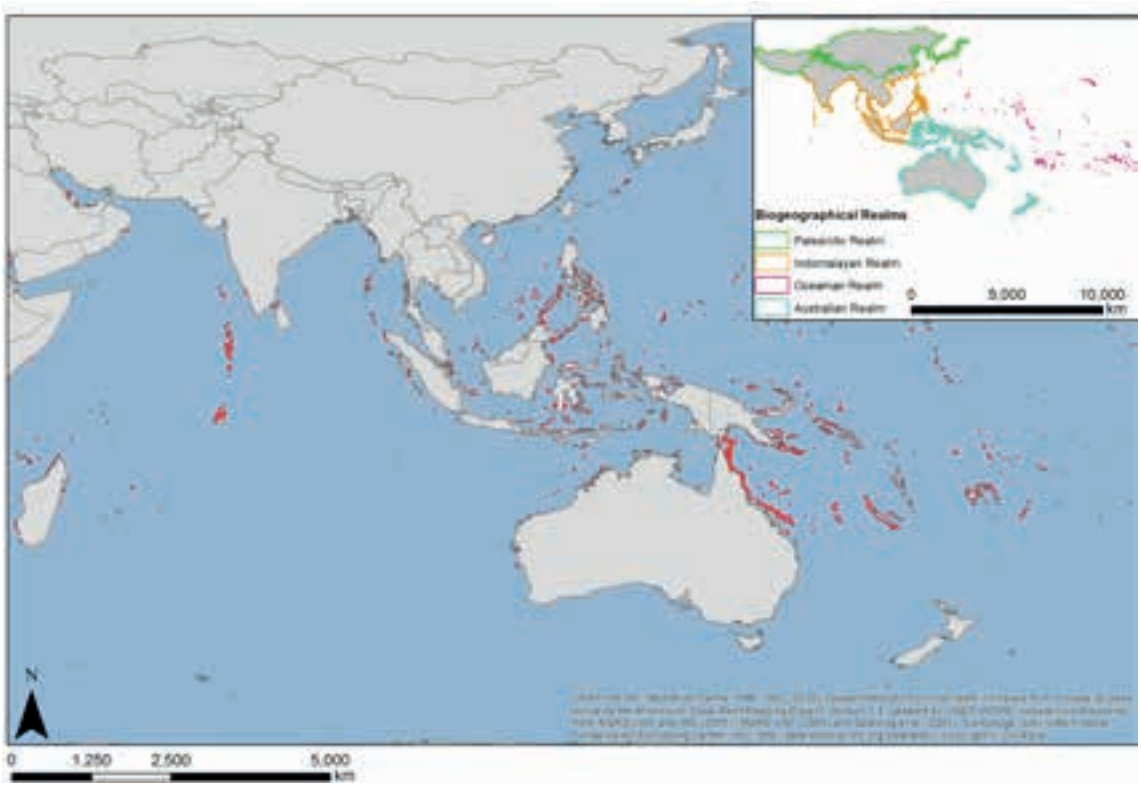
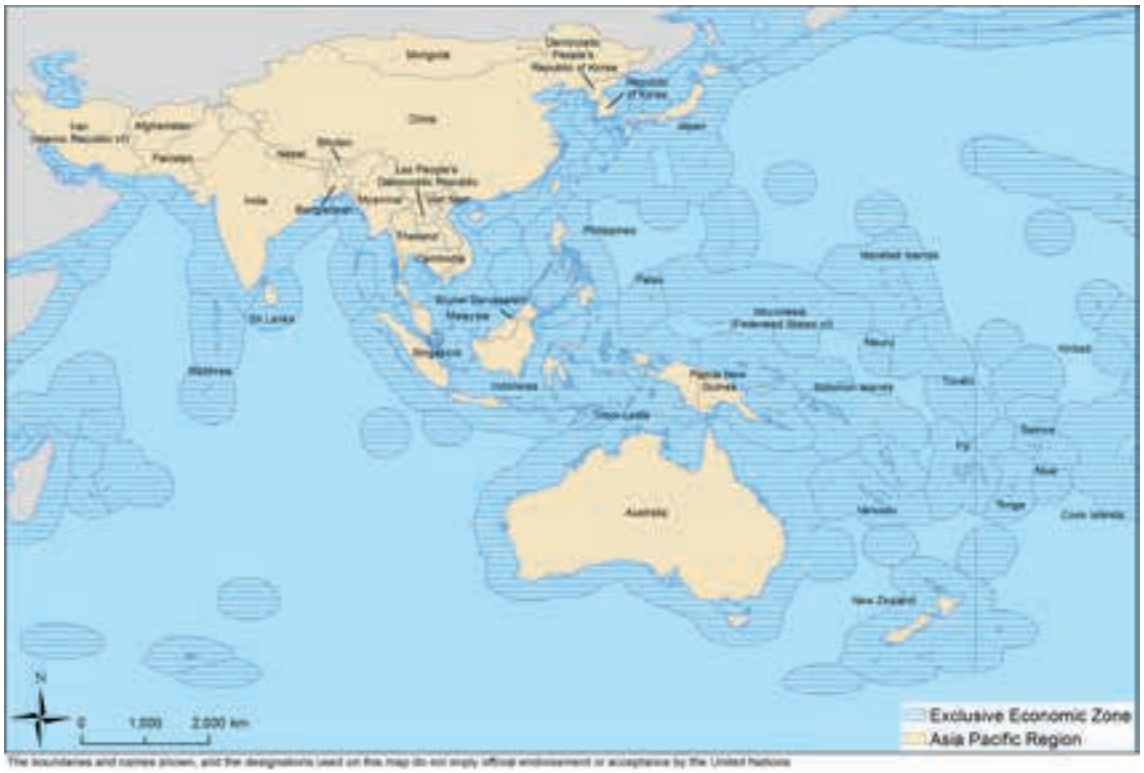


Distribution of main biomes and biogeographical realms (inset) in the Asia and the Pacific region (map produced by UNEP-WCMC using data from Olson et al. 2001).



Distribution of coral reefs (2010) and biogeographical realms (inset) in the Asia and the Pacific region. (source: coral reefs data from UNEP World Conservation Monitoring Centre et al. 2010; biogeographical realms data from Olson et al. 2001).



Map of countries and their Exclusive Economic Zone (EEZ) in the Asia and the Pacific region, based on the UNEP Live regional classification (UNEP 2016).

FOREWORD

The Asia Pacific region is exceptionally rich in biodiversity. The tropical forests of South East Asia, the reefs of the 'coral triangle', the temperate forests and the large river basins found in the region are among the most unique on Earth. However, biodiversity in the Asia Pacific region is in fast decline. For example, the region recorded the world's highest number of threatened species in 2014 and extensive coastal development and unsustainable exploitation of marine resources have resulted in the disappearance of over 40 percent of coral reefs and mangroves, leading to declines in fish stocks.

In order to address global biodiversity loss, countries, including those from the Asia Pacific region, adopted the *Strategic Plan for Biodiversity 2011-2020*. This global ten-year framework comprises of a shared vision, a mission, strategic goals and twenty ambitious yet achievable targets, collectively known as the Aichi Biodiversity Targets. The *Strategic Plan* serves as a flexible framework for the establishment of national and regional targets and promotes the coherent and effective implementation of the three objectives of the Convention on Biological Diversity.

An assessment of the implementation of the Strategic Plan for Biodiversity 2011-2020, at the global scale, was published by the Convention on Biological Diversity in the fourth edition of the *Global Biodiversity Outlook* (GBO-4) in 2014. This second edition of the *State of Biodiversity in Asia and the Pacific* complements GBO-4 by analysing and assessing the status and trends of biodiversity in this region against the twenty Aichi Biodiversity Targets. It is also a contribution towards the suite of assessments initiated by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) and to the sixth edition of the *Global Environmental Outlook* (GEO-6) being prepared by UNEP.

The rapid economic growth in the Asia Pacific region, accompanied by increased resource use by a growing urban and middle-class population has generated significant pressures on the region's biodiversity. Meeting the needs of the region's population while also ensuring the protection of biodiversity is a challenge, one that will require significant effort to address. There are already many examples of innovative approaches to addressing biodiversity loss in the region including initiatives to integrate natural capital values into government planning processes and private sector operations. Such initiatives need to be further built upon and expanded. The United Nations Environment Programme (UNEP) and the Secretariat of the Convention on Biological Diversity (CBD) stand ready to continue to support ongoing and new regional efforts in this regard.

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Executive Secretary, Convention on Biological Diversity

1. EXECUTIVE SUMMARY

Global Biodiversity Outlook-4 (GBO-4), the mid-term review of the *Strategic Plan for Biodiversity 2011-2020*, provided a global assessment of progress towards the attainment of the Plan's global biodiversity goals and associated Aichi Biodiversity Targets, but contained limited regional information. This report builds on and complements the global GBO-4 assessment. This is the second edition of *The State of Biodiversity in Asia and the Pacific* report and serves as a near mid-term review of progress towards the Aichi Biodiversity Targets for the Asia Pacific region.

This report draws on a set of regional indicators, information from fifth national reports to the CBD, other government reports, case studies and published literature, to provide a target by target review of progress towards the twenty Aichi Biodiversity Targets. As much as possible, global indicators for Aichi Biodiversity Targets have been broken down to regional level and some additional analyses of existing global information have been undertaken. However, limitations in data have meant that some datasets which do not extend past 2011 have been included to illustrate that relevant information exists, but that further efforts to update this information are needed.

Tracking regional progress can help identify where regional effort is most needed to enhance and accelerate progress towards targets. Responding to opportunities and challenges requires collaborative effort, and this report has been produced to help inform regional dialogue across national governments and many stakeholders throughout Asia and the Pacific, as well as to promote co-operation and actions through legal and policy frameworks at the regional scale.

The key messages about the state of biodiversity in the region, and the pressures upon it, which have emerged from this assessment are:

- The exceptional biodiversity in Asia and the Pacific continues to decline.
- Combinations of human-induced factors are a key driver of biodiversity loss.
- Asia and the Pacific continue to experience deforestation and forest degradation.
- Rapid growth in demand for wildlife products is fuelling unsustainable trade, with impacts inside and outside of the region.
- Invasive alien species create particular pressures on the oceanic islands.
- Marine ecosystems are vulnerable to growth in commercial and artisanal fisheries.
- The negative impacts of climate change on species and ecosystems are exacerbating the effects of other pressures on Asia and the Pacific's biodiversity.

Nonetheless the report identifies a number of important responses that have taken place since 2011:

- Protected area networks have been increasing steadily since 1990, with some countries in the region at the forefront of the designation of marine reserves.
- Interest is growing in trans-boundary collaboration for protecting areas of high biodiversity conservation value.
- Countries are increasingly mobilizing resources for Aichi Biodiversity Targets using schemes that better recognize the values of biodiversity and ecosystem services.
- There is a growing use of voluntary certification schemes for fisheries and forests.
- Asia and the Pacific countries are making steady progress in formulating policies in support of the *Strategic Plan for Biodiversity 2011-2020* and its Aichi Biodiversity Targets.

Overall, progress toward achieving Aichi Biodiversity Targets in the countries of the region matches global trends, including on reporting "no information". A dashboard of progress towards each of the targets has been developed, based on the analysis of progress using regionally disaggregated datasets and the fifth national reports to the CBD.

Many targets are assessed as progressing, especially Target 1 (Awareness of biodiversity increased) Target 2 (Biodiversity values integrated) Target 11 (Protected areas increased and improved) Target 17 (National Biodiversity Strategies and Action Plans (NBSAPs) adopted as policy instrument) and Target 19 (Knowledge shared, improved and applied), albeit at an insufficient rate to meet the target. Some countries report that they are moving away from achieving some targets, especially Target 5 (Habitat loss halved or reduced), Target 8 (Pollution reduced) and Target 10 (Pressures on vulnerable ecosystems reduced). Three countries are on track to exceed targets such as Target 17 (NBSAPs adopted as policy instrument) (Figure 2a). There has been less progress towards Target 16 (Nagoya Protocol in force and operational), which shows the most marked difference of progress towards any target compared with the global figure.

Looking to the future, it is clear that attaining most of the Aichi Biodiversity Targets will require implementation of a package of actions typically including legal and policy frameworks that are coherent across government ministries and across sectors, socio-economic incentives, monitoring, enforcement, and public and stakeholder engagement.

Proposed actions in the short and longer term include:

- Mainstream biodiversity across government sectors and ensure policy coherence.
- Pursue a synergistic approach to implementing the biodiversity-focused Conventions.
- Create strong national frameworks to embed biodiversity and ecosystem services into the poverty eradication and sustainable development agendas.
- Use international mechanisms to support the sustainable use of ecosystems.
- Implement conservation actions on a greater scale to avoid further biodiversity loss.
- Strengthen engagement of local communities in governance systems.
- Increase awareness of the contribution of biodiversity to people's lives.
- Create positive incentives for sustainable land management.
- Address the threats from invasive alien species.
- Address the information deficit.
- Build capacity of small nations in the region.
- Mobilize resources from private and global funds.
- Ensure effective implementation of laws and regulations.

1. RÉSUMÉ

La quatrième édition des Perspectives mondiales de la diversité biologique (GBO-4), évaluation à mi-parcours du *Plan stratégique pour la biodiversité 2011-2020*, fournit une évaluation mondiale des progrès accomplis vers la réalisation des objectifs du *Plan stratégique pour la biodiversité* et des Objectifs d'Aichi associés, mais contient des informations régionales limitées. Ce rapport s'appuie sur et complète le rapport principal GBO-4. C'est la deuxième édition du rapport sur L'état de la biodiversité en Asie et dans le Pacifique et sert quasiment d'évaluation de mi-parcours des progrès accomplis vers le *Plan stratégique pour la biodiversité 2011-2020* pour la région Asie-Pacifique.

Le présent rapport a été élaboré à partir d'un ensemble d'indicateurs régionaux, d'informations émanant des cinquièmes rapports nationaux présentés par les Parties à la Convention sur la diversité biologique (CBD) et d'autres rapports gouvernementaux, d'études de cas et autres publications, afin de fournir un examen, objectif par objectif, des progrès accomplis vers la réalisation des vingt Objectifs d'Aichi pour la biodiversité. . Dans la mesure du possible, les indicateurs mondiaux pour les Objectifs d'Aichi ont été désagrégés à l'échelle régionale et des analyses supplémentaires de l'information mondiale existante ont été entreprises.

Néanmoins, en raison de limites inhérentes à certaines données, certains fichiers de données qui ne se prolongeaient pas au-delà de 2011 ont été inclus afin de mettre en évidence le fait que l'information pertinente existe, mais que des efforts supplémentaires sont nécessaires pour mettre à jour ces informations.

Le suivi des progrès à l'échelle régionale peut aider à identifier là où les efforts régionaux sont les plus nécessaires afin d'améliorer et d'accélérer les progrès vers la réalisation des objectifs. La réponse face aux opportunités et aux défis exige un effort de collaboration, et ce rapport a été produit pour aider à informer le dialogue régional entre les gouvernements nationaux et de nombreuses parties prenantes dans toute la région Asie-Pacifique, et pour promouvoir la coopération et les initiatives à travers des cadres juridiques et politiques à l'échelle régionale.

Les messages clés sur l'état de la biodiversité dans la région Asie-Pacifique, et les pressions qu'elle subit, qui ont émergé de cette évaluation sont les suivants:

- L'état de la biodiversité exceptionnelle d'Asie et du Pacifique empire.
- Les combinaisons de facteurs anthropiques sont un facteur clé de la perte de la biodiversité.
- La région Asie-Pacifique continue de subir la déforestation et la dégradation des forêts.
- La croissance rapide de la demande pour les produits de la faune alimente le commerce non durable.
- Les espèces exotiques envahissantes créent des pressions particulières sur les îles océaniques.
- Les écosystèmes marins sont vulnérables à la croissance des pêcheries commerciales et artisanales.
- Les impacts négatifs du changement climatique sur les espèces et les écosystèmes aggravent les effets d'autres pressions sur la biodiversité de l'Asie et du Pacifique.

Néanmoins, le rapport identifie un certain nombre d'interventions importantes qui ont eu lieu depuis 2011:

- Les réseaux d'aires protégées ont augmenté de façon constante depuis 1990, avec certains pays dans la région à la pointe en termes de désignation de réserves marines.
- Il y a un intérêt croissant en matière de collaboration transfrontalière sur la protection et conservation des zones à haute valeur de biodiversité.
- Les pays mobilisent de plus en plus de ressources pour les objectifs d'Aichi pour la biodiversité en utilisant des régimes qui prennent mieux en compte les valeurs de la biodiversité et des services écosystémiques.
- Il y a une utilisation croissante des systèmes de certification volontaires pour les pêches et les forêts.
- Les pays d'Asie-Pacifique font des progrès constants dans la formulation des politiques à l'appui du Plan stratégique pour la biodiversité 2011-2020 et ses objectifs d'Aichi.

Globalement, les progrès vers la réalisation des Objectifs d'Aichi dans les pays de la région Asie-Pacifique correspondent étroitement aux tendances mondiales, notamment les zones d'ombre. Un tableau de bord des progrès accomplis vers chacun des objectifs a été développé, sur la base de l'analyse des progrès réalisée à partir des ensembles de données désagrégés au niveau régional et des cinquièmes rapports nationaux présentés à la CDB.

Plusieurs objectifs sont évalués comme étant en progression, en particulier l'Objectif 1 (Augmentation de la sensibilisation à la biodiversité), l'Objectif 2 (valeurs de la biodiversité intégrées), l'Objectif 11 (la couverture des aires protégées a augmenté), l'Objectif 17 (Stratégies et plans d'action nationaux pour la biodiversité (SPANB) adoptés comme instrument de politique) et l'Objectif 19 (amélioration et partage des connaissances) mais à un rythme insuffisant pour atteindre l'objectif. Certains pays indiquent qu'ils s'éloignent des Objectifs, en particulier l'Objectif 5 (perte de l'habitat réduite de moitié ou diminuée), l'Objectif 8 (réduction de la pollution) et l'Objectif 10 (pressions sur les écosystèmes vulnérables réduites). Certains pays sont en bonne voie pour dépasser les objectifs, tels que l'Objectif 17 (SPANB adopté comme instrument de politique). Il y a eu moins de progrès vers l'Objectif 16 (Protocole de Nagoya en vigueur et opérationnel), qui montre la différence la plus marquée des progrès vers une cible quelconque par rapport au chiffre global.

Quant à l'avenir, il est clair que la réalisation de la plupart des Objectifs d'Aichi exigera la mise en œuvre d'un ensemble de mesures comprenant notamment des cadres juridiques et politiques qui soient cohérents entre les ministères et entre les secteurs, les incitations socio-économiques, la surveillance, l'application des mesures et l'engagement du public et des parties prenantes.

Les mesures proposées à court et à long terme comprennent:

- L'intégration ('mainstreaming') de la biodiversité dans tous les secteurs du gouvernement et assurer la cohérence des politiques.
- L'adoption d'une approche synergique pour mettre en œuvre les conventions relatives à la biodiversité.
- La création de cadres nationaux solides pour intégrer la biodiversité et les services écosystémiques dans l'éradication de la pauvreté et des programmes de développement durable.
- L'utilisation des mécanismes internationaux pour soutenir l'utilisation durable des écosystèmes.
- La mise en œuvre des actions de conservation sur une plus grande échelle pour éviter une perte de la biodiversité plus importante.
- Le renforcement de l'engagement des communautés locales dans les systèmes de gouvernance.
- Accroître la sensibilisation quant à la contribution de la biodiversité à la vie des gens.
- La création d'incitations positives pour la gestion durable des terres.
- Réagir aux menaces posées par les espèces exotiques envahissantes.
- Remédier au manque d'information.
- Renforcer les capacités des petites nations dans la région.
- La mobilisation de ressources provenant de fonds privés et mondiaux.
- Veiller à l'application effective des lois et règlements.

1. RESUMEN EJECUTIVO

La Perspectiva Mundial sobre la Diversidad Biológica 4 (GBO-4, por sus siglas en Inglés), una revisión a medio plazo sobre los avances en la implementación del Plan Estratégico para la Diversidad Biológica 2011-2020, proporcionó un análisis global sobre el progreso hacia los objetivos sobre biodiversidad del Plan y las Metas de Aichi asociadas, pero su contenido regional es limitado. Este informe se basa en, y complementa, el análisis de GBO-4 global. Es la segunda edición del informe sobre El Estado de la Biodiversidad en Asia y el Pacífico, y sirve como una revisión a casi medio plazo del progreso hacia el Plan Estratégico para la Diversidad Biológica 2011-2020 para la región de Asia y el Pacífico.

Este informe se basa en una serie de indicadores regionales, información sobre los Quintos Informes Nacionales al Convenio sobre la Diversidad Biológica (CDB), otros informes gubernamentales, casos de estudio y literatura publicada, para aportar una revisión meta a meta del progreso hacia las veinte Metas de Biodiversidad de Aichi. En la medida de lo posible, indicadores globales para las Metas de Biodiversidad Aichi han sido desglosados al nivel regional y algunos análisis adicionales de información global existente han sido llevados a cabo. A pesar de ello, limitaciones en los datos disponibles ha llevado a incluir algunas bases de datos que no sobrepasan el año 2011, para ilustrar que la información relevante existe, pero que se requieren esfuerzos adicionales para actualizar la información necesaria.

El seguimiento del progreso a nivel regional puede ayudar a identificar donde es más necesario un esfuerzo regional para realzar y acelerar el progreso hacia el logro de los objetivos. Responder a las oportunidades y retos requiere un esfuerzo colaborativo; este informe ha sido producido para ayudar al dialogo regional a través de gobiernos nacionales y partes interesadas en Asia y el Pacífico, y para promocionar la cooperación y acción, especialmente a través de esquemas legales y políticos a nivel regional.

Los mensajes clave sobre el estado de la biodiversidad en Asia y el Pacífico, y las presiones sobre ella, que han surgido de este análisis son:

- La biodiversidad excepcional que existe en Asia y el Pacífico continúa en declive.
- Una combinación de factores antropogénicos son una causa clave de la pérdida de biodiversidad.
- La región de Asia y el Pacífico continúa experimentando deforestación y degradación forestal.
- La creciente demanda para productos del medio silvestre está alimentando el comercio insostenible.
- Las especies invasoras crean presiones particulares sobre las islas oceánicas.
- Los ecosistemas marinos son vulnerables al crecimiento en caladeros de pesca comerciales y artesanales.
- Los efectos negativos del cambio climático sobre las especies y los ecosistemas están aumentando los efectos de otras presiones sobre la biodiversidad de Asia y el Pacífico.

A pesar de ello, el informe identifica un número de respuestas importantes que han sido llevadas a cabo desde 2011.

- Las redes de áreas protegidas han aumentado de manera constante desde 1990, con muchos países en la región liderando la designación de reservas marinas.
- El interés en colaboraciones trans-fronterizas obre áreas protegidas de alto valor para la conservación de la biodiversidad está creciendo.
- Los países están aumentando su movilización de recursos para las Metas de Biodiversidad de Aichi utilizando esquemas que organizar mejor los valores de biodiversidad y servicios ecosistémicos.
- Hay un crecimiento en el uso de esquemas de certificación voluntarios para caladeros de peca y bosques.
- Los países de Asia y el Pacífico están progresando de manera constante en la formulación de políticas que apoyan el Plan Estratégico para la Diversidad Biológica 2011-2020 y sus Metas de Biodiversidad de Aichi.

En general, el progreso hacia el logro de las veinte Metas de Biodiversidad de Aichi en los países de Asia y el Pacífico se asemeja al panorama global, incluso en la falta de información. Un esquema de progreso hacia cada una de las metas ha sido desarrollado para el informe, basado en el análisis de progreso utilizando bases de datos desglosadas a nivel regional y los Quintos Informes Nacionales al Convenio sobre la Diversidad Biológica (CDB).

Muchas metas son categorizadas como 'progresando', especialmente la Meta 1 (las personas tendrán conciencia del valor de la diversidad biológica), la Meta 11 (las áreas protegidas han aumentado y mejorado), la Meta 17 (las EPANDB son adoptadas como instrumento político) y la Meta 19 (los conocimientos son compartidos, mejorados y aplicados). Algunos países informan que se están alejando de las metas, especialmente de las Metas 5 (pérdida de hábitat reducida) 8 (contaminación reducida) y 10 (presiones sobre ecosistemas vulnerables reducidas). Algunos países están en camino de exceder Metas como la Meta 17 (EPANDB adoptadas como instrumento político). Ha habido un progreso menor hacia la Meta 16 (el Protocolo de Nagoya vigente y operativo) en la región de Asia y el Pacífico, lo cual muestra la mayor diferencia en el progreso hacia cualquiera de las Metas comparado con la cifra global.

Mirando hacia el futuro, está claro que la consecución de la mayoría de los objetivos requerirá la implementación de un paquete de acciones que típicamente incluyen esquemas legales y políticos que sean coherentes en los diferentes ministerios de gobierno y sectores, incentivos socio-económicos, monitoreo, ejecución, y la participación del público y de las partes interesadas.

Algunas de las acciones propuestas a corto y largo plazo incluyen:

- Incorporar la biodiversidad en la agenda de sectores de gobierno y asegurar políticas coherentes.
- Llevar a cabo un enfoque sinérgico para la implementación de Convenciones enfocadas a la biodiversidad.
- Crear esquemas nacionales fuertes que incluyan la biodiversidad y los servicios cosméticos en los planes de erradicación de la pobreza y desarrollo sostenible.
- Utilizar mecanismos internacionales para apoyar el uso sostenible de ecosistemas.
- Implementar acciones de conservación a mayor escala para evitar pérdidas adicionales de biodiversidad.
- Reforzar la participación de comunidades locales en los sistemas de gobierno.
- Aumentar la concienciación sobre las contribuciones de la biodiversidad a la vida de las personas.
- Crear incentivos positivos para la gestión sostenible del territorio.
- Hacer frente a las amenazas de las especies exóticas invasoras.
- Hacer frente a la falta de información.
- Desarrollar la capacidad de pequeñas naciones en la región.
- Movilizar recursos de fondos privados y globales.
- Asegurar la implementación efectiva de leyes y regulaciones.

1. РЕЗЮМЕ

В четвертом издании «Глобальной перспективы в области биоразнообразия», промежуточном обзоре *Стратегического плана в области сохранения и устойчивого использования биоразнообразия на 2011-2020 годы*, приводилась глобальная оценка прогресса в достижении предусмотренных Планом глобальных целей в области биоразнообразия и выполнении соответствующих целевых задач по сохранению и устойчивому использованию биоразнообразия, принятых в Айти, однако региональная информация содержалась там в ограниченном объеме. Настоящий доклад основывается на глобальной оценке, приведенной в ГПОБ-4, и дополняет ее. Это второе издание доклада «*Состояние биоразнообразия в Азиатско-тихоокеанском регионе*», выступающее в качестве промежуточного обзора прогресса в осуществлении *Стратегического плана в области сохранения и устойчивого использования биоразнообразия на 2011-2020 годы* для Азиатско-тихоокеанского региона.

В настоящем докладе используются набор региональных индикаторов, информация из пятых национальных докладов в рамках Конвенции о биологическом разнообразии (КБР), других правительственных докладов, тематических исследований и опубликованной литературы с целью проведения анализа хода достижения каждой из двадцати Айтинских целевых задач в области биоразнообразия. По мере возможности глобальные индикаторы по Айтинским целевым задачам в области биоразнообразия были представлены в разбивке по регионам, при этом был проведен определенный дополнительный анализ существующей глобальной информации. Вместе с тем, ограниченный характер данных означал, что были включены некоторые наборы данных, не охватывающие период после 2011 года, чтобы показать, что соответствующая информация существует, но необходимы дополнительные усилия для обновления такой информации.

Отслеживание прогресса на региональном уровне может способствовать выявлению тех областей, в которых наиболее востребованы региональные меры по активизации и ускорению хода выполнения целевых задач. Реагирование на возможности и проблемы требует совместных усилий, и настоящий доклад был подготовлен в целях обеспечения информационной поддержки регионального диалога между национальными правительствами и множеством различных заинтересованных сторон во всем Азиатско-тихоокеанском регионе, а также для содействия сотрудничеству и проведению практических мероприятий посредством установления правовых и политических рамок на региональном уровне.

Ниже приводятся полученные в результате этой оценки основные выводы о состоянии биоразнообразия в Азиатско-тихоокеанском регионе и воздействующих на него нагрузках:

- Исключительное биоразнообразие в Азиатско-тихоокеанском регионе продолжает уменьшаться.
- Основной движущей силой утраты биоразнообразия являются сочетания антропогенных факторов.
- В Азиатско-тихоокеанском регионе по-прежнему наблюдаются обезлесение и деградация лесов.
- Быстрый рост спроса на продукты живой природы подстегивает недопустимую торговлю.
- Инвазивные чужеродные виды создают особенно заметные нагрузки на океанические острова.
- Морские экосистемы уязвимы перед ростом коммерческого и кустарного рыболовства.
- Негативное воздействие изменения климата на виды и экосистемы усугубляет последствия других нагрузок для биоразнообразия Азиатско-тихоокеанского региона.

Несмотря на это, в докладе определен ряд важных ответных мер, которые принимались с 2011 года:

- Начиная с 1990 года, неуклонно росли сети охраняемых районов, при этом некоторые страны в регионе были в первых рядах в плане объявления заповедниками участков моря.
- Растет интерес к трансграничному сотрудничеству в области охраны районов, представляющих высокую ценность в плане сохранения биоразнообразия.
- Страны все чаще мобилизуют ресурсы для выполнения Айтинских целевых задач в области биоразнообразия, используя схемы, которые в большей степени учитывают ценность биоразнообразия и экосистемных услуг.

- Растет использование систем добровольной сертификации рыболовных хозяйств и лесов.
- Страны Азиатско-тихоокеанского региона неуклонно движутся по пути формирования политики в поддержку *Стратегического плана в области сохранения и устойчивого использования биоразнообразия на 2011-2020 годы* и его целевых задач в области биоразнообразия, принятых в Айти.

В целом, прогресс в выполнении Айтинских целевых задач в области биоразнообразия в странах Азиатско-тихоокеанского региона в большой степени совпадает с общемировыми тенденциями, в том числе в отношении отчетности об отсутствии информации. Была разработана информационная панель, показывающая ход выполнения каждой из целевых задач и основанная на анализе достигнутого прогресса с использованием наборов данных в разбивке по регионам и пятых национальных докладов в рамках КБР.

Согласно оценкам, в выполнении многих целевых задач отмечается прогресс, особенно в выполнении Целевой задачи 1 (Повышение осведомленности о биоразнообразии), Целевой задачи 2 (Включение ценностей биоразнообразия в основную деятельность), Целевой задачи 11 (Расширение площади и улучшение состояния охраняемых районов), Целевой задачи 17 (Принятие НСПДСБ в качестве инструмента политики) и Целевой задачи 19 (Обмен знаниями, их углубление и применение), хотя его темпы недостаточны для выполнения данной целевой задачи. Некоторые страны сообщают об отходе от выполнения целевых задач, особенно Целевой задачи 5 (Уменьшение или сокращение наполовину масштабов утраты мест обитания), Целевой задачи 8 (Сокращение загрязнения) и Целевой задачи 10 (Сокращение нагрузок на уязвимые экосистемы). Несколько стран держат курс на перевыполнение Целевых задач, в частности Целевой задачи 17 (Принятие НСПДСБ в качестве инструмента политики). Менее значительным был прогресс в выполнении Целевой задачи 16 (Вступление в силу и введение в действие Нагойского протокола), где разница в выполнении любой целевой задачи по сравнению с общемировым показателем проявляется наиболее заметно.

Если заглянуть в будущее, становится ясно, что для выполнения большинства Айтинских целевых задач в области биоразнообразия потребуется реализация комплекса мероприятий, обычно включающего правовые и политические рамки, согласованные с правительственными министерствами и между секторами, социально-экономические стимулы, мониторинг, контроль за исполнением, а также привлечение общественности и заинтересованных сторон.

Предлагаемые мероприятия в кратко- и долгосрочной перспективе включают:

- Включение вопросов биоразнообразия в основную деятельность различных секторов правительства и обеспечение согласованности политики.
- Применение синергетического подхода к реализации Конвенций, посвященных вопросам биоразнообразия.
- Создание прочных национальных рамок для включения вопросов биоразнообразия и экосистемных услуг в повестки дня в области искоренения нищеты и устойчивого развития.
- Применение международных механизмов для обеспечения рационального использования экосистем.
- Расширение масштабов проводимых природоохранных мероприятий с целью предотвращения дальнейшей утраты биоразнообразия.
- Расширение вовлечения местных общин в системы управления.
- Повышение осведомленности о положительном влиянии биоразнообразия на жизнь людей.
- Создание положительных стимулов для устойчивого землепользования.
- Устранение угроз со стороны инвазивных чужеродных видов.
- Устранение дефицита информации.
- Укрепление потенциала малых государств в регионе.
- Мобилизация ресурсов частных и глобальных фондов.
- Обеспечение эффективной реализации законов и нормативных актов.

ومع ذلك فإن هذا التقرير يشير إلى عدد من حالات الاستجابة الهامة التي حدثت منذ عام 2011:

- إن شبكات المناطق المحمية ما زالت تزداد بشكل ثابت منذ عام 1990، مع وجود بعض الدول في المنطقة والتي تُعتبر في طليعة أولئك الذين قاموا بإنشاء المحميات البحرية.
- هناك رغبة متنامية للتعاون عبر الحدود لحماية المناطق ذات القيمة العالية لصون التنوع البيولوجي.
- تقوم الدول بتسخير الموارد بشكل متزايد من أجل أهداف أيشي للتنوع البيولوجي مستخدمين خطط تميز بشكل أفضل قيم التنوع البيولوجي وخدمات الأنظمة البيئية.
- هناك استخدام متزايد لنظم منح الشهادات الطوعية من أجل الثروة السمكية والغابات.
- تُحرز كل من دول آسيا والمحيط الهادئ تقدم ثابت في وضع السياسات لدعم الخطة الاستراتيجية للتنوع البيولوجي لفترة 2011-2020 وأهداف أيشي للتنوع البيولوجي الخاصة بها.

يتطابق بشكل عام تقدم سير العمل نحو تحقيق أهداف أيشي للتنوع البيولوجي في منطقتي آسيا والمحيط الهادئ مع الاتجاهات العالمية بشكل مباشر متضمناً ذلك تقديم تقارير بعدم وجود معلومات. وقد تم تطوير منظومة القياس لتقدم سير العمل إزاء كل هدف من الأهداف بالاعتماد على تحليل تقدم سير العمل مستخدمين مجموعة بيانات مفصّلة والتقارير الوطنية الخامسة للاتفاقية المتعلقة بالتنوع الإحيائي (CBD).

ويتم تقييم العديد من الأهداف أثناء تقدم سير عملها، وبالأخص الهدف 1 (زيادة التوعية بالتنوع البيولوجي)، والهدف 2 (تكامل قيم التنوع البيولوجي)، والهدف 11 (تحسين وزيادة المناطق المحميّة)، والهدف 17 (تبني استراتيجيات وخطط العمل الوطنية للتنوع البيويوجي (NBSAPs) كأدوات سياسية)، والهدف 19 (تطبيق وتحسين مبدأ تبادل المعرفة) وإن كان ذلك غير كافٍ لتحقيق الهدف. وتقوم بعض الدول بإصدار تقارير تفيد بأنها تبتعد عن الأهداف ولاسيما الهدف 5 (فقدان الموائل الطبيعية نصفها أو جزء منها)، والهدف 8 (خفض التلوث)، والهدف 10 (خفض الضغوط على الأنظمة البيئية المعرضة للخطر). وما زالت بعض البلدان على الطريق لتتخطى الأهداف مثل الهدف 17 (تبني استراتيجيات وخطط العمل الوطنية للتنوع البيويوجي (NBSAPs) كأدوات سياسية). وقد كان هناك تقدم سير عمل أقل إزاء الهدف 16 (تفعيل وتطبيق بروتوكول ناغويا)، الأمر الذي يُظهِر الاختلاف الأكثر وضوحاً لتقدم سير العمل نحو أي هدف مقارنةً مع المعيارس العالمي.

يبدو جلياً عند استشراف المستقبل أن تحقيقَ أهداف أيشي للتنوع البيولوجي يتطلبُ تنفيذَ حُزمةٍ من الاجراءات التي تتضمن عادةً الأُطر الرسمية والسياسية المتعارف عليها عبر الوزارات الحكومية وعبر القطاعات المختلفة، وتتضمن حوافز الاقتصاد المجتمعي والمراقبة وتنفيذ القوانين والمشاركة العامة ومشاركة الأطراف ذات المصلحة.

وتتضمن الإجراءات المُقترحة على المدى القصير والمدى البعيد ما يلي:

- تضمين التنوع البيولوجي عبر القطاعات الحكومية والتأكيد على تماسك السياسة.
- اتباع النهج التعاوني بغية تنفيذ الاتفاقيات التي تركز على التنوع البيولوجي.
- إنشاء أطر قومية قوية لدمج خدمات التنوع البيولوجي والأنظمة البيئية ضمن مساعي القضاء على الفقر وضمن جداول أعمال التنمية المستدامة.
- استخدام آليات عالمية لدعم الاستخدام المستدام للأنظمة البيئية.
- تنفيذ إجراءات الصون على نطاق أوسع لتجنب المزيد من فقدان التنوع البيولوجي.
- تعزيز مشاركة المجتمعات المحلية في أنظمة الحكم.
- زيادة مستوى الوعي بأهمية دور التنوع البيولوجي في حياة الناس.
- خلق حوافز إيجابية للإدارة المستدامة للأراضي.
- التصدي للتهديدات الناجمة عن الأنواع الدخيلة الضارة.
- معالجة نقص المعلومات.
- بناء قدرات الدول الصغيرة في المنطقة.
- حشد الموارد وتأمينها من صناديق التمويل الخاصة والعالمية.
- التأكد من التنفيذ الفعّال للوائح والقوانين.

1. ملخص تنفيذي

نشرة التوقعات للتنوع البيولوجي العالمي – الإصدار الرابع، عملت المراجعة النصف سنوية للخطة الاستراتيجية للتنوع البيولوجي للفترة1120 – 2020 على تأمين تقييم عالمي لتقدم سير العمل نحو تحقيق أهداف الخطة للتنوع البيولوجي العالمي المرتبطة مع أهداف أيشي للتنوع البيولوجي، ولكنها تضمنت معلومات إقليمية محدودة. ويستند هذا التقرير على التقييم العالمي لنشرة التوقعات للتنوع البيولوجي العالمي –الإصدار الرابع (GBO-4) ويتممه، وهذا التقرير هو النسخة الثانية من تقرير وضع التنوع البيولوجي في آسيا والمحيط الهادئ ويعتبر بمثابة مراجعة نصف سنوية لتقدم سير العمل نحو الخطة الاستراتيجية للتنوع البيولوجي للفترة 2011 – 2020 في منطقة آسيا والمحيط الهادئ.

يعتمد هذا التقرير على مجموعة من المؤشرات الإقليمية وعلى المعلومات الواردة في التقارير الوطنية الخامسة حول الاتفاقية المتعلقة بالتنوع البيولوجي (CBD) والتقارير الحكومية الأخرى والحالات القيد الدراسة والكتابات المنشورة، وذلك بغية تأمين مراجعة لكل هدف على حدى لتقدم سير العمل نحو تحقيق أهداف مؤتمر أيشي العشرين للتنوع البيولوجي. ولقد تم قدر المستطاع تقسيم المؤشرات العالمية لأهداف أيشي للتنوع البيولوجي إلى المستوى الإقليمي، كما تم إجراء بعض التحليلات الإضافية للمعلومات العالمية المتاحة. ومع ذلك فإن قلّة البيانات كانت تعني أن بعض مجموعات البيانات التي تعود إلى ما قبل عام 2011 قد تم تضمينها، مما يعني أن المعلومات المتعلقة كانت موجودة ولكن هناك حاجة لجهود إضافية لتحديث هذه المعلومات.

إن تتبع تقدم سير الأعمال الإقليمية يساعد على تحديد المواضع التي تحتاج أكثر من غيرها إلى جهود إقليمية إضافية لتعزيز وتسريع تحقيقها. إن الاستجابة للفرص والتحديات تتطلب جهوداً جماعيةً، لذا فقد تم إعداد هذا التقرير للمساعدة في تأمين المعلومات للنقاش الإقليمي الدائر بين الحكومات الوطنية وكثيرٍ من الأطراف ذات المصلحة في منطقة آسيا والمحيط الهادئ، وأيضاً لتشجيع التعاون والعمل المشترك عبر الأطر الرسمية والسياسية على المستوى الإقليمي.

إن العبر الرئيسية المستوحاة حول وضع التنوع البيولوجي في منطقة آسيا والمحيط الهادئ والضغوطات التي يتعرض لها والمستخلصة من هذا التقييم هي:

- إن التنوع البيولوجي الاستثنائي في آسيا والمحيط الهادئ في تناقص مستمر.
- إن مجموعة العوامل البشرية تُعتبر المُسبِّب الرئيسي للخسارة القائمة في التنوع البيولوجي.
- تتعرض منطقة آسيا والمحيط الهادئ بشمل مستمر لإزالة الغابات وتدهورها.
- إن زيادة الطلب السريع على منتجات الحياة البرية تؤدي إلى دعم التجارة الغير مستدامة.
- إن الأنواع الدخيلة الضارة تُشكل ضغوطات معينة على الجزر الواقعة في المحيطات.
- يتعرض نمو الأنظمة البيئية البحرية للخطر في مناطق صيد الأسماك التجارية والحرفية.
- إن الآثار السلبية للتغير المناخي على الأنواع وعلى الأنظمة البيئية تؤدي إلى مضاعفة آثار ضغوطات أخرى على التنوع البيولوجي لمنطقتي آسيا والمحيط الهادئ.

1. 执行摘要

第四版《全球生物多样性展望》是对执行《2011-2020年生物多样性战略计划》所取得进展的中期评估，提供了对实现该计划中的全球生物多样性目标和与之相关的“爱知生物多样性目标”所取得进展的全球评估，但包含的区域信息有限。本报告建立在全球第四版《全球生物多样性展望》评估的基础之上，并对其进行了补充。这是第二版《亚太地区生物多样性状况》报告，也是对实现亚太地区的《2011-2020年生物多样性战略计划》目标所取得进展的近中期评估。

本报告借鉴了来自《生物多样性公约》（CBD）第五次国家报告、其他政府报告、案例研究和已发表文献的一套区域指标和信息，逐个审查了实现20个“爱知生物多样性目标”取得的进展。本报告尽可能地把“爱知生物多样性目标”的全球性指标分解到区域层面，并对现有的全球信息进行了一些额外分析。然而，数据的局限性意味着为了说明相关信息的存在，已将2011年以前的某些数据集列入报告，但更新此类信息还需进一步努力。

跟踪区域进展有助于确定为促进并加速目标的实现而最需要区域付出努力的方面。应对机遇和挑战需要协同努力，而编制本报告有助于为亚太地区各国政府和众多利益相关方的区域对话提供依据，特别是通过区域规模的法律和政策框架促进合作和行动。

本次评估得出的有关亚太地区的生物多样性状况及其所面临压力的关键信息是：

- 亚太地区非凡的生物多样性仍在继续下降；
- 人为的综合因素是导致生物多样性丧失的主要因素；
- 亚太地区的毁林和森林退化仍在继续；
- 对野生动物产品需求的快速增长正在助长不可持续的贸易；
- 外来入侵物种给海岛带来了特殊的压力；
- 海洋生态系统很容易受到商业和手工渔业发展造成的伤害；
- 气候变化对物种和生态系统的负面影响正在加剧亚太地区生态多样性面临的其他压力带来的影响。

尽管如此，本报告梳理出了一些自2011年以来已经采取的重要对策：

- 自1990年以来，保护区网络一直在稳步增加，该地区的一些国家走在了设立海洋保护区的前列；
- 对有关具有高生物多样性保护价值的保护区的跨边界合作的兴趣正在增强；
- 各国正在越来越多地使用能更好地认识生物多样性和生态系统服务价值的方案，为实现“爱知生物多样性目标”调动资源；
- 在渔业和林业中，自愿认证计划的使用日益增加；
- 在制定政策支持《2011-2020年生物多样性战略计划》及“爱知生物多样性目标”方面，亚太地区国家正在取得稳步进展。

总体而言，亚太地区国家在实现“爱知生物多样性目标”过程中的进展，包括对无信息的报告方面，十分符合全球趋势。在使用根据区域分类的数据集和《生物多样性公约》第五次国家报告分析进展的基础上，开发了衡量实现每个目标进展情况的“仪表板”。

本次评估认为许多目标正在取得进展，尤其是目标1（生物多样性意识增强）、目标2（生物多样性价值被纳入国家发展）、目标11（保护区增加和改进）、目标17（国家生物多样性战略被作为政策工具）和目标19（共享、改进和应用知识），尽管进展速度还不足以达到目标。一些国家报告说它们正在偏离目标，尤其是目标5（将生境损失减少一半或减少生境损失），目标8（减少污染）和目标10（降低脆弱生态系统的压力）。少数国家有望超过目标，如目标17（国家生物多样性战略被作为政策工具）。实现目标16（《名古屋议定书》的生效和实施）取得的进展较小，这是与全球数据相比，所有目标的进展差别最显著的一个。

展望未来，实现大部分“爱知生物多样性目标”显然将需要实施一揽子行动，通常包括在各政府部门和行业的协调一致的法律和政策框架、社会经济激励、监督、执法，以及公众和利益相关方的参与。

建议采取的短期和长期行动包括：

- 使生物多样性被各个政府部门的多数人接受，并确保政策的连续；
- 寻求实施关注生物多样性的公约的协同方法；
- 建立强大的国家框架，将生物多样性和生态系统服务纳入消除贫困和可持续发展议程当中；
- 使用支持生态系统可持续利用的国际机制；
- 实施更大规模的保护行动，以避免生物多样性的进一步丧失；
- 加强当地社区对治理体系的参与；
- 增强生物多样性对人类生活所做贡献的认识；
- 创建可持续土地管理的积极激励措施；
- 解决外来入侵物种的威胁；
- 解决信息不足问题；
- 帮助该地区的小国家的能力建设；
- 动员来自私人和全球基金的资源；
- 确保法律法规的有效执行。

2. MESSAGES ABOUT THE STATE OF BIODIVERSITY IN ASIA AND THE PACIFIC

This second edition of the *State of Biodiversity in Asia and the Pacific* is a mid-term review of progress by Asia and the Pacific countries towards implementation of the *Strategic Plan for Biodiversity 2011-2020* and the Aichi Biodiversity Targets. It complements the fourth edition of the Global Biodiversity Outlook (GBO-4) and its related reports (CBD 2014b; CBD 2014c; SCBD 2014). For the purpose of this report, the United Nations Environment Programme (UNEP) definition of the Asia and the Pacific region is used, as defined by UNEP Live (UNEP 2016) (Figure 1). Where possible global indicators have been broken down to regional levels and some additional analyses of existing global information have been undertaken. Where post-2011 data are lacking, the best available data sources were used to illustrate the status and trends. This report has also made use of the information contained in the fifth national reports submitted to the CBD, as well as case studies to illustrate progress towards some of the targets. Summary messages are arranged under the broad headings of the state of biodiversity, pressures on biodiversity and societal responses to the crisis of biodiversity loss.

Asia and the Pacific is a huge and extremely diverse region politically, economically and in terms of biodiversity. We have tried to summarize available information in a balanced way, and highlighted some of the trends in the region, but also picked out examples that illustrate the variation. Where necessary we have provided further detail on the oceanic islands portion of the region as these face a number of different challenges to other parts of the region.

STATE

The exceptional biodiversity in Asia and the Pacific continues to decline

Asia and the Pacific encompasses many different ecoregions and biomes. It also contains four of the world's major bio-geographical realms (Australian, Indomalayan, Oceanian and Palearctic, see maps on pages ii and iii); the Australasian realm covers large areas of land and some Pacific Islands; the Indo-Malayan realm covers South East Asia; the Palearctic realm covers the Middle East and large parts of Asia (Olson et al. 2001). These terrestrial realms contain dramatically different assemblages of plants and animals and globally important numbers of endemic species.

The marine region is also diverse and contains some globally outstanding areas, for example the South East Asian coral reefs are the most diverse and endemic-rich on the planet (Burke et al. 2006). There are also important concentrations of endemism in the various islands of the region, ranging from Australia and New Zealand to the smaller archipelago regions in the Pacific Ocean (New Zealand Biodiversity 2016; WWF 2009, WWF 2016).

Assembled data on trends in threatened species from the International Union for Conservation of Nature (IUCN) Red List shows that the flora and fauna of the region is becoming increasingly threatened with extinction (IUCN 2016c). Individual countries also often report accelerating loss of habitats such as tropical forests, mangroves, wetlands and intertidal areas which are of crucial importance to the shorebirds that migrate through the East-Asian-Australasian Flyway (Iwamura et al. 2013).

PRESSURES

A combination of human-induced factors is a key driver of biodiversity losses

Biodiversity loss in the region is severe. This loss is closely linked to rapid economic growth, population increase and associated increases in consumption, eutrophication of water bodies and urbanization. Human-wildlife conflict is also a growing concern, as is the use of wildlife as medicine or luxury foods in some countries. These factors in combination challenge the region's sustainable development and exert considerable pressure on biodiversity, livelihoods and ecosystems (UNEP 2012a).

The Asia Pacific region continues to experience deforestation and forest degradation

The Asia Pacific region has lost six per cent of its forest cover from 2000 to 2013 (Hansen et al. 2013). The South East Asia portion of the region has lost 13 per cent of its forest area since 1992 (an area equivalent to the size of Viet Nam), and is a major contributor to global deforestation. Deforestation in South East Asia has been mainly attributed to industrial agriculture, in particular oil palm plantations. Large areas of forest are being converted into plantation and agricultural land due to the rapidly growing demand for vegetable oils for food and bio-fuels, among other agricultural and industrial activities. A large commercial logging industry also results in additional heavy pressure on remaining tropical forests. Fire is often used to clear forest, with vast fires burning in some of the South East Asian forests in dry years.

Rapid growth in demand for wildlife products is fuelling unsustainable trade

High demand from East Asia for wildlife and wildlife products poses a particular threat to some wild species of fauna and flora (UNEP 2012a); this trade also supports a considerable black market and has links to organized crime networks. The total value of wildlife trade is hard to quantify, but is certainly many tens of millions of United States Dollars (USD) per annum within the region. Demand for wild species of fauna and flora has increased and is leading to many endemic and rare species coming under threat as a result of overexploitation and legal and illegal wildlife trade for use in traditional medicine, exotic décor or for the exotic pet market. Examples come from all across the world and include tigers, great apes, elephants, bears, pangolins, and reptiles. Marine wildlife is also subject to the pressures of trade in the region, including a highly active and valuable black market. This trade also has significant impacts on biodiversity outside the region as marine fish, crustaceans and sea cucumbers are sourced from around the world to provide luxury food for consumers in the Asia Pacific region.

Invasive alien species create particular pressures on the oceanic islands

Terrestrial, freshwater, estuarine and marine ecosystems are all impacted by the spread of invasive alien species. Invasive species are implicated in over half of known bird extinctions on islands, and many of these in the Asia Pacific region. This is due to: predation by introduced mammals such as rats, cats, mongoose and feral dogs; herbivory and habitat degradation by goats, cattle and pigs, and donkeys and camels; and disease transmission through introduced and invasive micro-organisms. The collective impacts of invasive alien species can have serious implications for food security, livelihoods, health and regional economies for oceanic island countries.

Marine ecosystems are vulnerable to growth in commercial and artisanal fisheries

In large parts of the region, especially in coastal communities, there is a high level of dependency on fisheries both as a source of income and as a key source of dietary protein. This is especially true of the island states in the Pacific Ocean. However, there are a number of challenges including over-fishing by highly mechanized fleets, bycatch, Illegal Unreported and Unregulated (IUU) fishing, and overexploitation and use of illegal / inappropriate fishing gear in artisanal fisheries. As a consequence of these pressures, marine pollution and the introduction of invasive species has increased, causing serious impacts on coral reefs and fish populations.

Negative impacts of climate change on species and ecosystems are exacerbating the effects of other pressures on Asia and the Pacific's biodiversity

Climate change induced temperature increases are impacting multiple habitats and ecosystems, including for example wetlands, boreal forests, dry forests and coral reefs. These changes then impact the ecosystem services and the people who in turn depend on them. In the case of coral reefs, thermal stresses are resulting in coral bleaching, and anthropogenic demands created by fisheries, upon which many communities depend for their livelihoods, are putting biodiversity under pressure. As these reefs are the most biodiverse on Earth, these pressures pose a significant challenge for the conservation of global marine biodiversity. Additionally, natural disasters and extreme climate events can exacerbate the situation.

RESPONSES

Addressing the pressures on biodiversity in Asia and the Pacific region requires concerted efforts by stakeholders at all levels. Asia Pacific countries have responded in a number of ways in their efforts to address biodiversity loss since 2011.

Development of protected area networks

Protected area coverage in the Asia Pacific region has been increasing steadily since 1990. However, terrestrial protected area coverage—at 13.7 per cent of terrestrial and inland waters—is somewhat below the global average of 15.4 per cent.

Countries in the Asia Pacific region are at the forefront of the designation of marine protected areas. In total, 11.9 per cent of marine and coastal areas in the Asia Pacific region are covered by protected areas, which is higher than the global average of 8.4 per cent.

Interest is growing in transboundary collaboration on protecting areas of high biodiversity conservation value

Areas such as the Greater Mekong Sub-Region, the Terai Arc landscape in India and Nepal, the Heart of Borneo initiative, the Sulu-Sulawesi marine areas and the Coral Triangle have become the focus of conservation efforts across national boundaries (UNEP 2012b).

Countries are increasingly mobilizing resources for Aichi Biodiversity Targets using schemes that better recognize the values of biodiversity and ecosystem services

Schemes based on payments for ecosystem services are beginning to operate within the region, albeit on widely different scales and focusing on carbon and water payments. National and international investment is underway in around 20 countries, aiming to help them to get ready for participation in the UN-brokered Reducing Emissions from Deforestation and Degradation (REDD+) scheme (Forest Carbon Partnership Facility (FCPF) 2016; UN-REDD 2016b).

There is growing use of voluntary certification schemes for fisheries and forests

The number and size of sustainable fisheries engaged with the Marine Stewardship Council (MSC) Fisheries Standard has increased and this indicates some progress towards the goal of a sustainable seafood market. However MSC-certified catch in the region still comprises less than 2 per cent of wild caught fish. Forest certification has also increased in the past five years to cover an area of nearly ten million hectares by 2014, although some of this will be plantations of low biodiversity conservation value.

The Asia Pacific region's countries are making steady progress in formulating policies in support of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets

The development of National Biodiversity Strategies and Action Plans (NBSAPs) has become a key policy tool for many countries, which have drawn in stakeholders across many sectors and assisted in the mainstreaming of biodiversity into wider sectoral planning. Additional key policy actions taken to improve the status of biodiversity in the region include the creation of national legislation supporting the Nagoya Protocol on Access and Benefit Sharing, while some countries such as Viet Nam have introduced sub-national biodiversity plans. Countries in the region have made progress in developing/revising NBSAPs under the framework of the CBD, but they remain to be implemented in many cases.

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3. THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020 AND ITS REVIEW

The *Strategic Plan for Biodiversity 2011-2020* was adopted at the tenth meeting of the Conference of the Parties (COP-10) to the CBD in Nagoya, Japan, in October 2010. The *Strategic Plan for Biodiversity 2011-2020* is comprised of a shared vision, a mission, strategic goals and twenty ambitious yet achievable targets, collectively known as the Aichi Biodiversity Targets. It serves as a flexible framework for the establishment of national and regional targets with the overall aim of protecting biodiversity and enhancing its benefits for people.

The *Strategic Plan for Biodiversity 2011-2020* contains five interdependent strategic goals (CBD 2010):

1) Addressing underlying causes of biodiversity loss
2) Reducing the direct pressures on biodiversity
3) Safeguarding ecosystems, species and genetic diversity
4) Enhancing the benefits from biodiversity and ecosystem services
5) Enhancing implementation.

Global efforts to assess progress towards the Aichi Biodiversity Targets have already begun. GBO-4 and its related reports (Leadley et al. 2014; SCBD 2014) as well as an associated paper in the Journal Science (Tittensor et al. 2014), provided a mid-term review of process towards the Aichi Biodiversity Targets between 2011 and 2014, with a detailed assessment of the global status and trends biodiversity as well as projections of its future condition under different scenarios.

SUMMARY OF THE FINDINGS OF THE GBO-4

GBO-4 brought together multiple lines of evidence derived from a wide range of sources. It drew upon countries' targets, commitments and activities as reported in NBSAPs and national reports, as well as countries' own assessments of progress towards the Aichi Biodiversity Targets. It took into account information on the status and trends of biodiversity reported by Parties and in the scientific literature, and made use of indicator based statistical extrapolations to 2020 (Figure 1) as well as longer term model-based scenarios.

The statistical extrapolations for a range of indicators suggest that, based on current trends, pressures on biodiversity will continue to increase at least until 2020, and that the status of biodiversity will continue to decline. The responses of society to the loss of biodiversity are increasing, but not sufficiently to change the rates of loss. Additionally, based on national plans and commitments, responses are expected to continue to increase for the remainder of this decade. The decline in biodiversity status and increase of pressure result from insufficient responses and perhaps a time lag between taking positive actions and discernible positive outcomes.

The overall conclusion from GBO-4 was that while there has been significant progress towards meeting some components of the majority of the Aichi Biodiversity Targets – for example conserving at least seventeen per cent of terrestrial and inland water areas – in most cases this progress was not sufficient to achieve the targets set for 2020. Additional action by governments and others is required to keep the *Strategic Plan for Biodiversity 2011-2020* on course to deliver the Aichi Biodiversity Targets. This is also relevant to the achievement of the new Sustainable Development Goals (SDGs), which were agreed towards the end of 2015 and will be in place until 2030.

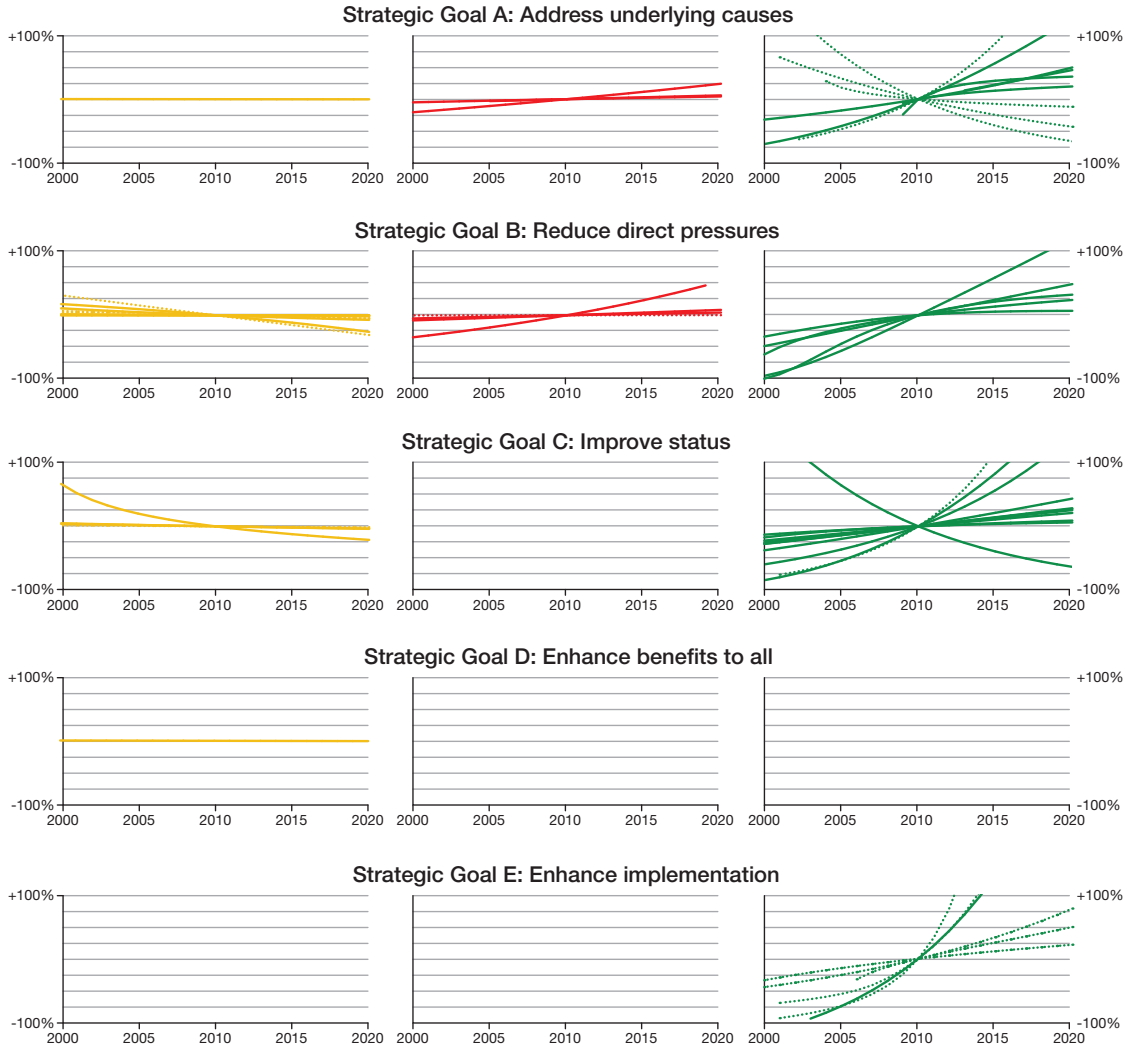


Figure 1: Trends in normalized indicators from 2000 and projected to 2020 for the five different Strategic Plan for Biodiversity 2011-2020 goals; The different state measures used in GBO-4 are coloured orange, Pressure measures are coloured red, and Response measures are coloured green. The horizontal dotted line represents the modelled indicator value in 2010. For state and response indicators, a decline over time represents an unfavourable trend (falling biodiversity, declining response) whereas for the pressure indicators a decrease over time represents a favourable trend (reducing pressure). A dashed coloured line represents no significant trend, whereas a solid coloured line represents a significant projected change between 2010 and 2020. Values are normalized by subtracting the modelled mean then dividing by the modelled standard deviation. For individual extrapolations on their original scale see target by target chapter in GBO-4 (SCBD 2014). Note that many time series continue prior to the year 2000; the x-axis has been limited to this date.

4. SUMMARY OF PROGRESS TOWARDS AICHI BIODIVERSITY TARGETS IN ASIA AND THE PACIFIC

The global assessment and data provided by GBO-4 gives an overall picture of the world's progress towards the implementation of the *Strategic Plan for Biodiversity 2011-2020*. However, it contains limited regional information.

This second edition of the *State of Biodiversity in Asia and Pacific* gives a more specific and detailed assessment of the changes in biodiversity state, pressures and human responses within the context of the Aichi Biodiversity Targets in the Asia Pacific region.

Overall progress towards the achievement of the twenty Aichi Biodiversity Targets in the Asia Pacific region countries versus global progress is shown in Figures 2a and 2b, based on the fifth national reports to the CBD. In total, the reports from 32 of the 39 countries in the region have been assessed. Two countries submitted their fifth national reports after the analysis was completed (Bhutan and Timor-Leste), and four others (Lao PDR, Marshall Islands, Papua New Guinea and Singapore) had not submitted their reports as of January 2016. Overall, progress towards achieving Aichi Biodiversity Targets in Asia Pacific countries matches global trends closely, including on reporting 'no information'.

Many targets are assessed as progressing, especially Target 1 (Awareness of biodiversity increased), Target 2 (Biodiversity values integrated), Target 11 (Protected areas increased and improved), Target 17 (NBSAPs adopted as policy instrument) and Target 19 (Knowledge shared, improved and applied) albeit at an insufficient rate to meet the target. Some countries report that they are moving away from targets, especially Targets 5 (Habitat loss halved or reduced), 8 (Pollution reduced) and 10 (Pressures on vulnerable ecosystems reduced). A few countries are on track to exceed Targets such as Target 17 (NBSAPS adopted as policy instrument). There has been less progress towards Target 16 (Nagoya Protocol in force and operational) in the Asia Pacific region, which shows the most marked difference of progress towards any Target compared with the global figure, with just 41 per cent of countries in the Asia Pacific region reporting any progress towards Target 16, compared to 64 per cent of countries globally.

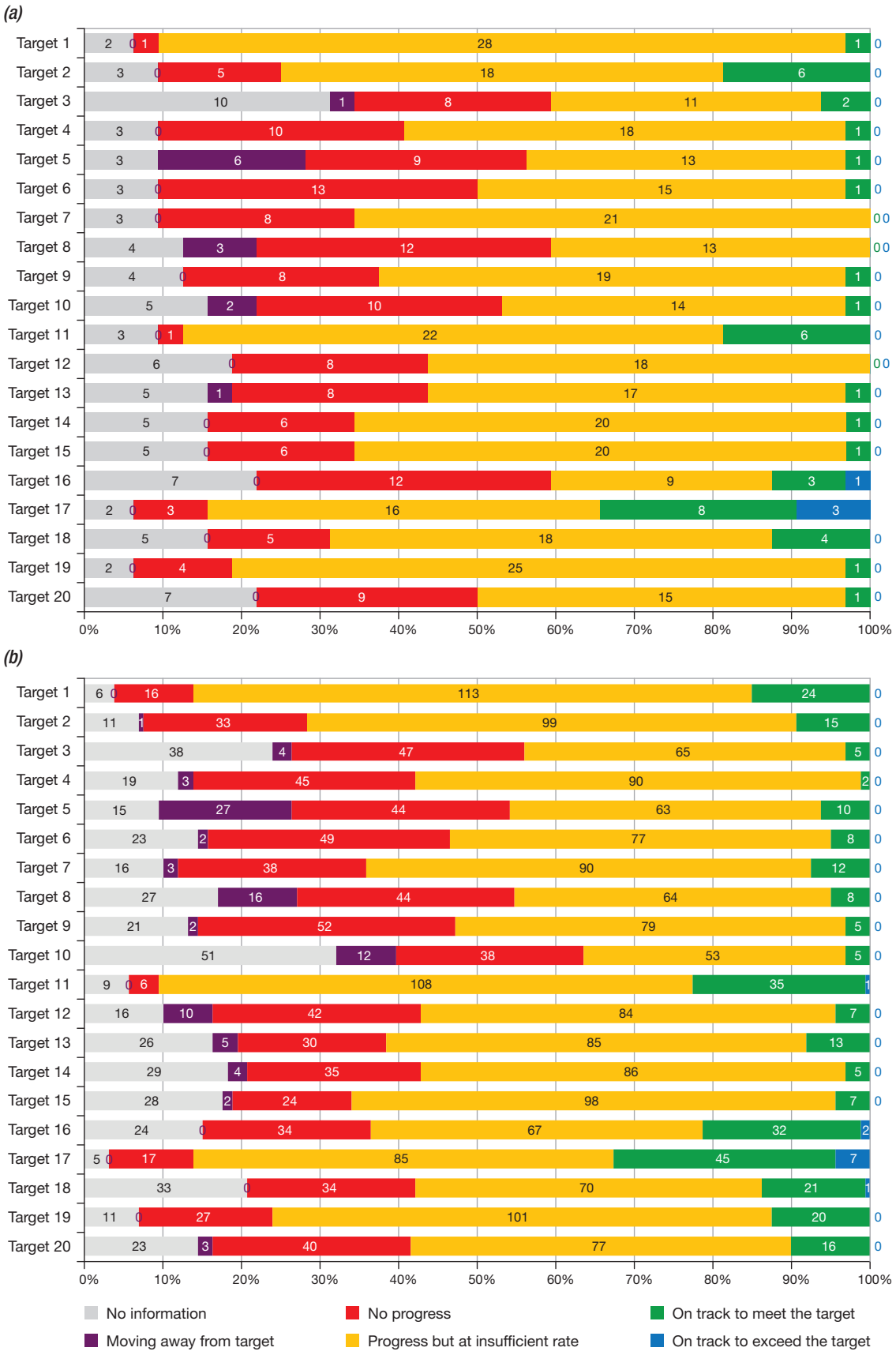


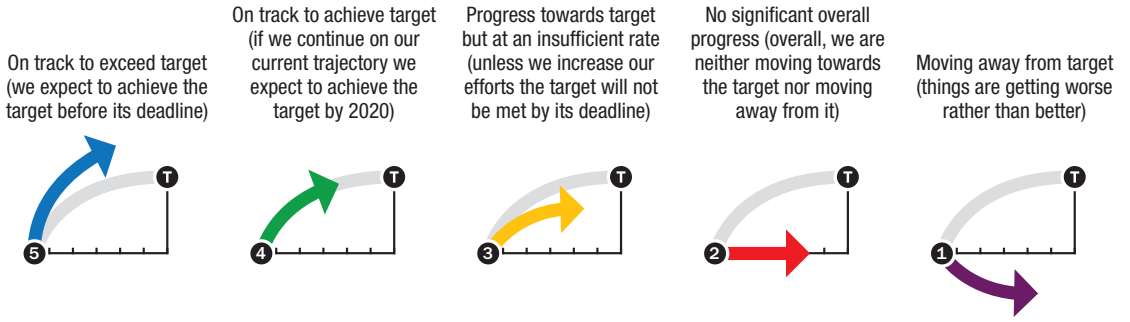
Figure 2: Synthesis of progress towards the achievement of the twenty Aichi Biodiversity Targets in (a) the Asia and Pacific region (n=32) and (b) globally (n=159) (CBD 2015).

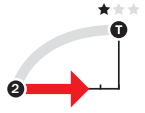
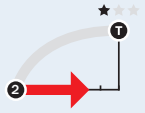
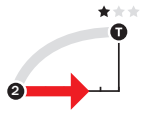
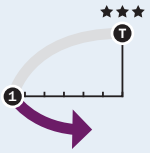
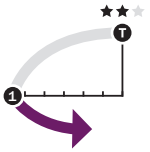
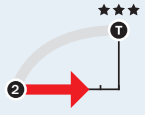
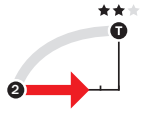
AICHI BIODIVERSITY TARGET DASHBOARD

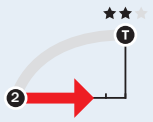
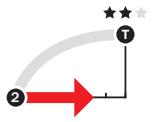
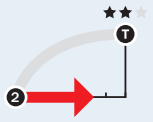
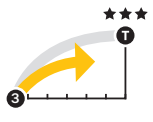
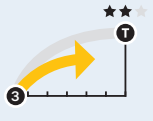
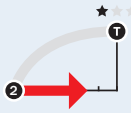
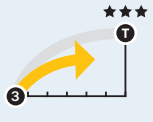
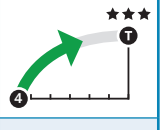
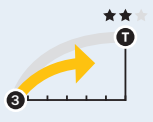
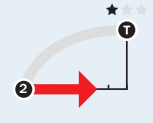
We have developed a dashboard of progress towards each of the targets, based on a consideration of the analysis of progress outlined below and the fifth national reports to the CBD. We use the same system of icons of progress as developed for GBO4.

Table 1: A dashboard of progress towards the Aichi Biodiversity Targets in Asia and Pacific.

The table below provides an assessment of progress made towards each of the Aichi Biodiversity Targets as well as the level of confidence (***) based on the available evidence. It aims to provide summary information on whether or not we are on track to achieve the targets. The assessment uses a five-point scale.



Target	Notes	Progress
Target 1 - Awareness of biodiversity increased	Efforts to raise awareness about biodiversity are numerous in the region, but there are few quantified data that measures changes over time. It is therefore hard to assess rates of progress beyond case studies.	
Target 2 - Biodiversity values integrated	Efforts are underway to deliver this target in the region, but it is hard to gather a comparable set of data that allows progress to be measured.	
Target 3 - Incentives reformed	Progress towards this target is hard to measure at the regional scale. There is evidence of progress in a number of countries and within the positive forest conservation scheme REDD+.	
Target 4 - Sustainable production and consumption	The Asia Pacific region is making efforts to increase the sustainability of production, but at the same time many countries are greatly increasing their production and the global impact of the region in terms of measured human footprint is increasing. It seems unlikely that this target will be met in this region.	
Target 5 - Habitat loss halved or reduced	Although the picture across the region is mixed, with increases in some countries and declines in others, overall there is a considerable loss of tropical forest habitat – particularly to palm oil and other plantations in the South East Asia part of the region.	
Target 6 - Sustainable management of marine living resources	Sustainable fisheries management is highly variable across the region with some of the best and worst examples of sustainable fisheries on Earth being found in different national and international waters.	
Target 7 - Sustainable agriculture, aquaculture and forestry	Although there has been progress towards this target in the region and especially in some countries, overall this is dwarfed by the high rates of unsustainable timber harvesting, aquaculture and fisheries in the region.	

Target	Notes	Progress
Target 8 - Pollution reduced	Many countries are making progress with different aspects of this target relating to some aspects of pollution but the challenges relating to nitrogen and phosphorous pollution remain serious. These inputs have been required to continue to feed the large human population in many countries within the region.	
Target 9 - Invasive alien species prevented and controlled	Invasive Alien Species (IAS) are a significant challenge in the region, especially on the many Pacific Islands, where they can be devastating.	
Target 10 - Pressures on vulnerable ecosystems reduced	Available evidence suggests that valuable ecosystems in the region are being impacted by climate change, pollution and fisheries activities. This is especially relevant to coral reefs. However, some nations, particularly Pacific island nations, are progressing with this target.	
Target 11 - Protected areas increased and improved	Protected area coverage on land and in the sea is likely to be achieved in this region. Other elements of the target, on effectiveness, equitable management and connectivity are more variable in the region and will be achieved in some countries and not others.	
Target 12 - Extinction prevented	Across the region there are examples of species programmes reducing extinction risks – particularly on some of the islands. However, across the region the number under threat are increasing.	
Target 13 - Genetic diversity maintained	The diversity of breeds of domestic crops and animals is high in the region, but trends in genetic diversity are not well known.	Insufficient data to assess progress
Target 14 - Ecosystems and essential services safeguarded	There are few data available to measure progress towards this target. However, as some habitats are declining in the region, ecosystem services from natural habitats are also probably reducing in some parts of the region.	
Target 15 - Ecosystems restored and resilience enhanced	There is very little available information to assess progress towards this target in the region.	Insufficient data to assess progress
Target 16 - Nagoya Protocol in force and operational	Significant progress has been made to ratify the Nagoya protocol in the region and to work towards embedding it in national legislation. However, not all countries are making progress and hence the target might not be fully achieved across the entire region.	
Target 17 - NBSAPs adopted as policy instruments	A number of countries in the region have completed their NBSAP revision. However, almost half the countries still need to do this. It is expected that all will be completed by 2020.	
Target 18 - Traditional knowledge respected	Traditional knowledge feeding into community-based forestry /land management and community-based marine and freshwater management systems are strong in the region. At the same time there is evidence of a decline in traditional knowledge in many countries.	
Target 19 - Knowledge improved, shared and applied	Accessibility to biodiversity data is increasing in the region as technology advances and databases are made openly available. However, access to information is not even with some countries having much more available information than others.	
Target 20 - Financial resources from all sources increased	External investment in conservation activities has been declining in the region. Within the region some countries are able to invest in conservation using their own resources while others have limited ability to do so. Overall investment from international and national sources is difficult to measure over time.	

5. TARGET BY TARGET ANALYSIS OF PROGRESS TOWARDS AICHI BIODIVERSITY TARGETS IN ASIA AND THE PACIFIC

This assessment is structured around efforts and progress toward the achievement of the global Aichi Biodiversity Targets by countries in the Asia Pacific region, and identifies major gaps between the current status and the achievement of the targets. A mixture of data from international organizations, together with regional case studies, are used to illustrate progress.

In many cases the data have been adapted from other purposes, and in some cases the data used do not extend past the start of the period of implementation of the *Strategic Plan for Biodiversity 2011-2020*. This information is nonetheless used in this assessment to illustrate that there are relevant datasets to measure progress towards conservation targets, and to show that further effort needs to be made to update and bring together relevant data.

TARGET 1: AWARENESS OF BIODIVERSITY INCREASED

By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

"Addressing the direct and underlying drivers of biodiversity loss will ultimately require behavioural change by individuals, organizations and governments. Understanding, awareness and appreciation of the diverse values of biodiversity underpin the willingness of individuals to make the necessary changes and actions and to create the "political will" for governments to act. Given this, actions taken towards this target will greatly facilitate the implementation of the *Strategic Plan for Biodiversity 2011-2020* and the fulfilment of the other nineteen Aichi Biodiversity Targets, particularly Target 2." (CBD 2016c)

Global trends suggest that people are aware of biodiversity values, but do not "view biodiversity protection as an important contribution to human wellbeing" (SCBD 2014). Improving awareness of the values of biodiversity and what people can do to conserve and use it sustainably is fundamentally important to reversing biodiversity loss.

In Asia and the Pacific, the fifth national reports to the CBD indicate that progress has been made toward meeting Target 1. However, this will not be sufficient to meet the target by 2020. Generally, the information suggests that actions are being taken to raise awareness of the importance of biodiversity, including through the use of education programs, the media and awareness events. Progress has been measured in various ways across the region: the number of participants in nature conservation activities (Australia); the addition of biodiversity conservation into school curricula (India, Indonesia and Mongolia); or the use of media to promote nature conservation (Myanmar, Nepal, Pakistan and Thailand). Generally, less focus is placed on raising awareness of the steps that people can take to conserve and use biodiversity sustainably (CBD 2015).

Information from the global database, AidData, on investments in environmental education from 1970 to 2010 provides an indication of the commitment to increase awareness of environmental issues (Tierney et al. 2011). AidData contains information on the funding provided by conservation donors and does not reflect the funding to enhance awareness that has been provided by the countries in the region using their own resources. Donor investment has varied since records began, with the first record of investments in the Asia Pacific region appearing in 1988 (Figure 1.1).

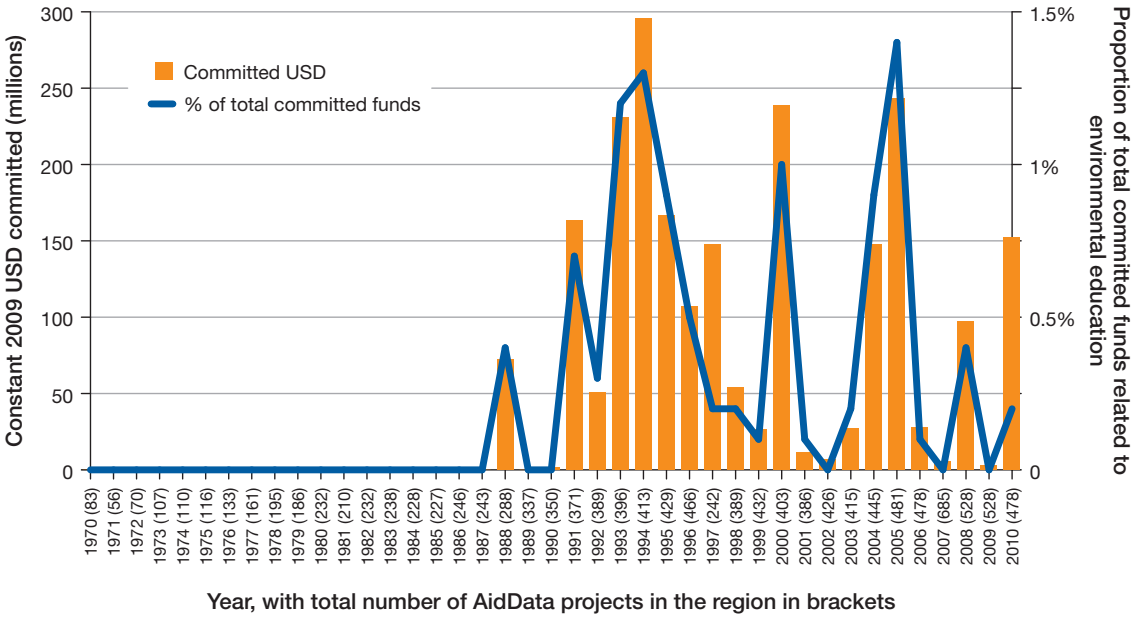


Figure 1.1: Absolute and proportional investment in environmental education by donors in the Asia Pacific region between 1970 and 2010 (The data is from the AidData 2.1 Research Release, which includes a subset of donors available through AidData that had complete activity coding (at the 95 per cent level). This subset is a total of 47 donors, consisting of multilateral development organizations (such as the World Bank, the AfDB Group, AsDB, etc.) as well as donors outside the Development Assistance Committee (DAC) (Brazil, India, UAE, etc.). Using the AidData Activity Codes, each project can receive multiple activity codes (so as to better capture the entire scope of each activity, but there is not enough information usually on the project to assign specific project amounts to each activity. As such, the analysis reflects the full commitment amount for each project with one of the specified activity codes of interest, even though other activities were likely included in each project).

Member states of the Association of Southeast Asian Nations (ASEAN) are carrying out a variety of campaigns to raise awareness and understanding of biodiversity, and the actions that can be taken to preserve it. Several of these are aimed at the youth sector, while others focus on government and private sector organizations. However, there is an acknowledgement that more needs to be done (ASEAN Centre for Biodiversity (ACB) 2016).

In conclusion, there are a number of relevant efforts in the region to raise awareness of the values of biodiversity. However, there are no standardized data to measure progress in terms of changes in understanding across the region that would allow the target to be measured in a quantified way.

Box 1.1: Media Collaboration and Citizen Journalism in Thailand.

Thai Public Broadcasting Service (Thai PBS) collaborate with IUCN to raise public awareness on environmental and conservation issues. Thai PBS has helped IUCN provide creative writing training for project staff, and IUCN has provided technical expertise for a Thai PBS television series on climate change and a citizen journalism project (IUCN 2015a). Trained journalists interview villagers about specific environmental problems they are facing and release videos to raise awareness of the issues (for example, see the video, 'Where has the water gone?' produced by IUCN Asia - Thailand).

TARGET 2: BIODIVERSITY VALUES INTEGRATED

By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

"The values of biodiversity are not widely reflected in decision making, and holds true in the context of development and poverty reduction strategies. Integrating and reflecting the contribution of biodiversity, and the ecosystem services it provides, in relevant strategies, policies, programmes and reporting systems is an important element in ensuring that the diverse values of biodiversity and the opportunities derived from its conservation and sustainable use are recognized and reflected in decision making. Similarly, accounting for biodiversity in decision making is necessary to limit unintended negative consequences of local development and poverty reduction strategies." (CBD 2016c)

Delinking economic growth from resource exploitation and degradation while conserving biodiversity remains a serious challenge in a rapidly developing region such as Asia and the Pacific. The integration of biodiversity into development, poverty alleviation strategies and environmental and social safeguards requires an understanding of the precise aspects of biodiversity that support poverty alleviation, as well as other development and sector-specific activities. Such knowledge can lead to the mainstreaming of biodiversity goals into sectoral decision making across different governmental agencies, such as ministries of finance, health, planning economic development, agriculture, tourism and education. According to the fifth national reports to the CBD, national development plans in most countries in Asia and the Pacific take biodiversity into consideration, including in Australia, Cambodia, Fiji, Indonesia, Kiribati, Malaysia, Micronesia, Mongolia, Nepal, New Zealand, Niue, Philippines, Samoa, Solomon Islands, Sri Lanka, Vanuatu and Viet Nam (CBD 2015). Other countries in the region are at various stages of reviewing the relevant national frameworks and policies as part of the process towards the incorporation of biodiversity (ACB 2016). However, many countries value biodiversity in those sectors for where the linkages to human development are more obvious, such as tourism and agriculture (CBD 2015).

In addition to education activities, there is also an increasing interest and number of initiatives by Governments to undertake valuation of biodiversity and ecosystem services, for example The Economics of Ecosystems and Biodiversity (TEEB) and Wealth Accounting and the Valuation of Ecosystem Services (WAVES). Although there is a lack of evidence to support that these valuation initiatives lead to the integration of biodiversity in policies and decisions, these efforts have the potential to help achieve the intention of Target 2 in the region, through better understanding of the economic values of biodiversity and ecosystem services.

Investments in Environmental Impact Assessments (EIAs) can serve as an indication or a proxy of the presence of biodiversity values in development initiatives. AidData shows that investments made by donors in EIAs started in 1988 and have been very variable since then, with two peaks in 1992 and 2007 (Figure 2.1). These data do not consider all public and private sector donations into EIAs, and should be assessed with care as investment into EIAs may simply be an indication of a specific EIA focus within certain countries.

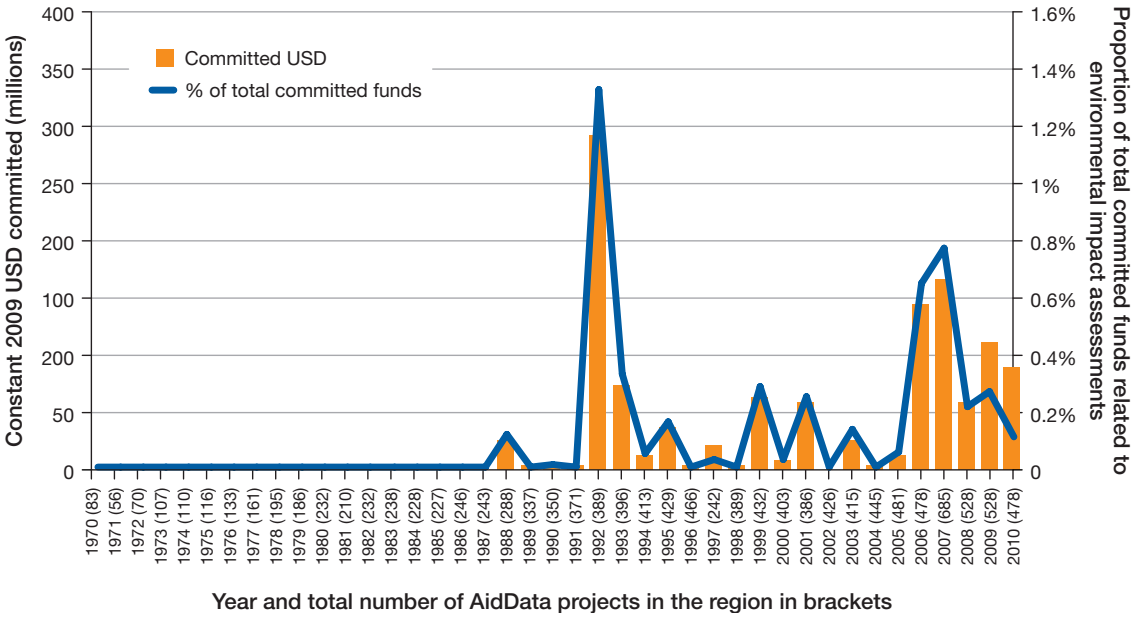


Figure 2.1: Absolute and proportional investment in environmental impact assessments by donors on AidData between 1970 and 2010 in Asia and the Pacific (source: Tierney et al. 2011).

In relation to economic tools for the conservation of biodiversity, China and Viet Nam have implemented Payments for Ecosystem Services (PES) schemes. China is implementing some of the largest PES schemes in the world, spending over USD fifteen billion since 1999 on the conversion of nine million hectares of cropland to forest (mainly plantations) and grasslands. However, much of this is plantation forest which has only moderate value for biodiversity conservation. China has also invested more than USD two billion in a forest ecosystem compensation fund, which pays local governments and communities to protect primary forests, which now cover 44 million hectares (UNEP 2012a; UNEP 2012b). These areas are typically of higher biodiversity value when compared to secondary and plantation forests.

In conclusion, there has been some progress towards Aichi Biodiversity Target 2 in Asia and the Pacific, but much more needs to be done to achieve the target by 2020. It is also difficult to measure progress against the target due to lack of consistent and comparable data from the region, and most of the assessment of progress is based on the fifth national reports.

Tea leaves

Box 2.1: Incorporating Biodiversity Values into Legislation in Small Island States.

The Maldives have developed climate change adaptation policies. Since the Maldives is a small island state vulnerable to climate change impacts (85 per cent of the Maldives could be below sea level by 2100), the governments declared its intention to be carbon neutral by 2019 and to view climate change as a critical national development challenge. This will be achieved by integrating climate risk into resilient island planning, which includes coastal afforestation, replenishing natural ridges, climate proofing drainage, coral reef propagation, mangrove planting and beach nourishment (UNEP 2012b).

In Samoa, a water resource bylaw is now in place for the small community of Tafitoala as part of the integrated coastal management approach established under the Pacific Adaptation to Climate Change Project. The bylaw is one of the provisions within the Water Resource Management Act 2008, and is taking a ridge-to-reef approach to managing environmental resources from the mountain ridges all the way down to the reef, recognizing that land-based activities have a significant impact on coastal and marine resources (Secretariat of the Pacific Regional Environment Programme, and the United Nations Development Programme 2013).

Box 2.2: Gross Ecosystem Product Project in China.

The Gross Ecosystem Product (GEP) project was launched by IUCN China and the Elion Foundation as a pilot in 2013. It seeks to measure the total economic value of all products and services that are provided to humans by the environment, The ultimate aim is for GEP to sit alongside Gross Domestic Product (GDP) as a measure of a country's prosperity. The pilot is based in Kubuqi, Inner Mongolia, the seventh largest desert in China, and activities include developing and testing an evaluation framework, and beginning to develop a GEP accounting system (IUCN 2013a).

Box 2.3: National Impact Assessment Programme, Pakistan.

The National Impact Assessment Programme (NIAP) in Pakistan seeks to strengthen and streamline existing EIA requirements. A key aspect of NIAP is the introduction of the Strategic Environmental Assessment (SEA), intended to integrate the consideration of environmental impacts into decision making during the development of policies and programmes. Development of SEA is in the advanced stages, and the Hydro Power Plan of Azad Jammu and Kashmir has been volunteered as a pilot (IUCN 2015d).

TARGET 3: INCENTIVES REFORMED

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

"Substantial and widespread changes to subsidies and other incentives that are harmful to biodiversity are required to ensure sustainability. Ending or reforming harmful incentives is a critical and necessary step that would also generate net socioeconomic benefits. The creation or further development of positive incentives for the conservation and sustainable use of biodiversity, provided that such incentives are in harmony with the Convention and other relevant international obligations, could also help in the implementation of the *Strategic Plan for Biodiversity 2011-2020* by providing financial resources or other motives to encourage actors to undertake actions which would benefit biodiversity." (CBD 2016c)

This target aims to reduce the impact of negative subsidies and incentives on biodiversity and enhance the development and application of positive incentives for better conservation practice. GBO-4 reports limited progress toward this target globally, particularly in terms of non-financial incentives and "little evidence of actions to remove subsidies harmful to biodiversity". Both globally, and in Asia and the Pacific, more focus needs to be placed on the elimination of harmful incentives and on developing positive incentives, in order to improve progress toward this target.

According to the fifth national reports, actions taken to reach this target have generally focused on positive incentives, such as tax incentives for greening measures (Japan) and provision of capacity building for public awareness for recycling partnerships (Kiribati). Other countries - including Kiribati, New Zealand, Pakistan, the Philippines and the Solomon Islands - indicate progress toward eliminating harmful incentives (CBD 2015). Recognition and awards have also been used across ASEAN member states to reward corporations, individuals, communities and project teams for "exemplary environmental performance" (ACB 2016).

In terms of positive incentives to maintain forest cover, the largest scheme under development is REDD+, which is a financial incentive scheme for reducing deforestation and forest degradation, and conserving, enhancing and sustainably managing forests in developing countries, funded by developed countries (UN-REDD 2016a). To assist countries in planning and implementing REDD+, UNEP, the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Development Programme (UNDP), launched the United Nations Collaborative Programme on REDD+ in 2008. This Programme currently supports 19 countries in Asia and the Pacific in various ways. The FCPF has also signed participation agreements with 11 countries in the Asia and Pacific Region (Bhutan, Cambodia, Fiji, Indonesia, Lao PDR, Nepal, Pakistan, Papua New Guinea, Thailand, Vanuatu, and Viet Nam). If successfully implemented, REDD+ can help Asia Pacific countries achieve forest conservation, and biodiversity conservation as a co-benefit, by providing incentives to move away from reliance on activities that convert or degrade forests. It should be noted, however, that REDD+ is not widely relevant to the Pacific Oceanic Island countries and would only impact a few of these nations. The Pacific Islands Regional Policy Framework for REDD+ focusses on Fiji, Papua New Guinea, Solomon Islands and Vanuatu (the REDD desk 2016).

In conclusion, progress towards this target is hard to measure and there are not many sources of data that can be used for assessment. The fifth national reports provide some evidence of progress, and the REDD+ is being advanced in many countries of the region. However, a compendium of other incentives that impact on biodiversity positively or negatively in Asia and the Pacific is not readily available.

Box 3.1: REDD+ in Indonesia.

To support Indonesia's efforts to meet its climate change target, the government in 2010 signed a Letter of Intent, under which Norway pledged up to USD 1 billion to undertake activities to reduce forest loss in Indonesia. A key policy development since that time has been a moratorium on granting new licences to convert primary forests and peat lands into plantations or timber concessions, which was introduced in 2011. This was originally extended until the end of 2015 (Austin et al. 2014) and has been extended for two further years. Recently, a review of REDD+ finances found that USD 1.35 billion of global commitments from donors have been promised to Indonesia to support readiness and implementation activities related to REDD+ (McFarland et al. 2015).

Box 3.2: Removing Fossil Fuel Subsidies to Help Reduce Impacts of Global Warming on Biodiversity.

In 2007, China removed price controls for coal and prices are now negotiated between coal producers and power companies. Crude oil prices and refined oil products now match international levels. In India, the price for diesel, liquid petroleum gas (LPG) and kerosene increased after an announcement on market driven-petrol pricing, and it allowed state-run producers to sell natural gas at market prices instead of regulated rates. In 2010 the country announced plans to eliminate energy subsidies by 2014, which has now happened. Also in 2010, Malaysia announced plans to reduce subsidies for petrol, diesel and LPG, while Pakistan announced plans to phase out electricity subsidies and has implemented a twenty per cent tariff increase (UNEP 2012a). Indonesia has a regulation requiring 15 per cent of diesel for transport and industry to be biodiesel, rising to 30 per cent by 2020, with similar targets for use of bioethanol. Implementation is partly funded through a levy on palm oil exports, and most of the feedstock for biodiesel production is palm oil. The net impact of the regulation on forests and biodiversity depends, therefore, on the sustainability of the production of palm oil, something that remains the subject of debate (United States Department of Agriculture, Foreign Agriculture Service 2015). These changes are important to slow rates of climate change, which will have a major impact on biodiversity in this region.

TARGET 4: SUSTAINABLE CONSUMPTION AND PRODUCTION

By 2020, at the latest, Governments, businesses and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

"The unsustainable use or overexploitation of resources is one of the main threats to biodiversity. Currently, many individuals, businesses and countries are making efforts to substantially reduce their use of fossil fuels, with a view to mitigating climate change. Similar efforts are needed to ensure that the use of other natural resources is within sustainable limits. This is an integral part of the vision of the *Strategic Plan for Biodiversity 2011-2020.*" (CBD 2016c)

Aichi Biodiversity Target 4 seeks to keep the use of natural resources within sustainable limits and improve production methods to make them more sustainable. The information in the fifth national reports to the CBD suggests that most countries in Asia and the Pacific are not on track to reach this target by 2020, although a number of countries have taken actions towards it. For example India, Indonesia, Mongolia, New Zealand and South Korea report that they have taken steps to improve the sustainability of production activities via green certification, corporate social responsibility, the use of organic fertilizers, and laws on environmental impact assessment. Other countries, including Brunei Darussalam, Cambodia, Fiji, Niue and Samoa report steps taken to promote the sustainable use of forests, the use of environmental impact assessment, implementation of hunting seasons and building awareness for sustainable consumption, but have less focus on production and ecological limits. Most of the regional progress toward this target is in the development of strategies and plans for sustainable production and consumption, although the evidence for successful implementation is weak (CBD 2015). One example is the strategy for sustainable production and consumption of oceanic tuna resources led by the Parties to the Nauru Agreement (PNA) (Pacific Islands Forum Fisheries Agency 2015). In the oil palm and pulp-paper sectors, which are increasingly important throughout South East Asia, private sector commitments to sustainable supply chains (no-deforestation, no peat destruction, social conflict-free) now cover more than 50 per cent of the industry and are setting higher standards than those currently demanded by Governments or the Round Table on Sustainable Palm Oil (Goodman and Sharma 2015).

The Human Appropriation of Net Primary Productivity (HANPP) is one way to measure the impact of human consumption on the world's biotic resources, and in the case of Asia and the Pacific there has been a consistent increase in HANPP since 1960 (Figure 4.1). The greatest increases in HANPP result from the expansion and intensification of croplands and grasslands in the region (Figure 4.2).

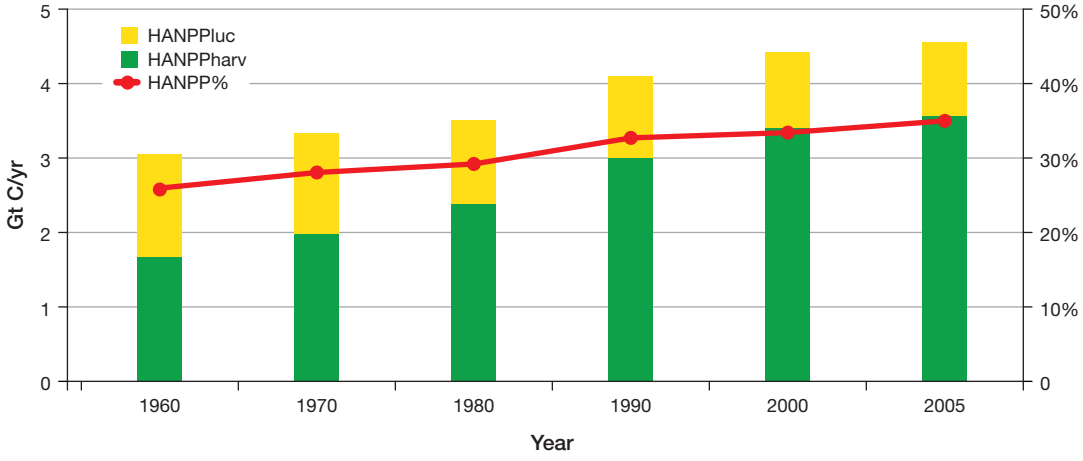


Figure 4.1: Human Appropriation of Net Primary Production (HANPP) in Asia and the Pacific, an aggregated indicator of land use intensity. It measures to what extent land conversion (HANPPluc) and biomass harvest (HANPPharv) alter the availability of net primary production (biomass) in ecosystems. Measured in gigatons of carbon per year (Gt C/yr) and % of potentially available Net Primary Production (HANPP%) (source: Krausmann et al. 2013).

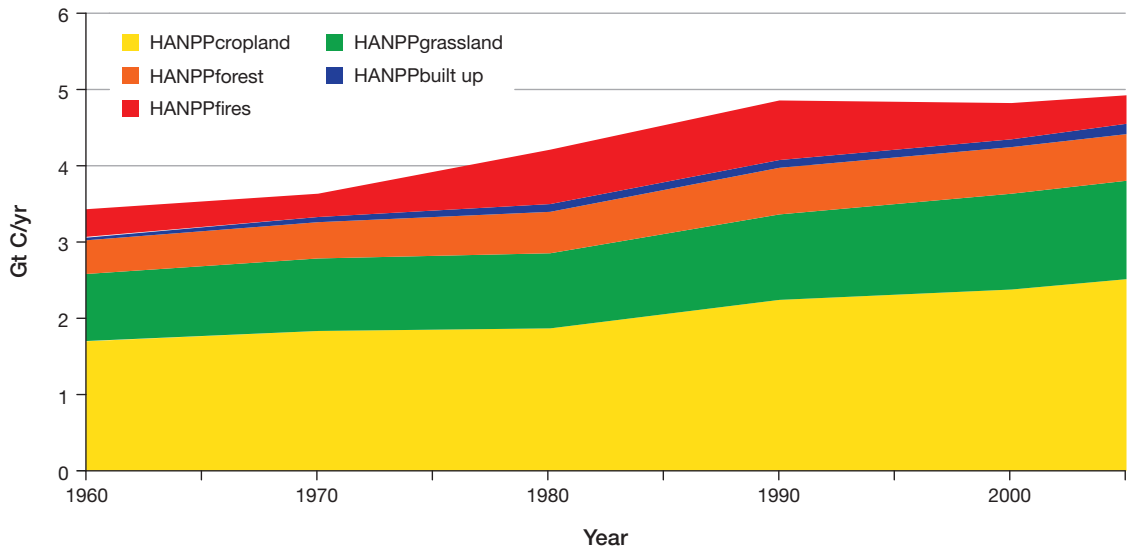


Figure 4.2: HANPP in Asia and the Pacific by land use type (cropland, grassland, forests, built-up land) and due to human induced fires in Gt C/yr (source: Krausmann et al. 2013).

Another way to measure impact is the Ecological Footprint (EF), which is a measure of the biocapacity required by a country or region to sustain its consumption and production patterns (Global Footprint Network 2012). In the Asia Pacific region, the per capita EF has varied over time, with a steady upwards trend and increase of 0.76 global hectares per person between 1961 and 2011 (Figure 4.3; Global Footprint Network 2015). In comparison, the global per capita EF has stabilized and remained broadly the same since 1980 (Figure 4.3). As the human population has been growing this has resulted in a steady increase in the total EF over the past 50 years, both globally and for Asia and the Pacific (Figure 4.3). Carbon emissions and cropland exploitation are major components of the total ecological footprint from consumption activities in the region (Figure 4.4b), and although population growth remains the main driver of footprint growth, consumption changes have also had a big impact in recent years (WWF 2014).

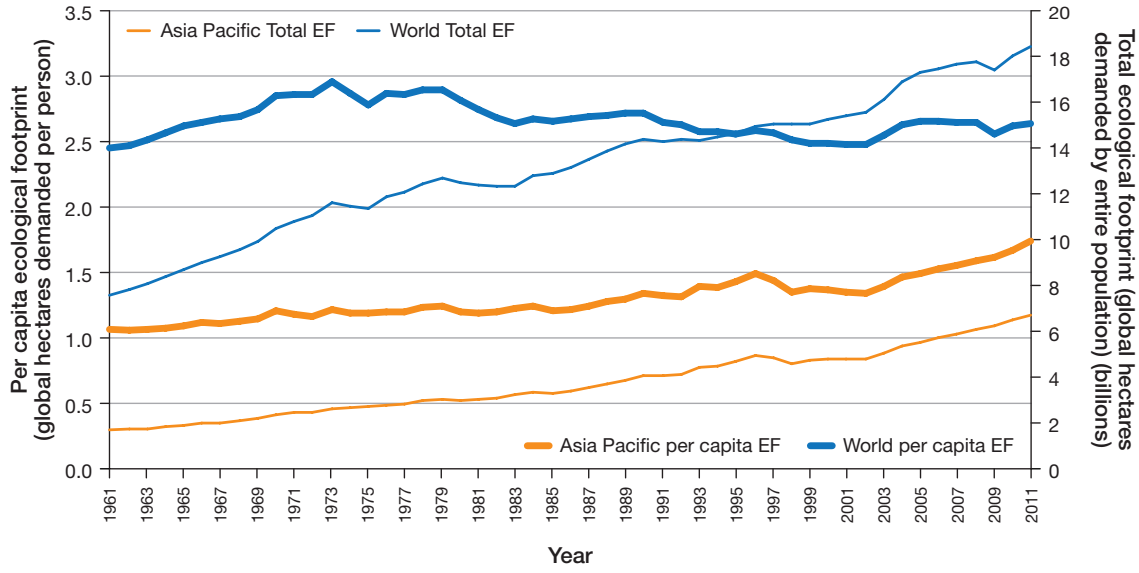


Figure 4.3: Combined graph showing the total and per capita Ecological Footprint (EF) for the world and the Asia Pacific region between 1961 and 2011 (source: Global Footprint Network 2015). EF per capita, measured in global hectares demanded per person, reflects the goods and services used by an average person in each country, and the efficiency of the resources used to provide those goods and services (World Wide Fund for Nature 2014).

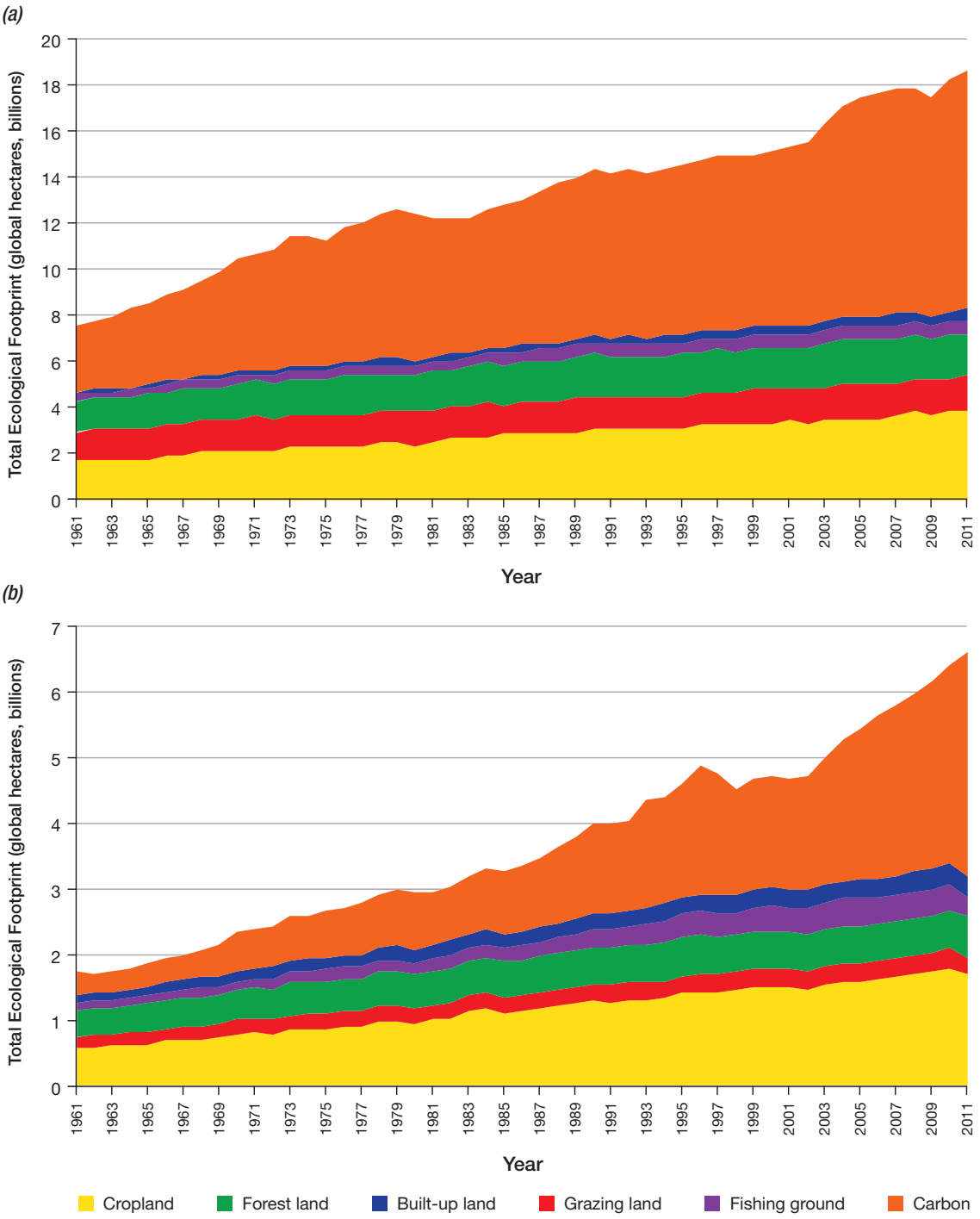


Figure 4.4: Area chart showing the ecological footprint by component for (a) Global and (b) Asia and the Pacific (1961-2011) (source: Global Footprint Network 2015).

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In conclusion, Asia and the Pacific is expanding its footprint and, in several measures, the region is now exerting greater pressure than the global average. In some measures, this region is reaching the footprint levels of Europe and North America. Although there are also many efforts to enhance sustainability in the region, the aggregate trend is moving away from this target in Asia and the Pacific.

Box 4.1: Mangroves and Markets, Thailand and Viet Nam.

IUCN is working in Thailand and Viet Nam to develop sustainable shrimp aquaculture in mangrove ecosystems, in a way which promotes adaptation to climate change, and protection against extreme weather events. The project includes testing of mangrove polyculture techniques and identification of existing best practice, alongside seeking to establish links between sustainable producers and potential customers. The results will feed into local and provincial legislation, and into global REDD+ discussions (IUCN 2015c).

TARGET 5: HABITAT LOSS HALVED OR REDUCED

By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

"Habitat loss, including degradation and fragmentation, is the most important cause of biodiversity loss globally. Natural habitats in most parts of the world continue to decline in extent and integrity, although there has been significant progress to reduce this trend in some regions and habitats. Reducing the rate of habitat loss, and eventually halting it, is essential to protect biodiversity and to maintain the ecosystem services vital to human wellbeing." (CBD 2016c)

In terms of forests, the Asia Pacific region supported 7,661,045 km² of forest in the year 2000, which declined to 7,183,992 km² in 2012 (Hansen et al. 2013). Further analysis of these data shows that the cumulative forest loss in Asia and the Pacific has increased over recent decades (Figure 5.1). High rates of gross annual forest loss were seen in 2009 (0.62 per cent) and 2012 (0.66 per cent), while 2002 and 2003 had the lowest proportion of deforestation (0.34 per cent). More recent data, from 2014 and 2015 for example, when they become available would improve the understanding of current deforestation trends.

The recent increase in forest loss seems to mainly be from increased conversion to agriculture, increased timber demand and urbanization. In sub-tropical Asia, commercial and subsistence agriculture is responsible for one-third of forest loss each year. One of the most recent drivers of forest loss from agriculture has been palm oil production, which has more than doubled in the past decade, with most of the expansion in South East Asia (Rautner et al. 2013).

However, not all countries in the region are experiencing forest loss. Countries such as China and Viet Nam have achieved a significant increase in forest cover through large scale plantations and the protection of water catchment areas. Many of these planted forests have low conservation value.

The fifth national reports to the CBD also indicate a mixed picture of progress toward Target 5 in the Asia Pacific region. Most countries report some progress, though currently insufficient to meet the target by 2020. Reducing habitat loss in all natural habitats remains a challenge, but some countries have been making significant progress in particular ecosystems. For example, New Zealand has made progress in conserving freshwater habitats and India, Sri Lanka and Viet Nam have reduced or halted rates of deforestation (CBD 2015).

Other countries including Malaysia, Micronesia and Nepal have developed and are implementing policies to reduce habitat destruction whereas Myanmar, South Korea and Vanuatu report that once plans are implemented, progress will be seen. Further, Australia has succeeded in expanding forest area by one million ha annually from 2000 to 2010, a rate which surpassed the rate of desertification in 2007-2010 (Australian Government Department of Environment 2014). However a number of countries have also reported that their habitats, particularly forests, continue to be degraded due to human pressures, making progress towards the target of halving the rate of forest degradation difficult if degradation rates are increasing (CBD 2015).

REDD+ works toward reducing emissions from deforestation and degradation, which clearly correlates to reducing loss of natural forests. REDD+ actions need to be clearly implemented alongside policies that tackle drivers of habitat loss, degradation and fragmentation, as countries otherwise face displacement of impacts. In the Philippines, spatial analysis suggests that understanding the locations of illegal logging in relation to carbon can support planning for REDD+ and achieving Aichi Biodiversity Target 5 (Osti et al. 2014). The analysis identified that most illegal logging hotspots overlap with or are located in the vicinity of several Key Biodiversity Areas. Actions to target these hotspots can thus contribute towards emissions reductions under REDD+ as well as achieving Target 5. Viet Nam is one of Asia's leading countries engaging in REDD+ at a national level. Among numerous other REDD+ activities, Viet Nam has mapped above and below ground forest biomass carbon, areas of earlier deforestation, forest management practices and forest biodiversity including Key Biodiversity Areas to identify areas that can potentially help to reduce emissions and conserve biodiversity through implementing REDD+ (Mant et al. 2013) and thus contribute to achieving Aichi Biodiversity Target 5.

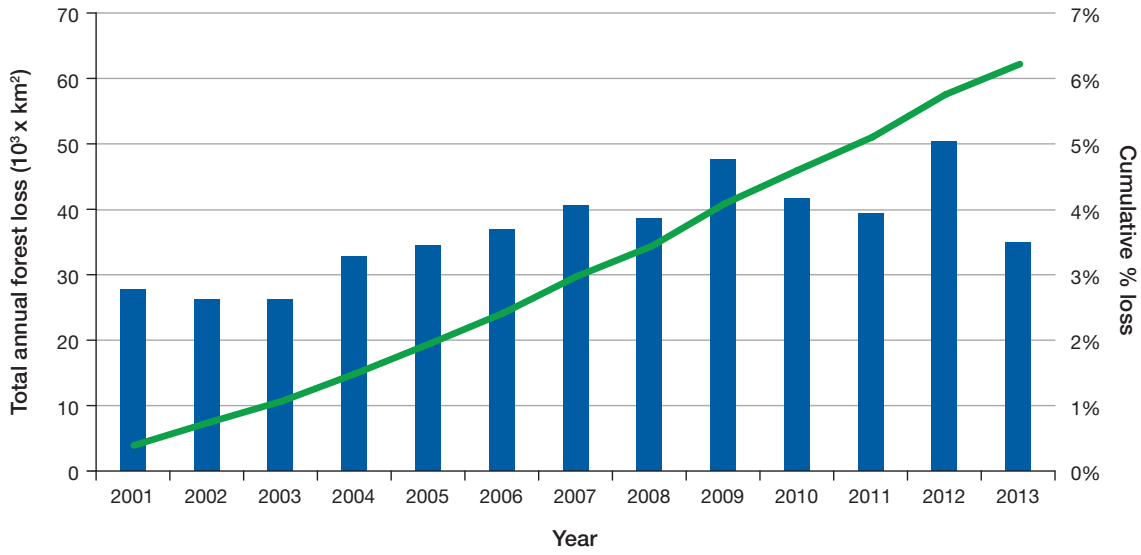

Figure 5.1: Forest cover trends in the Asia Pacific region (2001-2013) compared to 2000 forest cover (>10% tree cover), blue bars represents annual gross forest loss and the green line represents cumulative loss. Data are from global Landsat imagery at 30 m spatial resolution. Version 1.1 was used which includes a new 2013 loss layer and updated 2011 and 2012 layers. A threshold of greater than 10% tree cover was used to remove uncertainty in forest definition around areas with sparse tree cover. Trees are all vegetation taller than 5 m in height. Forest loss is a stand-replacement disturbance or a change from forest to non-forest state (source: Hansen et al. 2013).

South East Asia holds over 270,000 km² of tropical peatlands, about 60 per cent of the global total. In their natural state they support swamp forests and unique aquatic habitats, but at least half of this area has been drained or burned, releasing CO2 in volumes that are equivalent to between 1 per cent and 3 per cent of the world's annual fossil emissions (Hooijer et al 2010).

The coasts of Asia offer a range of habitats, which are biologically very productive and important for a wide range of biota. They provide a range of valuable ecosystem services, and support the livelihoods of large human populations. However, the coastal intertidal zone is narrow and the area is small, fragile and declining.

Several countries have already lost between 40 per cent and 55 per cent of all intertidal habitats, and the region of greatest habitat loss is the Yellow Sea (including the Bohai Sea) region (Murray et al. 2014). The extensive tidal-flats around the coast of the Yellow Sea region of East Asia provide a range of important services, such as supporting local livelihoods, providing habitat for biodiversity - especially migratory waterbirds - and defence against storms and sea level rise. However, studies have shown that 65 per cent of these tidal-flats have been lost in the past five decades. In recent decades, this rate of loss has increased due to reclamation for urban, industrial and agricultural development. Of the tidal-flats that were present in the 1980s, 28 per cent had been lost by the late 2000s. This recent loss is equivalent to an annual average rate of 1.2 per cent (Murray et al. 2014).

IUCN estimates the current rate of intertidal habitat loss in Asia is equal to or greater than recorded losses of mangroves, tropical forest and sea grasses. Over the past 50 years, losses of up to 51 per cent of coastal wetlands have occurred in China, 40 per cent in Japan, 60 per cent in the Republic of Korea, and more than 70 per cent in Singapore (MacKinnon et al. 2012).

In conclusion, across much of this region habitat continues to be lost and many countries will fail to deliver the target by 2020 on current trends. This is particularly true for lowland tropical forests which are being cleared for agriculture in many countries. It is also true of wetlands and coastal habitats, especially in the South East Asia portion of the region.

TARGET 6: SUSTAINABLE MANAGEMENT OF AQUATIC LIVING RESOURCES

By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

"Overexploitation is a severe pressure on marine ecosystems globally and has led to the loss of biodiversity and ecosystem structure. Harvests of global marine capture fisheries have been reduced from the unsustainable levels of a decade and more ago. However, overfishing still occurs in many areas, and fisheries could contribute more to the global economy and food security with more universal commitment to sustainable management policies. Target 6 should be regarded as a step towards ensuring that all marine resources are harvested sustainably." (CBD 2016c)

Fisheries provide a major source of income and are a vital source of protein for coastal communities in Asia and the Pacific, as well as for many further inland. Some areas of the region suffer from overfishing, whereas other areas have fisheries that are well governed. Threats to vital inland water fisheries include water pollution by eutrophication, domestic and industrial organic loads, pesticides, heavy metals and development of dams.

The CBD fifth national reports show that several countries are working toward implementing global and national policies and strategies to combat the unsustainable harvesting of aquatic resources (Brunei Darussalam, China, Fiji, Kiribati, Myanmar, Nepal, Pakistan, Philippines and Vanuatu), suggesting some progress toward the target (CBD 2015). For example in Samoa, local communities protect their marine resources through enforcing no-fishing zones and village bylaws that regulate the use of unsustainable practices including the use of poisons and chemicals (Ministry of Natural Resources and Environment, Government of Samoa 2014), and in the 2013 State of Environment report for Samoa it was noted that villages are reporting improved fish catch per unit of effort (Ministry of Natural Resources and Environment, Government of Samoa 2013).

Few countries comment on the impacts of fisheries on ecosystems and other species. In fact, data from the Oceania sub-region, which supports the world's largest tuna fisheries, shows that stocks of major species such as bigeye and yellowfish tuna, are exceeding their maximum sustainable yield, or are already in critical condition from overfishing (Secretariat of the Pacific Regional Environment Programme (SPREP), and IUCN 2013b). The fishing method employed in catching tuna can have great impact on sustainable management of the species. Currently, around 25 per cent of the fish stocks in the Western Central Pacific are under an unknown amount of fishing pressure. In Oceania, tuna fishing constitutes the majority of the offshore fishing activity, with the most common fishing methods being longlining (a line with many hooks attached), purse seining (surrounding an entire fish school with a net), and pole-and-line fishing (using a pole with a single hook and live bait) (Figure 6.1). Purse seining fishing techniques are increasing in the Indian and Pacific Oceans and can be damaging to species populations specifically when used to catch tuna; using purse seining to catch skipjack tuna often results in the bycatch of young bigeye or yellowfin tuna as well as other species such as sharks, rays and turtles (Greenpeace 2010). Negative effect of bycatch are exacerbated when fish aggregating devices (FADs) are used, although evidence suggest not all bycatch results in fish mortality (FAO 2016).

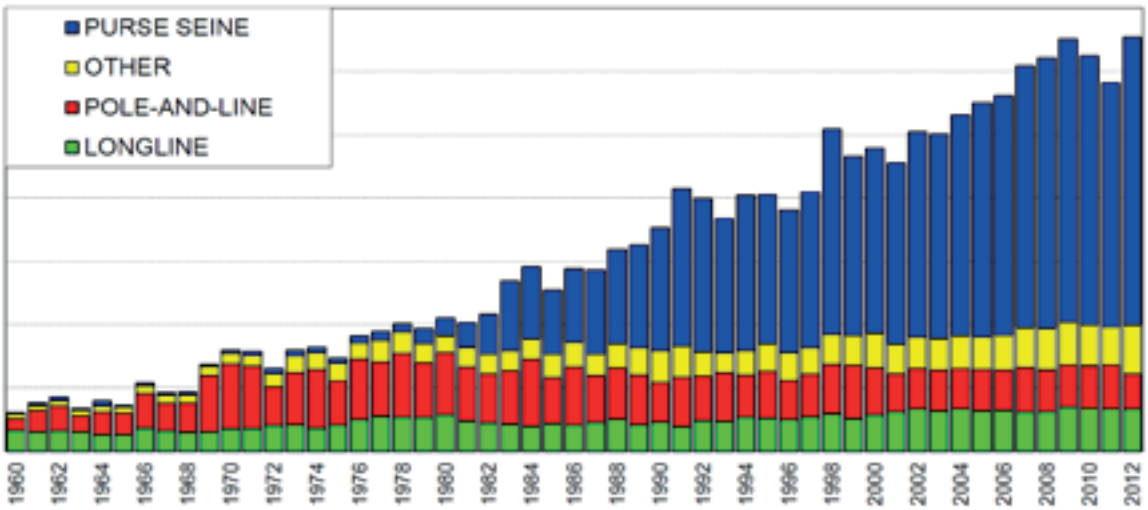

Figure 6.1: Trends in tuna fishing methods in Oceania, 1960-2012 (SPREP and IUCN 2013).

AidData statistics show that there has been variable investment into fish stock protection by development donors (Figure 6.2). This has been very patchy and seems to represent three periods of investment.

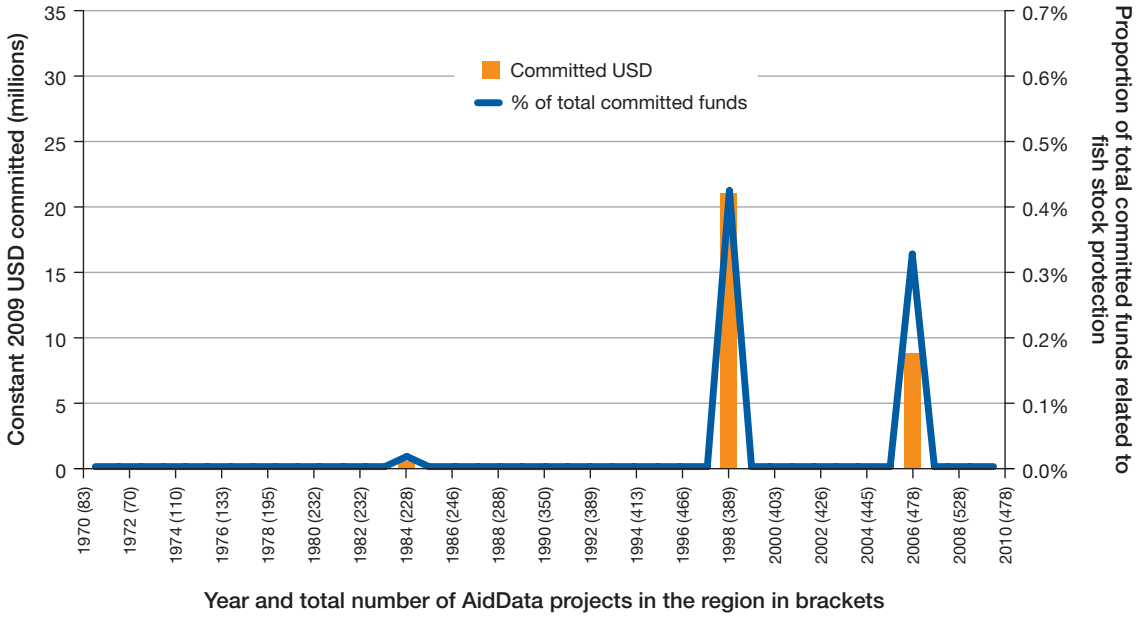

Figure 6.2: Absolute and proportional investment in fish stock protection by donors on AidData between 1970 and 2010 in Asia and the Pacific (source: Tierney et al. 2011).

It is also expected that fishery eco-labelling will support the development of sustainable fisheries. The MSC Fisheries Standard requires that target stocks for each fishery are maintained at or above maximum sustainable yield, to minimize fishery impacts on ecosystems and ensure sustainability.

The MSC has engaged Asia Pacific fisheries in Australia, China, Fiji, India, Japan, the Maldives, the Marshall Islands, New Zealand and Viet Nam. The first Asia Pacific fishery became certified in 2000 and covered 5,500 tonnes. The certified catch has increased more than 200-fold over the last fourteen years to reach a total catch of 1.35 million metric tonnes. This makes up 3.36 per cent of all fish caught in the Asia Pacific region (Figure 6.3).

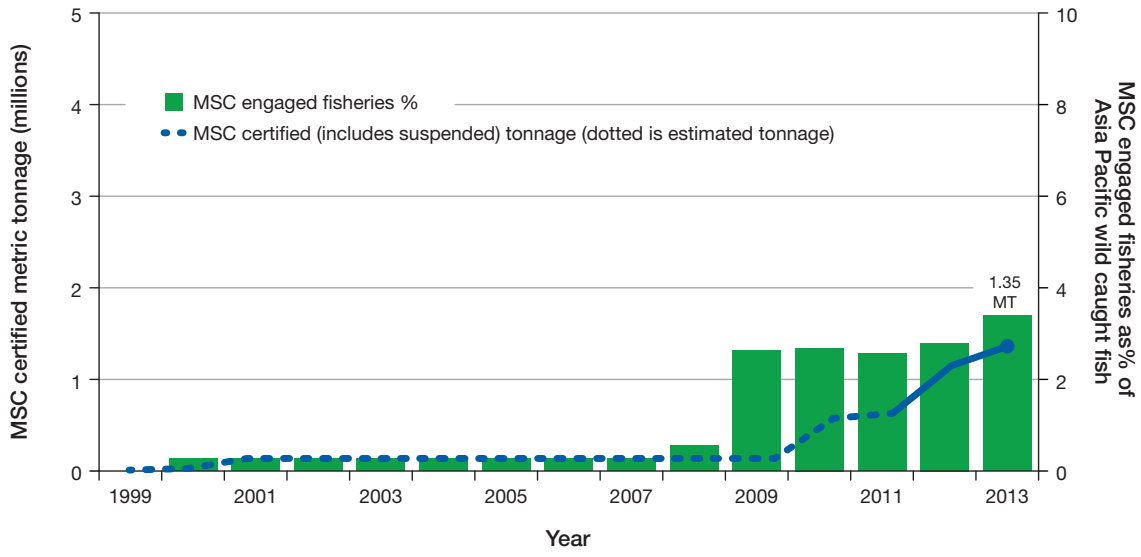

Figure 6.3: Trends in catch of fisheries engaged with the Marine Stewardship Council (MSC) in Asia and the Pacific: total MSC certified tonnage (dotted is estimated tonnage) and MSC engaged fisheries as a percentage of total Asia Pacific wild caught fish (source: MSC 2015).

Every improvement completed by an MSC fishery is a step towards the sustainability of fishing. The number of fishery improvements completed acts as an indication for positive changes. So far 83 improvements have been made by MSC certified fisheries in the Asia Pacific region and 72 more will be completed by 2020 (Figure 6.4) (MSC 2015). In total, 63 improvements will be completed for the health of target stocks, 64 will be completed in view of environmental impacts, and 28 are expected to be completed by 2020.

In conclusion, there has been some progress towards fisheries sustainability in Asia and the Pacific. However despite the progress that has been made, the information from the fifth national reports suggests that overall efforts will need to be scaled up if this target is to be met by 2020. The certified fisheries catch remains a small proportion of the total and some fisheries are heavily overfished. Trawlers from this region are also actively fishing in other regions of the ocean. There remains much to do to achieve Target 6 by 2020.

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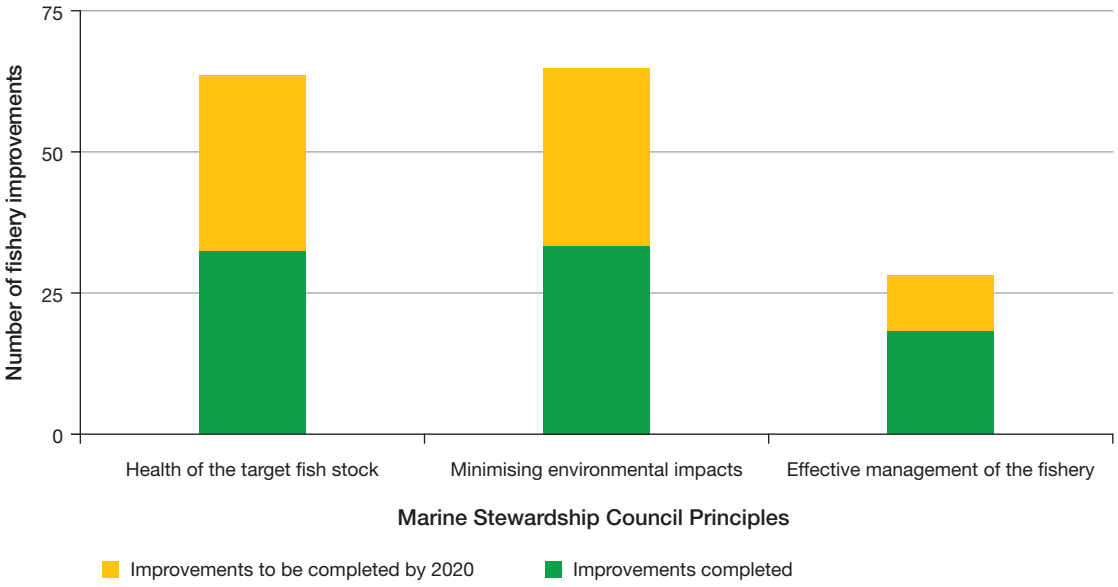

Figure 6.4: Number of fishery improvements completed and to be completed by MSC fisheries in Asia and the Pacific by 2020 (source: MSC 2015).

Box 6.1: Status of the Western and Central Pacific Tuna Fishery.

"Tuna fisheries in the Western and Central Pacific Ocean are among the most valuable resources in the region. These fisheries, worth an estimated USD 4.1 billion each year, play a pivotal role in supporting incomes and development goals in the region" (Sumaila et al. 2014).

Guidance and tools have been developed by the MSC to support fisheries working towards certification. Fisheries can be informally assessed against the full standard using the pre-assessment tool in order to identify areas for improvement, and then build an action plan to address these areas using the fisheries improvement action tool. For example, the MSC Fiji albacore tuna fishery underwent pre-assessment in 2007, and identified shark bycatch as a potential issue (Collinson et al. 2013).

The Fiji Tuna Boat Owners Association, in collaboration with the Fiji Ministry of Fisheries, implemented various mitigation measures, including use of small circular hooks, release of live sharks and prohibition of wire traces in deep-set fishing. This fishery was certified in 2012. Unfortunately the fishery has suffered a great decline and by 2014 only five of the 35 boats owned by members of the Fiji Tuna Boat Owners Association were still fishing.

Box 6.2: Tonle Sap Community Based Fisheries Management Initiative, Cambodia.

Tonle Sap Lake in Cambodia is one of the world's most important wetlands. It was designated a United Nations Educational, Scientific and Cultural Organisation (UNESCO) Biosphere reserve in 1997, is fundamental to food security in Cambodia and other areas of the region, and provides livelihoods for over 1.2 million people. In 2011, privately owned commercial fishing lots near certain communities were abolished by the government to allow the establishment of Fisheries Conservation Zones (FCZ) that prohibit fishing, alongside Community Fisheries (CFi), intended to be managed sustainably by local communities. To promote the success of this approach, IUCN has implemented a project, in partnership with the Fisheries Action Coalition Team (FACT), to build the capacity of the CFis to manage the FCZs, develop a network between the CFis and demonstrate the environmental and economical sustainability of this approach to conservation in Tonle Sap. The project will run from 2013 to 2016 (IUCN 2013b).

TARGET 7: SUSTAINABLE AGRICULTURE, AQUACULTURE AND FORESTRY

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

"The growing demand for food, fibre and fuel will lead to increasing losses of biodiversity and ecosystem services if issues related to sustainable management are not addressed. On the other hand, sustainable management not only contributes to biodiversity conservation but also can deliver benefits to production systems in terms of services such as soil fertility, erosion control, enhanced pollination and reduced pest outbreaks, as well as contributing to the well-being and sustainable livelihoods of nearby communities engaged in the management of local natural resources." (CBD 2016c)

Aichi Biodiversity Target 7 is critical for the Asia and the Pacific region given that in many countries subsistence and commercial farming, forestry and aquaculture are critical to human well-being. The fifth national reports to the CBD suggest that countries in this region are making some progress towards the attainment of this target, although this is generally insufficient to meet the target by 2020. Some countries in the region, including Australia, Cambodia, Indonesia, Micronesia, Sri Lanka, Vanuatu and Viet Nam, report that they have developed policies and strategies to promote sustainable agriculture, aquaculture and forestry. Other countries, including Brunei Darussalam, Myanmar, Pakistan, Palau and South Korea, have implemented sustainable forestry practices (CBD 2015).

Agricultural growth in the Asia and the Pacific region has slowed in recent years, due to declines in agricultural investment, and the depletion and degradation of natural resources resulting from population growth (FAO 2015a). The rate of population growth in the region may be too large to be sustained by the current state of agricultural production. Increasing demand for livestock and dairy products as a result of rising incomes, as well as an increasing demand for biofuels, puts stress on existing crop production systems, which often have poor irrigation and water control, drainage and waste disposal. In addition, investment in agriculture and rural development has been declining in recent years (FAO 2010a). Recently, however, major rice importing countries such as Indonesia, Lao PDR and Philippines have worked to identify and implement more efficient sustainable methods of rice production (FAO 2015c).

In 2010, aquaculture production in Asia and the Pacific was 53.1 million tonnes, which accounts for 89 per cent of total global production. Production has grown by 6.5 per cent annually between 2000 and 2010, and the value of the aquaculture industry has grown by 10.5 per cent annually, reaching around USD 95.2 billion in 2010, 80 per cent of the global value (Funge-Smith et al. 2012). Asia and the Pacific is now the world's largest producer of fish, with total capture production exceeding 50 per cent of world production since 2006 (Funge-Smith et al. 2012). 55 per cent of world fish exports for human consumption in 2012 are estimated to originate from Asia, with China set to become the world's leading exporter in the coming years (FAO 2012b).

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Box 7.1: Towards Sustainable Aquaculture.

The "blue growth" regional initiative lead by the FAO aims to promote the sustainable intensification of aquaculture production in six countries in Asia and the Pacific, Bangladesh, Indonesia, Philippines, Sri Lanka, Timor-Leste and Viet Nam (FAO 2015b). These countries are leading pilot plans to improve aquaculture in order to help meet the needs of a growing population in terms of food security and sustainable consumption.

Forest degradation and loss resulting from logging, especially in Asia, has often been the result of inappropriate logging licenses, corruption and the weak enforcement of existing forestry regulations (Geist and Lambin 2002). In a vicious cycle, illegal logging in some countries in the region has undermined the government's attempts to increase the productivity and sustainability of the legal sector, including commercial agriculture and tree plantations, reducing prices and eliminating the incentives to invest in better management practices (Burgess et al. 2011; Indrarto et al. 2012). The situation can be complicated with legal logging not necessarily meaning sustainable logging (and the resulting impact on reducing incentives for better practice) and strongly regulated harvests in one country affecting forest sustainability in neighbouring countries which might not have such effective regulations. The EU has now signed a 'voluntary partnership agreement' with Indonesia and is negotiating similar arrangements for Lao PDR, Malaysia, Thailand and Viet Nam. Once implemented, the agreements will give certified legal timber preferential access to EU markets under the Forest Law Enforcement, Governance and Trade (FLEGT) program (EU FLEGT 2016).

Box 7.2: Economic Importance of Forestry in Indonesia.

Timber and associated pulp, paper and wood product industries make an important contribution to the Indonesian economy, worth USD ten billion in exports alone in 2012 (United Nations Commodity Trade Statistics 2014). Demand for timber is primarily met through selective logging of natural forest, leading to forest degradation. The paper and pulp industries are supplied through plantations of fast-growing softwoods which are primarily developed on deforested land (McFarland et al. 2015).

In the Asia Pacific region, the areas of certified sustainably managed forests have been steadily increasing, reaching almost ten million hectares in 2014 (Figure 7.1). Asia and Oceania together contain 6.6 per cent of total certified areas globally[1] (12,079,433 hectares) (Forest Stewardship Council 2014), although a proportion of this is plantation forest and hence of limited importance for biodiversity. The number of countries reporting on the state of their forest management has also risen considerably since the 1990s and continues to increase at a steady rate (Figure 7.1).

REDD+ actions for the sustainable management of forests can help reduce emissions in production forests, while contributing to Aichi Biodiversity Target 7. Regulation of logging activities, through management plans, or improving enforcement through monitoring or economic incentives are potential REDD+ actions for achieving sustainable management. In Mongolia for example, an export ban on timber has limited demand for wood for domestic use (e.g. fuelwood), yet policies and measures are needed to enhance sustainable management of forest resources (UN-REDD 2011). These could include promotion of energy-efficient heating and cooking systems at household level and the development of more efficient technologies for utilizing wood for construction and other commercial activities.

[1] *Statistics based on the countries considered as part of Asia and Oceania by the Forest Stewardship Council.*

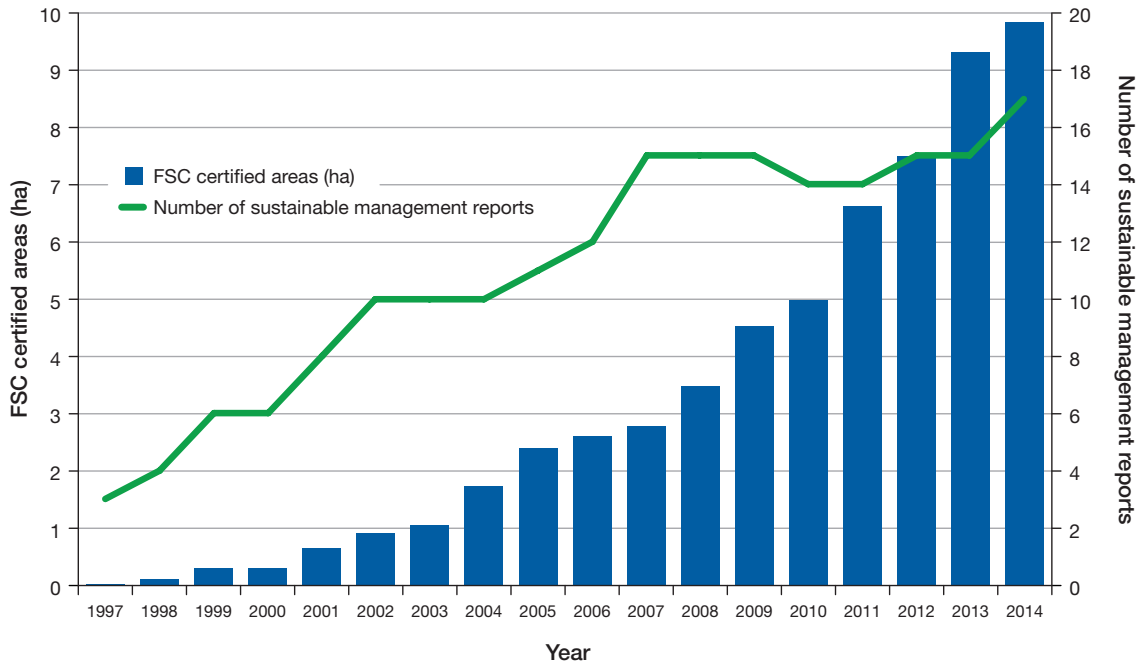
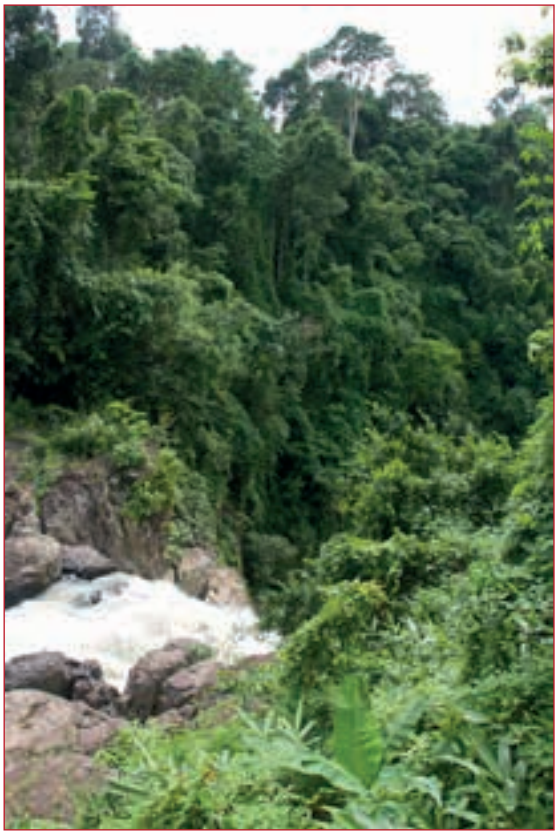


Figure 7.1: Areas of forest with Forest Stewardship Council (FSC) certification and the number of countries reporting sustainable forest management in the Asia Pacific region between 1997 and 2014 (source: FSC 2015).

In conclusion, there has been some progress towards sustainable production in the Asia Pacific region, mainly in forestry. However, this is dwarfed by the conversion of forests to other land-use in some regions of South East Asia, the change of natural forest to various forms of plantations, the high rates of logging (including illegal logging), and the expansion of agriculture to support an expanding human population. Significant efforts will be required to meet this target by its deadline of 2020.



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TARGET 8: POLLUTION REDUCED

By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

"Nutrient loading, primarily of nitrogen and phosphorus, is a major and increasing cause of biodiversity loss and ecosystem dysfunction, especially in wetland, coastal and dryland areas. As nitrogen and phosphorus are often limiting nutrients in many ecosystems, when they are present in excessive quantities they can result in rapid plant growth which can alter ecosystem composition and function. Humans have already more than doubled the amount of "reactive nitrogen" in the biosphere, and business-as-usual trends would suggest a further increase of the same magnitude by 2050." (CBD 2016c)

Across Asia and the Pacific, countries face the challenge of maintaining soil fertility to feed their populations and reduce the expansion of the agricultural land into other valuable ecosystems, such as forests and wetlands. Another challenge is the need to prevent eutrophication and poisoning of watercourses from the over-use of agricultural chemicals. In 2008, production and consumption of food and energy in the region resulted in an average reactive nitrogen loss of around 25 kg of nitrogen per inhabitant per year. Of this total nitrogen loss, approximately 75 per cent is associated with agriculture (International Nitrogen Initiative 2014a). The loss of reactive nitrogen to the environment is approximately five kg per inhabitant lower in Asia and the Pacific than the world average (Figure 8.1).

In Asia and the Pacific, approximately half of the fifth national reports to the CBD contain information suggesting that while some progress has been made towards this target, efforts need to be increased to meet the target by 2020. Progress toward Target 8 has been reported by Australia, Brunei Darussalam, China, Fiji, India, Indonesia, Japan, Micronesia, Myanmar, New Zealand, Niue, South Korea, Sri Lanka and Tonga. This has been achieved through implementing strategies that improve agricultural and management practices in catchment areas and, for some countries, improving sanitation policies.

However, the fifth national reports to the CBD of many other countries in the region suggest that little to no progress has been made towards this target, and some report that lack of sanitation as well as unregulated agricultural and industrial runoff has resulted in continued pollution. Limited information of pollution loading in the region complicates an evaluation of overall trends (CBD 2015).

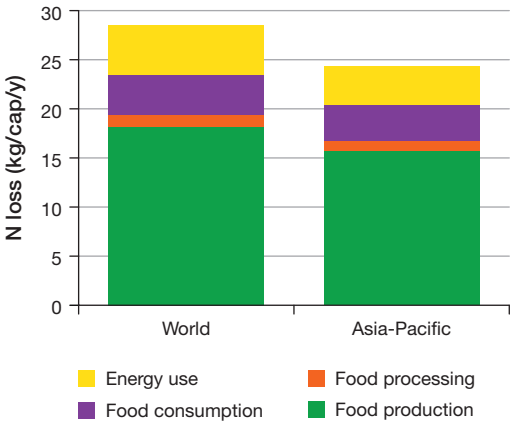

Figure 8.1: Average loss of reactive nitrogen per inhabitant in 2008 (source: International Nitrogen Initiative 2014b).

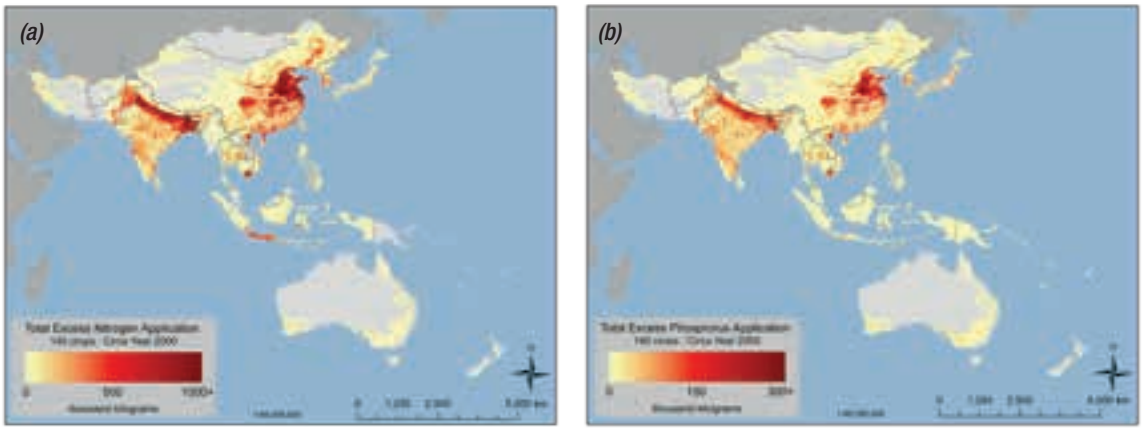

Figure 8.2: (a) Nitrogen and (b) Phosphorus excess application in Asia and the Pacific for the year 2000 (source: Global Landscapes Initiative, Institute on the Environment, University of Minnesota. Citation: West et al. 2014. Data available at EarthStat.org). Based on administrative-level and crop-specific fertilizer application rates modelled at 5' spatial resolution (~10km) using crop area and yield data as inputs. Given uncertainties in the model estimates at the grid cell scale, interpretation based on broader administrative units is advised.

Nitrogen and phosphorus application varies significantly across the region (Figure 8.2). The highest nitrogen load (500 to 1,000 thousand kg) is seen in the Himalaya region of northern India and in eastern China where arable agriculture predominates, in particular rice and wheat cultivation. Parts of Indonesia and Viet Nam also exhibit very high nitrogen loads. Coastal areas of Australia, southern and central China and the Indian sub-continent have medium to low excess nitrogen loads. All of these areas have high concentrations of arable farming.

The excess phosphorus loads exhibit similar spatial patterns, except that every nation in South East Asia is characterized by low loads (1 to 50 thousand kg) of excess phosphorus. Indonesia shows much lower intensity of phosphorus application than nitrogen. Thailand and Viet Nam have comparable levels of application of both nutrients. Elsewhere there are interesting contrasts, for example in northern Mongolia there is little to no excess nitrogen load but there exists a large band of low phosphorus load concentrated in wetter parts of the country, where arable production is concentrated. There is a similar difference between the nitrogen and phosphorus load in Afghanistan.

Overall, Asia and the Pacific is subject to widespread and excessive nitrogen and phosphorus loading, but nitrogen is present in far higher amounts (in terms of thousands of kg) and is also more concentrated than phosphorus in certain heavily cultivated areas. Phosphorus loading is present in lower amounts, but is more widespread than nitrogen across the region, particularly in areas of low agriculture production.

In conclusion, although data are limited on many aspects of pollution it is clear that there are challenges in addressing this target in many countries in the region. In addition to the issues with nitrogen and phosphorous pollution on land, in freshwater and in near shore marine environments, there are also problems with plastics and other debris in the oceans. Potential heavy metal contamination is also an issue in marine, coastal and terrestrial environments.

Box 8.1: Fiji Sanitation.

The Fiji government has developed a National Water Resources and Sanitation Policy which aims to implement an effective and efficient management system for the sustainable development of water resources (surface water and groundwater) and sanitation. Additionally, the Water Authority of Fiji (WAF) is working toward connecting more households up to the sewer system, in order to improve and maintain clean surface waters. Where resources are lacking for this to occur, NGOs and the Secretariat of the Pacific Community Applied Geoscience and Technology Division (SOPAC) are collaborating with the Fiji Ministry of Health to educate communities on proper septic system setup. The WAF is also testing major rivers and creeks, hoping to identify major sources of sewage and thus identify priority areas to hook up to sewer systems (Department of Environment, Fiji 2014).

Box 8.2: Chinese Pollution Reduction Action Plans.

In 2015, China's State Council issued a new water pollution reduction action plan, with the aim of improving water quality in the environment by 2030. The plan includes targets for the year 2020, including substantial reductions in the percentage of severely polluted water bodies, reducing unsustainable levels of groundwater withdrawals, and improvements in offshore environmental quality. Actions being implemented to meet these targets include controlling emissions and pollution released by industry, urban centres and agriculture, and controlling the withdrawal and use of water. This will be achieved through a combination of measures such as clarifying the responsibilities of different parties to tackle water pollution, implementing stricter law enforcement in response to violations, establishing incentive mechanisms, and amending taxation policies (The State Council - The People's Republic of China 2015).

China's National Action Plan on Air Pollution Control has been in place since 2013, with the aim of improving overall air quality in China, and specifically reducing the number of heavily polluted days experienced across China. The action plan introduces market mechanisms including the 'polluter pays' principle, the elimination of older, high polluting, vehicles, and an improvement of fuel quality (Sustainable Transport 2013).

An action plan for the reduction of soil pollution is also being developed in China (China Daily 2014).

TARGET 9: INVASIVE ALIEN SPECIES PREVENTED AND CONTROLLED

By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

"Invasive alien species are one of the main direct drivers of biodiversity loss at the global level. In some ecosystems, such as many island ecosystems, invasive alien species are the leading cause of biodiversity decline. Invasive alien species primarily affect biodiversity by preying on native species or competing with them for resources. In addition to their environmental impacts, invasive alien species can pose a threat to food security, human health and economic development. Increasing levels of travel, trade, and tourism have facilitated the movement of species beyond natural bio-geographical barriers by creating new pathways for their introduction. As globalization continues to rise, the occurrence of invasive alien species is likely to increase unless additional measures are taken." (CBD 2016c)

IAS are are found in all countries in Asia and the Pacific. They affect the region's key terrestrial, wetland, coastal, marine and estuarine ecosystems, including human production systems such as plantations and horticulture, and have a particularly strong impact on the region's oceanic islands. IAS are the second biggest drivers of biodiversity loss worldwide, after habitat destruction (SPREP and IUCN 2013). Prevention, control and eradication of IAS is therefore one of the most urgent environmental challenges in the Asia Pacific region.

The fifth national reports to the CBD generally contain little information on progress toward addressing IAS within this target. Information presented indicates that most countries have developed plans and strategies to address IAS. These focus on control, quarantine, biosecurity and pathways, with only few countries currently focusing on eradication of IAS (CBD 2015).

Prevention and control are important approaches to mitigate the spread and impacts of IAS for Asia and the Pacific. Eradication of IAS can be successful if dealing with small confined environments such as small islands, yet is neither practicable nor affordable for large systems such as the extensive forests, PA systems, or agricultural estates.

The eradication of IAS from islands also represents an important action to contribute to Target 9. Globally, from 1,086 attempts to remove invasive vertebrates from islands, 924 (85 per cent) have succeeded. The majority of the successes (584 of 924) have taken place in the Pacific islands (Figure 9.1). This is important because studies show that invasive species are implicated in over half of bird extinctions on islands (BirdLife International 2013; BirdLife International 2008). Moreover, three-quarters of all threatened birds on oceanic islands are under threat by invasive species due to: predation by introduced invasive mammals such as rats, cats, mongoose and feral dogs; herbivory and habitat degradation by goats, cattle and pigs, and disease transmission through introduced and invasive micro-organisms. IAS are also implicated in 28 of 29 extinctions of mammal species that have occurred in Australia since European colonization in 1788 (Woinarski et al. 2015).

The BirdLife Pacific Partnership has treated 30 islands for five species of introduced mammals across Fiji, French Polynesia, New Caledonia and Palau. There has also been considerable progress in New Zealand and other island nations in Asia and the Pacific to remove invasive species (IUCN 2011a).

In conclusion, IAS is a major issue in the Asia Pacific region – particularly on the Pacific islands - and considerable efforts will be required to get the issue under control and to make progress with the target by 2020.

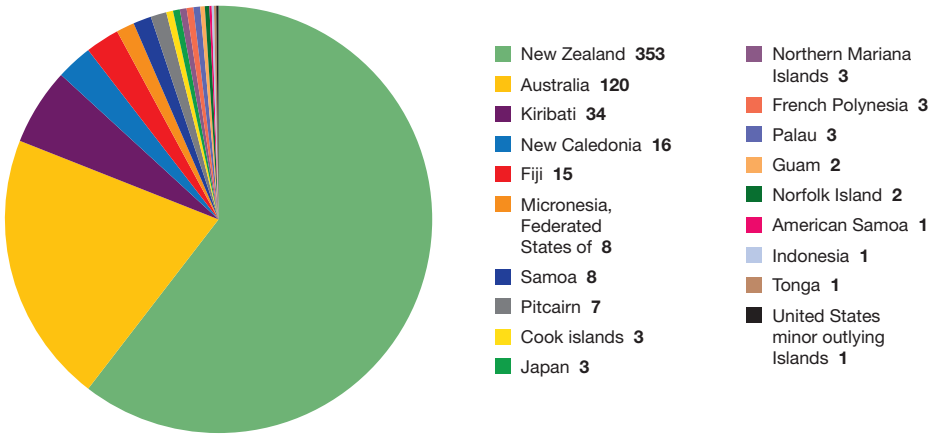

Figure 9.1: Successful invasive vertebrate species eradications within the region (data from New Zealand, Australia, Kiritimati, New Caledonia, Fiji, Federated States of Micronesia, Samoa, Pitcairn, Cook Islands, Japan, Northern Mariana Islands, French Polynesia, Palau, Guam, Norfolk Island, American Samoa, Indonesia, Tonga and United States Minor Outlying Islands (n=584)) (source: Island Conservation et al. 2014).

Box 9.1: Fighting Invasive Alien Species in Micronesia.

The Invasive Species Task Force of Pohnpei (iSTOP) is a state run taskforce in Pohnpei, Federated States of Micronesia. It was established in 2000 with the aim of controlling invasive alien species. The task force is supported by the state natural resource management agencies, NGO partners, and assistance from the local community, and maintains control, management and eradication teams. Since the taskforce was initiated more than ten years ago, seven different invasive alien species (false sakau, chain of love, ivy gourd, mile-a-minute, Honolulu rose, the feral pigeon and the octopus tree) have been brought under control. By 2013, the octopus tree had been completely eradicated, and the population of the other species had dropped by 50 to 95 per cent of the population in 2000.

In 2013, iSTOP developed its *4th Strategic Plan for 2013-2017*, which included plans for the eradication of the species noted above, and the Bengal trumpet vine, as well as plans for the control and management of additional species including Koster's curse, the African tulip and the tree sparrow. The *4th Strategic Plan* also addresses marine species, such as the crown of thorns starfish, and freshwater species such as the eel catfish, milk fish and tilapia. iSTOP also works towards identifying and controlling pathways. Since 2000 iSTOP has "transformed from a small and loose collaboration to a team comprised of and supported by twenty different State agencies, local NGOs, regional conservation groups, and international donor organizations" (Micronesia Conservation Trust 2014).

Box 9.2: Invasive Alien Species in Oceania (SPREP and IUCN 2013).

The most common introduced species in Oceania are plants (89 per cent), followed by animals (10 per cent) and other taxa such as fungi and micro-organisms (2 per cent). These IAS include predatory mammals, which have devastating impacts on native bird species, invertebrates such as ants (big-headed ant, crazy ant and fire ant), which are a threat to native fauna, and snails, such as the Rosy wolf-snail (*Euglandina rosea*), and the Giant African snail (*Achatina fulica*) which predate on native snails.

75 per cent of threatened birds on the islands of Oceania suffer the consequences of predation by introduced invasive mammals that prey on eggs, juvenile and adult birds, such as rat, cats, feral dog and mongooses. Ungulates such as goats, deer and cattle are also a threat as they trample and degrade bird habitats.

In Oceania, as in much of the Asia and Pacific region, the state of control over IAS remains poor, and despite some success stories with regards to eradication from specific islands, most invasive species populations remain unmanaged.

TARGET 10: ECOSYSTEMS VULNERABLE TO CLIMATE CHANGE

By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

"Urgently reducing anthropogenic pressures on those ecosystems affected by climate change or ocean acidification will give them greater opportunity to adapt. Where multiple drivers are combining to weaken ecosystems, aggressive action to reduce those pressures most amenable to rapid intervention should be prioritized. Many of these drivers can be addressed more easily than climate change or ocean acidification." (CBD 2016c)

Anthropogenic pressures pose a serious threat to biodiversity and ecosystem services in Asia and the Pacific. Climate impacts on coral reefs can result in coral bleaching and potential death of the reefs. Destructive fishing practices also affect coral reefs in the region. Other ecosystems that are vulnerable to climate change in the region include high mountain tops and low-lying coastal areas that are being inundated due to rising sea levels.

Coral reefs in the region are already affected by coral bleaching due to high thermal stress from climate change induced temperature increases, which contributes to the integrated local threats recorded by Reef Base in 2010 (Figure 10.1). Other threats to coral reefs in the area include land-based pollution, dynamite and other forms of destructive fishing, and invasion by certain species of starfish. Reef Base shows that the majority of the region's reefs, which are the most diverse in the world, are highly or very highly threatened, especially close to more populated mainland areas and small offshore islands (Figure 10.2).

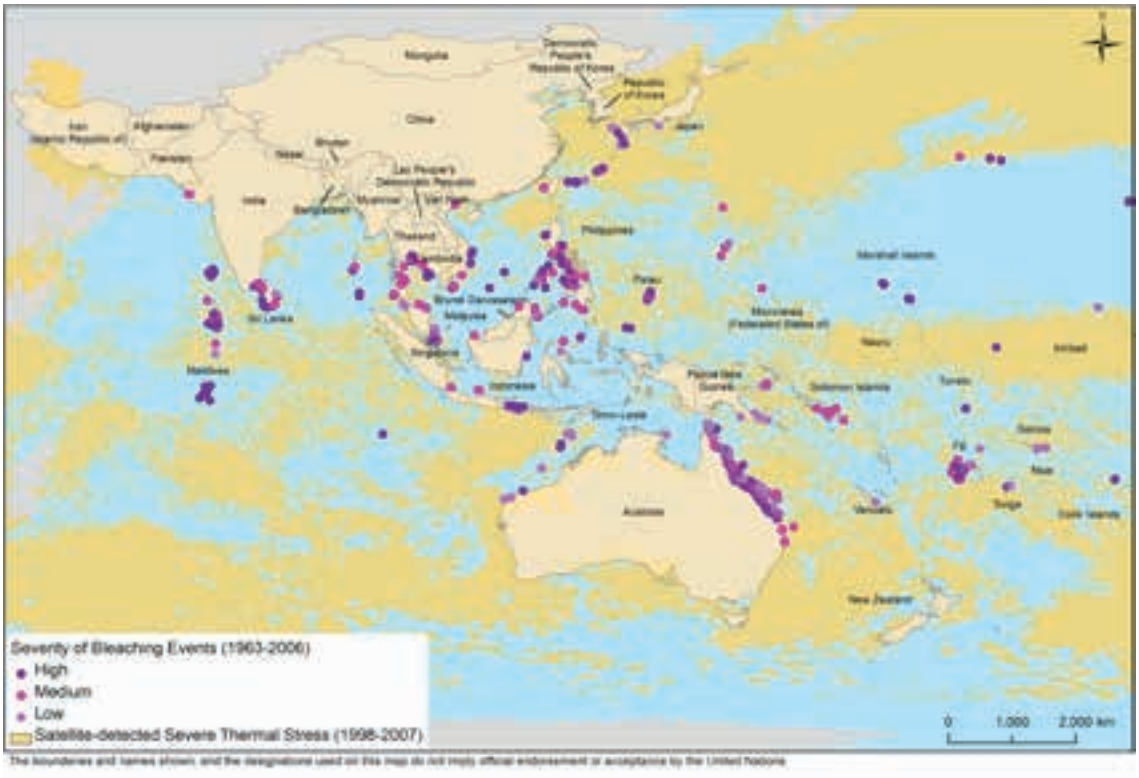

Figure 10.1: Severity of coral bleaching in Asia Pacific coral reefs and areas of high thermal stress in the Asia Pacific oceans (source: Reef Base 2014).

Figure 10.2: Degree of threat to Asia Pacific coral reefs (source: Reef Base 2014).

The majority of the fifth national reports to the CBD from this region present little information on progress towards Target 10. The information that is presented focuses mainly on the vulnerability of coral reef ecosystems. Countries including Brunei Darussalam, Fiji, Kiribati, Malaysia and New Zealand report on their development of policies and plans to reduce anthropogenic pressures, but they contain little information on the actions that are being undertaken to implement these policies and plans (CBD 2015).

In conclusion, the reefs of Asia and the Pacific face threats from both climate change and other anthropogenic pressures. As these reefs are the most biodiverse on Earth this is a significant challenge for the conservation of global marine biodiversity.

Box 10.1: Reef Conservation Actions in Australia.

Australia's Great Barrier Reef is affected by multiple factors including ground water pollution, marine transport infrastructure and temperature change. Analysis has shown that ecosystem health and biodiversity are in good condition in the northern third of the Great Barrier Reef, but that the overall outlook "is poor, has worsened since 2009 and is expected to further deteriorate in the future" (UNESCO 2016).

Australia has implemented many plans to address the pressures on its reefs, including the Reef Water Quality Protection Plan, The Reef 2050 Long-Term Sustainability Plan, The GBR Marine Park Zoning Plan 2003 and the eReefs Water Quality Dashboard. The objectives of these plans include improving water quality through revising land management in reef catchments, reducing nutrient run-off, combating the crown-of-thorns starfish, monitoring and modelling information on marine ecosystems, and promoting ecologically and traditionally sustainable recreational, commercial and research.

Box 10.2: Building Coastal Resilience to Climate Change Impacts in Southeast Asia.

Building Coastal Resilience to Climate Change Impacts in southeast Asia (BCR) was an IUCN project working in eight coastal provinces in Cambodia, Thailand and Viet Nam between 2011 and 2014, funded by the European Union. Two of these provinces, Ben Tre and Soc Trang, are located in the Mekong Delta, predicted to be one of the areas most affected by sea level rise globally.

BCR aimed to build the resilience of coastal ecosystems, and of the communities that depend on them, to adapt to the expected impacts of climate change. The project built local capacity to enable local government agencies to carry out climate change and disaster risk reduction vulnerability assessments, and design and implement projects and multisector actions to address the vulnerabilities identified. The project also encouraged and facilitated knowledge sharing between the provinces. Over 200 participants attended the third and final Annual Coastal Forum, held by the BCR in 2014, which was structured around five themes: coastal zone resilience, livelihood resilience, ecosystem resilience, gender and governance.

Projects resulting from the BCR capacity building include the development of aquaculture and the provision of tour guide training in Viet Nam, to improve household incomes and reduce pressure on vulnerable ecosystems, and the creation of a more effective seagrass conservation strategy in Cambodia, based on ecological and socio-economic surveys designed by staff from IUCN Cambodia and volunteers (IUCN 2016b).

Box 10.3: Mekong Adaptation and Resilience to Climate Change.

The USAID funded Mekong Adaptation and Resilience to Climate Change (ARCC) project ran from 2013 to 2015. Project activities were carried out in four villages in the Mekong region of Thailand, with an emphasis on establishing a connection between climate science and community-led responses to the vulnerabilities of ecosystems on the ground. The villages selected are located in areas projected to experience the greatest temperature and rainfall increases.

Project activities include: diversification of crops to build income resilience, increase food security and improve soils; investment in techniques for rearing local livestock breeds; the creation of forest management committees to improve forest management; and the provision of training on farming methods that integrate improved forestry, water and land management techniques (IUCN 2016d).

TARGET 11: PROTECTED AREAS

By 2020, at least seventeen per cent of terrestrial and inland water, and ten per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

"Well-governed and effectively managed protected areas are a proven method for safeguarding both habitats and populations of species and for delivering important ecosystem services. Particular emphasis is needed to protect critical ecosystems such as tropical coral reefs, sea-grass beds, deep water cold coral reefs, seamounts, tropical forests, peat lands, freshwater ecosystems and coastal wetlands. Additionally, there is a need for increased attention to the representativeness, connectivity and management effectiveness of protected areas." (CBD 2016c)

Protected areas are widely regarded as one of the most successful strategies for conserving nature (Geldmann et al. 2013). This target includes several different elements that need to be met in order for it to be reached. In Asia and the Pacific, some elements of Target 11 have already been achieved or are likely to be achieved by 2020, for example the region is on track to protect seventeen per cent of terrestrial and inland waters (Tittensor et al. 2014), and marine and coastal protected area coverage is already around ten per cent in this region (Juffe-Bignoli et al. 2014b).

Protected area coverage in Asia and the Pacific has been increasing steadily since 1990 (Figure 11.2). By August 2014, the World Database on Protected Areas (WDPA, www.protectedplanet.net) included 29,773 protected areas in the 54 countries and territories that comprised the Asia and the Pacific region (Figure 11.1). Of the 54 countries and territories in this region, Nauru is the only country with no protected area included in the database. In Asia and the Pacific, 33 per cent of the countries and territories (19 of 54) have more sites stored as point records than as polygons, indicating the relatively poor knowledge of the protected area boundaries in Asia and the Pacific.

The Pacific nations are also at the forefront of global efforts to develop marine protected area networks (Box 11.1). In 2014, countries in the region had protected 13.9 per cent of terrestrial and inland waters (compared to a global average of 15.4 per cent) and 1.4 per cent of marine areas within national jurisdiction (compared to a global average of 8.4 per cent) (Juffe-Bignoli et al. 2014b). The first Asia Parks Congress (APC) was held in Japan in 2013. Around 800 participants attended, representing central and local governments, NGOs, and protected area authorities in 22 countries across Asia, as well as students and academics. During the congress, experiences of good practice and challenges were shared, and the "Asia Protected Areas Charter" was agreed, setting out guiding principles for the co-existence of environmental conservation and development (Secretariat of the first APC 2013).

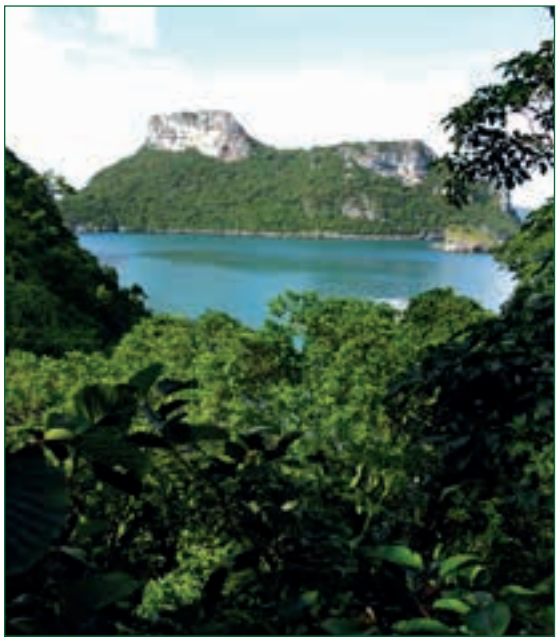

Figure 11.1: Protected Areas on land and in the sea in the Asia Pacific region in the World Database on Protected Areas (WDPA). Protected areas reported as points are not included in this map although they were considered for analyses (source: IUCN and UNEP-WCMC 2015).

Box 11.1: Examples of Protected Area Efforts Made by National Governments.

Australia: Australia has implemented an extensive network of marine protected areas, referred to as Commonwealth marine reserves. These reserves are managed by Parks Australia. They have been created to help protect marine biodiversity, including threatened and endangered species, while allowing some activities such as recreational and commercial fishing and marine tourism to continue. The WDPA currently has 59 Australian marine sites registered, covering a total area of over 2.8 million km^2.

New Caledonia: Some of the best known protected areas in the region include the newly designated *Parc Naturel de la Mer de Corail* marine national park in New Caledonia, which is the largest protected area in the world. It was designated in 2014 and covers just under 1.3 million km^2, which is all of New Caledonia's Exclusive Economic Zone.

China: China has 17 per cent of its area covered by protected areas and makes an important contribution to protected area coverage in the region. Notable examples include Kekexili, Qiangtang, Aerjinshan, and Sanjiangyuan nationally designated protected areas in the west of the country that cover around 766,000 km^2. China also has 14 natural and mixed (both cultural and natural) World Heritage sites, of which 12 are in good condition according to the World Heritage Outlook (Osipova et al. 2014).

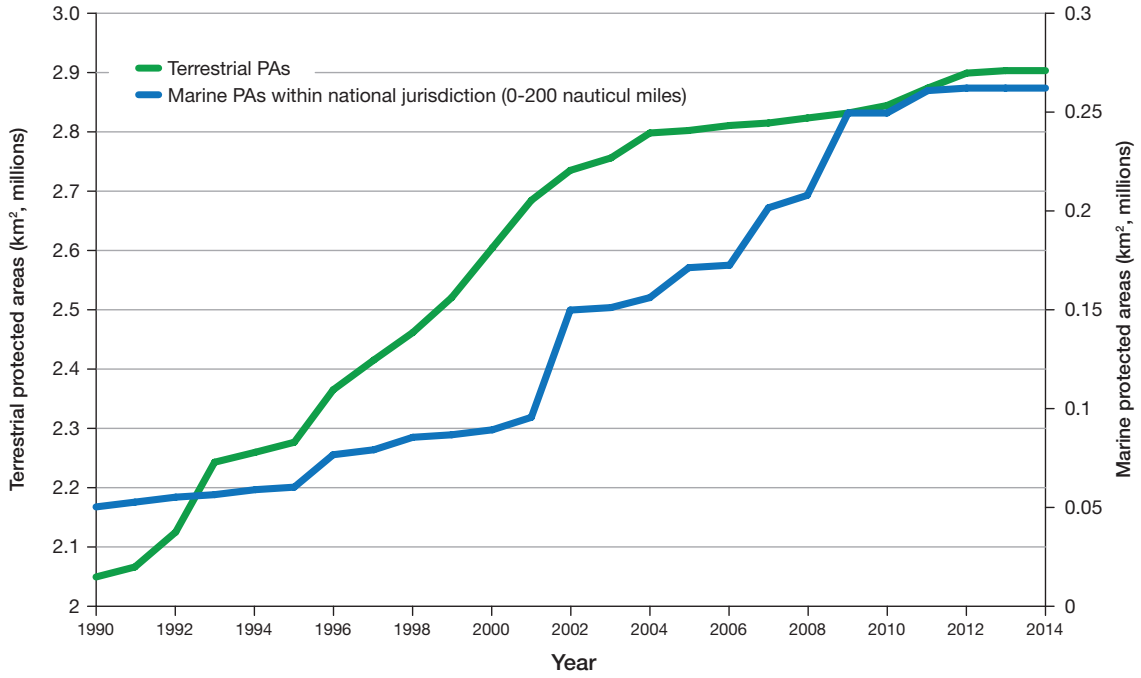

Figure 11.2: Trends in terrestrial and marine protected area coverage over time in the Asia and the Pacific region (source: UNEP-WCMC 2014).

In terms of internationally protected wetland sites, as of August 2014, 31 of 54 countries and territories in Asia and the Pacific have designated 327 Ramsar sites, covering 216,473 km². Australia has the highest number of protected wetland sites of all countries in the region in the WDPA registry, with 62 Ramsar sites covering 81,110 km².

In 2013, a global analysis of Protected Area Management Effectiveness (PAME) was completed (Coad et al. 2013). The analysis has not been disaggregated to the Asia and the Pacific region. However, a study focusing on 24 countries in Asia revealed that in 2013, only eight (Bhutan, Brunei Darussalam, Cambodia, Lao PDR, Mongolia, Nepal, Republic of Korea and Singapore) had assessed the management effectiveness of at least 60 per cent of the total area of their protected areas, while 13 had only assessed 30 per cent (Juffe-Bignoli et al. 2014a).

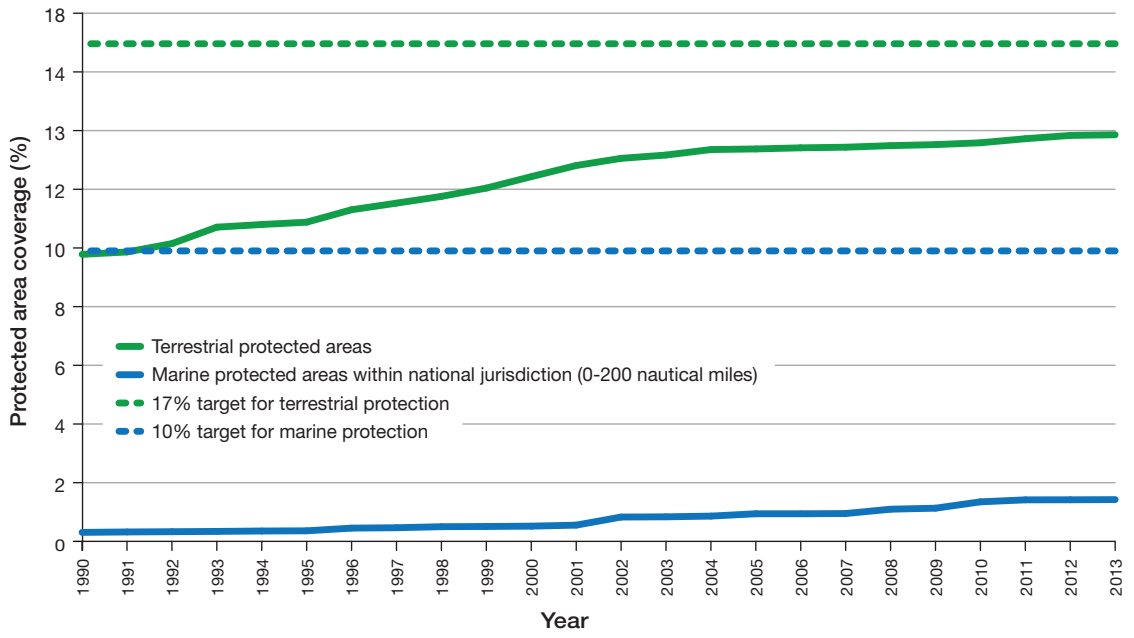

Figure 11.3: Terrestrial and marine protected area trends in the Asia and the Pacific region compared to the Target 11 protection goals (source: UNEP-WCMC 2014).

Target 11 also calls for the conservation of "areas of particular importance for biodiversity". Only two networks of such sites have been systematically identified throughout the Asia and the Pacific region. Important Bird and Biodiversity Areas (IBAs) consist of 2,656 sites contributing significantly to the global persistence of biodiversity, and are identified using data on birds. Within the region, there are 158 Alliance for Zero Extinction (AZE) sites which effectively hold the entire population of at least one species of mammal, bird, amphibian, reptile, conifer, or reef-building coral species assessed as Critically Endangered or Endangered on the IUCN Red List. While the coverage of these sites by protected areas has grown in recent decades (Figure 11.4), at present only 18 per cent of IBAs and 24 per cent of AZEs in the region are completely covered by protected areas (Brooks et al. 2016).

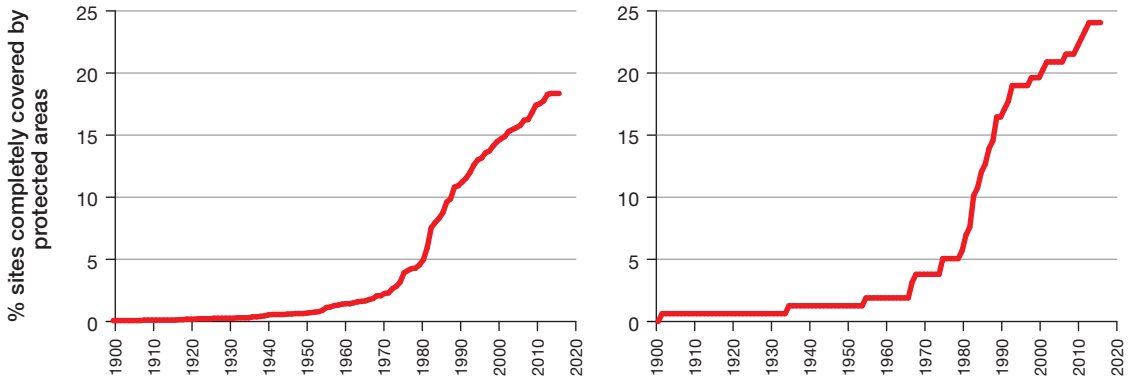

Figure 11.4: Trends in the percentage of Important Bird and Biodiversity Areas (left) and Alliance for Zero Extinction sites (right) in Asia and the Pacific that are completely covered by protected areas (source: Brooks et al. 2016).

The Asia Pacific region is highly diverse in terms of conservation area management strategies and governance systems. This difference is especially notable within Asia (Boxes 11.2 and 11.4). For example, the Small Island Developing States (SIDS) have many locally managed marine areas. Common management barriers include weak institutional capacity, disparities in governance, weak social capital and the availability of ecological data. In particular, many countries cannot afford to undertake comprehensive research, making the identification and development of protected areas difficult (Abdulla et al. 2009). Community-Based REDD+ (CBR+) was launched by the UN-REDD Programme in 2014 to "empower indigenous peoples and local communities to engage fully in the design, implementation and monitoring of REDD+ readiness activities" (UN-REDD 2016c). Local stakeholders in Cambodia and Sri Lanka are receiving grants of up to USD 50,000. In Cambodia, one of 13 grants is currently supporting sustainable management of over 4,000 hectares of forest in the community-protected areas of Chaom Pen and Damnak Changhann. The grant has empowered and supported local livelihoods of the community, 70 per cent of which is represented by indigenous peoples, supporting progress toward equitable management, an important component of Aichi Biodiversity Target 11.

In conclusion, although in the past decades many countries in the Asia Pacific region have designated new protected networks and are making a positive contributions towards the terrestrial and marine coverage elements of Target 11, further actions are required to expand protected areas in some countries. Moreover, further efforts are needed to progress towards meeting other elements of the target, such as ensuring the effectiveness of protected areas, improving our understanding of types of governance and equity in protected areas, and improving the connectivity of the protected area networks in the region.

Box 11.2: Examples of Different Protected Area Governance Systems in Asia.

Indonesia: Bunaken National Marine Park is located at the northern end of Sulawesi Island, close to the centre of Indonesia. This protected area was established in 1991. Approximately 30,000 people live in 22 villages located within the national park. The park has some of the best coral reef diving in the world, making it a popular tourist destination. As a result, the traditional livelihoods of fishing and farming are now supplemented by significant revenue from tourism. Governance of the Bunaken National Marine Park is collaborative, involving the national government and an advisory board of key stakeholders which includes 19 members representing the national, provincial and city governments, local communities, private-sector tourism operators, and academia.

Japan: Tsurui-Ito Tancho Sanctuary in Japan was established by Wild Bird Society of Japan in 1987. The reserve's primary objective is conserving the red-crowned crane and its habitat. Prior to the establishment of the reserve, members of several nature conservation groups and ornithologists had set up the Special Committee for Protection of Red-crowned Crane. This committee developed a plan to establish a bird sanctuary in the village of Tsuruimura, which was subsequently enacted. The sanctuary is financially supported through the membership fees from the Wild Bird Society of Japan and donations from other interested individuals.

Philippines: The small island of Apo is in the central (Visayan) part of the Philippines, near the Negros Island. This 0.74 km^2 volcanic island surrounded by coral reefs is home to 750 people. The area was afforded protection in 1976 with support from the nearby Silliman University when it was discovered that local fish stocks had collapsed. In 1979, the Apo Island Marine Reserve was initiated by a group consisting of local community members, Silliman University marine biologists, and social scientists. Marine conservation and education programmes were also introduced here at this time by Silliman University extension workers. A 0.45 km^2 area along the coast was delineated by the local community as a 'no take' reserve in 1982. In 1985 this was declared a Municipal Marine Reserve by the municipal council of the town of Dauin, Negros and Silliman University with support from the Marine Conservation and Development Programme (MCDP). In 1994, almost ten years later, the area was declared a Protected Landscape and Seascape under the National Integrated Protected Area System (NIPAS). The national government then assumed the governance role and established a Protected Areas Management Board (PAMB). Conservation and management have resulted in improved habitat and increased fish stocks and the area has become a popular tourist destination, especially for diving. The money generated from tourism is used for community development projects as well as reef protection (source: Juffe-Bignoli et al. 2014a).

Box 11.3: Indigenous Community Conservation Areas (ICCA) in the Philippines.

In efforts to improve management effectiveness, a cost-effective approach to managing key biodiversity areas and other areas with high conservation and cultural value has been implemented in the Philippines. The approach recognizes that, under the Indigenous Peoples Rights Act of 1997, indigenous communities have "the right to manage their ancestral domains through traditional resources and management practices" and under the Ancestral Domain Sustainable Management and Protection Plan, "they further have the right to define the development and conservation priorities of these ancestral domains" (Department of Environment and Natural Resources, Biodiversity Management Bureau, Republic of the Philippines 2014). As of 2012, 12 per cent of a total area of about 4.3 million hectares was designated as Approved Ancestral Domain in the Philippines. With growing recognition for the importance of indigenous peoples and traditional knowledge, a national consortium, Koalisyon Ng Katutubo at Samahan Ng Pilipinas (KASAPI), was designated to establish a National ICCA Network in the Philippines. Since 2011, the use of workshops with over 90 indigenous peoples' representatives and 50 delegates from academia, private, non-governmental and governmental sectors, has resulted in the Manila Declaration on ICCAs in March 2012. It responds to indigenous peoples' demand for the documentation, mapping and registration of ICCAs, the development of a registry and a national consortium whereby knowledge and issues threatening the sustainability of ICCAs can be shared and discussed. Several indigenous communities have since also requested that their ICCAs be documented. The approach is recognized to be empowering indigenous communities and fostering conservation, lending itself to progress toward Target 11 and 18 (ICCA registry 2015).

TARGET 12: REDUCING RISK OF EXTINCTION

By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

"Though some extinctions are the result of natural processes, human actions have greatly increased the extinction rate in recent times. Reducing the threat of human-induced extinction requires action to address the direct and indirect drivers of change (see the Aichi Biodiversity Targets under Goals A and B of the *Strategic Plan for Biodiversity 2011-2020*) and can be long term processes. Yet imminent extinctions of known threatened species can in many cases be prevented by protecting important habitats (such as Alliance for Zero Extinction sites) or by addressing the specific direct causes of the decline of these species (such as overexploitation, invasive alien species, pollution and disease)." (CBD 2016c)

The Asia Pacific region covers a number of major biological realms that have spectacular biodiversity, with almost a complete change in the species from China and Iran to Australia, New Zealand, the Pacific Islands, and across many of the islands of Indonesia. The region's coral reefs, lowland rainforests, temperate forests and mangroves are all the most diverse on Earth.

Species in the Asia Pacific region are becoming more threatened over time, as illustrated by the Red List Index (RLI) for birds (Figure 12.1). However, birds in the Asia Pacific region are less threatened than the global average,

Species population data for vertebrates in terrestrial and freshwater habitats shows considerable declines across the region as measured using the Living Planet Index (WWF 2014). Although not in precisely the same geographical area as the UNEP Asia and the Pacific region, the Indo-Pacific index shows large and continuing declines in species populations (Figure 12.2). This region has the second highest rate of decline on Earth (67 per cent) after the Neotropical region. Unfortunately the rate of decline in the Indo-Pacific region seems to be increasing in the period 2000-2010, the last date for which there is available data. This is against a background of fairly steadily development assistance into species conservation in the region (Figure 12.3).

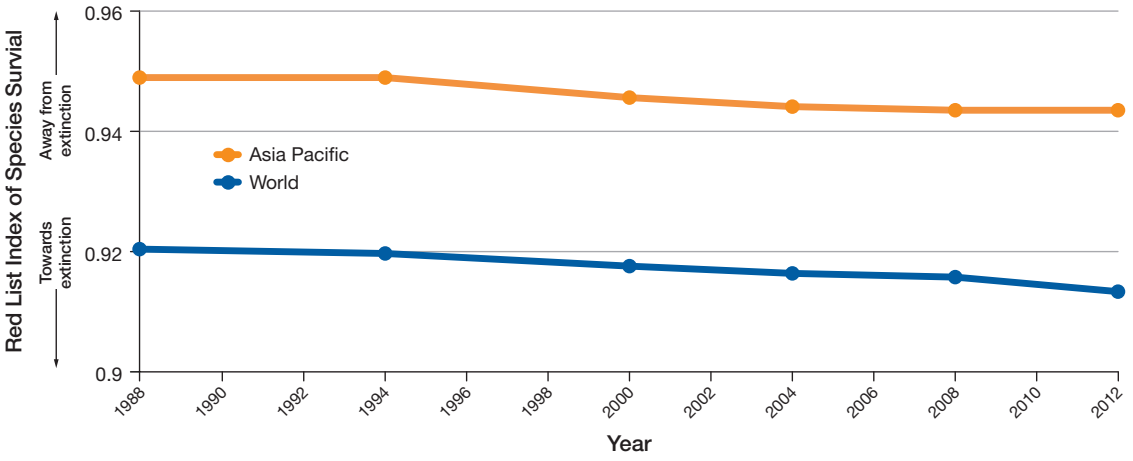

Figure 12.1: IUCN Red List Index of species survival for birds in Asia and the Pacific (1988-2012). A Red List Index value of 1.0 means that all species are categorized as of 'Least Concern', and hence none are expected to go extinct in the near future. A value of zero indicates that all species have gone extinct (source: BirdLife International 2015).

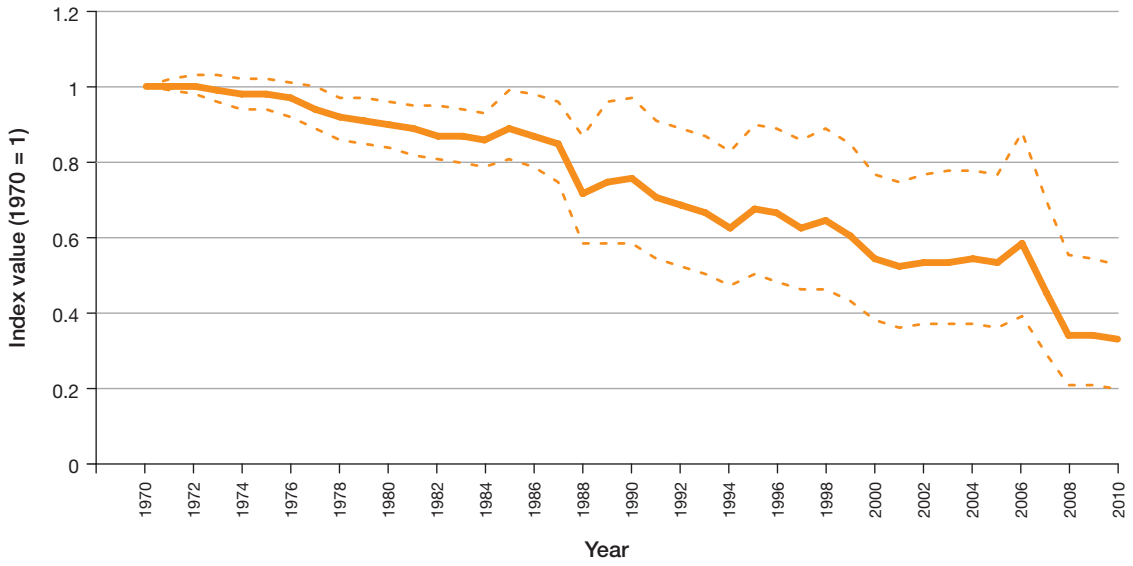

Figure 12.2: Indo-Pacific Living Planet Index 1970–2010. Dashed lines indicate confidence limits (source: McRae et al. 2014).

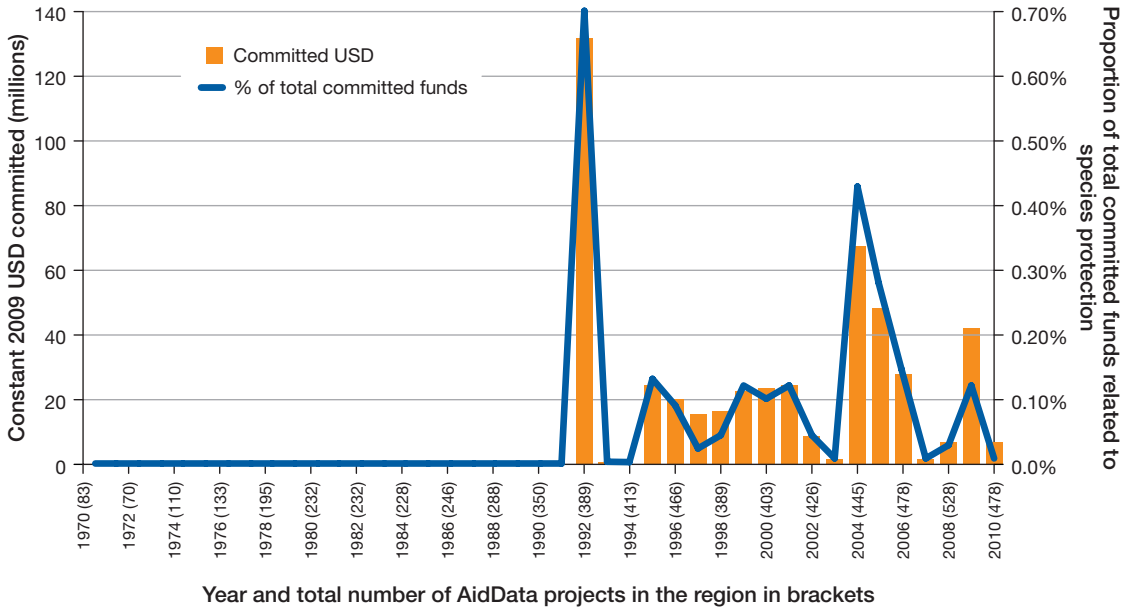

Figure 12.3: Absolute and proportional investment in species protection by donors on AidData between 1970 and 2010 in Asia and the Pacific (source: Tierney et al. 2011).

The fifth national reports to the CBD suggest that most countries in the Asia Pacific region are making some progress towards reducing the pressure on species from the region, but that the rate of progress is not sufficient to meet Target 12 by 2020. Efforts include strengthening border controls, implementing breeding programs, updating species assessments, increasing protected area coverage and developing monitoring programs, although most countries also report that many species are still under threat and many countries report little or no progress towards this target However, a number of countries have developed national conservation action plans for certain threatened species, or are in the process of doing so (CBD 2015).

In addition, some countries in the Asia Pacific region have also been making efforts to manage the trade in timber species. The International Tropical Timber Organization (ITTO) has been developing a collaborative project with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to provide assistance to countries throughout the tropics in forest management practices, inventories and guidelines for the protection of CITES listed tree species (ITTO 2015). The main objective of the project is to ensure that international trade in CITES-listed timber species allows their sustainable management and conservation. Within the Asia and the Pacific region, the project focuses on the legal and illegal trade in Ramin (*Gonystylus spp*), a tropical hardwood tree which is part of the natural habitat of endangered species such as the orangutan and the Sumatran tiger. The Ramin is native to many countries in South East Asia such as Indonesia, Malaysia, Papua New Guinea, Philippines and Singapore (WWF 2015). Both Indonesia and Malaysia hosted national and regional workshops to enforce compliance of trade in Ramin and enhance the understanding amongst agencies implementing CITES on the correct handling of Ramin trade and its sustainable and consistent management and conservation (ITTO 2009; ITTO 2010). Although legal trade has been somewhat reduced by increased Government control and action by non-governmental organizations (NGOs), illegal harvesting and smuggling continues to threaten the species (WWF 2015).

In conclusion, despite increasing efforts and funding in the Asia Pacific region for species conservation there are many examples of species declining and becoming more threatened. Further, a number of countries note that limited information is hampering efforts at monitoring species trends. For example, Brunei Darussalam states that field studies are needed to determine conservation status of species.

Box 12.1: Importance of Inter Tidal Areas for Shorebirds in Asia.

For the millions of shorebirds that migrate through the East Asian-Australasian Flyway, the intertidal areas of Asia are a crucial migratory bottleneck. Analysis of monitoring data of Japanese shorebirds between 1975 and 2008 showed evidence of declines in most species, especially those that stop at the Yellow Sea (including the Bohai Sea). At the current rate of decline (26 per cent per annum), Spoon-billed Sandpipers could be extinct within the decade despite ongoing conservation action. Of the 155 species of water-birds that depend on East Asian intertidal and associated habitats, 24 are globally threatened (Critically Endangered, Endangered or Vulnerable on the *IUCN Red List of Threatened Species*) or Near Threatened. These declines are despite an apparent increase in donor funding for species conservation in the region (Figure 12.1).

Box 12.2: Illegal Wildlife Trade in Asia and Pacific.

In some parts of the Asia Pacific region, population growth and burgeoning affluence have led to rising demand for exotic and luxury products, including wildlife products. Countries in the region are destination, transit and source countries for both legal and illegal wildlife trade, especially China and Viet Nam. These include big cats (tigers and lions), snakes, birds, bear, pangolin, reptiles, turtles, sharks, corals, seahorses, aquarium fish, timber species, and medicinal plants, among others. Across South East Asia, there are markets in multiple countries, and along and across the border areas of many countries, where wildlife is legally and illegally traded. Prominent markets exist in Indonesia and the Philippines, while international border crossings between China and Thailand also function as wildlife markets. The growth of internet commerce has facilitated illicit trade in wildlife products (both live animals, and parts of dead animals). Illicit trade includes iconic species such as elephants, rhinoceroses, tigers and also live great apes. The illegal ivory trade, for example, has doubled in volume since 2007 (Lawson and Vines 2014). The illegal trade in great apes is also widespread. From 2005 to 2011, 1,019 orangutans are documented to have been taken from the wild through illicit activities (Nellemann et al. 2014).

High demand items, such as elephant ivory, tigers and their parts and derivatives, and rhino horn, make their way to Lao PDR and onto markets in China and Viet Nam. This is also the case for trade in pangolins, turtles, lizards, snakes and other native species that fall prey to poaching and trafficking in Lao PDR (United Nations Office on Drugs and Crime (UNODC) 2014). In Myanmar, live elephants are also illegally captured for sale into the Thai tourist industry that entertains foreign and domestic tourists at trekking camps. Because visitors prefer younger elephants, the value of calves has soared to around USD 33,000 for a healthy specimen (McGrath, 2014). Between April 2011 and March 2013, up to 81 wild elephants were illegally captured and at least 60 per cent of the animals trafficked into Thailand originated in Myanmar. For this reason, elephant trafficking is considered a serious threat to the future survival of that country's wild population of around 4,000 to 5,000 Asian Elephants (TRAFFIC 2014).

Tigers, which are classified as endangered by IUCN, are found in Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Russia, Thailand and Viet Nam. The global population in the wild is estimated to number between 3,000 and 3,900 individuals, down from around 100,000 at the start of the twentieth century. Even though China banned domestic trade in tiger bones and their derivatives in 1993, the demand for tiger products has increased, resulting in a sharp decline in the tiger population and extinction of three of the nine sub-species (Nellemann et al. 2014). There has also been a tendency for African Lion bones to be used as replacement for tiger bones as the latter are now hard to source.

In the Pacific sub-region, there is also trade in corals, giant clams, birds, insects, reptiles, which may also include illegal trade. This trade is both to unknowing tourists as well as more systematically through organized traders.

Due to these challenges there has been considerable recent effort by CITES Parties and the Secretariat in addressing issues related to illegal trade in wildlife and their products in the Asia Pacific region. Furthermore, national and regional efforts are being assisted by several parts of the UN system, including UNODC and other international agencies such as INTERPOL, as well as international and national NGOs. Various international and regional networks and initiatives, and in particular the International Consortium on Combating Wildlife Crime (ICCWC), comprised of the CITES Secretariat, INTERPOL, UNODC, the World Bank and the World Customs Organization, and the ASEAN Wildlife Enforcement Network, also play a key role in supporting related efforts in the region.

Box 12.3: IUCN Red List Capacity Building in Bangladesh.

In order to increase the knowledge base on extinction risk, in 2014/15 IUCN Bangladesh took the lead on a project to revise the IUCN Red List for Bangladesh. The work was important as it provided up to date information for policy-makers and practitioners, after no updates had been made to the list for 13 years. The project was also designed to build conservation capacity in Bangladesh; more than 100 practitioners were trained in carrying out species assessments to the IUCN Red List standards (IUCN 2014a).

Box 12.4: Integrated Tiger Habitat Conservation Programme.

The Integrated Tiger Habitat Conservation Programme was established by the IUCN in 2014, using funding from the German government and German government owned bank, KfW. It funds projects designed to improve the conservation status of wild tiger populations by improving their habitats, addressing tiger-human conflict and tackling poaching. Project proposals have been received from the nine eligible countries (Bangladesh, Bhutan, Cambodia, India, Indonesia, Lao PDR, Myanmar, Nepal and Viet Nam) (IUCN 2015b).

Box 12.5: Asian Species Action Partnership (ASAP).

In 2008 the Global Mammal Assessment in 2008 was completed. It assessed mammal species for the IUCN Red List, and one important finding was that South East Asia had the highest concentration of mammals close to extinction of any region on Earth. Similar patterns are seen in other groups which are hunted or traded in the region (such as reptiles). The Asian Species Action Partnership (ASAP) was established in response, with the goal of reversing "the declines in the wild of Critically Endangered freshwater and terrestrial vertebrates in South East Asia" (IUCN 2016a). There are 154 species that meet this description, the majority of which are freshwater fish, followed by mammals, birds, reptiles and finally amphibians. ASAP works by identifying and facilitating the conservation actions required to improve the threat status of these species (IUCN 2016a).

Box 12.6: South Asia Vulture Conservation.

The Governments of Bangladesh, India, Nepal and Pakistan signed a *Regional Declaration on the Conservation of South Asia's Critically Endangered Vulture Species* in 2012. Vulture populations had dropped by 95 per cent in a decade in South Asia, and the reduction in numbers was causing substantial issues with waste disposal, particularly of carrion. Measures being put in place to reverse the decline include the removal of drugs such as Diclofenac from the environment, as this is the single most important cause of the decline. Transboundary Vulture Safe Zones are also being established, and breeding and reintroduction programmes for the three Critically Endangered species are being scaled up (IUCN 2014b).

Box 12.7: Lao PDR National Action Plan for Conservation of Gibbons.

In 2011, the government of Lao PDR launched a National Action Plan for Conservation of Gibbons. Lao PDR is particularly species rich for gibbons. Six of the 17 species are known to be native to Lao PDR, and for two of them, their best chance of long term survival is in Lao PDR. The Action Plan was drawn up by a technical team of government representatives, scientists and practitioners from NGOs. As hunting is the main threat to gibbons in Lao PDR, raising awareness and improving enforcement in priority locations identified by the Action Plan are particularly important (IUCN 2011b).

TARGET 13: SAFEGUARDING GENETIC DIVERSITY

By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

"The genetic diversity of cultivated plants and farmed or domesticated animals and of wild relatives is in decline, as is the genetic diversity of other socio-economically and culturally valuable species. The genetic diversity that remains needs to be maintained and strategies need to be developed and implemented to minimize the current erosion of genetic diversity, particularly as it offers options for increasing the resilience of agricultural systems and for adaptation to changing conditions (including the escalating impacts of climate change)." (CBD 2016c)

The diversity of cultivated plants and farmed or domesticated animals is vital to maintain food security in the Asia Pacific region. Figure 13.1 provides an overview of the risk of extinction for local and transboundary - regional and international - breeds in the Asia Pacific region. This risk is calculated based on population sizes as described by FAO (2007), using data that has been provided by FAO (2015d) and reported to the Domestic Animal Diversity Information System, DAD-IS, as of August 2015.

The fifth national reports to the CBD demonstrate a range of actions to preserve genetic diversity, particularly of traditional crops, and in some cases medicinal plants. Over half of the countries in the region report the establishment of ex situ preservation of plants in the form of seed banks or germplasm banks. Other actions to preserve plant genetic diversity include the distribution of traditional seeds to farmers in Sri Lanka, and seed collection and distribution to nurseries in Vanuatu. Less is reported on the preservation of animal genetic diversity, but some projects have been established, including breeding centres for animal species in Iran, a National Livestock Genetic Resource Complex in Mongolia, and the gathering of local chicken breeds by the Department of Livestock Development in Thailand (CBD 2015).

A global total of 2,221 breeds have been reported in the region, including 1,799 local breeds and 422 transboundary breeds. In terms of transboundary breeds, 56 per cent are reported as 'not at risk', four per cent are reported as 'at risk' and 40 per cent are reported as 'unknown' (Figure 13.1.). This is representative of the global situation, which also shows a higher percentage of transboundary breeds 'not at risk' and a small percentage of breeds 'at risk'. Similarly, the endangerment level of local breeds globally and in countries in Asia and the Pacific is largely unknown, with 75 per cent of breeds reported as 'unknown', compared to around 64 per cent worldwide. Among remaining breeds, most are considered as safe: five per cent of local breeds are considered as at risk (compared to 20 per cent globally) and 20 per cent as not at risk (compared to 16 per cent globally) (Figure 13.1). The high percentages of breeds with an unknown risk status demonstrate the need for better data collection and reporting to the DAD-IS, especially in the context of local breeds which can be of high importance to the genetic diversity of the region.

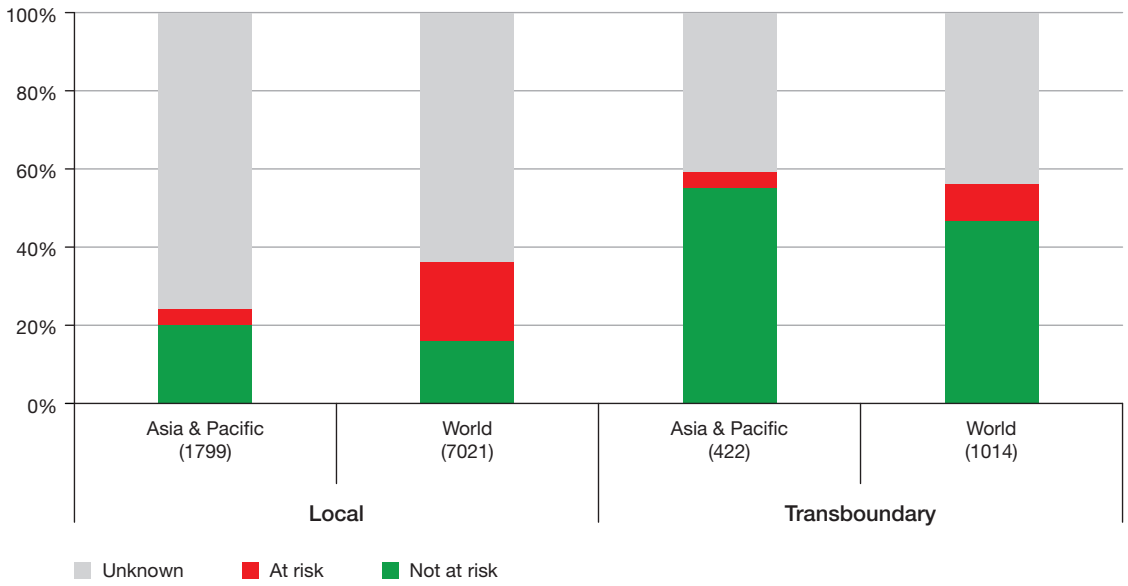

Figure 13.1: Percentage of local animal and plant breeds at risk in Asia and the Pacific and the world. The absolute numbers for each category are included in brackets (graph produced using data from Domestic Animal Diversity Information System (DAD-IS) (FAO, 2015d).

It should be noted that the results presented here and in the Status and Trends for Animal Genetic Resources reports published by FAO every second year (e.g. FAO 2014; FAO 2012a; FAO 2010b) are not directly comparable, as the reports use older data sets. In addition, the definition and scope of the Asia Pacific region used by FAO and UNEP are somewhat different, also impeding direct comparison.

In conclusion, the region is rich in genetic diversity in crops and domestic animals. However, data are poor on the trends in this genetic diversity across the region. This makes measuring progress problematic.

TARGET 14: ECOSYSTEM SERVICES

By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

"All terrestrial, freshwater and marine ecosystems provide multiple ecosystem services. Some ecosystems are particularly important in that they provide services that directly contribute to human wellbeing by providing services and goods to fulfil daily needs. Actions taken to protect and restore such ecosystems will have benefits for biodiversity as well as human wellbeing." (CBD 2016c)

Ecosystem services can be defined as all the benefits that people obtain from ecosystems (Millennium Ecosystem Assessment 2005). There are four broad categories of ecosystem services: provisioning (e.g. food, water and fibre); regulating (e.g. climate and flood regulation); cultural (e.g. aesthetic, recreation and spiritual); and supporting (e.g. nutrient cycling and soil formation).

Globally, trends indicate that we are moving away from Target 14 in terms of taking into account the needs of women, indigenous and local communities, and the poor and vulnerable. Continued degradation of habitats that provide important ecosystem services suggests that service provision from natural habitats is declining, but there is little data on this at regional scales.

There is a strong link between Aichi Biodiversity Target 14, safeguard e) of the Cancun safeguards that supports the protection and conservation of natural forests and their ecosystem services, and safeguard d) that promotes the full and effective participation of relevant stakeholders, particularly indigenous people and local communities. The Philippines National REDD+ Strategy works with rural development, carbon sequestration and biodiversity conservation through building communities' adaptive capacity and increasing natural ecosystem resilience to climate change. The programme "assumes watershed, natural ecosystem and landscape-level approaches to REDD+ development in order to ensure multiple benefits" (UN-REDD 2016d). In Cambodia, local stakeholders have contributed to national and provincial cost-benefit analyses of land-use across a landscape, including ecosystem services. The analysis can feed in to spatial planning that can be used to inform REDD+ planning and develop a National Strategy (Lang 2015).

The fifth national reports provided to the CBD suggest that several countries in Asia and the Pacific are taking action to restore ecosystems in order to safeguard the services they provide, but few provide information on how the needs of women, indigenous and local communities, and the poor and vulnerable are being taken in to account in strategies to meet this target. The fifth national reports do not specify the impacts of actions described in most cases (CBD 2015).

Wetlands and river systems in the Asia Pacific region are an important source of food and other ecosystem services. As the population density of people is high and growing in this region, many freshwater wetlands have been converted to irrigated farmlands, especially for rice production. This has changed their ecosystem service provision from fisheries and wetland regulation, to food production.

In the sea, the Ocean Health Index compares and combines key elements from all dimensions of the ocean's health and provides a measure of the services derived from the oceans, and how sustainably people are using the services (Halpern et al. 2015). On average, scores from countries across Asia and the Pacific have improved since 2012. While the score for livelihoods and economies is high, a score of less than 100 indicates a loss in the number of jobs and/or in revenues, and that wages are lower relative to other countries. The high biodiversity score in 2014 is a result of improvements to the species sub-goal, but as the score is less than 100, some species remain at risk of extinction. The lowest score is for tourism and recreation indicating that work is still required to implement sustainable tourism in the region and that countries could obtain substantially more benefits from this sector (Figure 14.1; Ocean Health Index 2015).

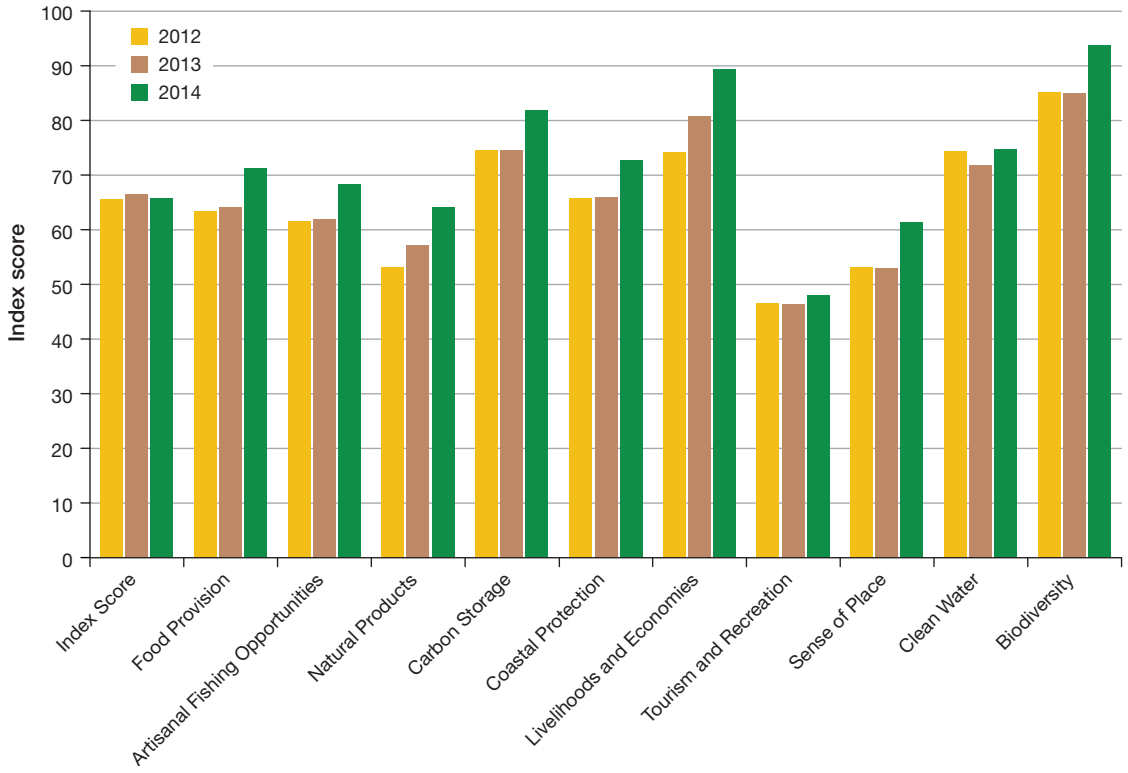

Figure 14.1: The 10 thematic scores and average 'index score' from the Ocean Health Index for the Asia Pacific region in 2012-2014 (source: Ocean Health Index 2015). Scores range from 0 to 100, where a score of 100 indicates that the evaluated region is sustainably delivering all of the specified benefits possible and is likely to continue to be able to do so in the near future (Ocean Health Index 2015).

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In conclusion, there is very little data available to measure progress against this target. However, when looking at other targets (for example declining forest cover in Target 5 and pressure on reefs in Target 10) it appears that Target 14 is not currently on track to be met by 2020 and that additional action needs to be taken.

Box 14.1: Use of Plant and Animal Species for Food and Medicine.

Plant and animal species are used by humans for food and medicine, and can make significant contributions to diet and health. The overuse of animal and plant species must be prevented in order to ensure a sustainable and continuous supply of these ecosystem services. Figure 14.1 shows decreasing affordability of medicinal plants and animals, as well as animals destined for consumption in Viet Nam, and a large increase in the availability of medicinal animals in India.

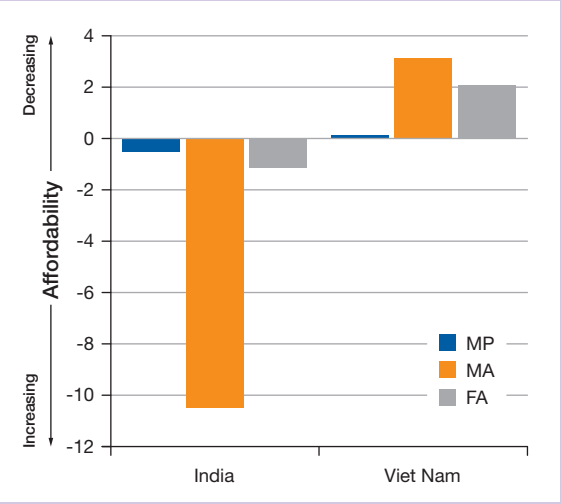

Figure 14.1: Change in percentage of GDP per capita used to purchase baskets of goods of the poorest 10 per cent (medicinal plants (MP), medicinal animals (MA) and animals for food (FA)) 2000-2010. This index indicates affordability of MP, MA and FA (source: TRAFFIC & IUCN/SSC Medicinal Plant Specialist Group 2010).

TARGET 15: ECOSYSTEM RESTORATION AND RESILIENCE

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least fifteen per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

"Deforestation, wetland drainage and other types of habitat change and degradation lead to the emission of carbon dioxide, methane and other greenhouse gases. The reversal of these processes, through ecosystem restoration, represents an immense opportunity for both biodiversity restoration and carbon sequestration. In fact, in many countries degraded landscapes represent a huge wasted resource. Restored landscapes and seascapes can improve resilience including adaptive capacity of ecosystems and societies, and can contribute to climate change adaptation and generate additional benefits for people, in particular indigenous and local communities as well as the rural poor. The conservation, restoration and sustainable management of forests, soils (especially peatlands), freshwater and coastal wetlands and other ecosystems are proven to be cost-effective, safe and immediately-available means to sequester carbon dioxide and prevent the loss of other greenhouse gases." (CBD 2016c)

Ecosystem resilience is a term that describes the capacity of ecosystems to absorb and adapt to disturbances, while preserving their ecological functions, and without moving to a new state governed by different processes and controls (Carpenter et al. 2001). Restoration of degraded ecosystems can enhance ecosystem resilience, improve the adaptive capacity of ecosystems, contribute to climate change adaptation and mitigation, and generate additional benefits for local people.

Many countries refer to plans and strategies for ecosystem rehabilitation in their fifth national reports to the CBD. For example, Brunei Darussalam, Cambodia, Japan, Republic of Korea, Sri Lanka and Viet Nam have forest rehabilitation programmes related to climate change mitigation, while in Kiribati and Vanuatu ecosystem resilience is valued in terms of reducing impacts from natural disasters related to climate change (CBD 2015).

Indonesia introduced forestry concession licenses for forest ecosystem restoration in 2004, and issued the first license in 2007. There are now 12 such concessions, covering a total of 5,000 km², which are managed with the goal of restoring the natural biological communities and ecological services of the forest. The Government is targeting nearly 27,000 km² in total (BirdLife International 2014).

The Bonn Challenge was launched in 2011 with the goal of restoring 150 million hectares of deforested and degraded land globally. Countries, corporations, indigenous peoples and civil society groups are all able to pledge areas of restoration through the challenge, which provides support for projects and facilitates collaboration. Commitments in the Asia Pacific region have been pledged by India (13 million hectares), and the Khyber Pakhtunkhwa Province in Pakistan (380 thousand hectares). Asia Pulp and Paper made the first private sector pledge to the Bonn Challenge, of 1 million hectares (Bonn Challenge 2016).

The long-term viability of REDD+ is dependent on the resilience of forest carbon stocks to climate change, along with the ability of forest ecosystems to adapt to climate change (UN-REDD 2013). Enhancing ecosystem resilience and the contribution of biodiversity to carbon stocks through restoration of degraded ecosystems, as stated in Aichi Biodiversity Target 15, is thus directly supported by REDD+. However, Miles et al. (2010) found strong evidence that intact forest ecosystems are more resilient and maintain more carbon over time than degraded or fragmented forests, indicating that restoration activities should go hand-in-hand with conservation and protection of intact forest ecosystems. This could provide further support for progressing toward Aichi Biodiversity Target 15.

In conclusion, there is relatively little information on progress towards Target 15 in the fifth national reports to the CBD. Given this and the fact that there is limited quantitative or indicator information relevant to this target, it is difficult to assess overall progress. Nonetheless, it seems probable that significant additional efforts would be required to deliver this target by 2020.

Box 15.1: Mangroves for the Future.

Mangroves for the Future (MFF) has 11 member countries across the Asia Pacific region. MFF was established by IUCN and UNDP after the Indian Ocean tsunami in December 2004, to promote a long term strategic response to the degradation of coastal ecosystems that threatens the security of communities in the region. The initial focus was on the worst affected countries (India, Indonesia, Maldives, Seychelles, Sri Lanka and Thailand), and since then Bangladesh, Cambodia. Myanmar, Pakistan and Viet Nam have also become members.

The goal of MFF is to build ecosystem resilience for coastal communities, using an integrated approach to coastal management. The initiative includes all types of coastal ecosystem as well as mangroves, including coral reefs, estuaries, lagoons, sandy beaches, seagrasses and wetlands. MFF promotes knowledge generation and sharing, helps build capacity amongst stakeholders involved in coastal management and provides funding for initiatives designed to build the resilience of coastal ecosystems and the communities that depend on them.

Recent projects include training fishermen in data collection and site monitoring, assisting a community in the Maldives in establishing an improved waste management system, enabling Pakistan to complete a National Assessment Report on Coastal Erosion, and the rehabilitation of 41 hectares of mangroves in Bangladesh (MFF, 2015).

Box 15.2: Community Based Sustainable Management of Tanguar Haor Program.

Tanguar Hoar is a 10,000 hectare wetland ecosystem in northeast Bangladesh. The Ramsar Bureau declared it to be a wetland of national and international importance in 2000, following the Government of Bangladesh's declaration in 1999 that the site is an ecologically critical area. IUCN Bangladesh worked with local communities to establish a co-management model for Tanguar Hoar, with an emphasis on the conservation and development of the ecosystem for the benefit of those who depend on it (IUCN Bangladesh 2006).

By 2014, 73 Village Co-management Committees (VCCs) had been formed, involving 76 of the 88 villages in the region, and 6,616 local people were involved in the management processes, coming from 4,774 of the 10,205 existing households. The VCCs have formed four Union Co-management Committees (UCCs), which in turn feed into the Central Co-management Committee (CCC). Habitat restoration work has included restoration of habitats by planting trees and reeds, development of sanctuaries for five fish species and two bird species, and repopulation of fish stocks. Monitoring is carried out by trained community members. To control resource extraction, a permit system has been introduced for non-commercial fishing, with permits allocated based on the type of fishing gear used. Access rights are allocated for commercial fishing, with community patrolling and law enforcement agencies in place to limit illegal fishing (IUCN Bangladesh 2006; Mazumder 2014).

TARGET 16: ACCESS TO AND SHARING BENEFITS FROM GENETIC RESOURCES

By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

"The fair and equitable sharing of the benefits arising out of the utilization of genetic resources is one of the three objectives of the Convention on Biological Diversity. The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity was adopted by the Conference of the Parties to the Convention on Biological Diversity at its tenth meeting in Nagoya, Japan." (CBD 2016c)

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the CBD entered into force on the twelfth of October 2014, following its ratification by 53 Parties to the CBD. While the Nagoya Protocol applies to access and benefit sharing of genetic resources, it also addresses issues related to traditional knowledge associated with genetic resources. Accordingly, it will promote use of genetic resources and relevant traditional knowledge, create new incentives to conserve biodiversity and sustainable use, and enhance the contribution of biodiversity to sustainable development and human well-being (CBD 2014b).

In Asia and the Pacific, especially in South East Asia, countries have considerable potential to benefit from the Nagoya Protocol. Due to the region's rich biodiversity there are significant opportunities to promote biotechnology research and bioprospecting, with some countries having been successful in enhancing their scientific and technical capacities (UNEP 2014). To promote ABS and fully implement the Nagoya Protocol, countries need to have national legal instruments in place. Capacity building to facilitate the abilities of indigenous and local communities, including the establishment of databases to catalogue traditional knowledge, is one of the necessary steps towards equitable sharing of benefits (ACB 2013c).

15 countries from the Asia Pacific region have ratified or acceded to the protocol while a further six countries are signatories (Table 16.1).

Table 16.1: Status of signature, ratification or accession to the Nagoya Protocol in Asia and the Pacific (source: CBD 2016b).

Country	*Signature*	*Ratification*
Australia	20/01/2012	
Bangladesh	06/09/2011	
Bhutan	20/09/2011	30/09/2013
Cambodia	01/02/2012	19/01/2015
Fiji		24/10/2012
India	11/05/2011	09/10/2012
Indonesia	11/05/2011	24/09/2013
Japan	11/05/2011	
Lao People's Democratic Republic		26/09/2012
Marshall Islands		10/10/2014
Micronesia	11/01/2012	30/01/2013
Mongolia	26/01/2012	21/05/2013
Myanmar		08/01/2014
Pakistan		23/11/2015
Palau	20/09/2011	
Philippines		29/09/2015
Republic of Korea	20/09/2011	
Samoa		20/05/2014
Thailand	31/01/2012	
Vanuatu	18/11/2011	01/07/2014
Viet Nam		23/04/2014

Some of those countries, including Indonesia, Malaysia, and the Philippines, have been working on preparing domestic ABS laws, while Lao PDR and Thailand have drafted national ABS frameworks. Further, Viet Nam has made some progress in plans to enhance the framework of the country's Biodiversity Law introduced in 2008, Singapore has an administrative framework on ABS for non-commercial research within certain areas, and Cambodia is in the process of drafting their ABS framework (UNEP 2014). A number of Pacific Island countries are also participating in ABS projects.

In conclusion, countries in the region have been working hard to adopt the Nagoya protocol and embed this within their national legislation. This is encouraging progress and further progress can be expected in the lead up to the 2020 Aichi Biodiversity Targets deadline.

Box 16.1: Considering the Rights of Indigenous Communities.

There are existing protocols that consist of rituals, customs, practices and customary laws related to the rights of indigenous communities over resources and intellectual creations. In Sabah, Malaysia, the Sabah Biodiversity Centre is implementing the Kinabalu Bio-cultural Law Project, which aims to support ABS awareness raising and capacity building in the Dusun communities living around Mt. Kinabalu, customary sustainable uses of biodiversity, and the protection of traditional knowledge (ACB 2013a).

Nevertheless, misappropriation and misuse of genetic resources via unauthorized access and/or in absence of benefit sharing agreements are common in most biodiversity rich countries. In a recent example, an individual collected a fungus from an ASEAN Member State and sold it to a private company. Because the fungus was found to prevent a serious threat to oil palm and potentially to other cash crops, the strain and chemicals produced by the fungus have been applied for patent in 2010 by the assignee (patent owner). However, there was an absence of appropriate permission to access the genetic resource, lack of established agreement to share benefits with the country where the fungus was collected, and non-notification in change of intent (from basic plant description to potential commercial application).

Such misappropriation and misuse can be prevented by establishing compliance measures in countries. Nonetheless, in a country with domestic laws on ABS, some research activities on biological resources for potential commercial use have been conducted without prior informed consent or mutually agreed terms. This presents a lack of knowledge or appreciation and implementation of the domestic law related to ABS (ACB 2013b).

Box 16.2: Environment Protection and Biodiversity Conservation Regulations in Australia.

The Australian Government has responsibility for managing Australia's native genetic resources under the *Environment Protection and Biodiversity Conservation Regulations 2000*. Accordingly, the Australian Government manages the regulatory and policy framework for access to native genetic resources in Commonwealth areas and sharing the benefits arising from their use. The purpose of the framework is to facilitate access to genetic resources and provide legal certainty for researchers and innovators, while also ensuring sustainable use of biological resources and obtaining tangible benefits for Australia and the conservation of their biodiversity. The scope of the framework includes regulatory approach for access to, and use of, native genetic and biochemical resources, and best practice in managing access to genetic resources. Since 2009, Australia has held a series of three national forums related to access and benefit sharing issues including biodiscovery, traditional knowledge and implementation of the Nagoya Protocol. The series provided a forum for information exchange and discussion between all levels of government, industry, indigenous communities and researchers engaged in the exploration of biodiversity for new properties and applications. In the first Oceania Biodiscovery Forum held in November 2012, as a result of consultation with key stakeholders, an implementation model for the Nagoya Protocol was developed to enable an informed decision by the Australian Government on its ratification (Department of Environment, Australian Government 2014).

Box 16.3: Biodiversity Conservation Policy in China.

In China, the State Council has approved a series of plans on biodiversity conservation, including a *National Plan for Conservation and Use of Livestock Genetic Resources*, covering issues such as the ABS and traditional knowledge of genetic resources, which have been included in the updated NBSAP's 35 priority areas for conservation. However, specific national targets related to Aichi Biodiversity Targets 13 and 16 have not been updated, and effective measures and means to achieve these targets are lacking. While *Regulation on Management of Genetic Resources* will be developed to improve the legal and regulatory system for ABS and reinforce law enforcement, the loss of genetic resources is very serious in China. According to results from the second national survey on livestock genetic resources, the populations of more than half of local breeds or varieties have decreased (Ministry of Environmental Protection of China 2014).

TARGET 17: BIODIVERSITY STRATEGIES AND ACTION PLANS

By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

"National Biodiversity Strategies and Action Plans (NBSAPs) are the key instrument for translating the Convention and decisions of the Conference of the Parties into national action. For this reason it will be essential that Parties have developed, adopted and commenced implementing as a policy instrument an updated NBSAP which is in line with the goals and targets set out in the *Strategic Plan for Biodiversity 2011-2020* by 2015." (CBD 2016c)

In accordance with Article 6 of the CBD, Parties are required to develop NBSAPs by reflecting the measures set out by the CBD to comply with the provisions of the CBD at the national level. As key implementation tools of the CBD, NBSAPs must address three objectives of the CBD; conservation of biodiversity, sustainable use of the components of biodiversity, and fair and equitable sharing of the benefits deriving from the utilization of genetic resources. In addition, with the adoption of the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, after COP-10 Parties were requested to develop or update their NBSAPs by developing national and regional targets and integrating biodiversity targets into national policies and strategies (SCBD 2011). Thirteen countries from Asia and the Pacific have submitted post-2010 NBSAPs (Table 17.1).

Table 17.1: NBSAP development and revision status and its submission after COP 10 (as of February 2016) (CBD 2016a).

Country	Parties which completed a pre-2010 NBSAP	*Parties with a post-2010 NBSAP under development*	*Parties that have submitted a post-2010 NBSAP to the CBD*
Afghanistan			X
Australia	X		
Bangladesh	X		
Bhutan	X		X
Brunei Darussalam		X*	
Cambodia	X		
China	X		
DPR Korea	X		
Fiji	X		
India	X		X
Indonesia	X		
Iran (Islamic Republic of)	X		
Japan	X		X
Kiribati	X		
Lao PDR	X		
Malaysia	X		
Maldives	X		X
Marshall Islands	X		
Micronesia (Federated States of)	X		
Mongolia	X		X
Myanmar	X		X

Country	Parties which completed a pre-2010 NBSAP	*Parties with a post-2010 NBSAP under development*	*Parties that have submitted a post-2010 NBSAP to the CBD*
Nauru		X*	
Nepal	X		X
New Zealand	X	X	
Niue	X		X
Pakistan	X		
Palau	X		
Papua New Guinea	X		
Philippines	X		
Republic of Korea	X		X
Samoa	X		
Singapore	X		
Solomon Islands	X		
Sri Lanka	X		
Thailand	X		
Timor-Leste			X
Tonga	X		
Tuvalu			X
Vanuatu	X		
Viet Nam	X		X
Total	35	3	13

Note: X* show Parties with first NBSAP under development.

The fifth national reports to the CBD indicate that the majority of countries in Asia and the Pacific are updating their NBSAPs (Table 17.1). The reports also indicate that many Parties are making progress in their use of NBSAPs as policy instruments. For example India has developed national targets that align with the Aichi Biodiversity Targets, and has a monitoring system in place to track progress toward meeting these (CBD 2015).

The process of NBSAP development or revision has been carried out in different ways. For example, a rigorous consultative process and stakeholder participation occurred in Bhutan, and cooperation between diverse stakeholders and support from high level political parties facilitated the revision of NBSAPs in China and the Maldives. Iran incorporated the strategy into national economic and social development programmes, and established new laws for coordinating the implementation of many national goals, while Pakistan revised forest and wildlife laws, and strengthened the capacity of the wildlife department. As part of mainstreaming, Indonesia integrated its NBSAP into medium-term development planning (UNEP Regional Office for Asia and the Pacific 2014), and Mongolia assessed all social development and agriculture-related national plans to identify related objectives for the Aichi Biodiversity Targets. Agencies including the IUCN Asia Regional Office and the UNDP have provided assistance on developing NBSAPs to countries in the region, including Myanmar, Tonga and Tuvalu.

As a NBSAP is an instrument addressing biodiversity as a whole, all issues relevant to other Biodiversity-related Conventions, including Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Migratory Species (CMS), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and the Ramsar Convention, can and should be covered. The adoption of the *Strategic Plan for Biodiversity 2011-2020* and the Aichi Biodiversity Targets created an important momentum to foster a new generation of NBSAPs that address the coherent implementation of the Biodiversity-related Conventions. Biodiversity-related Conventions other than the CBD recognized or supported the plan and they also explicitly encouraged their national focal points to engage in their country's NBSAP revision process, or called upon their state Parties to ensure that convention-specific issues were fully considered. For example, the Convention on Migratory Species (CMS) Strategic Plan links migratory species priorities to the relevant Aichi Biodiversity Targets and provides a logical and effective way for migratory species targets to be integrated into NBSAPs. Case studies provided by UNEP (2015) demonstrate that some progress has been made by countries in the region in promoting synergistic approaches in updating and implementing NBSAPs. However further efforts are required to ensure that obligations of various biodiversity-related Conventions are fully integrated in the efforts related to NBSAPs at the national level.

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In conclusion, countries in the region have been working to prepare and implement their NBSAPs and considerable progress has been made. Further progress can be expected in the coming years.

Box 17.1: Mainstreaming Gender into NBSAPs.

The Convention, in its preamble (paragraph 13) recognizes the vital role that women play in the conservation and sustainable use of biological diversity, and affirms the need for the full participation of women at all levels of policy-making and implementation for biodiversity conservation. Aichi Biodiversity Target 14 says: "By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable". Building on guidance provided in its earlier decisions (IX/24, X/9 and XI/19), the twelfth Conference of the Parties of the CBD, in its decision XII/7, recognized the importance of gender to the achievement of the Aichi Biodiversity Targets and encouraged Parties to give gender due consideration in their national biodiversity strategies and action plans, and to integrate gender into the development of national indicators. To this end, the 2015-2020 Gender Plan of Action for the CBD, annexed to decision XII/7 (CBD 2014a), suggested that Parties could:

- Request that gender experts review the draft NBSAPs in order to assess gender sensitivity and provide guidance on improvements.
- Ensure that stocktaking exercises associated with NBSAP development adequately account for the differences in uses of biodiversity between women and men.
- Ensure that women are effectively engaged as members of all stakeholder groups consulted during NBSAP development.
- Consider including gender-disaggregated data collection and/or gender-specific indicators in the development of national biodiversity targets, building on relevant work undertaken by the Parties and relevant organizations on gender monitoring, evaluation and indicators, including the IUCN Environment and Gender Index.
- Consider how national gender policies can be incorporated into NBSAPs and can contribute to their effective implementation.
- Identify indigenous and local community experts on diversity and gender mainstreaming to support the integration of gender considerations into national biodiversity strategies and action plans.
- Identify the importance of traditional knowledge and customary practice held by men and women in the protection of biodiversity and make use of them in supporting the implementation of NBSAPs.

TARGET 18: TRADITIONAL KNOWLEDGE

By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

"There is a close and traditional dependence of many indigenous and local communities on biological resources. Traditional knowledge can contribute to both the conservation and sustainable use of biological diversity. Target 18 aims to ensure that traditional knowledge is respected and reflected in the implementation of the Convention, subject to national legislation and relevant international obligations, with the effective participation of indigenous and local communities." (CBD 2016c)

Global trends indicate insufficient progress toward Target 18 due to "limited support, recognition and capacities" (SCBD 2014). GBO-4 also reports that "growing interest in traditional cultures and involvement of local communities in the governance and management of protected areas and the growing recognition of the importance of community conserved areas" indicates that current trends may change in some places.

The fifth national reports to the CBD present varying degrees of progress toward this target. For many countries only limited information is provided, which hinders assessment of progress. Several countries express the view that, although traditional practices are currently used for conservation, few are reported on and thus not fully represented and integrated in NBSAPs (CBD 2015).

Community conservation of forests is developing rapidly in the region, with India and Nepal being global leaders in community-based forest management approaches. These have often turned into powerful social movements to ensure that the culture and rights of local people are respected and enhanced. Similar community forest movements are emerging elsewhere in the region. There is also a powerful movement in Australia to empower and recognize the culture and land management practices of Aboriginal peoples, which has led to the development of a network of community-conserved areas in the country. In the marine realm, the Pacific Island states are global leaders in community-based conservation approaches and have rapidly developed effective systems across numerous islands. It should be noted, however, that community managed does not always mean traditionally managed and impacts and sustainability of practices should still be assessed.

The reduction in the world's biological diversity is matched by a reduction in linguistic and cultural diversity, with linguists predicting that 50 to 90 per cent of the world's languages may disappear by the end of this century (Gorenflo et al. 2011). The *Indo-Pacific Index of Linguistic Diversity* shows a clear decrease in language diversity from 1970 to 2010 (Figure 18.1).

In conclusion, there is evidence of a decline in traditional knowledge in the Asia Pacific region, but at the same time there are indications of the expansion of traditionally protected conservation areas and other initiatives to involve indigenous peoples and local communities in decision making. These are particularly found in the marine environment and in the Pacific Islands.

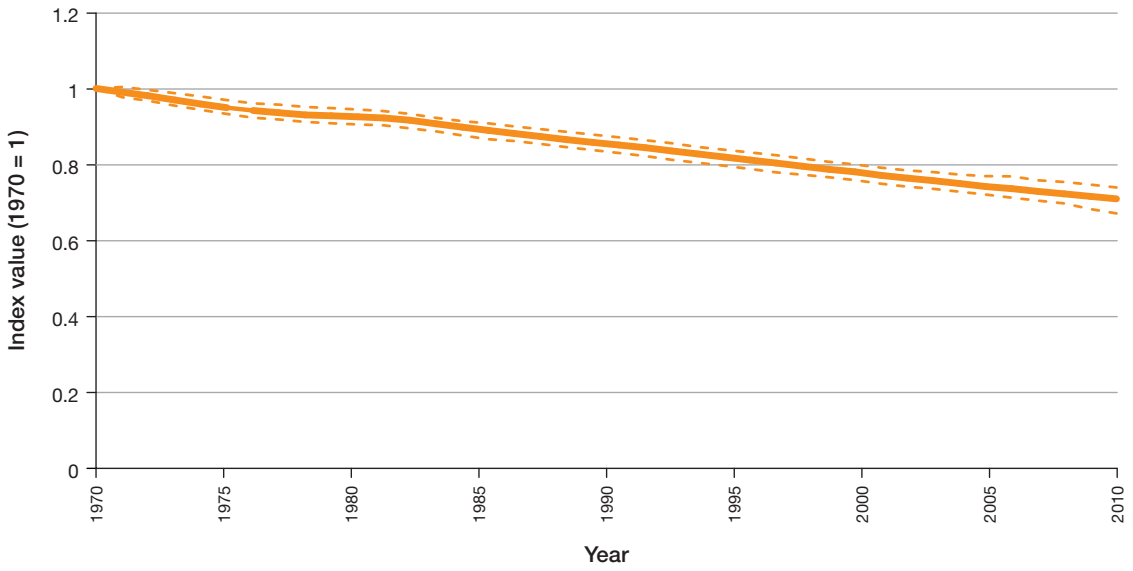

Figure 18.1: Indo-Pacific Index of Linguistic Diversity 1970-2009 (source: Loh and Harmon 2014).

Box 18.1: Community Forestry Progress in Myanmar.

In Myanmar, the Forest Department and the Wildlife Conservation Society (WCS) have been collaborating on Community Based Natural Resource Management (CBNRM) as a tool to enhance community participation in protected area management and sustainable natural resource use by local communities. The process involves three interconnected activities: Village Consultation Process (VCP), Village Use Zonation (VUZ) and CBNRM, as integral parts of village participatory land-use planning. During the VCP, survey teams conduct a village timeline, listing and ranking natural resources, assessing the trends of key resources, analysing household income and expenditure, and projecting population growth. A village profile is then developed by combining all information collected during the process, which serves as a baseline to assess future socio-economic change. During zonation, the villager's traditional boundary and existing land uses are identified through participatory sketch mapping. Major landmarks along the village boundary and main land-use types are verified through participatory ground truthing using Global Positioning System (GPS). For sustainable natural resource management, participatory resource inventories are conducted and a natural resource management area is identified. The village then develops a management plan for their natural resource management area based on measured supply and demand. Entrepreneur villagers are identified and supported to develop their own individual plans for agro-forestry. Village nurseries are also established to supply seedling needs for these individual plans. CBNRM is being practiced in 17 villages in Hkakaborazi National Park, 32 villages in Hukaung Valley Wildlife Sanctuary, 19 villages in Htamanthi Wildlife Sanctuary, and eight villages in Minsontaung Wildlife Sanctuary. The process will be rolled out to other protected areas in Myanmar (Ministry of Environmental Conservation and Forestry, Republic of the Union of Myanmar 2014).

Box 18.2: Community-based Management of Coastal Resources in the South Pacific.

In the past decade, more than 12,000 km^2 have been brought under a community-based system of marine resource management known as locally managed marine areas (LMMAs). The initiative involves 500 communities in 15 Pacific Island states and has helped achieve widespread livelihood and conservation objectives based on traditional knowledge, customary tenure and governance, combined with local awareness of the need for action and the likely benefits, including the recovery of natural resources, greater food security, and improved governance and health (LMMA Network 2016). In Fiji, for example, the results of implementing LMMAs since 1997 have included a twenty-fold increase in clam density in areas where fishing is banned, an average 200 to 300 per cent increase in harvests in adjacent areas, a tripling of fish catches, and a 35 to 45 per cent rise in household incomes. Such initiatives have the potential to be widely replicated wherever the socio-cultural environment is appropriate (UNDP 2012).

LMMAs are protected areas that are largely or wholly managed by coastal communities and/or land-owning groups, with the support of government and partner representatives. The communities impose restrictions on areas such as 'no-take zones' and on certain equipment, practices, species or sizes of catches. These zones or restrictions allow resource and habitat recovery in over-exploited areas, enabling a return to more sustainable harvest of marine resources for the community (Govan 2009).

First recognized in Fiji, LMMAs are being replicated across coastal communities worldwide. More than 420 Indo-Pacific sites in the LMMA network involve around 600 villages and cover more than 12,000 km^2 in 15 Pacific Island states. The LMMA Network is a global initiative founded in 2000 to advance LMMA practices around the world. The network consists of communities, dedicated practitioners and government officials all focused on community-based marine resource management projects, providing capacity building, awareness, and monitoring support. Its focus is on the sharing of ideas and experiences to improve the performance of LMMAs, while empowering greater numbers of communities to manage their marine resources in a sustainable way (Global Island Partnership 2014).

TARGET 19: SHARING INFORMATION AND KNOWLEDGE

By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

"All countries need information to identify threats to biodiversity and to determine priorities for conservation and sustainable resource use. While nearly all Parties report that they are taking actions related to monitoring and research, most also indicate that the absence or difficulty in accessing relevant information is an obstacle to the implementation of the goals of the Convention." (CBD 2016c)

Sharing information and knowledge on science and technology plays a crucial role in assessing the status of biodiversity and identifying threats to biodiversity conservation. Data and knowledge sharing is key to setting priorities for the protection and sustainable use of biodiversity. The Global Biodiversity Information Facility (GBIF) states that there is a lack of readily available biodiversity data in the Asian region, hampering knowledge and research on Asian ecosystems (GBIF 2013). However, some countries have been making conscious efforts to improve data availability, for example, the Chinese Academy of Sciences (CAS) has played a leading role in establishing the Asia Biodiversity Conservation and Database Network (ABCDNet). Other regional initiatives to mobilize data include Asia Pacific Biodiversity Observation Network (AP BON), East and Southeast Asia Biodiversity Information Initiative (ESABII) and ASEAN Clearing House Mechanism (CHM); there is also significant interest in citizen science data gathering in the region.

The fifth national reports to the CBD indicate that countries in the Asia Pacific region are making progress toward Target 19. The majority of countries report that although they are not currently on track, they have increased their wealth of knowledge and have adopted several initiatives, including research and monitoring projects, which are expected to provide new information (CBD 2015). For example, in Onotoa in Kiribati, the first underwater visual census has been carried out in order to establish baseline species data, monitor marine resources, raise awareness for local communities and register status of threatened species (Environment and Conservation Division, Ministry of Environment, Lands, and Agricultural Development, Kiribati 2014). Similar efforts in Myanmar have been carried out by the Department of Fisheries and supported by the Norwegian Government (Ministry of Environmental Conservation and Forestry, Republic of the Union of Myanmar 2014). In Mongolia, a series of publicly funded environmental databases are maintained, holding data on a wide range of topics including soil, water, air pollution, environmental damage, and wild animal and vegetation monitoring (http://www.eic.mn/).

The mobilization of Asia Pacific species occurrence records through open access biodiversity data initiatives, such as the GBIF, has increased over the past decades (Figure 19.1). Such records can be used as a measure of progress towards Target 19. Between 2008 and 2014 there has been an increase from around ten million to almost 50 million accessible species occurrence records in GBIF. A large proportion of these records have been made available by institutions within Asia and the Pacific, predominantly from Australia (Figure 19.2).

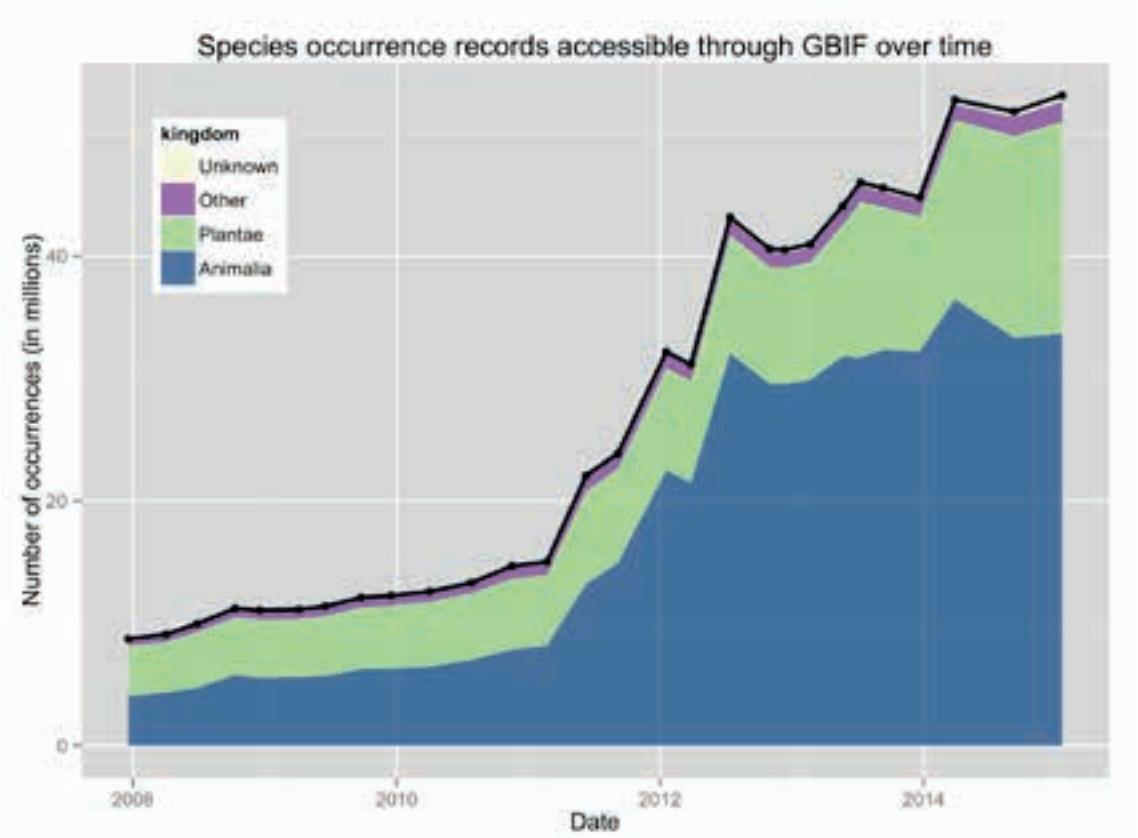

Figure 19.1: Growth in Asia Pacific species occurrence records published through the Global Biodiversity Information Facility (GBIF) network between 2008 and 2014 (source: GBIF 2015).

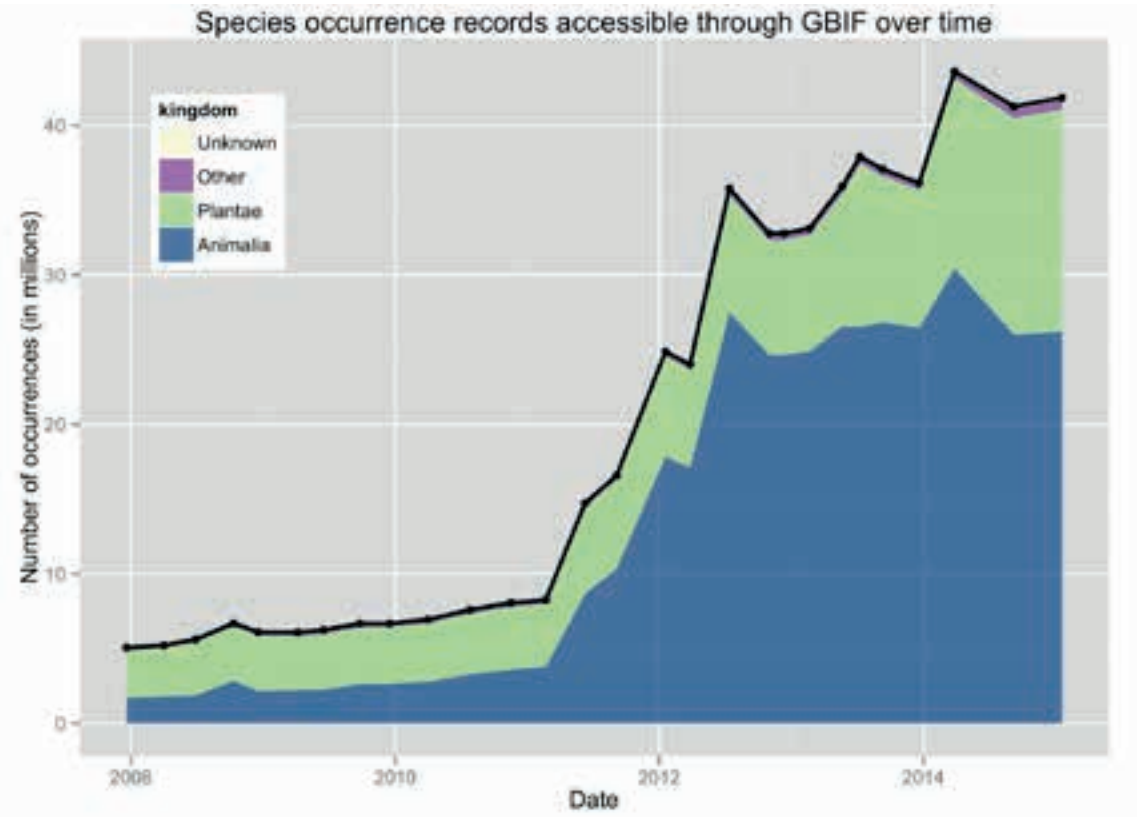

Figure 19.2: Growth in Asia Pacific species occurrence records from Asia Pacific institutions published through the GBIF network between 2008 and 2014 (source: GBIF 2015).

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In conclusion, the digital revolution is making data more available at all scales, which is helping to meet the data sharing component of Target 19. Whether greater access to data is leading to enhanced knowledge, sharing of data between ministries and departments, and better decision making is less clear. There is no available data to measure the status and trends of knowledge in this region.

TARGET 20: MOBILISING RESOURCES FROM ALL SOURCES

By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

"Most countries indicated in their Fourth National Reports that limited capacity, both financial and human, was a major obstacle to the implementation of the Convention. The capacity that currently exists within countries needs to be safeguarded and increased from current levels, in line with the process laid out in the *Strategy for Resource Mobilization*, in order to enable countries to meet the challenges of implementing the *Strategic Plan for Biodiversity 2011-2020*. The fulfilment of Target 20 will have implications on the feasibility of achieving the other nineteen targets contained in the *Strategic Plan.*" (CBD 2016c)

The Asia Pacific region contains countries with very different financial capacities. Such variation makes it hard to present general conclusions about mobilizing resources across the region as a whole.

ASEAN member states have implemented a variety of mechanisms for the funding of biodiversity conservation, although coordination of these is sometimes lacking. For example, Viet Nam has identified a range of options including PES schemes, carbon finance, REDD+, biodiversity off-sets and private sector contributions (ACB 2016).

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Global financial flows into environmental projects have risen in the region, although there have been large variations in the years leading up to 2010 and data are not available after that time. AidData illustrates the combined value of projects that refer to one of six environmental activities: environmental education, species protection, fish stock protection, environmental impact assessments, environmental policy, natural reserves and institutional capacity building in the fishing sector (Figure 20.1). Most projects on AidData did not reference any of these activities until the 1990s, but since then the number of environmentally related projects has risen. There has been a less consistent rise in the funds committed. Moreover, as the projects in the database may also target other non-environmentally related activities, the data may be an over-estimation of the funds specifically directed to these activities.

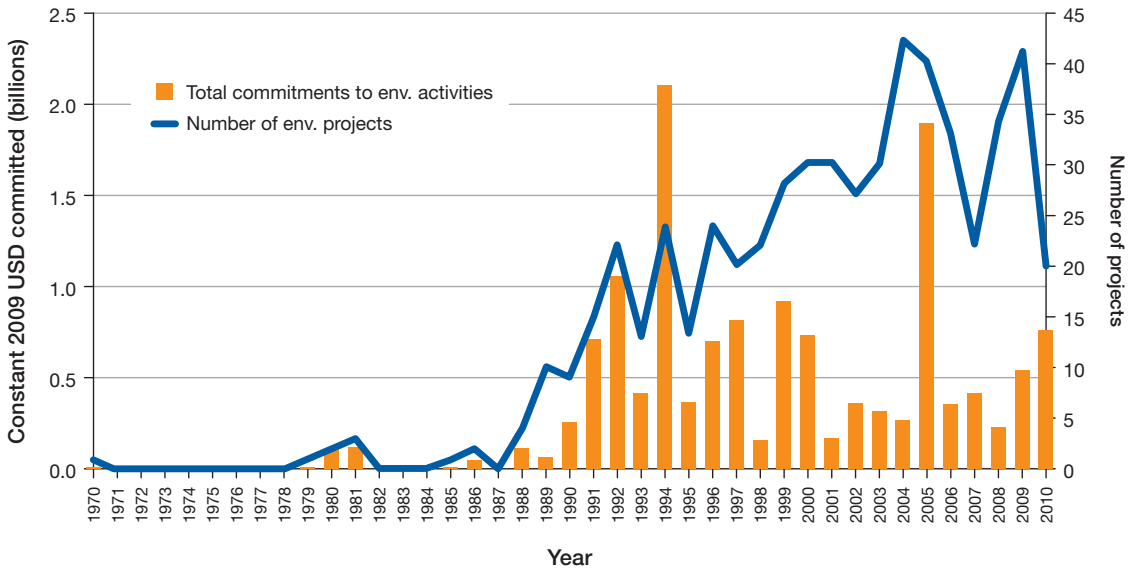

Figure 20.1: Total investment in environmental activities by donors on AidData, and total number of projects for environmental activities between 1970 and 2010 in Asia and the Pacific (source: Tierney et al. 2011).

In assessing the status and trends of resource mobilization for biodiversity conservation in Asia and the Pacific, an analysis of flows of biodiversity-related aid shows a decrease since 2007, representing less than twenty per cent of the total overseas development assistance commitment in 2013 (Figure 20.2).

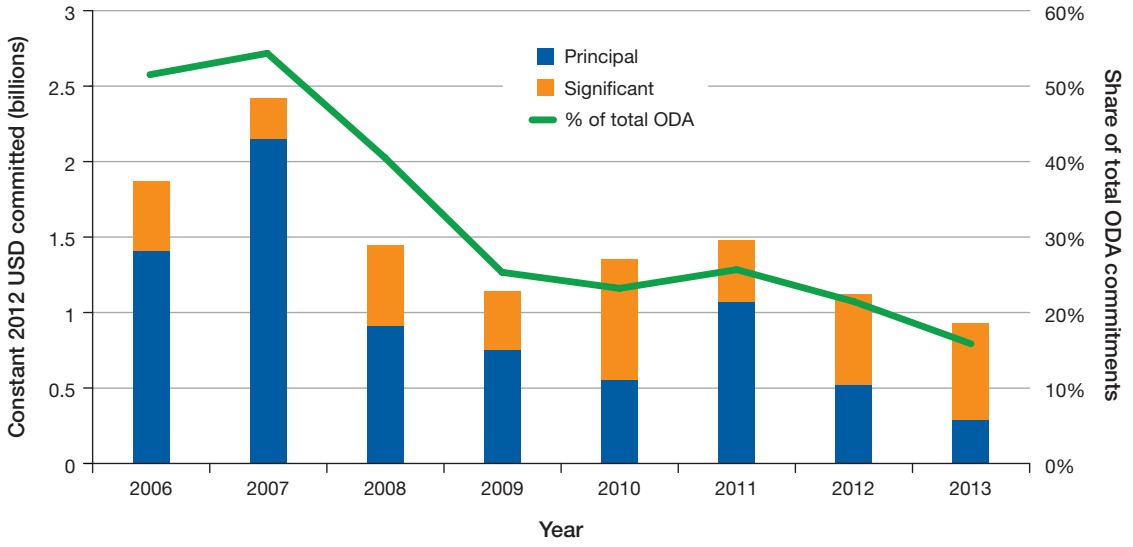

Figure 20.2: Biodiversity-related aid 2006-2013. Data collected under the 'Rio marker' for 'biodiversity' only. For an activity to be labelled with this 'Rio marker' it must promote one of the three objectives of the CBD: the conservation of biodiversity, sustainable use of its components, or fair and equitable sharing of the benefits of the utilization of genetic resources. When assigning the 'Rio markers' donors use the scoring system: 0 = Not targeted, 1 = Significant objective (orange), 2 = Principal objective (blue) (source: Organisation for Economic Co-operation and Development 2015).

In conclusion, although donor funding for environmental issues has seen an overall increase worldwide over time, the proportion of that funding being provided to biodiversity has been declining since 2007. This donor funding does not capture the funding being provided by national governments, which would be a much larger amount. Trends are unknown for the whole region, although it is known that trends are declining in some countries.

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6. OPPORTUNITIES AND RECOMMENDATIONS FOR THE FUTURE

Since 2010, countries in the Asia and the Pacific region have made considerable efforts to implement the *Strategic Plan for Biodiversity 2011-2020* at both national and regional levels, and there are many individual examples of success that have been highlighted in this report. This section draws together under common themes some of the main opportunities, along with suggestions of further actions and policy. Some of these can be implemented over a four year time frame to 2020 and others will require more time to achieve lasting results.

Address the information deficit

A recurring constraint is the lack of information and data to accurately assess the status, trends, risks, threats and conservation needs for biodiversity in the Asia Pacific region. Improved collection and communication of information will help to achieve all of the Aichi Biodiversity Targets, and the emerging Sustainable Development Goals. Where data collection is constrained due to lack of resources, continued efforts to build institutional capacity for cooperation among different government agencies and sectors are vital. National statistics offices in particular have a crucial role in strengthening the science-policy interface, through regular tracking and reporting on biodiversity indicators to inform decision-making processes.

Mainstream biodiversity across government sectors

An essential conservation need is to mainstream biodiversity considerations into decision making. Mainstreaming entails placing biodiversity goals within sectoral decision-making within those government agencies not directly related to biodiversity issues, such as the Ministries of Finance, Agriculture, Infrastructure, Planning, Tourism and Education amongst others. In this regard, further and intensified efforts are needed in relation to Strategic Goal A.

Implement a synergistic approach to implementing the biodiversity-focused Conventions

Seven international conventions focusing on biodiversity issues are members of the Liaison Group of Biodiversity-related Conventions (BLD), including the CBD; CITES; CMS; The ITPGRFA; the Convention on Wetlands of International Importance (Ramsar Convention); the Convention concerning the protection of the World Cultural and Natural Heritage (WHC); and the International Plant Protection Convention (IPPC). There is a need to implement the requirements of these, and other, Conventions in a joined up way in the region, and to benefit from the capacity building that these Conventions offer.

Create strong national frameworks to embed biodiversity and ecosystem services into the poverty eradication and sustainable development agendas

As part of the post-2015 development agenda, the SDGs provide the framework for nations to eradicate poverty and ensure sustainability. Meeting the Aichi Biodiversity Targets would contribute significantly to broader global priorities, including SDGs (UNEP et al. 2014). For example, Aichi Biodiversity Target 5 (by 2020, halving deforestation and the loss of other natural habitats), Target 11 (protecting seventeen per cent of land and ten per cent of oceans through protected areas), and Target 15 (restoring fifteen per cent of degraded lands), directly relate to SDG Goal 14 on oceans and coasts, Goal 15 on terrestrial biodiversity, and Goal 12 on sustainable consumption and production (SBSTTA 2013).

Use international mechanisms to support the sustainable use of ecosystems

Novel mechanisms provide opportunities to address and promote the aims of biodiversity conservation and sustainable use in forests (Target 5), and to build local certification capacity and harmonization of standards for eco-labelling and certification (Target 7), as long as such mechanisms fully account for biodiversity in their design and implementation at national and sub-national level. Such mechanisms include various forms of PES, such as REDD+ and water PES from mountain catchments. The Asia Pacific region is already using these mechanisms and there is potential for further expansion.

Implement conservation actions on a greater scale to avoid further biodiversity loss

Many parts of Asia have extremely high population densities and intense development pressure. Conservation efforts need to take a landscape or ecosystem approach to developing action plans, promoting participatory land-use planning and rule-of-law and promoting conservation in multi-use landscapes which help to balance the priorities of both conservation and development in land-use planning.

Strengthen engagement of local communities in governance systems

Opportunities to involve local communities in conservation activities are expanding in the region, and the marine conservation approaches in Asia and the Pacific are world leading and could be expanded. Effective conservation of wildlife will require the support of local people, and respect for their rights. This view links to awareness-raising activities (Target 1), integration of biodiversity values into government policies (Target 2), appropriate incentives (Target 3), community-based conservation (Target 11), and empowering local communities and indigenous knowledge (Target 18). The success of Indigenous Community Conservation Areas in many countries shows that there are opportunities to enhance management effectiveness.

Increase awareness of the contribution of biodiversity to people's lives for all members of society, from rural and urban communities to governments and business

Behavioural change, by local populations, business and governments, is essential to achieve many of the Aichi Biodiversity Targets and has a strong link to Target 1. Awareness can be raised through formal education and workshops, incentives, campaigns by civil society and non-governmental organizations, partnerships with the private sector and many other measures.

Create positive incentives for sustainable land management

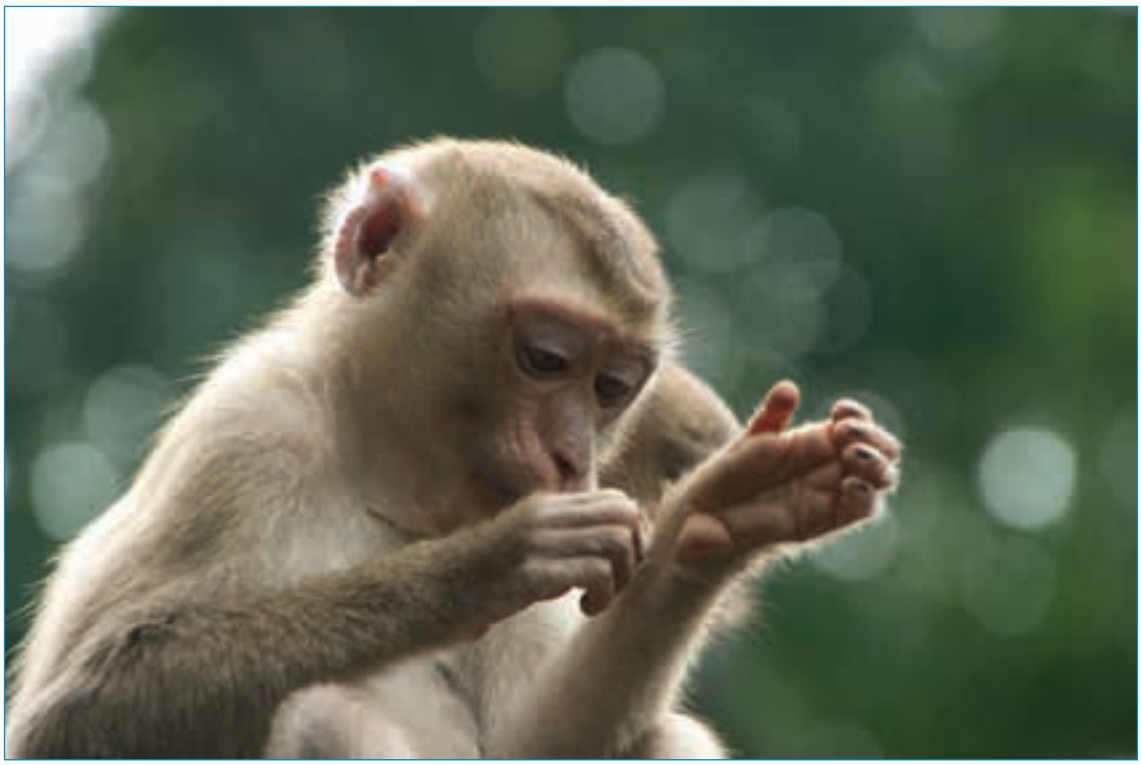
Incentivizing sustainable land management practices can create a viable option for conservation and sustainable use of biodiversity. Understanding of the business case for sustainable land management practices can also be improved, through raising awareness of how the private sector can benefit and how policy and government frameworks can offer support and enforcement alongside. Global support to tackle harmful international and national subsidies (Target 3) is also essential.

Address the threats from invasive alien species

More emphasis should be put on incorporating IAS in routine quarantine measures already existing for the agriculture sector for food crop species, to prevent their introduction in countries or new areas which is highly cost effective. Therefore, for the successful implementation of Target 9, national governments will need to incorporate the issue of IAS recognition, prevention and management into national legislation, budgeting and institutional development programs.

Challenges of island nations in the region

One of the major challenges faced by Pacific Island states relates to their capacity (at the institutional, systemic and individual levels) to progress towards the achievement of the Aichi Biodiversity Targets. The modality of South-South cooperation could be one possible option to facilitate this.



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Mobilize resources from private and global funds

Resources for biodiversity conservation are limited in some countries in the Asia Pacific region. Conversely, many Asian and Pacific countries also have rapidly growing economies. Given this situation, seeking out multiple avenues for mobilizing financial resources for biodiversity conservation and sustainable use could be helpful.

Enhanced law and regulation enforcement

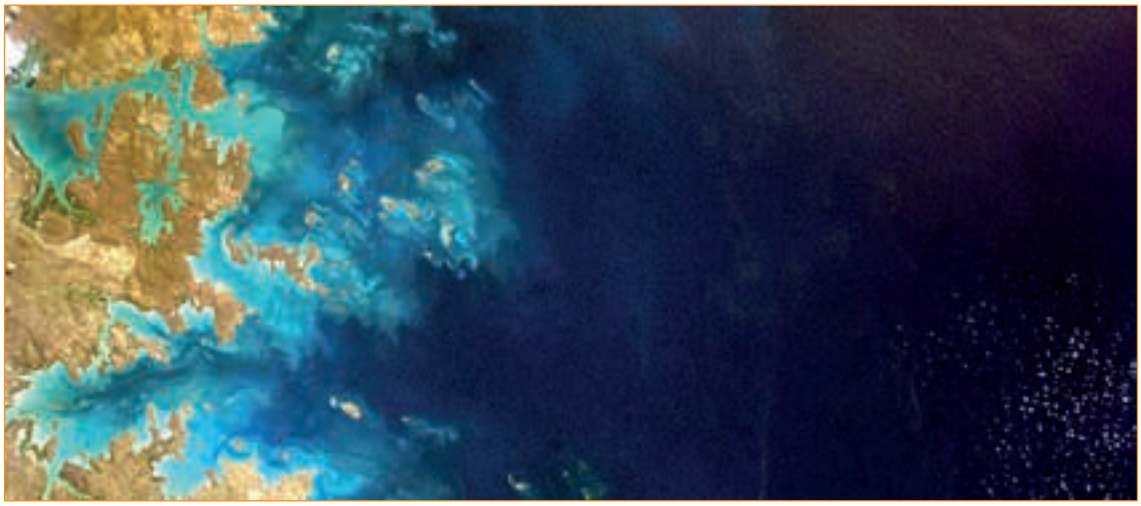
Progress towards a number of Aichi Biodiversity Targets could be supported through the more effective implementation of existing international and national laws, national regulations and local or community regulations and bylaws. For example, the illegal wildlife trade poses a risk to the region's biodiversity, and the effective implementation of national laws and international agreements, such as CITES, is essential to effectively counter this threat.

Similarly pollution control (Target 8) relies on effective enforcement of regulations, while attainment of Target 9 would be facilitated by national legislation to control invasive alien species, backed up by comprehensive strategies and monitoring and management plans.

7. CONCLUSION

Asia and the Pacific

In conclusion, the countries of the Asia and the Pacific region have made progress in developing responses and actions to achieve the goals of the *Strategic Plan for Biodiversity* and its 20 associated Aichi Biodiversity Targets. Some of the targets are on track to be met by 2020 while others will require further effort between now and 2020, and beyond. This region is extraordinarily diverse geographically, politically and economically. It includes many oceanic island states in the Pacific whose circumstances and priorities are distinct from other countries in the region. Nonetheless, there are a number of overarching responses from across the region in support of the Plan, including mobilising resources through schemes that recognise the values of biodiversity, voluntary certification, transboundary collaboration, and formulating national legislation and policies to support the Strategic Plan. Further efforts to mainstream the importance of biodiversity and ecosystem services across governments and society in general are needed to ensure that their benefits are clearly understood as critical to human well-being, and to the achievement of the new Sustainable Development Goals throughout the region.



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