THE STATE OF BIODIVERSITY IN AFRICA

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

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Preparation

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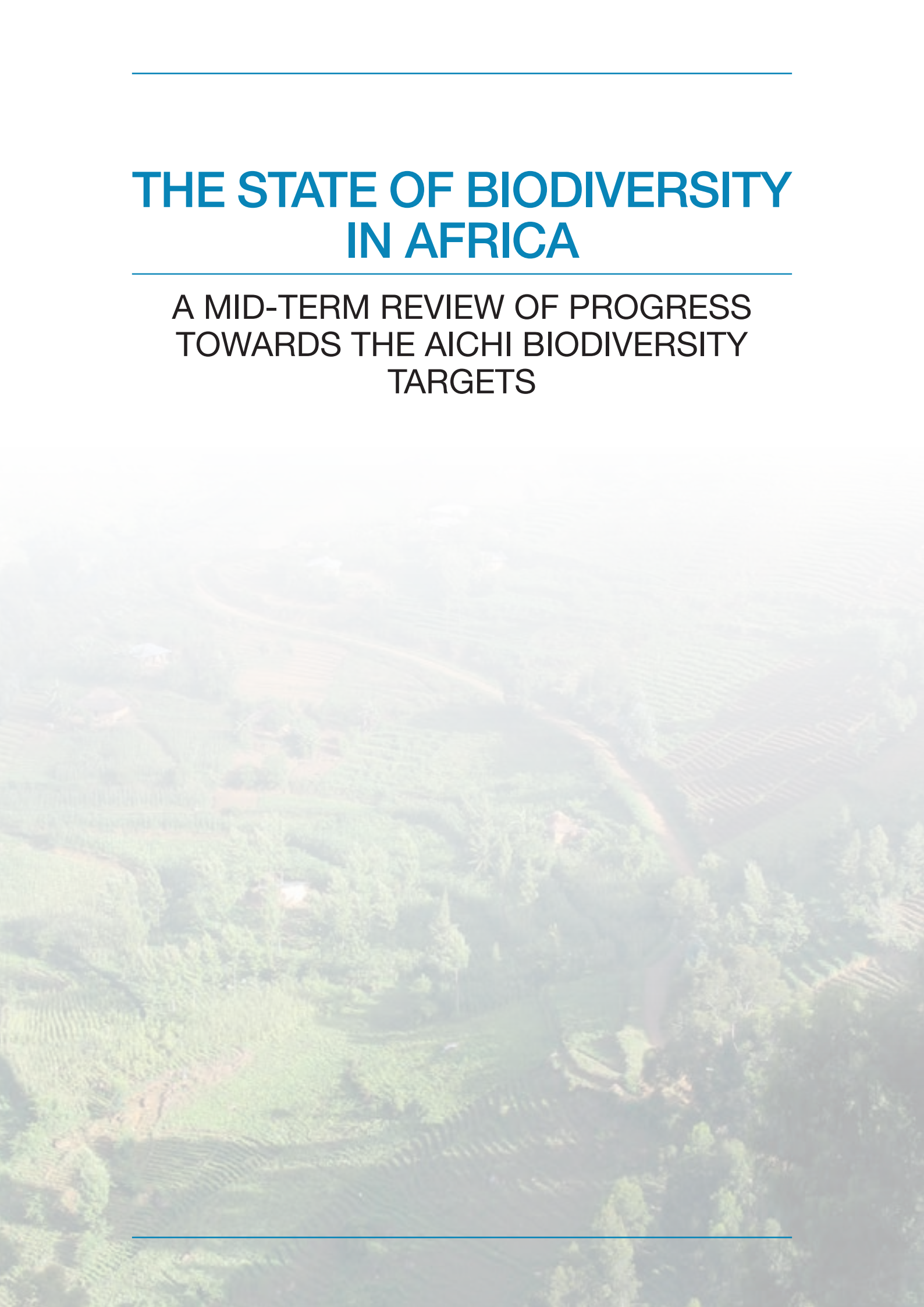

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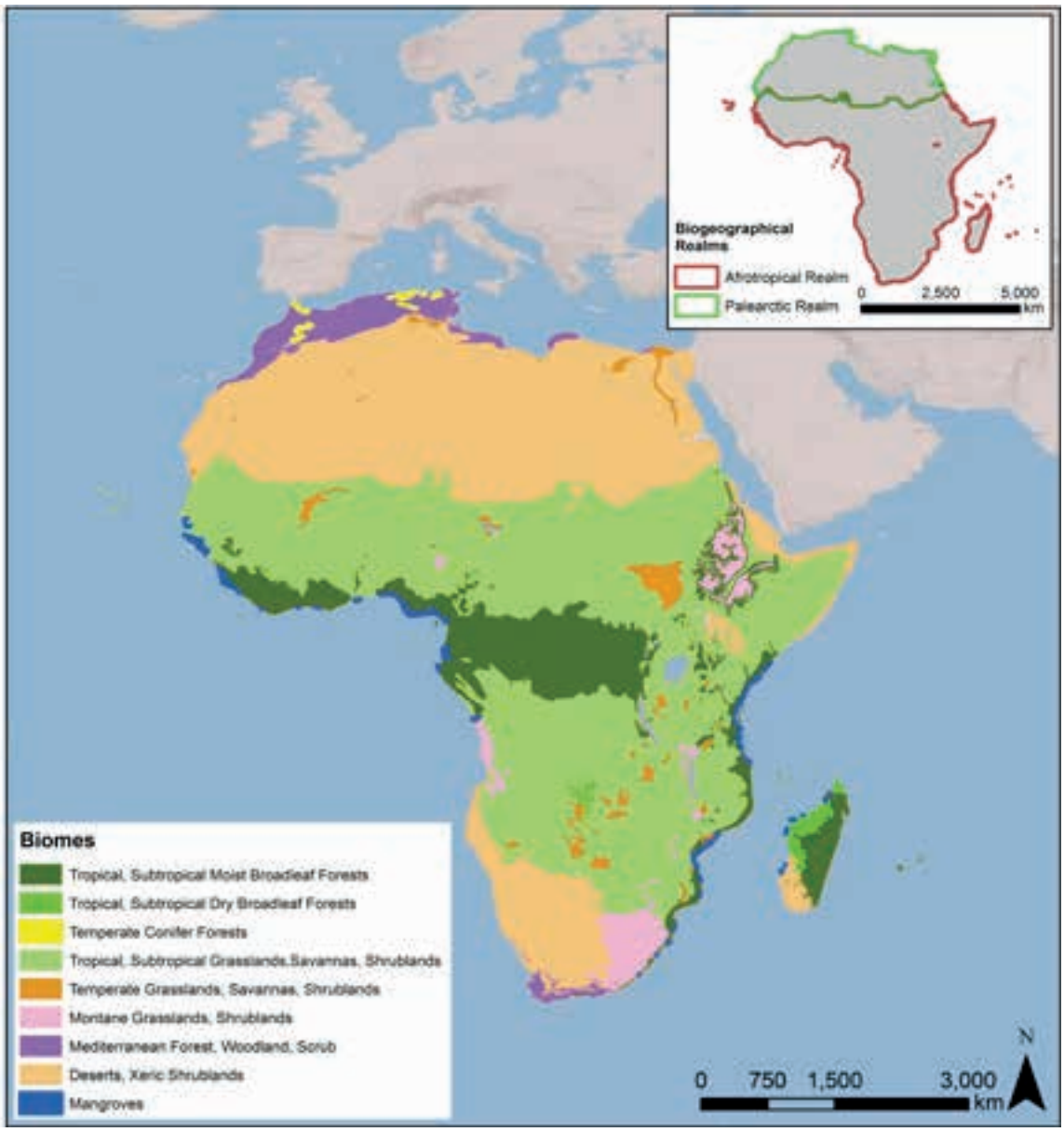

Distribution of main biomes and biogeographical realms (inset) on land in the Africa region (map produced by UNEP-WCMC using data from Olson et al. 2001).

Map of countries and their Economic Exclusive Zone (EEZ) in the Africa region, based on the UNEP Live regional classification (UNEP 2015a).

FOREWORD

Africa is immensely rich in biodiversity. Its living organisms comprise around a quarter of global biodiversity and it supports the earth's largest intact assemblages of large mammals, which roam freely in many countries. Africa's biomes extend from mangroves to deserts, from Mediterranean to tropical forests, from temperate to sub-tropical and montane grasslands and savannahs, and even to ice-capped mountains. There are many examples of success and innovation in the conservation of Africa's biodiversity, yet Africa is also experiencing unprecedented rates of population growth, urbanization and agricultural development, which create immense challenges in reconciling human well-being with environmental and economic prosperity.

A strategic plan for biodiversity was adopted globally in 2010 by the Parties to the Convention on Biological Diversity. The *Strategic Plan for Biodiversity 2011-2020* is a ten-year framework for action by all countries and stakeholders to conserve biodiversity and enhance its benefits for people. It is comprised 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 it promotes the coherent and effective implementation of the three objectives of the Convention on Biological Diversity. A mid-term assessment of the implementation of the plan, at the global scale, was published in the fourth edition of the Global Biodiversity Outlook (GBO-4).

This second edition of *The State of Biodiversity in Africa* complements GBO-4 by analysing and assessing the status and trends of biodiversity in Africa against the twenty Aichi Biodiversity Targets. The report is a synthesis of existing material, though it does also include new analyses. It is a contribution towards the suite of regional assessments recently initiated by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) and to the Sixth Edition of the Global Environmental Outlook.

The report identifies opportunities and challenges in implementing the *Strategic Plan for Biodiversity 2011-2020* in Africa and looks ahead to actions which need to be taken by national governments and other decision makers to enhance and accelerate progress towards its attainment.

Responding to these opportunities and tackling these challenges, requires collaborative effort across governments and many stakeholders within Africa. UNEP has a significant role to play in catalysing such action through stimulating trans-boundary action and collaborative effort across the region, building capacity within governments and within organizations active in sustainable development in Africa. It also can support planning for biodiversity through updating national biodiversity strategies and actions plans, and facilitating policy coherence and mainstreaming of biodiversity within and across sectors, innovation and piloting of new ideas and encouraging the mobilization of resources.

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1. EXECUTIVE SUMMARY

Global Biodiversity Outlook-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. It is the second edition of the State of Biodiversity in Africa report and serves as a near mid-term review of progress towards the *Strategic Plan for Biodiversity 2011-2020* for the African region.

This report draws on a set of regional indicators, information from fifth national reports to the Convention on Biological Diversity (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 its attainment. Responding to the opportunities and challenges requires collaborative effort; this report has been produced to help inform regional dialogue across national governments and many stakeholders throughout Africa and the promotion of co-operation and actions especially through legal and policy frameworks at the regional scale.

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

- Overall, biodiversity in Africa continues to decline, with ongoing losses of species and habitats.
- Ongoing loss of biodiversity in Africa is driven by a combination of human-induced factors.
- Africa's freshwater ecosystems and their biodiversity are especially threatened.
- Africa continues to experience deforestation and forest degradation.
- The negative impacts of climate change on species and ecosystems are exacerbating the effects of all these pressures.
- Nonetheless the report identifies a number of important responses which have taken place since 2011.
- African countries are working collaboratively to address particular Aichi Biodiversity Targets.
- There is a growing portfolio of international support for African countries to achieve the Aichi Biodiversity Targets.
- African countries are using ecosystem service valuation and investment in REDD+ to achieve the Aichi Biodiversity Targets.
- Many African countries have already achieved their 17% terrestrial protected area targets, and many others are working towards this target on land, as well as on the 10% marine protected areas target on the sea.
- Africa is making increasing use of ecosystem-based conservation and restoration of natural resources.

Overall progress toward achieving Aichi Biodiversity Targets in African countries generally matches global trends. 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. These reports suggest that progress in Africa is lagging behind global progress in terms of improving knowledge (Target 19) and financial resources (Target 20). But over 80 per cent of countries in Africa do indicate progress toward Target 17, particularly in terms of updating National Biodiversity Strategies and Action Plans (NBSAPs), with more focus needed in terms of implementing and using them as policy instruments.

Commonly reported problems include: a lack of institutional, financial and technological resources and capacity to implement NBSAPs; a lack of appropriate and harmonized biodiversity indicators to assess conservation needs and NBSAP progress; data and information deficiencies; and national budgetary constraints in a region with many least developed countries. The reports also identified a lack of readily available information on Africa's biodiversity, which presents a barrier to accurately assess the status and trends, threats, and conservation needs for biodiversity in Africa.

Despite these challenges, we can see that Africa as a region is making progress in mainstreaming and understanding the values of biodiversity (Target 1), designating protected areas (Target 11), ratifying the Nagoya Protocol on access and benefit sharing (Target 16) implementing values into national and strategic plans, updating NBSAPs (Target 17), and respecting the traditional knowledge and values of indigenous peoples (Target 18). These targets fall under strategic goals A and E of the *Strategic Plan for Biodiversity 2011-2020* indicating an overall increased awareness for the values of biodiversity and a willingness to integrate these in development plans.

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:

- Use international mechanisms that support sustainable use of ecosystems.
- Implement conservation actions on a greater scale to avoid further biodiversity loss in Africa.
- Strengthen joint trans-boundary actions with bordering nations.
- Strengthen engagement of local communities in governance systems.
- Ensure enforcement of law.
- Implementation of the outcomes of the conferences, which requires resource mobilization and capacity building of African countries.
- Increase awareness of the contribution of biodiversity to people's lives.
- Create positive incentives for sustainable land management.
- Mobilize resources from private and global funds.
- Address the information deficit.
- Mainstream biodiversity across government sectors.
- Build institutional capacity to implement the biodiversity-related Conventions.

1. RÉSUMÉ

La quatrième édition des Perspectives mondiales de la diversité biologique (GBO-4), évaluation à mi-parcours du *Plan stratégique pour la diversité biologique 2011-2020*, fournit un examen des progrès accomplis à l'échelle mondiale en vue d'atteindre les buts du Plan stratégique pour la diversité biologique et les Objectifs d'Aichi qui y sont associés. Elle ne contient en revanche que très peu d'information au niveau régional. Le présent rapport s'appuie sur et complémente l'évaluation globale du GBO-4. Il s'agit de la deuxième édition de l'État de la biodiversité en Afrique. Ce rapport constitue une évaluation à (pratiquement) mi-parcours des progrès accomplis dans la mise en œuvre du *Plan stratégique pour la diversité biologique 2011-2020* pour la région Afrique.

Ce 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 (CDB) 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 globale existante ont été entreprises. Néanmoins, en raison de limites inhérentes à certaines données, certains jeux de données qui ne se prolongeaient pas au-delà de 2011 ont été inclus afin de mettre en évidence le fait que des informations pertinentes existent, 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. Réagir face à ces défis et à ces opportunités requiert un effort de collaboration. Ce rapport a été produit afin de contribuer à informer le dialogue régional entre les gouvernements nationaux et de nombreuses parties prenantes dans toute la région Afrique, et à promouvoir la coopération et les initiatives au travers, en particulier, de cadres juridiques et politiques régionaux.Les messages clés ayant émergé de cette évaluation de l'état de la biodiversité en Afrique et des pressions qu'elle subit sont les suivants:

- Dans l'ensemble, la biodiversité en Afrique continue à décliner, avec des pertes constantes d'espèces et d'habitats.
- La perte continue de la biodiversité en Afrique est entraînée par une combinaison de facteurs anthropiques.
- Les écosystèmes d'eau douce de l'Afrique et leur biodiversité sont particulièrement menacés.
- L'Afrique continue de connaître la déforestation et la dégradation des forêts.
- Les impacts négatifs du changement climatique sur les espèces et les écosystèmes aggravent les effets de ces pressions.
- Néanmoins, le rapport identifie un certain nombre d'interventions importantes qui ont eu lieu depuis 2011.
- Les pays africains travaillent de manière collaborative afin de traiter certains Objectifs d'Aichi pour la biodiversité.
- Il existe un portefeuille croissant d'aide internationale pour aider les pays africains à atteindre les Objectifs d'Aichi.
- Les pays africains recourent à l'évaluation des services rendus par les écosystèmes et à l'investissement dans REDD+ afin d'atteindre les Objectifs d'Aichi pour la biodiversité.
- De nombreux pays africains ont déjà atteint leur objectif de 17 pour cent d'aires terrestres protégées, et beaucoup d'autres travaillent à la réalisation de cet objectif et de celui qui vise à atteindre 10 pour cent d'aires marines protégées.
- L'Afrique recourt de plus en plus à la conservation fondée sur les écosystèmes et à la restauration des ressources naturelles.

Globalement, les progrès vers la réalisation des Objectifs d'Aichi dans les pays de la région Afrique correspondent aux tendances mondiales. 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 désagrégées au niveau régional et des cinquièmes rapports nationaux présentés à la CDB. Ces rapports suggèrent que les progrès en Afrique sont plus lents qu'au niveau mondial en termes d'amélioration des connaissances (Objectif 19) et de ressources financières (Objectif 20). En revanche, plus de 80 pour cent des pays d'Afrique font état de progrès vers l'Objectif 17, notamment en termes de mise à jour des Stratégies et plans d'action nationaux (SPANB), bien que plus d'attention soit nécessaire sur la mise en œuvre et l'utilisation de ceux-ci comme instruments politiques.

Les difficultés communément signalées incluent : le manque de ressources et de capacités institutionnelles, financières et technologiques pour la mise en œuvre des SPANB; le manque d'indicateurs de biodiversité appropriés et harmonisés pour évaluer les besoins en matière de conservation et les progrès réalisés dans la mise en œuvre des SPANB; des manques de données et d'information; et des contraintes budgétaires nationales dans une région où se trouvent de nombreux pays parmi les moins développés. Le rapport a également identifié un manque d'informations facilement accessibles sur la biodiversité en Afrique, ce qui constitue un obstacle à l'évaluation précise de l'état et des tendances, des menaces et des besoins de conservation de la biodiversité en Afrique.

Malgré ces défis, nous pouvons voir que l'Afrique en tant que région a progressé en matière d'intégration et de compréhension des valeurs de la biodiversité (Objectif 1), de désignation d'aires protégées (Objectif 11), de ratification du Protocole de Nagoya sur l'accès et le partage des avantages (Objectif 16), de mise en œuvre des valeurs dans les plans nationaux et les stratégies nationales, de mise à jour des SPANB (Objectif 17), et de respect des connaissances et des valeurs traditionnelles des peuples autochtones (Objectif 18). Ceux-ci relèvent des objectifs stratégiques A et E du Plan stratégique pour la biodiversité 2011-2020, indiquant une sensibilisation accrue pour les valeurs de la biodiversité et une volonté de les intégrer dans les plans de développement.

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 différents ministères et entre les différents secteurs, des incitations socio-économiques, le suivi, l'application des mesures et l'engagement du public et des parties prenantes.

Les mesures proposées à court et à long terme comprennent:

- L'utilisation des mécanismes internationaux pour soutenir l'utilisation durable des écosystèmes.
- La mise en œuvre de mesures de conservation sur une plus grande échelle pour éviter une perte de la biodiversité plus importante en Afrique.
- Le renforcement des mesures transfrontalières conjointes avec les pays limitrophes.
- Le renforcement de l'engagement des communautés locales dans les systèmes de gouvernance.
- L'application effective des lois.
- La mise en œuvre des résultats des conférences, ce qui nécessite la mobilisation de ressources et le renforcement des capacités des pays africains.
- Une sensibilisation accrue quant à la contribution de la biodiversité à la vie des gens.
- La création d'incitations positives pour la gestion durable des terres.
- La mobilisation de ressources provenant de fonds privés et mondiaux.
- La prise en compte du manque d'information.
- L'intégration (« mainstreaming » en anglais) de la biodiversité dans tous les secteurs du gouvernement.
- Le renforcement des capacités institutionnelles pour mettre en œuvre les conventions relatives à la biodiversité.

1. RESUMEN EJECUTIVO

La Perspectiva Mundial sobre la Diversidad Biológica 4 (GBO-4, por sus siglas en Inglés), revisión realizada en la mitad del período de implementación del *Plan Estratégico para la Diversidad Biológica 2011-2020*, proporcionó un análisis global sobre el progreso realizado hacia los objetivos de biodiversidad del Plan, y las Metas de Aichi para la diversidad biológica asociadas, pero su contenido regional era limitado.

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 Aichi para la diversidad biológica. En la medida de lo posible, se desglosaron al nivel regional los indicadores globales para las metas y se realizaron algunos análisis adicionales de información global existente. A pesar de ello, limitaciones en los datos disponibles han llevado a la inclusión de bases de datos previos al año 2011, para poder ilustrar que la información necesaria existe pero que se requieren esfuerzos adicionales para actualizarla.

El seguimiento del progreso regional puede ayudar a identificar aquellas áreas donde los esfuerzos regionales son más necesarios para reforzar y acelerar el progreso hacia el logro de las metas. Para responder a las oportunidades y los retos se requiere un esfuerzo colaborativo. Este informe ha sido producido para contribuir con información que ayude al diálogo regional a través de gobiernos nacionales y partes interesadas en toda África, y para promover la cooperación y acciones relacionadas especialmente a través de esquemas legales y políticos a nivel regional. En este análisis se destacan los siguientes mensajes clave sobre el estado de la biodiversidad en África, y las presiones sobre ésta:

- En general, la biodiversidad en África continúa decayendo, con pérdidas continuadas de especies y hábitats.
- La pérdida continuada de biodiversidad en África está impulsada por una combinación de factores antropogénicos.
- Los ecosistemas de agua dulce y su biodiversidad están especialmente en peligro.
- África continúa experimentando deforestación y degradación forestal.
- Los efectos negativos del cambio climático sobre las especies y los ecosistemas están empeorando los efectos de todas estas presiones sobre el estado de la biodiversidad y el bienestar humano en África.

A pesar de ello, el informe identifica un número de respuestas importantes que han estado ocurriendo desde 2011.

- Los países africanos se encuentran trabajando en forma colaborativa a fin de abordar determinadas Estrategias y planes de acción nacionales en materia de diversidad biológica.
- Se ha incrementado el apoyo internacional a países africanos para ayudarles a abordar las Estrategias y planes de acción nacionales en materia de diversidad biológica.
- Los países africanos están utilizando, por ejemplo, la valuación de servicios ecosistémicos y la inversión en REDD+ para conseguir las Metas de Aichi para la diversidad biológica.
- Varios países africanos ya alcanzaron la meta del 17 por ciento de zonas terrestres conservadas a través de áreas protegidas, mientras que otros se encuentran trabajando en pos de dicha meta así como sobre la meta del 10 por ciento de áreas marinas protegidas.
- Se observa un creciente uso de la conservación basada en ecosistemas y la restauración de recursos naturales en África.

En general, el progreso hacia el logro de las Metas de Aichi para la diversidad biológica en los países africanos se asemeja, en términos generales, a las tendencias globales. Un esquema de progreso hacia cada una de las metas ha sido desarrollado basándose en el análisis de progreso elaborado con los datos desagregados a nivel regional y en los quintos informes nacionales.

Los Quintos Informes Nacionales sugieren que el progreso en África en cuanto a la mejora de información (Meta 19) y los recursos financieros (Meta 20) se encuentra por detrás del progreso global. Más del 80 por ciento de los países africanos indican progreso hacia la Meta 17, particularmente en cuanto a la actualización de sus Estrategias y planes de acción nacionales en materia de diversidad biológica (EPANDB), aunque un mayor énfasis en la implementación y utilización como de las mismas como instrumentos políticos es requerido.

Entre los problemas reportados habitualmente se encuentran: la falta de recursos institucionales, financieros y tecnológicos y la capacidad para implementar las EPANDB; la falta de indicadores de biodiversidad armonizados y apropiados para analizar las necesidad de conservación así como el progreso de las EPANDB; las deficiencias de los datos y la información; y limitaciones en los presupuestos nacionales de una región con muchos países menos avanzados. El informe también identifica una falta de información fácilmente disponible sobre la biodiversidad de África, lo cual presenta una barrera para analizar de manera precisa el estado y las tendencias, los riesgos, y las necesidades de conservación para la biodiversidad en la región.

A pesar de estos retos, podemos ver que África, como región, está progresando en integrar y reconocer los valores de la biodiversidad (Meta 1), designar áreas protegidas (Meta 11), ratificar el Protocolo de Nagoya sobre acceso y participación en los beneficios (Meta 16), implementar los valores en planes nacionales y estratégicos, actualizar las EPANDB (Meta 17), y respetar los conocimientos tradicionales y valores de las comunidades indígenas (Meta 18). Estas metas caen bajo los objetivos A y E del Plan Estratégico para la Diversidad Biológica 2011-2020 indicando en términos generales una mayor concienciación sobre los valores de biodiversidad y voluntad de que los mismos serán integrados en los planes de desarrollo.

De cara hacia el futuro, está claro que conseguir la mayor parte de las Estrategias y planes de acción nacionales en materia de diversidad biológica requerirá implementación de un paquete de acciones que, generalmente, incluye esquemas legales y políticos que sean coherentes a través de ministerios y sectores, incentivos socioeconómicos, monitoreo, observancia, y participación del público y partes interesadas.

Entre las acciones propuestas a corto y largo plazo se incluyen:

- Utilización de mecanismos internacionales que apoyen el uso sostenible de los ecosistemas.
- Implementar acciones de conservación a mayor escala para evitar mayores pérdidas de biodiversidad en África.
- Reforzar las acciones transfronterizas conjuntas con naciones vecinas.
- Reforzar la participación de las comunidades locales en los sistemas de gobernanza.
- Asegurar la aplicación de la ley.
- Implementación de los resultados de las conferencias, lo cual requiere la movilización de recursos y desarrollo de capacidades en los países africanos.
- Aumentar la concienciación sobre la contribución de la biodiversidad a la vida de las personas.
- Crear incentivos positivos para la gestión sostenible de la tierra.
- Movilizar recursos de fondos privados y globales.
- Hacer frente a la falta de información.
- Integrar la biodiversidad a través de los distintos sectores de gobierno.
- Desarrollar las capacidades institucionales para implementar las convenciones relacionadas con la biodiversidad.

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 Африке*», выступающее в качестве промежуточного обзора прогресса в осуществлении *Стратегического плана в области сохранения и устойчивого использования биоразнообразия на 2011-2020 годы* для Африканского 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 его достижения. Реагирование на возможности и проблемы требует совместных усилий; настоящий доклад был подготовлен в целях обеспечения информационной поддержки регионального диалога между национальными правительствами и множеством заинтересованных сторон во всей Африке, а также в целях содействия сотрудничеству и проведению практических мероприятий, особенно посредством установления правовых и политических рамок на региональном уровне.

Ниже приводятся полученные в результате этой оценки основные выводы о состоянии биоразнообразия в Африке и воздействующих на него нагрузках:

- В целом, биоразнообразие в Африке продолжает уменьшаться, что сопровождается утратой видов и мест обитания.
- Продолжающаяся утрата биоразнообразия в Африке обусловлена сочетанием антропогенных факторов.
- Особой угрозе подвергаются пресноводные экосистемы Африки и их биоразнообразие.
- В Африке по-прежнему наблюдаются обезлесение и деградация лесов.
- Негативное воздействие изменения климата на виды и экосистемы усугубляет последствия всех этих нагрузок.

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

- Африканские страны совместно работают над выполнением конкретных Айтинских целевых задач в области биоразнообразия.
- Расширяются масштабы международной поддержки, оказываемой африканским странам в выполнении Айтинских целевых задач в области биоразнообразия.
- Африканские страны используют оценку экосистемных услуг и инвестиции в СВРОДЛ+ для выполнения Айтинских целевых задач в области биоразнообразия.
- Многие африканские страны уже достигли своих целевых показателей по включению в число охраняемых районов 17 процентов суши, многие другие страны работают над достижением этого целевого показателя на суше, а также целевого показателя по включению в число охраняемых районов 10 процентов морских районов.
- В Африке все чаще используется экосистемный подход к сохранению и восстановлению природных ресурсов.

Общий прогресс в выполнении Айтинских целевых задач в области биоразнообразия в африканских странах в целом совпадает с общемировыми тенденциями. 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 этим докладам, ход выполнения в Африке отстает от общемирового прогресса в плане углубления знаний (Целевая задача 19) и мобилизации финансовых ресурсов (Целевая задача 20). Однако более 80 процентов стран в Африке все же отмечают прогресс в выполнении Целевой задачи 17, в частности, в плане обновления Национальных стратегий и планов действий по сохранению биоразнообразия (НСПДСБ), хотя необходимо уделять больше внимания их реализации и использованию в качестве инструментов политики.

К числу наиболее часто отмечаемых проблем относятся: отсутствие организационных, финансовых и технологических ресурсов и потенциала для реализации НСПДСБ; отсутствие надлежащих и унифицированных индикаторов биоразнообразия для оценки потребностей в сохранении биоразнообразия и хода реализации НСПДСБ; нехватка данных и информации; а также ограничения, обусловленные национальными бюджетами в регионе с большим числом менее развитых стран. Кроме того, в докладе было отмечено отсутствие прямого доступа к информации о биоразнообразии в Африке, что препятствует точной оценке состояния дел, тенденций, угроз и потребностей в области сохранения биоразнообразия в Африке.

Несмотря на эти трудности, мы видим, что Африка как регион делает успехи во включении ценностей биоразнообразия в основную деятельность и их понимании (Целевая задача 1), назначении охраняемых районов (Целевая задача 11), ратификации Нагойского протокола регулирования доступа к генетическим ресурсам и совместного использования выгод от их применения (Целевая задача 16), воплощении ценностей в национальных и стратегических планах, обновлении НСПДСБ (Целевая задача 17), а также уважении традиционных знаний и ценностей коренных народов (Целевая задача 18). Эти задачи относятся к стратегическим целям A и E Стратегического плана в области сохранения и устойчивого использования биоразнообразия на 2011-2020 годы, предусмотренного КБД, свидетельствуя об общем повышении осведомленности о ценностях биоразнообразия и желании включать их в планы развития.

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:

- Применение международных механизмов, обеспечивающих устойчивое использование экосистем.
- Расширение масштабов проводимых природоохранных мероприятий с целью предотвращения дальнейшей утраты биоразнообразия в Африке.
- Активизация трансграничной деятельности, проводимой совместно с соседними государствами.
- Расширение вовлечения местных общин в системы управления.
- Обеспечение исполнения законодательства.
- Реализация итоговых документов конференций, которые требуют мобилизации ресурсов и укрепления потенциала африканских стран.
- Повышение осведомленности о положительном влиянии биоразнообразия на жизнь людей.
- Создание положительных стимулов для устойчивого землепользования.
- Мобилизация ресурсов из частных и глобальных фондов.
- Устранение дефицита информации.
- Включение вопросов биоразнообразия в основную деятельность различных секторов правительства.
- Укрепление институционального потенциала с целью реализации Конвенций, касающихся биоразнообразия.

يتطابق بشكل عام تقدم سير العمل الكلي نحو تحقيق أهداف أيشي للتنوع البيولوجي مع الاتجاهات العالمية، وقد تم تطوير منظومة قياس لتقدم سير العمل نحو كل هدف من الأهداف اعتماداً على تحليلات تقدم سير العمل باستخدام مجموعات البيانات المفصلة إقليمياً والتقارير الوطنية الخامسة حول الاتفاقية المتعلقة بالتنوع البيولوجي (CBD). وتُبيِّن هذه التقارير بأن تقدم سير العمل في أفريقيا يتأخر كثيراً عن تقدم سير العمل العالمي على صعيد تحسن المعرفة (الهدف 19) وعلى صعيد الموارد المالية (الهدف 20)، وفي الوقت ذاته فإن 80 بالمئة من الدول الأفريقية تظهر مؤشرات على تقدم سير العمل نحو الهدف 17 وخاصة على صعيد تحديث استراتيجيات وخطط العمل الوطنية للتنوع البيولوجي (NBSAPs)، على الرغم من وجود حاجة للتركيز على تنفيذها واستخدامها كأدوات سياسية.

تشمل المشاكل الشائعة الواردة في التقرير ما يلي: الافتقار إلى القدرة والموارد المؤسسية والمالية والتقنية لتنفيذ الاستراتيجيات وخطط العمل الوطنية للتنوع البيولوجي (NBSAPs) والافتقار إلى مؤشرات ملائمة ومُنَسَّقة للتنوع البيولوجي تفيد في تقييم احتياجات الصون وتقدم سير العمل في الاستراتيجيات وخطط العمل الوطنية للتنوع البيولوجي (NBSAPs)، ونقص البيانات والمعلومات ووجود قيود وطنية للموازنة في منطقة تضم أصلاً القليل جداً من الدول المتقدمة. كما أشار التقرير أيضاً إلى صعوبة الحصول على المعلومات عن التنوع البيولوجي في أفريقيا، الأمر الذي يشكل عائقاً في وجه تقييمٍ دقيقٍ للوضع الراهن للتنوع البيولوجي في أفريقيا والاتجاهات والمخاطر واحتياجات الصون المتعلقة به.

وعلى الرغم من هذه التحديات، يمكن لنا أن نرى أفريقيا على أنها منطقة تُحرِزُ تقدماً في توحيدِ وفهمِ أهمية التنوع البيولوجي (الهدف 1) وإنشاءِ المناطق المحمية (الهدف 11) والمصادقةِ على بروتوكول ناغويا حول الحصول على المنافع وتقاسمها (الهدف 16) وتضمينِ القيمِ في الخُطط والاستراتيجيات الوطنية وتحديثِ استراتيجيات وخُطط العمل الوطنية للتنوع البيولوجي NBSAPs (الهدف 17) واحترامِ القيمِ والمعرفةِ التقليديةِ للسكانِ الأصليين (الهدف 18)، وهذا كله يندرج تحت الأهداف الاستراتيجية (أ، هـ) من الخُطة الاستراتيجية للتنوع البيولوجي 2011 – 2020، مما يشير إلى زيادة في مستوى الوعي العام بأهمية التنوع البيولوجي ورغبة في تضمينها ضمن خُطط التنمية.

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 الاجراءات المقترحة على المدى القصير والمدى البعيد ما يلي:

- استخدام آلية عالمية تدعم الاستخدام المستدام للأنظمة البيئية
- تطبيق إجراءات الصون والحماية بشكل أوسع للحد من فقدان المزيد من التنوع البيولوجي في أفريقيا.
- تقوية الاجراءات العابرة للحدود بين الدول المتاخمة لبعضها البعض.
- تقوية دور المجتمعات المحلية ضمن الأنظمة الحكومية.
- ضمان تنفيذ وإنفاذ القوانين.
- تطبيق مخرجات ونتائج المؤتمرات والتي تتطلب حشد الموارد وبناء قدرات الدول الأفريقية.
- زيادة مستوى الوعي بأهمية دور التنوع البيولوجي في حياة الناس.
- إيجاد حوافز إيجابية للإدارة المستدامة للأراضي.
- حشد الموارد وتأمينها من صناديق التمويل الخاصة والعالمية.
- معالجة نقص المعلومات.
- تضمين التنوع البيولوجي ضمن توجهات القطاعات الحكومية.
- بناء القدرات المؤسسية القادرة على تطبيق الاتفاقيات المتعلقة بالتنوع البيولوجي.

1. ملخص تنفيذي

شرة التوقعات للتنوع البيولوجي العالمي – الإصدار الرابع، عملت المراجعة النصف سنوية للخطة الاستراتيجية للتنوع البيولوجي للفترة 2011 – 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. هذا التقرير يستند على التقييم العالمي لنشرة التوقعات للتنوع البيولوجي العالمي –الإصدار الرابع (GBO-4) ويتتمه، وهذا التقرير هو النسخة الثانية من تقرير وضع التنوع البيولوجي في أفريقيا وتعتبر بمثابة مراجعة نصف سنوية لتقدم سير العمل نحو الخطة الاستراتيجية للتنوع البيولوجي للفترة 2011 – 2020 في منطقة أفريقيا.

هذا التقرير يعتمد 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 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 قلة 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 تحقيق تلك الأعمال. 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 أفريقيا، ولتشجيع التعاون والعمل المشترك خاصة عبر الأطر الرسمية والسياسية على المستوى الإقليمي.

إن العبر الرئيسية المستوحاة حول وضع التنوع البيولوجي في أفريقيا والضغوطات التي يتعرض لها والمستخلصة من هذا التقييم هي:

- بشكل عام فإن التنوع البيولوجي في أفريقيا في تناقص مستمر مع تراجع قائم وخسارة للأنواع والموائل الطبيعية.
- الخسارة القائمة في التنوع البيولوجي في أفريقيا ناتجة عن مجموعة من العوامل ذات المنشأ البشري.
- تتركز التهديدات بشكل خاص على الأنظمة البيئية للمياه العذبة في أفريقيا والتنوع البيولوجي المرتبط بها.
- تتعرض أفريقيا بشكل مستمر لإزالة الغابات وتدهورها.
- إن الأثار السلبية للتغير المناخي على الأنواع وعلى الأنظمة البيئية تؤدي إلى مضاعفة كل الضغوطات السابقة.

ومع ذلك فإن هذا التقرير يشير إلى عدد من حالات الاستجابة الهامة التي حدثت منذ عام 2010:

- تتعاون الدول الأفريقية فيما بينها للوصول إلى أهداف أيشي للتنوع البيولوجي.
- هناك إطار عالمي دائم النمو يهدف إلى تقديم الدعم للدول الأفريقية لتحقيق أهداف أيشي للتنوع البيولوجي.
- إن الدول الأفريقية تستخدم مبدأ استثمار وتقييم خدمات الأنظمة البيئية فيما يتعلق بمبادرة الحد من الانبعاثات الناتجة عن إزالة الغابات وتدهورها (REDD+)، وذلك لتحقيق أهداف أيشي للتنوع البيولوجي.
- استطاعت العديد من الدول الأفريقية الوصول إلى هدفها لجعل 17 بالمئة من أراضيها كمحميات طبيعية، وهناك دولٌ كثيرةٌ أخرى تركز جهودها على الأراضي للوصول إلى هذا الهدف، والحال نفسه فيما يتعلق بالعشرة بالمئة من المحميات الطبيعية البحرية في البحار.
- تستخدم أفريقيا بازدياد مبدأ الصون والحماية واستعادة الموارد الطبيعية المعتمد على الأنظمة البيئية.

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《非洲生物多样性状况》报告，也是对实现非洲地区的《2011-2020年生物多样性战略计划》目标所取得进展的中期评估。

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发现最需要加强并加速努力的区域，来实现目标。应对机遇和挑战需要协同努力，而编制本报告有助于为非洲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非洲生物多样性状况及其所面临压力的关键信息如下：

- 总体而言，非洲的生物多样性继续下降，物种和生境持续减少。
- 综合的人为因素导致了非洲生物多样性的持续丧失。
- 非洲的淡水生态系统及其生物多样性尤其受到威胁。
- 非洲的毁林和森林退化仍在继续。
- 气候变化对物种和生态系统的负面影响正在加剧这些压力带来的影响。

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：

- 非洲各国正在携手解决特定的“爱知生物多样性目标”。
- 对非洲国家的国际支持越来越多，以帮助它们实现“爱知生物多样性目标”。
- 非洲国家正在使用生态系统服务评价和对“减少发展中国家毁林和森林退化所致排放量，森林保护和可持续管理的作用，以及提高森林碳储量”（REDD+）的投资，以实现“爱知生物多样性目标”。
- 许多非洲国家已经实现了17%的陆地保护区目标，且还有许多其他国家正在努力实现这一陆地目标，以及10%的海洋保护区目标。
- 非洲正在越来越多地使用基于生态系统的保护和自然资源的恢复。

非洲各国实现“爱知生物多样性目标”的总体进展与全球趋势大体相当。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”。这些报告认为非洲在提高知识（目标19）和资金资源（目标20）等方面取得的进展落后于全球进展。但超过80%的非洲国家确实在实现第17项目标上表现出了进展，尤其是在更新其《国家生物多样性战略和行动计划》（NBSAP）方面，尽管它们需要对执行和把它们作为政策工具使用给予更多重视。

所报告的常见问题包括：缺乏执行《国家生物多样性战略与行动计划》的机制、资金和技术资源和能力；缺乏评估保护需求和《国家生物多样性战略和行动计划》进展情况的恰当的、协调一致的生物多样性指标；数据和信息缺陷；许多欠发达国家在某个地区的国家预算存在限制。

尽管存在这些挑战，但我们可以看到非洲作为一个地区正在以下方面取得进展：理解生物多样性并使之为多数人接受（目标1）、指定保护区（目标11）、批准关于获取和利益共享的《名古屋议定书》（目标16）、将生物多样性价值观纳入国家和战略计划及更新《国家生物多样性战略和行动计划》（目标17），以及尊重传统知识和的价值观（目标18）。这些归入CBD《2011-2020年生物多样性战略计划》的战略目标A和战略目标E，表明对生物多样性价值，以及将其纳入发展计划的意愿的认识的整体提高。

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：

- 使用支持可持续利用生态系统的国际机制；
- 实施更大规模的保护行动，以避免非洲生物多样性的进一步丧失；
- 加强与周边国家的联合跨境行动；
- 加强当地社区对治理体系的参与；
- 确保执法；
- 执行会议的结果，它需要非洲各国调动资源和进行能力建设；
- 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；
- 动员来自私人和全球基金的资源；
- 解决信息不足问题；
- 使生物多样性在各政府部门被多数人接受；
- 建立实施与生物多样性有关的公约的制度能力。

2. KEY MESSAGES ABOUT THE STATE OF BIODIVERSITY IN AFRICA

The second edition of the *State of Biodiversity in Africa* is a near mid-term review of progress towards implementation of the *Strategic Plan for Biodiversity 2011-2020* and the associated *Aichi Biodiversity Targets* for African countries. It builds on and complements the assessment undertaken in the fourth edition of the Global Biodiversity Outlook (GBO-4) (Leadley et al. 2014). This report draws on a set of regional indicators, information from the Fifth National reports to the Convention on Biological Diversity, other government reports, case studies as well as published literature. The key messages of this assessment have been arranged under the headings of the state of biodiversity, the pressures on it, and the impacts to society of its loss.

STATE

Biodiversity in Africa continues to decline, with ongoing losses of species and habitats.

Africa contains remarkable biodiversity, including the most intact assemblages of large mammals on Earth. However, species abundance is in decline and the threats to species are increasing. In 2014, 6,419 animals and 3,148 plants in Africa were recorded as threatened with extinction on the IUCN Red List. Of all freshwater species in Africa 21 per cent are recorded as threatened (Darwall et al. 2011) and 45 percent of freshwater fish and 58 percent of freshwater plant species are over-harvested (IUCN 2014). Further the IUCN Red List index for African birds shows a decline over the past 25 years, meaning that African birds are increasingly at risk of extinction (BirdLife International unpublished data). Trends for other groups also likely to be negative (IUCN 2014). Overall the combined population of African vertebrate species where data are available is calculated to have declined by around 39 per cent since 1970 (WWF 2014). Declines are more rapid in Western and Central Africa, than in Eastern or Southern Africa (Craigie et al. 2010). Population trends in smaller species are generally unknown.

Many habitats are subject to tremendous pressure from resource use and development, and expanding human populations. Mangroves, moist and seasonally dry forests and wetlands have all declined significantly over the past twenty years, with the declines typically being in the range of one per cent loss per annum. An analysis of African ecoregions in 2004 showed that a number were regarded as 'Endangered' or 'Critically Endangered' (Burgess et al. 2004), and although there has been no more recent continental scale analysis, this status is unlikely to have improved since then.

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PRESSURES

Ongoing loss of biodiversity in Africa is driven by a combination of human-induced factors

The population of Africa surpassed one billion people in 2009 and is set to grow at 2.3 per cent every year during 2010-2015 (World Bank 2011). This has led to a growing demand for natural resources, resulting in land use change and the unsustainable use of species. These changes place great pressure on natural areas, biodiversity and ecosystem service provision from natural habitats.

Africa's freshwater ecosystems and their biodiversity are especially threatened

Unsustainable harvesting of fish and inappropriate fishing methods, as well as wetland drainage for agriculture are putting increasing pressure on African freshwater systems. Other major, albeit localized, threats to inland water ecosystems include water pollution from excess nutrients, domestic and industrial organic loads, pesticides and heavy metals, and the impacts of invasive species. These pressures are resulting in biodiversity degradation in freshwater ecosystems, especially in East Africa's Lake Victoria, the Mediterranean and Atlantic coasts of Morocco, and many major African rivers (Darwall et al. 2011).

Africa continues to experience deforestation and forest degradation

Over three million hectares of natural habitat are converted for other uses each year in Africa. The major causes of deforestation and forest degradation come from subsistence and commercial agriculture, timber extraction, urbanization and the rise of biofuel plantations (UNEP 2012a). However, there are examples where forest loss has slowed, such as in the Congo Basin, partly due to the network of protected areas and the reductions in commercial agriculture by the ten Central African countries that are members of the Central African Forest Commission (COMIFAC).

The negative impacts of climate change on species and ecosystems are exacerbating the effects of all these pressures

Available evidence from computer modelling and field observation suggests that climate change is starting to affect the biodiversity of Africa, with species moving their ranges as climates shift (Foden et al. 2007). Although predictions for climate change impacts are dramatic in some of the drier parts of Africa (for example in North-East Africa, Western Sahel and parts of South-Western Africa), especially for migratory species dependant on seasonal wetlands, other factors (especially agricultural expansion) are more important drivers of biodiversity loss at the present time.

RESPONSES

Good progress is being made on some elements of *The Strategic Plan for Biodiversity 2011-2020* and its Aichi Biodiversity Targets

Information from the fifth national reports to the CBD indicates that progress towards many of the Aichi Biodiversity Targets is currently limited in many African countries. For the Aichi Biodiversity Targets to be met by 2020 efforts will need to be significantly increased. Three Targets are showing stronger progress and are likely to be achieved in Africa. As of December 2015, 30 African countries have ratified the Nagoya Protocol on Access and Benefit Sharing (Target 16). A number of other countries in the region are also preparing to do so. In addition, 44 African Parties have submitted at least one National Biodiversity Strategies and Action Plan (NBSAP) (Target 17). Finally, nineteen African countries have surpassed the first component – seventeen percent coverage of terrestrial protected areas – of Target 11 (Protected Areas), while fourteen countries have achieved the second component – ten percent of coastal and marine protected areas – of the Target.

African countries are working collaboratively to address particular Aichi Biodiversity Targets

Collaborative actions include launching the *African 10-Year Framework of Programmes (10-YFP) on Sustainable Consumption and Production* (Sustainable Consumption and Production); demarcation of trans-boundary protected areas, such as the *Sangha Tri-National-Landscape,* trans-boundary conservation measures such as the *Regional Action Plan for the Conservation of the Cross River Gorilla* and other initiatives.

There is a growing portfolio of international support for African countries to achieve the Aichi Biodiversity Targets

The CBD and its partners are supporting countries to move towards the achievement of the Aichi Biodiversity Targets, including through the provision of guidance in support of NBSAP updating, as part of the NBSAP Forum (www.nbsapforum.net) with UNEP and UNDP. Biodiversity-related multilateral environmental agreements (MEAs) are also assisting African countries through capacity-building workshops to integrate biodiversity-related issues into countries' national legislation and development strategies. Support is additionally provided through bilateral and other multi-lateral donors, such as the Global Environmental Facility.

African countries are using ecosystem service valuation and REDD+ to help achieve the Aichi Biodiversity Targets

Many African countries are increasingly expressing interest in conducting valuation of ecosystem services, and developing national ecosystem accounting. Such information will contribute to better assessments of the importance of biodiversity and ecosystem services to African society and economies. It is hoped that increased awareness will in turn motivate increasing actions for biodiversity conservation and sustainable use, as well as investment in the institutional capacity and information production for these actions. Another emerging trend is national and international investment in preparation to undertake Reducing Emissions from Deforestation and Forest Degradation (REDD+) activities. African forests serve as a major carbon sink and are even accumulating carbon in undisturbed areas. This investment is resulting in increased institutional and technical capacity to achieve conservation and sustainable use of biodiversity in forest ecosystems.

Africa is making increasing use of ecosystem-based conservation and restoration

Africa has been making considerable efforts to build ecosystem resilience as a contribution to climate change mitigation and adaptation. In many cases these efforts build from the traditional practices of African peoples who have developed land and water management strategies that facilitate conservation outcomes.

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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 Convention on Biological Diversity (CBD) in Nagoya, Japan, in October 2010. The Strategic Plan is comprised 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 with the overall aim of saving biodiversity and enhancing its benefits for people.

The strategic plan contains five interdependent Strategic Goals (CBD Decision X/2) (CBD 2010):

- Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- Reduce the direct pressures on biodiversity and promote sustainable use
- To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- Enhance the benefits to all from biodiversity and ecosystem services
- Enhance implementation through participatory planning, knowledge management and capacity building

The fourth edition of the Global Biodiversity Outlook (GBO-4), its underlying reports (SCBD 2014; Leadley et al. 2014), and an associated paper in the Journal *Science* (Tittensor et al. 2014), provided a mid-term review of progress towards the Aichi Biodiversity Targets, with a detailed assessment of trends, status, and projections of biodiversity worldwide. Some other biodiversity conventions, such as the Convention on Migratory Species (CMS), have also used the Aichi Biodiversity Targets as a basis to develop their own strategic plans, thus ensuring that actions under such conventions also support the Aichi Biodiversity Targets.

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SUMMARY OF THE FINDINGS OF THE GBO-4

Global Biodiversity Outlook 4 (GBO-4) brought together multiple lines of evidence derived from a wide range of sources. It drew upon targets, commitments and activities of countries as reported in NBSAPs and national reports, as well as Parties' 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. This decline is despite the fact that society's responses to the loss of biodiversity are increasing dramatically and, based on national plans and commitments, are expected to continue to increase for the remainder of this decade. This may be partly due to time lags between taking positive actions and discernible positive outcomes. However, it could also be because responses may be insufficient relative to pressures, such that they may not overcome the growing impacts of the drivers of biodiversity loss.

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 will not be sufficient to achieve the targets set for 2020 and therefore additional action by governments and others is required to keep the *Strategic Plan for Biodiversity 2011–2020* on course.

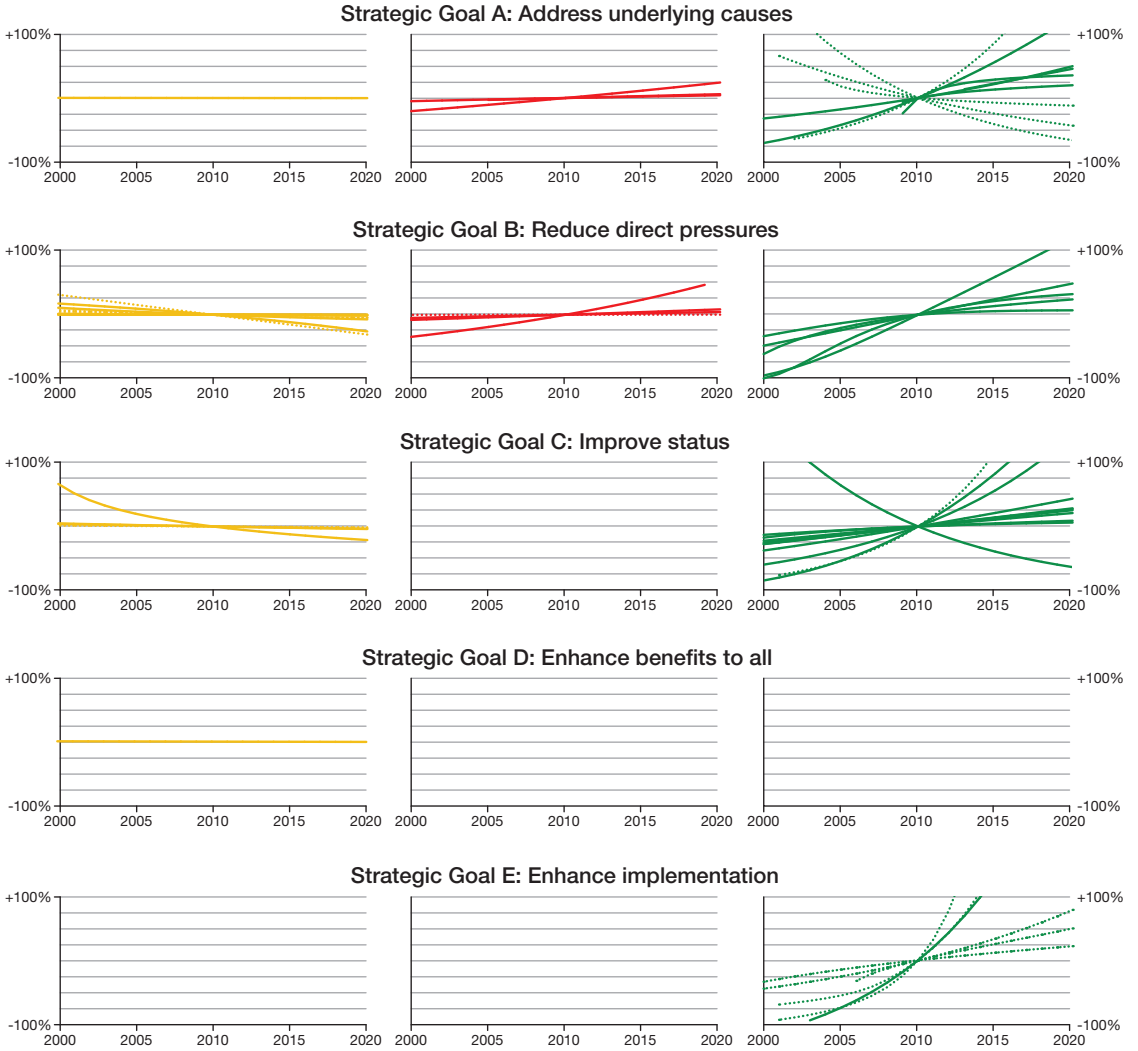

Figure 1: Trends in normalized indicators from 2000 and projected to 2020 for the five different Strategic Plan for Biodiversity 2011-2020 goals; State measures are coloured orange, Pressure measures are coloured red, and Response measures are coloured green. The horizontal dotted line represents the 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 AFRICA

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*. However, it contains limited regional information. This second edition of the *State of Biodiversity in Africa* 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 African region.

Fifth National Reports to the Convention on Biological Diversity

The fifth national reports to the CBD show that progress toward achieving Aichi Biodiversity Targets in African countries generally matches global trends. (Figures 2a and 2b).

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Africa is lagging behind global progress in terms of improving knowledge (Target 19) and financial resources (Target 20).

Commonly reported problems are a lack of institutional, financial and technological resources and capacity to implement NBSAPs; lack of appropriate and harmonized biodiversity indicators to assess conservation needs and NBSAP progress; data and information deficiencies; and national budgetary constraints in a region with many least developed countries. The reports also identified a lack of readily available information on Africa's biodiversity, which presents a barrier to accurately assess the status and trends, threats, and conservation needs for biodiversity in Africa.

Despite these challenges, Africa as a region is making progress in mainstreaming and understanding the values of biodiversity (Target 1), designating protected areas (Target 11), ratifying the Nagoya Protocol on access and benefit sharing (Target 16) implementing values into national and strategic plans, updating NBSAPs (Target 17) where over 80 per cent of countries indicate progress has been made, and respecting the traditional knowledge and values of indigenous peoples (Target 18). These fall under strategic goals A and E of the CBD's *Strategic Plan for Biodiversity* indicating an overall increased awareness for the values of biodiversity and will to integrate these in development plans.

Of the 54 African countries, 46 country reports have been analysed and six countries had not submitted reports as of January 2016; reports for Cabo Verde (submitted 25/11/15) and Ghana (submitted 31/12/15), but are not included in the CBD summary (and therefore are missing from this analysis). Angola, Central African Republic, Gabon, Lesotho, Libya, and South Sudan have not submitted fifth national reports (CBD 2015) (Figure 2a).

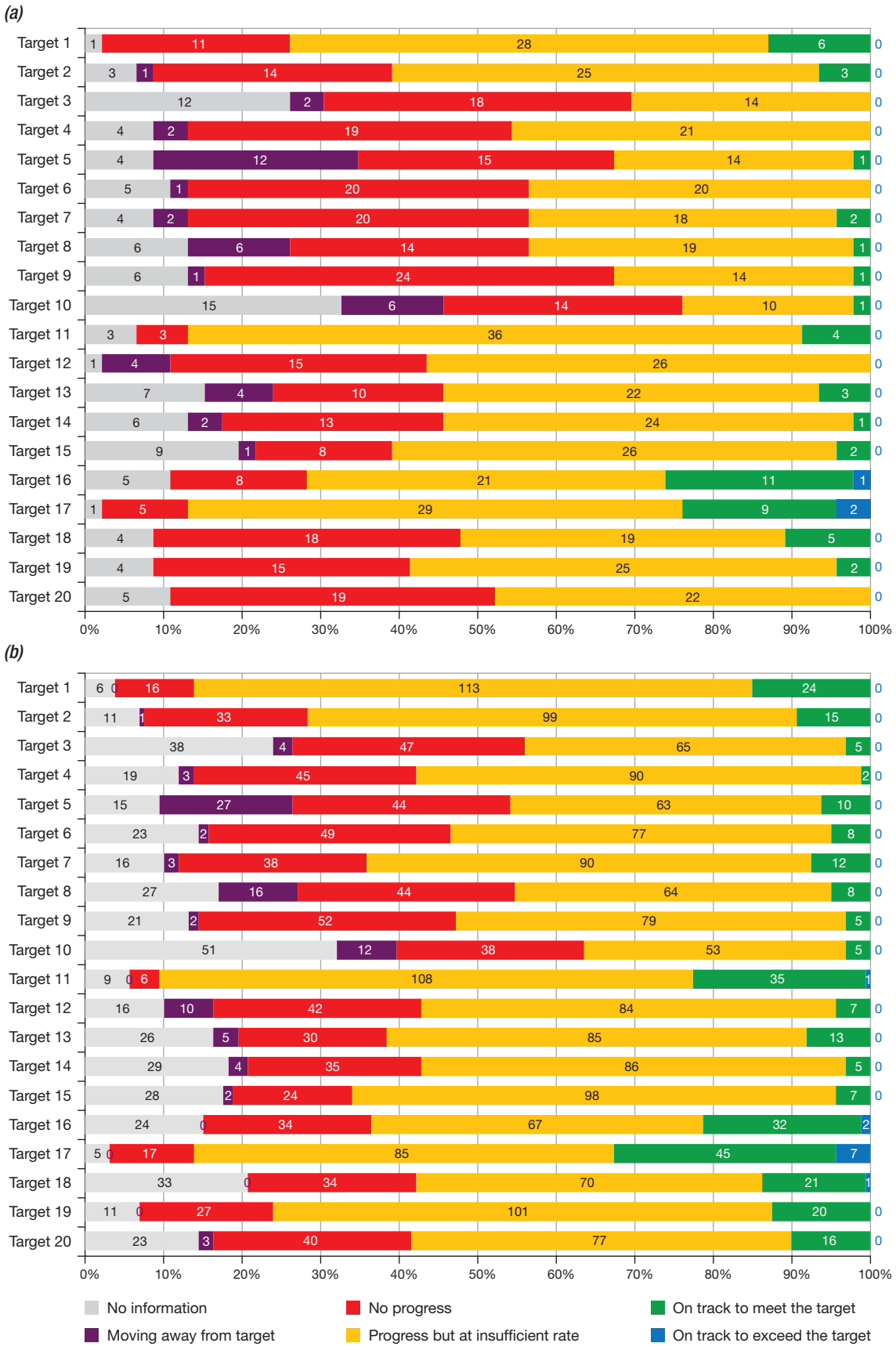


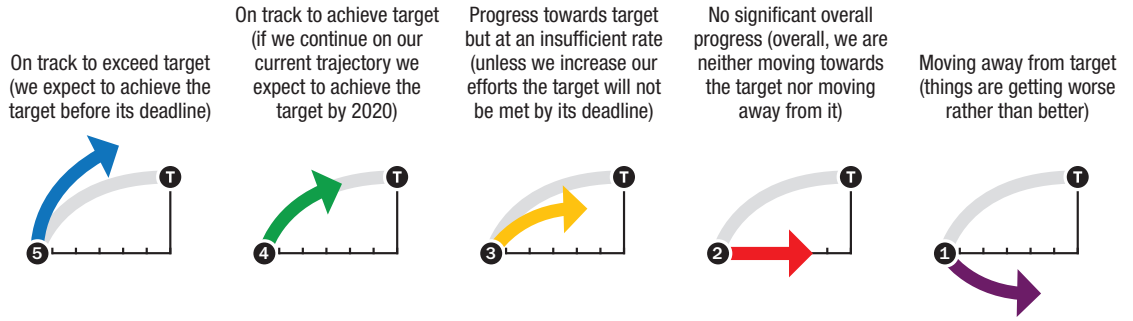
Figure 2: Synthesis of progress towards the achievement of the 20 Aichi Biodiversity Targets (a) (a) by African nations (n=46) and (b) globally (n=159) (CBD 2015).

AICHI BIODIVERSITY TARGET DASHBOARD

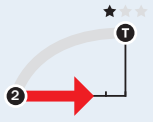
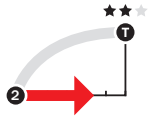
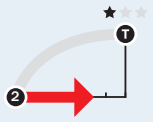
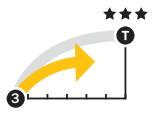
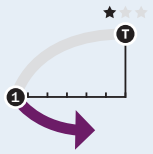
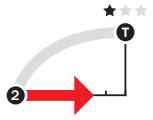
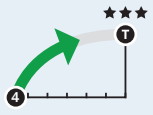
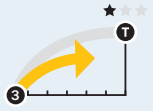
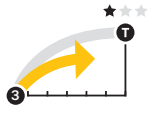
We have developed a dashboard of progress towards each of the targets, based off a consideration of the analysis of progress outlined below and the 5th national reports to the CBD. The stars indicate the level of confidence in the assessment based on the available evidence.

Table 1: A dashboard of progress towards the Aichi Biodiversity Targets in Africa.

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 increased	Progress on this target is patchy across the region and the changes in awareness are not generally described in African countries. The national reports suggest that most countries are taking some actions towards this target.	★☆☆
Target 2 - Biodiversity values integrated	The information base is poor but generally indicates progress and strong national interest, but not at a rate that will achieve the target	★☆☆
Target 3 - Incentives reformed	African countries are making some progress towards this target, mainly through promotion of positive incentives rather than removal of harmful subsidies.	★★☆
Target 4 - Sustainable production and consumption	With increasing populations, urbanization and development, consumption is becoming increasingly unsustainable; although consumption is still significantly lower than other regions. Socio-ecological indicators such as the Human Appropriation of Net Primary Productivity or the Ecological Footprint show that the human use of the environment and pressure on ecosystems is growing in Africa.	★★★
Target 5 - Habitat loss halved or reduced	Despite positive efforts in many countries, mangrove and forest loss is continuing across Africa. However in some countries and regions, the rate of forest loss has been halted or reversed. Information on other habitat types is generally not available for the region.	★★☆
Target 6 - Sustainable management of marine living resources	Efforts are being made to achieve sustainability in the marine and inland fisheries of Africa. But demand for fish protein is high and there is heavy pressure on many fisheries. Data are limited, especially on artisanal fisheries.	★☆☆
Target 7 - Sustainable agriculture, aquaculture and forestry	Considerable efforts have been made to improve sustainability of forestry, with some success. The extent and trends in sustainable agriculture and aquaculture cannot be measured in this region due to a lack of data.	★☆☆

Target	Notes	Progress
Target 8 - Pollution reduced	Given the limited use of fertilizers in most of Africa, excess nutrients are not generally a problem. Pollution in Africa is mainly found in sites where human activities are concentrated, especially cities, and in agricultural areas of South Africa and the Nile River. Data availability is limited.	
Target 9 - Invasive alien species prevented and controlled	The challenge of Invasive Alien Species (IAS) in Africa is increasing in many countries. This is despite considerable efforts to remove alien plants in many countries. Invasive animals are a problem on some offshore islands around Africa.	
Target 10 - Pressures on vulnerable ecosystems reduced	Coral bleaching and damage to coral reefs has been well studied in Eastern Africa and the Indian Ocean. Climate impacts on other vulnerable ecosystems, such as mountain peaks are also studied – for example the retreat of Ice on Mt Kilimanjaro. There is insufficient information on this target in the African region to come to an assessment of progress.	
Target 11 - Protected areas increased and improved	Many African countries will achieve the terrestrial coverage element of the target and some will achieve the marine coverage element. Further progress is needed on issues associated with management effectiveness, equitable management, connectivity and representativeness.	
Target 12 - Extinction prevented	African species are increasingly threatened and many populations are in decline. These declines are largely driven by habitat loss and over exploitation, with illegal hunting and wildlife trade becoming increasing problems.	
Target 13 - Genetic diversity maintained	The genetic diversity of African crops and livestock remains high and although there are local declines it is more robust than in most regions.	
Target 14 - Ecosystems and essential services safeguarded	African economies are heavily dependent on natural capital and ecosystem services. There is little quantitative data on trends in ecosystem services from the region.	Insufficient data to assess progress
Target 15 - Ecosystems restored and resilience enhanced	There is little data available to measure progress towards this target. Some activities are being undertaken but more concerted efforts across the region are required if the target is to be met.	
Target 16 - Nagoya Protocol in force and operational	African countries are making significant progress towards ratifying the Nagoya Protocol and the target is likely to be achieved.	
Target 17 - NBSAPs adopted as policy instrument	African countries are making significant progress towards producing their revised NBSAP documents and the target might be achieved.	
Target 18 - Traditional knowledge respected	Africa has a wealth of traditional knowledge which is still in use. Linguistic diversity is declining in Africa which may suggest that this diversity is being slowly lost. But relevant legislation to support traditional knowledge is in place or being developed in many countries.	
Target 19 - Knowledge improved, shared and applied	This is a major challenge in Africa and although there is progress it is hard to measure and it remains unlikely that this target will be met at the current rate of progress	
Target 20 - Financial resources from all sources increased	Africa receives significant investment in biodiversity conservation. National flows are also significant in some countries and challenging in others due to the poor state of some countries' economies.	

5. TARGET BY TARGET ANALYSIS

This Target by Target analysis is structured around efforts and progress towards the achievement of the global Aichi Biodiversity Targets by African countries. Global indicators have been disaggregated to the regional level where possible and some additional analyses of existing global information have been undertaken.

In many cases available data do not extend past 2011, the start of the implementation period of the *Strategic Plan for Biodiversity 2011-2020*. Older datasets have been included to illustrate that there is available and useful information from the region, but that further effort needs to be made to update and bring together relevant data. At the end of the target specific text, a synthesis of progress is provided to illustrate overall trends and challenges facing African countries to deliver the twenty Aichi Biodiversity Targets. Case studies were also used to illustrate progress towards the targets in some African countries.

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. Actions taken towards this target will greatly facilitate the implementation of the Strategic Plan and the fulfilment of the other 19 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" (Leadley et al. 2014). Information in the fifth national reports to the CBD suggest that about 75 per cent of reporting Parties are making some progress towards this target. For example Benin, Burundi and Guinea-Bissau have policies in place to raise awareness, while Malawi, Morocco, Swaziland and Uganda are integrating biodiversity education into school curricula. While progress has been made in raising people's awareness of the values of biodiversity there has been less progress in raising their awareness of the actions they can take to conserve and sustainably use biodiversity (CBD 2015b). Therefore, while there has been progress towards meeting this target overall, efforts will need to be increased if this target is to be met by 2020.

Information from the global database, AidData, on investments in environmental education (which is admittedly broader than education on biodiversity) provides an indication of the commitment to increase awareness of environmental issues (Tierney et al. 2011). No projects on AidData referenced environmental education prior to 1989 and since then, donor investment has varied (Figure 1.1). With the exception of a peak in 1997, the proportion of the total funds committed by donors on AidData to environmental education was less than one percent. Moreover, as the projects may also target other activities, the data may be an over-estimation of the funds specifically directed to environmental education.

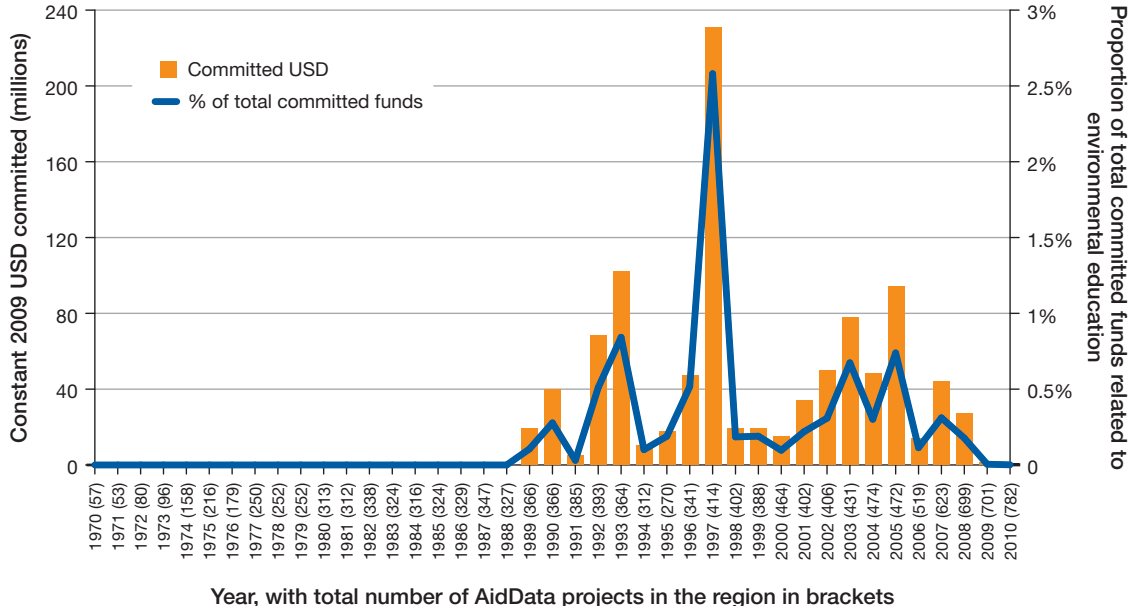


Figure 1.1: Absolute and proportional investment in environmental education by donors on AidData between 1970 and 2010 (source: Tierney et al. 2011).

There have been numerous efforts by governments, Non-Governmental Organisations (NGOs) and other stakeholders to raise awareness of the value of biodiversity and ecosystem services in the African region. One of the strategies used in recent years to promote the value of biodiversity is economic valuation of biodiversity and ecosystem services (see Target 2).

At the regional level, African countries have been participating in the CBD's *Communication, Education and Public Awareness* (CEPA) programme. This programme involves actions to increase biodiversity awareness, including an assessment of the current level of biodiversity awareness to identify gaps, and prioritization of the types of communication and education actions which are needed.

Other biodiversity-related Multilateral Environmental Agreements (MEAs) are also working to promote biodiversity awareness. For example, the CMS and its Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) has been working to highlight the importance of integrating migratory species in NBSAPs and to engage the public and initiate conservation action (CMS 2013).

Box 1.1: Environmental Education in Namibia.

In Namibia, environmental education (EE) programmes are actively being carried out since 2003 by a local NGO, the Namib Desert Environmental Education Trust (NaDEET). NaDEET aims to build the capacity of Namibians through environmental education, in line with government policy. It provides primary and secondary education for youths, as well as community programmes for adults. One of the teaching areas includes management of the desert's biodiversity on a sand dune walk. As of 2013, it had hosted over 4,000 learners in 125 groups since its establishment (UNESCO 2012).

In conclusion, while information is limited, the information from the national reports suggests that many countries in the region are undertaking actions to reach this target. However, the effects of these actions are not yet clear and it is likely that efforts will need to be scaled up if this target is to be met. Further information on biodiversity awareness, such as survey data, would assist with the further assessment of progress towards this target.

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. This is 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." (CBD 2016c)

The fifth national reports to the CBD contain limited information on progress toward this target. The information that is provided suggests that progress is currently insufficient to meet the target by its deadline. Balancing development, often from resource exploitation, with the conservation of biodiversity, remains a challenge in many African countries but efforts are underway to address this (CBD 2015b). For example, biodiversity conservation is incorporated in development plans in agriculture and forestry in Guinea-Bissau, Malawi, Seychelles and Sierra Leone. Similarly an analysis of African Poverty Reduction Strategy Papers (PRSPs) found that the majority of the African countries had biodiversity reflected in their strategies to a certain degree (Roe 2010) (Figure 2.1).

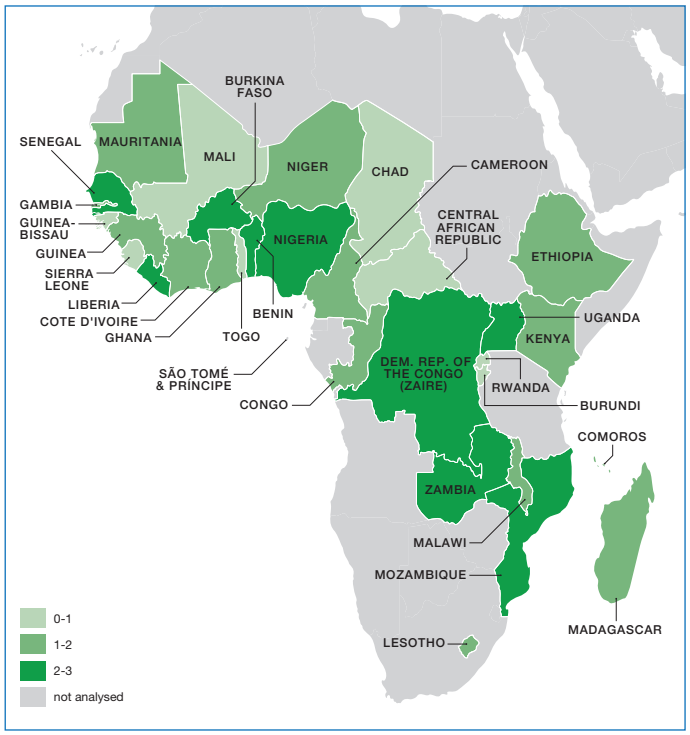


Figure 2.1: Integration of biodiversity in PRSPs of selected countries, scored from 0 to 3; using a scale where 0 means that biodiversity is not reflected and 3 means its importance is strongly reflected (source: Roe 2010).

Recognising the importance of biodiversity does not necessarily lead to the integration of biodiversity into development and poverty alleviation strategies. Integrating biodiversity within development strategies requires identifying which aspects of biodiversity make positive contributions to poverty alleviation (Roe et al. 2014). Making biodiversity considerations a consistent part of decision making also requires mainstreaming. This entails placing biodiversity goals into sectoral decision making, including different government agencies other than those directly related to biodiversity issues such as the Ministry of Finance and the Ministry of Urban Infrastructure, as well as various other sectors, such as tourism and education.

Box 2.1: Mainstreaming Biodiversity in Cameroon.

Cameroon's national *Strategy Document on Growth and Employment* (DSCE) is the country's framework for economic development. The Government of Cameroon deliberately included its Forest and Environment Sector Programme (PSFE) in the DSCE, to mainstream biodiversity into its economic development. Subsequently, the Ministry of Forestry, the main body in charge of the PSFE, has assigned the task of implementing key components of PSFE to the Ministry of Social Affairs, the body responsible for improving the living standard of indigenous people (Eyebe et al. 2014). Through the collaboration between the Ministry of Forestry and the Ministry of Social Affairs, and by incorporating PSFE into DSCE, Cameroon has demonstrated that biodiversity can be mainstreamed into development sectors.

In many African countries the economic valuation of biodiversity and ecosystem services is in the early stages of development. Currently, the *Economics of Ecosystems and Biodiversity* (TEEB) is assisting African countries to develop economic valuation of ecosystems under an umbrella project titled *Reflecting the Value of Ecosystems and Biodiversity in Policy-making* (TEEB 2014a) (Box 2.2).

Box 2.2: The Nakivubo Swamp, Uganda - TEEB country study.

Ecosystem services provided by the Nakivubo Swamp to the Greater City of Kampala, Uganda, were estimated to have a value of US $2 million a year in terms of water purification benefits, which would be the cost of the infrastructure required to provide a similar service. The cost of managing the wetlands to simultaneously optimize its waste treatment service was calculated at about US $235,000 per year. This study led the Government of Uganda to reverse previous plans to drain and reclaim the wetlands, maintaining significant benefits for conservation (UNDP-UNEP Poverty-Environment Facility 2008; Russi et al. 2013).

Another economic tool linked to this target, national ecosystem accounting, is also being developed in Africa with the support of a number of global initiatives, including the System of Environmental-Economic Accounting (SEEA) and the Wealth Accounting and the Evaluation of Ecosystem Services (WAVES) (Box 2.3). SEEA was developed by the United Nations Statistical Commission (UNSC) as an international standard for producing national statistics on the environment and its relationship with the economy. South Africa and Uganda are working in collaboration with the UNSC in implementing SEEA.

Box 2.3: Implementing the System of Environmental-Economic Accounting (SEEA) in Africa.

Initiated by the World Bank in 2010, the WAVES partnership aims "to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts". It is supporting three African countries, Botswana, Madagascar and Rwanda, in developing innovative accounting methodologies to take into account natural capital. Botswana has completed detailed water accounting for 2010-11 and 2011-12, which included accounting for the supply and uses of water. National ecosystem accounting can lead to programmes that support the efficient use of scarce natural resources through integrated water resource management and water sector reform, contributing to conservation and sustainable use of biodiversity (World Bank 2013).

Box 2.4: Development and Impacts of EIA Legislation in Africa.

Environmental Impact Assessment (EIA) is a tool to systematically examine the environmental consequences of actions, such as mining activities, in advance of implementing them (Glasson et al. 2012). The emphasis is therefore on prevention and to identify, minimize and remedy environmental impacts before a development project has taken place. In Africa, EIA began to be widely used from 1995, when African ministers of environment endorsed it at the African Ministerial Conference on the Environment (AMCEN). Numerous EIAs have been conducted for development projects since then, including mining, and renewable energy, such as wind farms and dams. At least 48 African countries have enacted environmental laws, most including specific requirements for EIA (Nugent 2009). Strategic Environmental Assessment (SEA) is less explicit in the legislative framework of African countries, but a number, including Ethiopia, Kenya and Mauritius, have incorporated SEA in their legal frameworks (Betey and Godfred 2013).

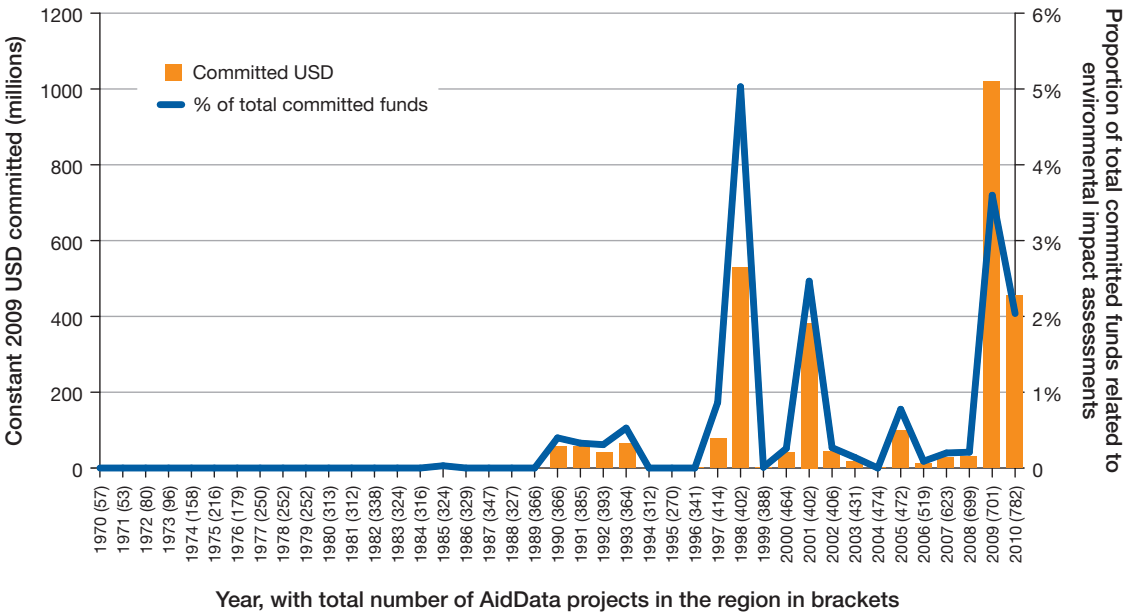


Figure 2.2: Absolute and proportional investment in environmental impact assessments by donors on AidData between 1970 and 2010 in African countries (source: Tierney et al. 2011).

Investment in EIAs can provide an indication of the integration of biodiversity values into development. AidData shows that investment in EIAs was not part of development finance project descriptions until 1990 (Figure 2.2). Since then, investment by donors has been highly varied with a recent peak in 2009.

In conclusion, despite initiatives being undertaken in several African countries, efforts will need to be increased if this is target is to be met. There are also obstacles that need to be addressed, including the lack of information systems and resources to track and assess the state of national ecosystems and their economic contributions to national economies. In this respect, financial and technological support as well as capacity-building activities will remain important.

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 by providing financial resources or other motives to encourage actors to undertake actions which would benefit biodiversity." (CBD 2016c)

Target 3 focuses on harmful and positive incentives, including subsidies. In general terms, African nations tend to have fewer formal subsidies and incentive systems compared with some other regions of the world. African countries are generally regarded as being affected by subsidies and incentives that are put in place by other nations and trading blocks, which make it difficult for African countries to compete.

The GBO-4 reports limited information on progress toward this target globally, particularly in terms of non-financial incentives (SCBD 2014). There is also and little evidence in that report for actions to remove subsidies harmful to biodiversity. The information on this target in the fifth national reports to the CBD suggests that incentives for increased production are threatening biodiversity. However a number of countries are also developing positive incentives, such as tax incentives for voluntarily entering land protection arrangements in South Africa and Payment for Ecosystem Services (PES) mechanisms in Uganda. Swaziland and the Seychelles have also begun to identify positive incentives to encourage sustainable practices.

With regard to agricultural subsidies, African nations provide much lower subsidies than other regions. Moreover, unlike developed countries that are reducing subsidies, African countries are increasing subsidies to address food security. For example, in Malawi, fertilizer subsidies have been steadily increasing to support food grain production (Sutton et al. 2013). The biodiversity consequences of these changes are generally unknown.

With regard to fisheries subsidies, Africa has the fewest subsidies in the world, and the real challenge is eliminating harmful fisheries subsidies at the international level (Sumaila et al. 2010).

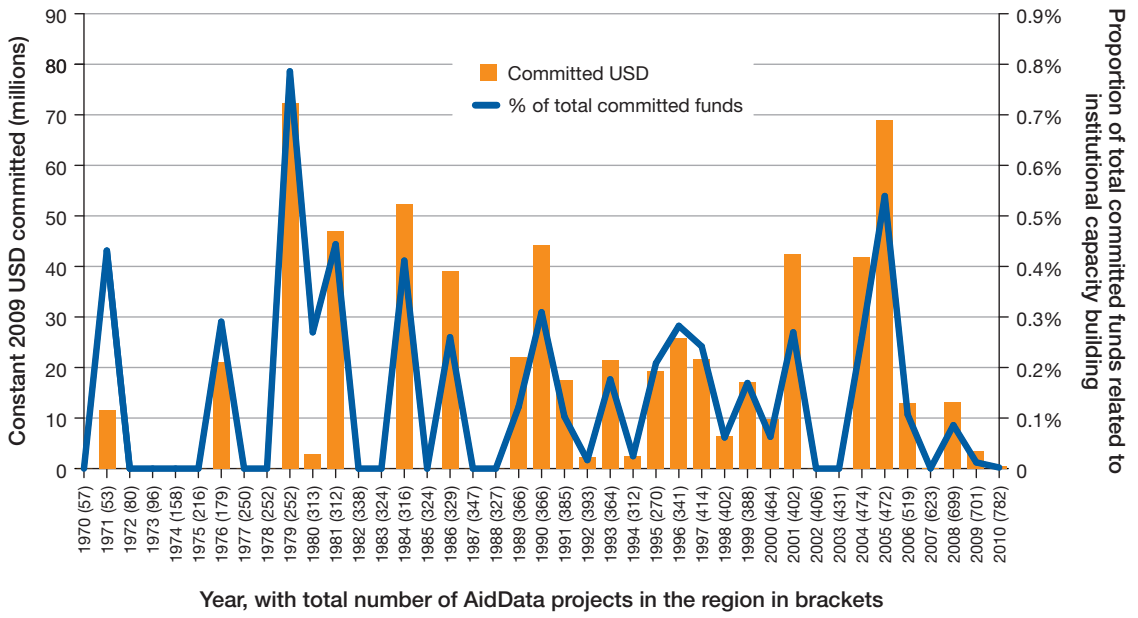


Figure 3.1: Absolute and proportional investment in institutional capacity building in the fishing sector by donors on AidData between 1970 and 2010 (source: Tierney et al. 2011).

Expenditure to support sustainable fisheries in Africa has been highly variable since 1970 and has stayed below one percent of the total committed funds recorded on AidData over the 40 year time period (Figure 3.1). These data are also relevant to Targets 6 and 20.

Box 3.1: Impact of Fisheries Subsidies in Senegal.

Government subsidies at the national level also have consequences on African fisheries. In Senegal, some 600,000 people (about seventeen percent of the working population) depend on fisheries for their livelihoods (UNEP 2013b). Senegal's rich fish resources are being depleted due to overfishing carried out mainly by local fishermen. This overfishing is driven by government subsidies that have been in place since the 1980s, including no taxes on outboard motors and fishing gear; a fuel subsidy for artisanal fleets; micro-credit for small-scale fisheries; and export subsidies (UNEP 2011). These subsidies have been a decisive factor in modernizing small-scale fishing equipment, facilitating the use of more powerful engines, and opening up new fishing areas, ultimately leading to overfishing (UNEP 2011).

Although increased fish production supported by fisheries subsidies can greatly contribute to the national economy through increased exportation, subsidies that provide incentives for overfishing should be addressed with a broader perspective that considers the role of biodiversity and ecosystem services in the long-term poverty alleviation. Although these impacts are significant locally, they are overshadowed by the impacts of subsidised fleets from distant countries fishing in offshore waters.

International mechanisms are being developed that aim to provide incentives for better environmental management. Many of these are within the broader mechanism of PES, which link areas and communities providing ecosystem benefits to those who benefit from them, through the use of contracts and financial mechanisms. In Africa, there is an expanding number of PES schemes for water. Water PES schemes have been developed in South Africa, Kenya and Tanzania, and have shown potential (Lopa et al. 2012). However, in all cases these water PES schemes have struggled to become sustainable once donor funding has ceased. Similarly there are an increasing number of PES schemes emerging for carbon, such as Reducing Emissions from Deforestation and Forest Degradation (REDD+) promoted under UNFCCC, which also includes conserving, sustainably managing and enhancing forest carbon stocks. The UNFCCC in its Warsaw Framework describes a number of pre-requisites that countries should fulfil to be eligible for results-based payments for national-scale net reductions in emissions from forest carbon loss. Countries may choose to implement REDD+ through PES, other land-use policies or promotion of forest carbon projects. To assist in this REDD+ readiness, UNEP, FAO and UNDP work within the UN-REDD Programme, which currently has 28 partner countries in Africa (UN-REDD 2015a). Another multilateral programme, the Forest Carbon Partnership Facility (FCPF), has signed Participation Agreements with 18 countries in Africa, helping these countries to participate in its Readiness Fund. These countries are Burkina Faso, Cameroon, Central African Republic, Democratic Republic of Congo, Republic of Congo, Cote D'Ivoire, Ethiopia, Gabon, Ghana, Kenya, Liberia, Madagascar, Mozambique, Nigeria, Sudan, Tanzania, Togo and Uganda. If successfully implemented, REDD+ can help African countries achieve forest and biodiversity conservation by reducing economic reliance on land-degrading activities.

One of the concerns with PES schemes is whether they are equitable or promote established power structures. Detailed research on issues of legitimacy, fairness, equity and effectiveness of PES is available from the Nyungwe National Park in Rwanda (Gross-Camp et al. 2012). In this case, there was noticeable reduction in the level of human activities in the project area after PES implementation. So far there is limited evidence that African PES schemes have provided tangible economic benefits or have imposed significant costs on the communities participating in them.

In conclusion, efforts to implement Target 3 have generally been directed towards the promotion of positive incentives by the international community, rather than eliminating harmful subsidies. There are several incentive opportunities for African countries, such as REDD+. These incentive mechanisms could benefit African countries and help to achieve conservation and sustainable use of biodiversity. However, there is also a need to address subsidies that harm biodiversity, while also allowing Africa to develop greater food security and economic development.

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." (CBD 2016c)

This target seeks to keep human use of natural resources within sustainable limits and improve production methods to make them more sustainable. Regional and global progress toward Target 4 is difficult to assess due to a shortage of information. In the fifth national reports to the CBD, countries including Chad, Egypt, Gambia, Nigeria and Sudan, note that the unsustainable use of natural resources is an important and growing pressure on biodiversity, and several countries including Sierra Leone, Niger, Swaziland and Uganda, have developed policies to implement sustainable production and consumption.

Socio-ecological indicators such as the Human Appropriation of Net Primary Productivity (HANPP) or the Ecological Footprint (EF) (Fig. 4.2) show that the human use of the environment and pressure on ecosystems is growing in Africa. However, these measures also indicate that, compared to other regions or global averages, African countries are using less resources and contribute less to global environmental pressure.

In 2005, HANPP in Africa amounted to twenty per cent of the potentially available net primary production. While this value is still below the global average of 23 per cent (Krausmann et al. 2013), African HANPP is rising at a fast pace (Figure 4.1a), mostly due to increases in biomass harvest (HANPPharv) on cropland and in forests. Human-induced fires also contribute a significant share to African HANPP (Figure 4.2).

The EF per capita, measured in global hectares demanded per person, reflects the goods and services used by an average person, and the efficiency of the resources used to provide those goods and services (WWF 2014). The global Ecological Footprint has been rising steadily for the past 50 years, with a slight decrease of 3 per cent between 2008 and 2009. This was due mostly to a decline in fossil fuel demand and, therefore, a decrease in carbon footprint (WWF 2014). By 2011 it had reached 18.5 billion global hectares, while the Earth's biocapacity was 12 billion global hectares (Figure 4.3).

Carbon has been the biggest component of the world's total ecological footprint for decades. In 1961, carbon accounted for 36 per cent of the world's EF, and has continued to increase until accounting for over half in 2011, the last year with full records available. The primary component of the carbon footprint is the burning of fossil fuels (WWF 2014).

In Africa, carbon accounts for 20 per cent of the ecological footprint, whereas cropland is the biggest component accounting for 35 per cent of the total (Footprint Network, 2012). Africa's cropland footprint per capita increased by 15 per cent in 2012, leading to a four-fold increase in the total cropland footprint (Footprint Network, 2012) (Figure 4.2).

Africa's total ecological footprint remains small in comparison to the global value and it has scarcely increased over the last 50 years (Figure 4.3). When measured on a per capita basis, Africa's ecological footprint has been fairly stable over the past 50 years, with a slight decline over the past 30 years. This is because the population growth over the past 50 years has increased at a faster rate than the per capita consumption, meaning gains in total EF in Africa are mainly due to a 272 percent increase in population (WWF 2014).

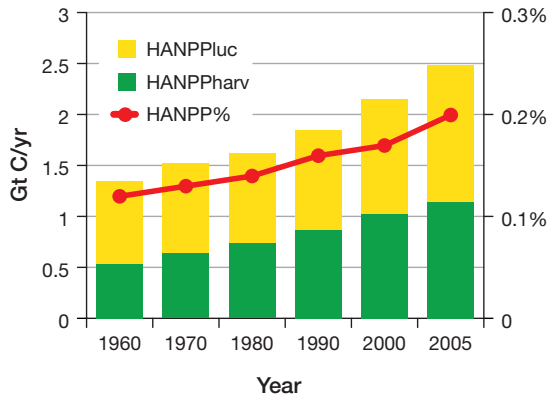


Figure 4.1a: Human Appropriation of Net Primary Production (HANPP) is an aggregated indicator of land use intensity. It measures to what extent land conversion (HANPPluc) and biomass harvest (HANPPharv) alter the availability of net primary production (biomass) in ecosystems. It can be measured in GtC/yr or as % of potentially available NPP (HANPP%) (source: Krausmann et al. 2013).

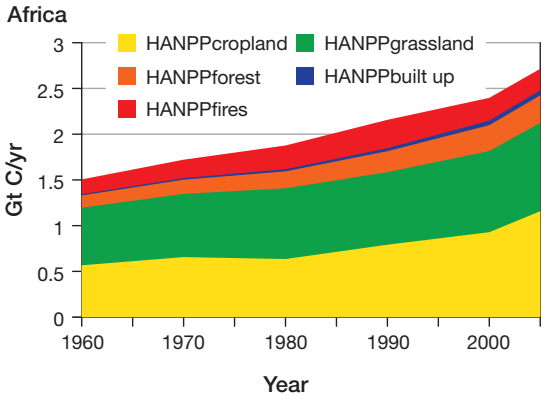
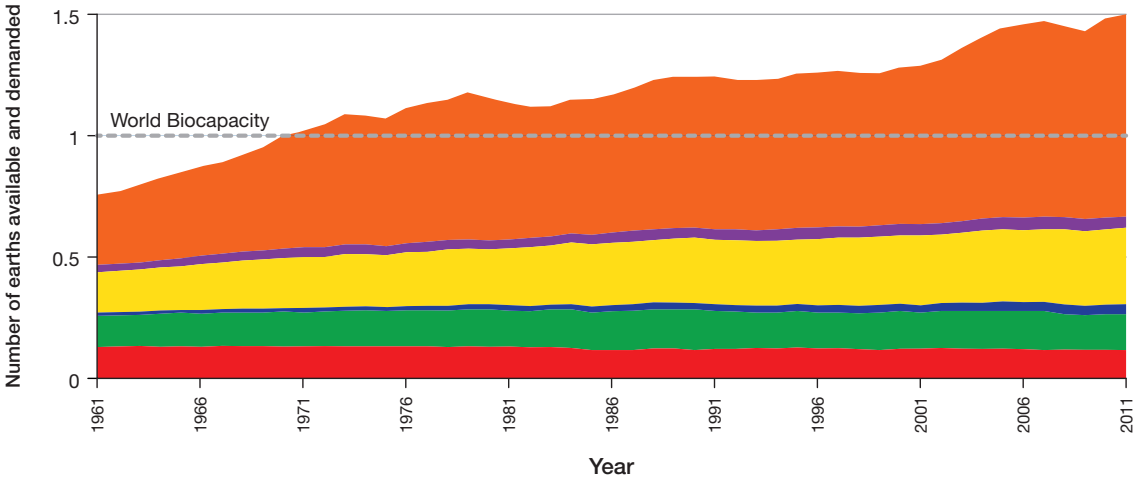


Figure 4.1b: Human Appropriation of Net Primary Production (HANPP) by land use type (cropland, grassland, forests, built up land) and due to human induced fires in Gt C/yr (source: Krausmann et al. 2013).

(a)



(b)

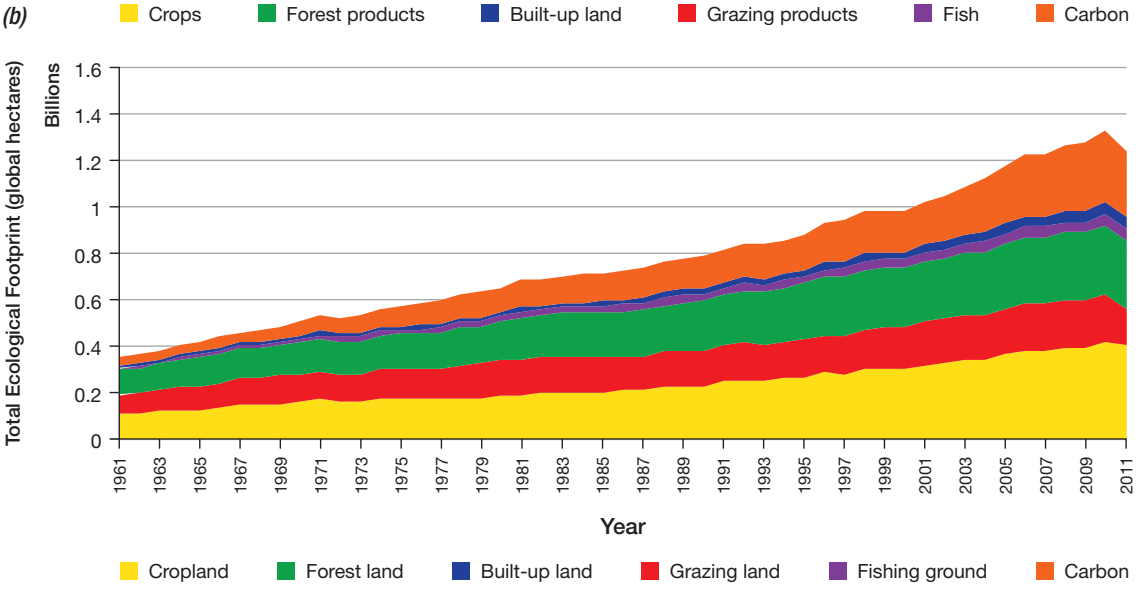


Figure 4.2: Change in total ecological footprint by component, globally (a) and in Africa (b) (source: Global Footprint Network 2015).

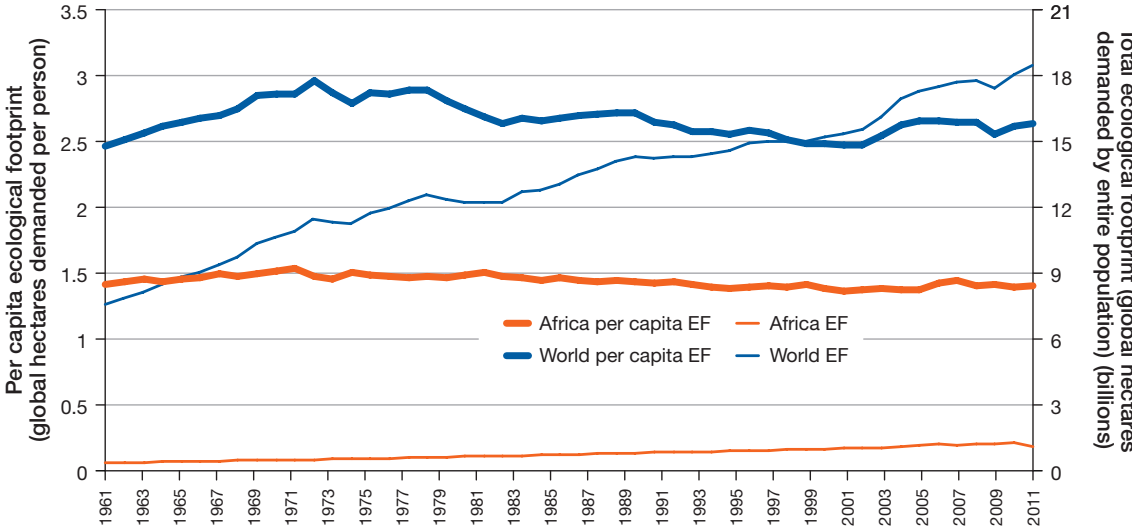


Figure 4.3: Combined graph showing total Ecological Footprint (1961-2011) globally and in Africa and Ecological Footprint per capita for Africa and the World (1961-2011); measured in global hectares demanded per person (which reflects the goods and services used by an average person in each country, and the efficiency of the resources used to provide those goods and services) (source: Global Footprint Network 2015).

In terms of responses, to reach the goals set in Target 4, [an international an international process on Achieving Sustainable Consumption and Production (SCP) has been launched. Africa has been active in this process and hosts 136 of the 1,036 SCP initiatives ongoing globally (SCP Clearing House 2014). At the regional level, the *African 10-Year Framework of Programmes (10-YFP) on Sustainable Consumption and Production* launched by the African Ministerial Conference on the Environment (AMCEN), as part of the 2012 Marrakech Process on the 10-YFP, provides the political impetus for the achievement of SCP in Africa. This framework programme works under the following four thematic areas: energy; water and sanitation; habitat and sustainable urban development; and industrial development.

To assist African countries achieve SCP, National Cleaner Production Centres (NCPCs) are very active in many countries, including Cape Verde, Egypt, Ethiopia, Ghana, Kenya, Morocco, Mozambique, Rwanda, South Africa, Tunisia, Uganda, Tanzania and Zimbabwe (SCP Clearing House 2014). NCPCs play a vital role in training, capacity-building, and demonstrating economic and environmental benefits of SCP for poverty alleviation, and promoting new business opportunities.

In conclusion, African countries are making progress in addressing their rapidly growing consumption and production, which put substantial pressures on biodiversity and ecosystems. Overall, consumption of natural resources in Africa remains low and is significantly below global averages. However, Africa's consumption is starting to grow as a result of population increase, and this is putting increasing pressure on its ecosystems. Africa as a whole is predicted to soon show a biocapacity deficit, where its consumption footprints exceed the capacity of ecosystems to provide goods, services and handle waste (AfDB & WWF 2012). Many African countries are now at a crossroads in terms of the sustainability of their development options in relation to the renewable capacity of its ecosystems.

Box 4.1: Eco-labelling in Africa.

One of the key activities of the African 10-YFP is an African Eco-labelling Mechanism (AEM). Eco-labelling is a market-based tool that sets appropriate environmental and health standards within the design and production of African products which helps consumers choose products from sustainably-produced production. Eco-labelling is currently underway in various sectors in Africa, including fisheries, agriculture, forestry, tourism, leather and textiles, agriculture and energy. Eco-labelling often requires third-party certification for credibility.

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)

Some habitats in Africa are in decline as they are being replaced by agriculture, although the pattern is complex across the continent and reliable data are only available for some habitat types. The fifth national reports to the Convention on Biological Diversity from Eritrea, Swaziland, Tanzania and Uganda contain proposals to increase and develop protected areas in order to rehabilitate forests. Likewise, the implementation of policies, such as the promotion of dry season agriculture in Burkina Faso, and the shift from forestry and agriculture to ecotourism and fisheries in Seychelles, indicates that actions are being taken to reduce habitat loss. However, overall rates of loss indicate that several countries are moving away from reaching Target 5. In many places these changes are being driven by rapid population growth and urbanization (CBD 2015b).

In terms of tropical forests, Africa harbours the second largest bloc of rainforest after Amazonia, and it represents more than fifteen percent (180 million hectares) of the world's tropical forests. Recent analysis based on remotely sensed data (Hansen et al. 2013) shows that the total area of forest lost in Africa has been increasing over the recent decade, with a jump in deforestation in the period 2012-2013 (Figure 5.1). Between 2001 and 2013 annual average tree cover loss for the African region was 0.2 per cent and 2.57 per cent of the total forest cover was lost during this period. Annual rates of forest loss were particularly high in 2009 (0.26 per cent) and 2013 (0.31 per cent) while 2003 had the lowest deforestation rate over the period (0.12 per cent). These forest losses are in line with forest loss rates reported by African countries to FAO which suggest a ten per cent loss in forest cover between 1990 and 2010 (FAO 2012a). The recent increase in forest loss seems to be mainly in tropical moist forests rather than the seasonally dry savannah woodlands (Figure 5.2). Major causes of deforestation and forest degradation come from slash and burn agriculture, timber extraction, urbanization, illegal forest exploitation, charcoal production, fire wood use, climate change and other human activities.

In some regions improvements in habitat loss can be noted. For example, the Congo Basin in Central Africa, a recent study based on satellite images reveals that deforestation rates have fallen by about a third since 2000, with fewer than 2,000 square kilometre of rainforest lost every year between 2000 to 2010 (Morelle 2013). This is due to the network of protected areas, forest gains on the margins of the Congo Basin forest, and the reduced expansion of commercial agriculture in the ten members of COMIFAC – Burundi, Cameroon, Chad, Congo, Democratic Republic of Congo, Central African Republic, Equatorial Guinea, Gabon, Rwanda, and São Tomé and Principe.

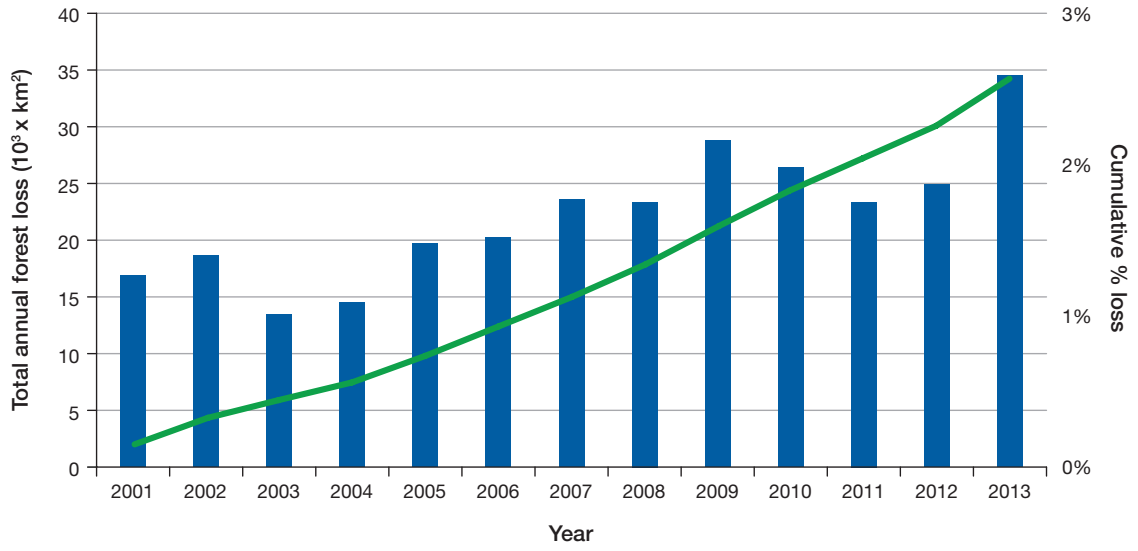


Figure 5.1: Forest cover trends in the Africa region (2001-2013) compared to 2000 forest cover (>10% tree cover), blue bars represents annual forest loss and the green line represents cumulative loss. Data are from global Landsat imagery at 30 m spatial resolution. Version 1.1 was used which includes 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).

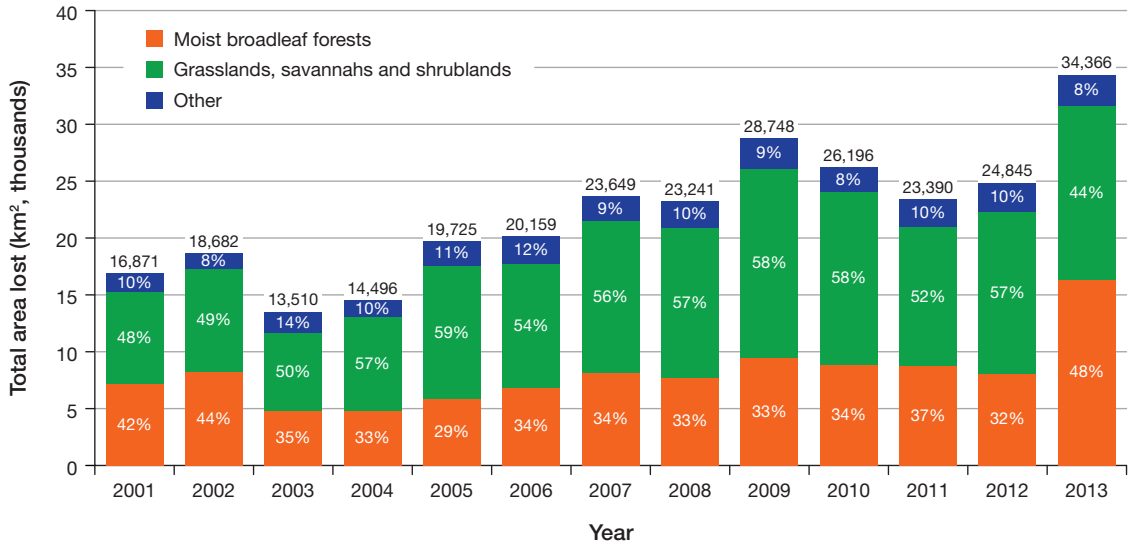


Figure 5.2: Proportion of total forest loss in different biomes (source: Hansen et al. 2013).

In addition to terrestrial forests, Africa contains 21 per cent of the world's mangroves and seventeen mangrove species. Not only are mangroves important habitat for a range of species, they also function as important nurseries for many fish species. For example, Nigeria's mangrove forests provide breeding grounds for more than 60 per cent of the fish caught between the Gulf of Guinea and Angola (Carrere 2009). Local populations also heavily depend on mangroves for fish, fuel wood and as a buffer against coastal flooding (TEEB 2014a). For example in Liberia, nearly 58 per cent of the population lives within 40 miles of the coast, dotted with mangroves and other forests (TEEB 2014b). Despite their global and local importance African mangroves are among the most threatened ecosystems in the continent. Declines in mangrove extent across Africa from 2000 to 2010 are around 572,200 ha (Figure 5.3). In West and central Africa, some 20 – 30 per cent of the mangroves have been lost in the past 25 years.

Some regions have undergone marginal gains in mangrove extent, for example around the Gulf of Guinea, along the West African coastlines of Liberia, Cote d'Ivoire and Ghana and along the east African coast of Tanzania (e.g. Zanzibar Island). Losses are most severe along the coastlines of Senegal, Guinea and Sierra Leone, the southern half of the Madagascar coastline and in patches of the central and southern Kenyan coastline. The direct threats result from mangrove cutting for firewood, urbanization and infrastructure development, salt and sand extraction and agriculture in the least saline areas (Ajonina et al. 2009). For example, in Tanzania's Rufiji Delta, the main threats to mangroves are cutting for poles and timber, charcoal production, and unplanned rice farming in the least saline areas (Cook 2009; Burgess et al. 2014).

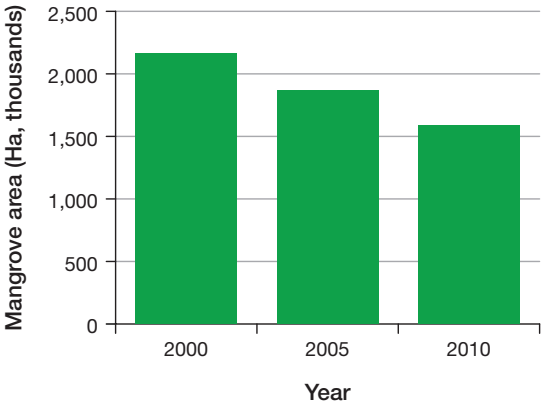


Figure 5.3: Total mangrove area in Africa in 2000, 2005 and 2010 in thousands of hectares. Data uses hybrid supervised and unsupervised image classification techniques on 30 m Landsat imagery corresponding to 2000, 2005 and 2010 (source: Giri et al. 2011).

Box 5.1: Mangrove Planting.

Mauritius: The non-governmental organization, *Association pour le Développement Durable (ADD)*, planted about 10,000 mangroves seedlings at Le Morne, a small fishing village in the south of the country. The initiative led to further cooperation and funding by a commercial bank as part of a corporate social responsibility scheme, which in turn led to an additional 40,000 seedlings being planted in 2011 (ADD 2011).

Cameroon: In Cameroon, communities of the Campo Beach raised over 4,000 mangrove seedlings in community-run nurseries and planted them as a green shield from coastal erosion and wind.

REDD+ actions that focus on protecting specific forests need to be implemented alongside policies that tackle drivers of habitat loss, degradation and fragmentation, as countries otherwise face displacement of impacts. Displacement of agricultural expansion to forests that are not the focus of REDD+ activities could hinder progress toward achieving Target 5. REDD+ actions, if implemented in a way that accounts for the UNFCCC Cancun safeguards, particularly safeguard (e) on natural forests, biodiversity and enhancement of social and environmental benefits, have the potential to provide substantial opportunities for African countries to achieve biodiversity and forest conservation, climate change mitigation as well economic development (UNFCCC 2010).

Since 2008, the Government of the United Republic of Tanzania has received bilateral financial support from Norway and multilateral support from the UN-REDD Programme for REDD+ readiness, including developing a national REDD+ Strategy in accordance with the Cancun safeguards (UNFCCC 2010). The UN-REDD Programme supported the Tanzania Forest Service, Sokoine University of Agriculture and the Forestry Training Institute – Olmotonyi in 2013 by building their capacity for mapping and spatial analysis of the potential multiple benefits of REDD+. Mapping of important wildlife corridors has, for example, helped to identify forests that are valuable for connecting natural habitats. If prioritised for REDD+ action, this would improve the country's progress toward Aichi Biodiversity Target 5 on fragmentation as well as on reduced forest loss.

Box 5.2: Role of the Central African Forest Commission (COMIFAC) in Forest Conservation in the Sub-region.

Within Central Africa, COMIFAC is the primary authority for coordinating sub-regional actions and initiatives on conservation and sustainable management of the Congo Basin forests. Its landmark "Convergence Plan" is a ten-year plan of action on forestry developed by member states (Djellal et al. 2014). The aim of the plan is to harmonize forest policies and strengthen monitoring systems for the member countries. It contains six steps to achieve this aim: (i) evaluation of the forest sector for each country; (ii) national consensus; (iii) regional review; (iv) priority setting; (v) formulation of a regional convention on forest control; and (vi) formulation and implementation of an action programme.

Map 5.1: COMIFAC countries (source: Koyo and Foteu 2006)

Box 5.3: Conserving Forests in Kenya (Government of Kenya 2009).

The Government of Kenya launched a programme to restore the Mau Forest Complex in 2009, with activities including work to survey and mark the boundaries of the forest, profiling of settlers residing within the forest, and supporting the Ogiek community to establish a representative institution and plan for their livelihood development. The Kenya Forest Service also established partnerships to rehabilitate sections of the forest, including with the African Wildlife Foundation (Office of the Prime Minister of Kenya 2010). The African Wildlife Foundation commenced restoration activities in early 2011 by planting 25,000 seedlings, with an aim of reforesting 1,000 hectares of the forest with 1 million trees over a four year period. In early 2013, the Foundation reported that it had planted more than 160,000 indigenous trees and weeded around 18,115 seedlings (African Wildlife Foundation 2013). This initiative is a step towards the attainment of not only Target 5, but also Targets 14 and 15, by restoring habitats and safeguarding the ecosystems and essential services of forests, and Target 9 by promoting planting of indigenous trees and eradicating invasive alien species through weeding.

In conclusion, mangrove and forest loss is continuing across Africa, though in some countries and regions it has been reduced. Further efforts are required to measure and monitor forest loss, as well as change in other land cover types, and to accurately assess its consequences for biodiversity in Africa.

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.

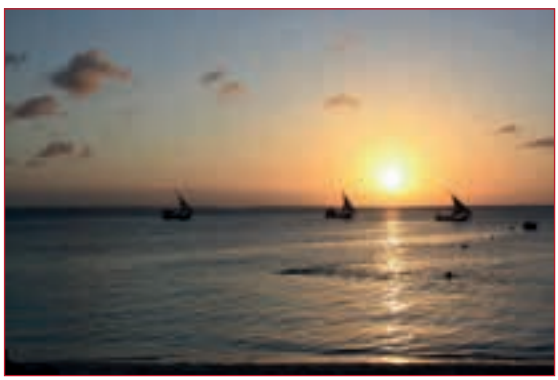
"Overexploitation is a severe pressure on marine ecosystems globally, and has led to the loss of biodiversity and ecosystem structure. Harvests of global marine capture fisheries have been reduced from the unsustainable levels of a decade and more ago. However, overfishing still occurs in many areas,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

Global trends indicate that overfishing and destructive fishing practices continue to cause damage to marine ecosystems (SCBD 2014). The achievement of Target 6 is of utmost importance for African countries, as fishing is a major source of income and nutrition for many African people. African governments need to address both overfishing and inappropriate fishing practices. Further issues associated with water pollution also need to be addressed, particularly for freshwater fisheries (see target 8).

The fifth national reports to the CBD show that several African countries are working toward implementing global and national policies and strategies to combat the unsustainable harvesting of aquatic resources. However, because most fishing practices are artisanal, controlling their effect is challenging. The limited information on this target in the national reports suggest that African countries have focused on developing and implementing recovery plans for depleted fish stocks and/or putting in place relevant legislation. For example, Cameroon, Guinea-Bissau, Madagascar and the Seychelles all have laws, policies and plans related to fisheries in place. By comparison there has been less emphasis on managing and reducing the impacts of fishing practices (CBD 2015b).

African countries have been supported by the FAO Fish Programme which provides a number of initiatives to support the implementation of the *Ecosystem Approach to Fisheries* (EAF). For example, the FAO project on "Strengthening the Knowledge Base for and implementing an Ecosystem Approach to Marine Fisheries in Developing Countries", supported Côte d'Ivoire to approve the Beach Seine fishery management plan in 2014. This new management plan aims to contribute to the sustainable use of coastal fishery resources (FAO 2014a).

Fishery certification also has the potential to promote sustainable fisheries. *The Marine Stewardship Council* (MSC) Fisheries Standard requires that target stocks for each fishery are maintained at maximum sustainable yield (MSY) or above, minimize fishery impacts on ecosystems and ensure sustainability and are effectively managed. The MSC has engaged African fisheries in South Africa and the island group of Tristan da Cunha. The first African fishery became certified in 2004 with 195,000 tonnes of sustainably harvested hake (MSC 2009). Since 2008, certified tonnage has remained constant at around 130,000 tonnes. This makes up 1.6 per cent of all wild-caught fish in Africa (Figure 6.1). In total, 21 improvements have been made by MSC certified fisheries in Africa, and one more will be completed by 2020 (Figure 6.2). Eleven of these improvements have been made in fishery management, five in environmental impacts, and five in target stock health. However, overall there are few fisheries in Africa that have been certified due to multiple constraints, including a mismatch between modern certification requirements and the reality of many small-scale artisanal fisheries.



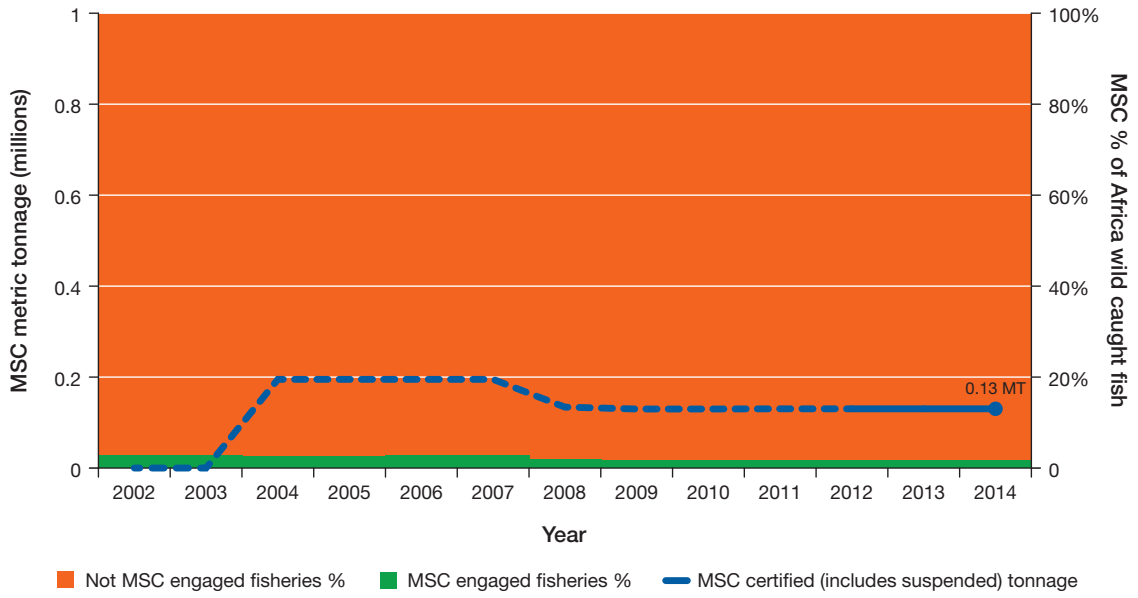


Figure 6.1: Trends in catch of fisheries engaged with the MSC in Africa: Total MSC certified tonnage (dotted is estimated tonnage) and MSC engaged fisheries as a percentage of total African wild caught fish (source: MSC 2015).

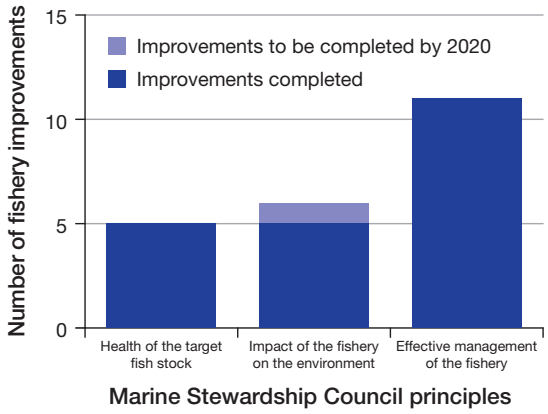


Figure 6.2: Number of fishery improvements completed and to be completed by MSC fisheries in Africa by 2020 (source: MSC 2015).

Devolution of fisheries governance to indigenous and local communities, shared governance, and co-management arrangements have contributed to successful fisheries management outcomes, especially in small-scale fisheries in developing countries. For example, coastal communities have demonstrated the ability to responsibly steward and manage marine ecosystems through a network of several hundred Locally Managed Marine Areas (LMMAs) in the South Pacific, and similar initiatives in Madagascar, Kenya, Tanzania and Senegal are also showing promise in the African region (see also Target 18).

In conclusion, African countries are making some progress towards Target 6, but sustainable fisheries management remains a challenge. The presence of subsidized fleets in some regions of Africa, together will illegal fishing boats, and the currently slow progress towards certified fisheries in the region further compound this problem.

TARGET 7: SUSTAINABLE AGRICULTURE, AQUACULTURE AND FORESTRY

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

"The increasing 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 can also 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 local communities engaged in the management of local natural resources. (CBD 2016c)

Agriculture and forestry are major employers in Africa and contribute to human wellbeing. There are fewer aquaculture activities in Africa but these are starting to expand.

The fifth national reports to the CBD suggest that in general, unsustainable agriculture, aquaculture and forestry are the main pressures on biodiversity in Africa. However a number of countries are taking action to address this. Among the specific actions noted in the fifth national reports are the promotion of community based conservation agriculture (Swaziland) and organic farming (Egypt), and the setting of guidelines for sustainable practices (South Africa). Similarly in Burundi, Uganda, Sierra Leone and the Seychelles, policies promoting sustainable forestry are in place and in Malawi, reforestation practices include national tree planting days (CBD 2015b). Furthermore, the NBSAPs of African countries generally include targets or commitments relating to sustainable management of agriculture and forestry. However, few of these targets are quantifiable (SCBD 2014).

7.1 Agriculture

The FAO Statistical Yearbook on Food and Agriculture (2014) shows that, even with a decrease in consumption, agricultural production needs to increase by almost 80 per cent in developing countries so as to cope with the 39 per cent increase in world population estimated for 2050 (FAO, 2014b). This requires an increase in food production of almost one billion tons of cereal, and 200 million tons of meat every year.

Employment in agriculture as a share of total employment is very high in Africa. For example, in countries such as Burkina Faso, Ethiopia, Madagascar, Mozambique and Tanzania, over 75 per cent of people are employed in agriculture, while 30 to 45 per cent of employed people work in agriculture in Congo, Egypt, Morocco and Senegal (FAO 2012a). Notwithstanding the high proportion of people working in the agricultural sector, per capita food production in Africa has remained almost constant from 1990 to 2009, and is at a low level compared with the global averages, although this varies within the region (Figure 7.1). Both extensive and intensive agriculture in Africa poses threats to biodiversity, extensive agriculture through the conversion of natural habitats to farmland and intensive agriculture due to pollution from agricultural runoff.

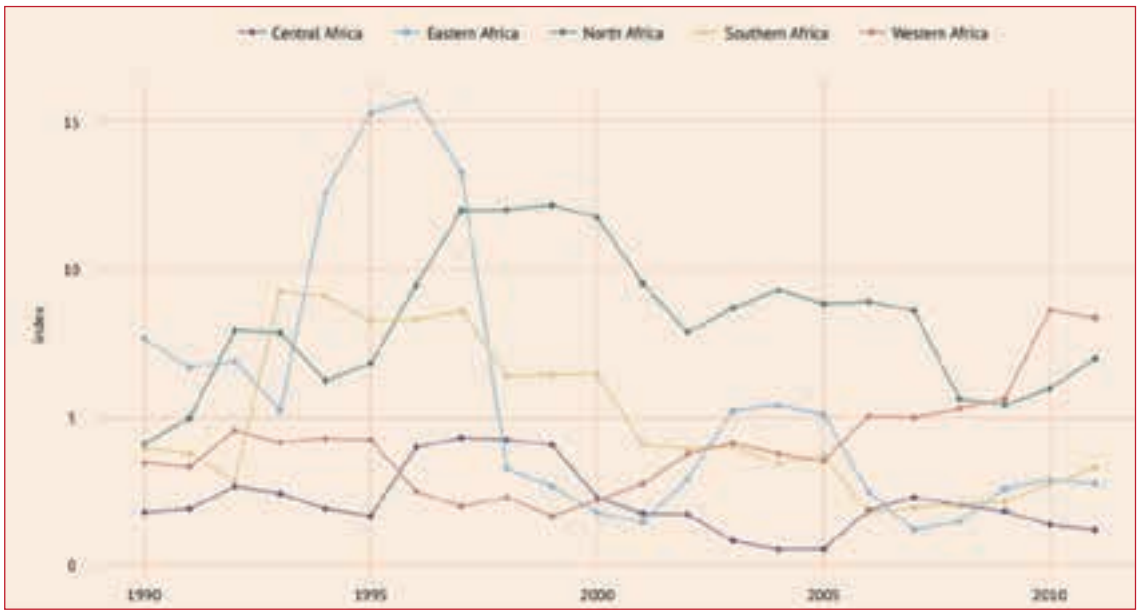


Figure 7.1: Per capita food production variability in the different Africa regions 1990 – 2011 (source: FAO 2014b).

Given that sustainable agricultural practices depend largely on promoting long-term fertility and productivity of soil, matching the supply of soil nutrients with nutrient demands of crop, fodder and pasture is important (FAO 2014b). A number of African countries are promoting sustainable agricultural practices, which have delivered significant benefits to local populations. For example, the use of nitrogen-fixing *Faidherbia albida* trees planted in farms has increased maize yields in Malawi. Farmers in Burkina Faso have doubled grain yields by using multiple water harvesting techniques, such as planting pits (Winterbottom et al. 2013).

Box 7.1: Examples of National Responses from Namibia.

In Namibia, the agricultural sector has been adversely affected by climate change, leading to failed harvests and decreased livestock numbers and products. To address this threat, conservation agriculture was applied as part of a community-based adaptation approach. A project has been underway since 2009 to enhance conservation tillage practices, and delivered by Creative Entrepreneurs Solutions, a non-profit organization based in Namibia. The project is currently working with twelve villages that are dealing with the impacts of extreme local climate events, such as pronounced drought and floods and unpredictable rainfall patterns that have adverse impacts on agriculture (IPSI 2011).

7.2 Aquaculture

Africa's total aquaculture production has been steadily increasing, from 81,015 tonnes in 1990 to 1.5 million tonnes in 2012. Its production growth was greatest (11.7 per cent) between 2000 and 2012. However, its contribution to the world's production still remains extremely small, contributing just 2.23 per cent in 2012 (FAO 2014d).

Appropriate aquaculture methods and fishery eco-labelling can significantly promote sustainable aquaculture, and contribute to the achievement of Target 7. The Aquaculture Stewardship Council (ASC) standards, for example, cover a range of highly commercial species, including pangasius, tilapia, bivalves, salmon and freshwater trout (UNEP 2013).

7.3 Forestry

Unsustainable forest use is an important cause of biodiversity decline in Africa. However many countries are taking action to address this, including by addressing illegal forestry practices. For example the use of forest concessions in the Congo Basin has helped to promote more sustainable forest management by providing logging companies with a long term interest in managing the resource effectively. Further the use of certification schemes, such as those promoted by the FSC are also helping to promote sustainable management. For example as of 2014, around 5,672,979 ha of African forests were certified under FSC (FSC 2014), comprising 3.1 per cent of total certified areas worldwide (FSC 2014). However compared to other regions the use of certification is relatively limited in Africa.

More sustainable management of forest concessions, introduction of certification schemes and improved implementation of forestry regulations through monitoring, enforcement and/or economic incentives are examples of ways in which the REDD+ activity of 'sustainable management of forests' can be implemented. These efforts would help to reduce emissions in production forests in particular, while contributing to Aichi Biodiversity Target 7. For example, in Gabon and the Republic of Congo, forests under concession represent a large proportion of the national forest cover and forest carbon reserves, making them a central component in the development of national REDD+ strategies (Bodin et al. 2014). Concessions, when sustainably managed, can contribute to the maintenance of important forest biological diversity.

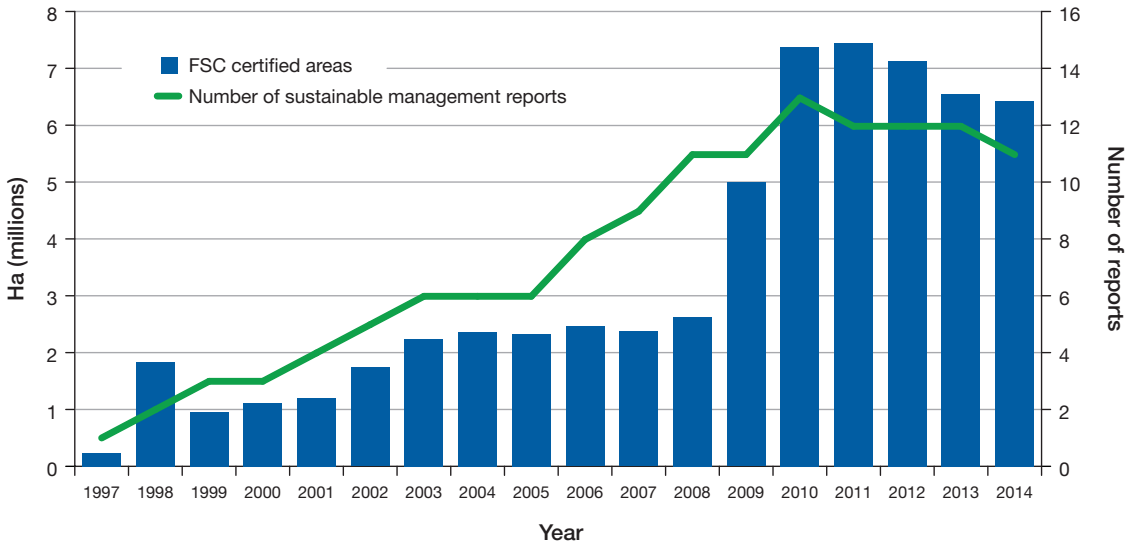


Figure 7.2: Areas of forest with FSC certifications and the number of countries reporting sustainable forest management in the African region (1997-2014) (source: FSC 2014).

In conclusion, there is limited data available to measure progress towards this Target across the region. Data from forest certification schemes suggests a significant slow-down in the development of FSC certified forest areas since 2009. There is very little information on aquaculture in Africa presently and sustainable agricultural schemes are also small scale compared with the land under cultivation. Considerable effort will be required if this target is to be met by 2020.

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)

The GBO-4 report indicates that globally, "trends are moving us further away from the target of bringing excess nutrients to levels not detrimental to ecosystem function and biodiversity" (SCBD 2014). Generally fertilizer use is very low across most of Africa (Figure 8.1), with the region accounting for less than 1 per cent of global fertilizer consumption (Wanzala and Groot 2013). In 2008 Africa's loss of reactive nitrogen to the environment was on average sixteen kilograms of nitrogen per inhabitant per year, approximately half of the world average (Figure 8.1). and of this approximately 75 per cent was associated with agriculture (International Nitrogen Initiative 2014a).

Nutrient loads are not equal across the continent (Figure 8.2a). The highest nitrogen load (250,000–500,000 kg) is seen in the Nile delta where agriculture is practised intensively, in particular for rice cultivation. Sub-Saharan Africa, the coastal strips of Algeria, Tunisia and Morocco as well as part of eastern and southern Africa experience a low to medium (1,000–250,000 kg) nitrogen load depending on the crop area and crop type. A similar pattern is observed for phosphorus (Figure 8.2b) although the Nile delta has less phosphorus than other parts of Africa such as coastal Morocco, parts of sub-Saharan Africa, Ethiopia, Nigeria and South Africa. When nitrogen and phosphorous pollution is severe it can create 'dead zones', where oxygen levels in water drop to such low levels that many aquatic organisms are killed. Such zones are present in Lake Victoria for example (Darwall et al. 2011; Sutton et al. 2013).

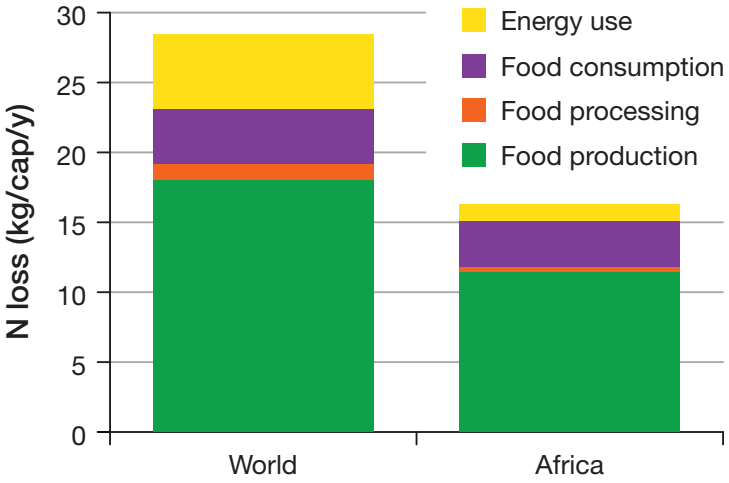


Figure 8.1: Average loss of reactive nitrogen per inhabitant in 2008 (source: International Nitrogen Initiative 2014a).

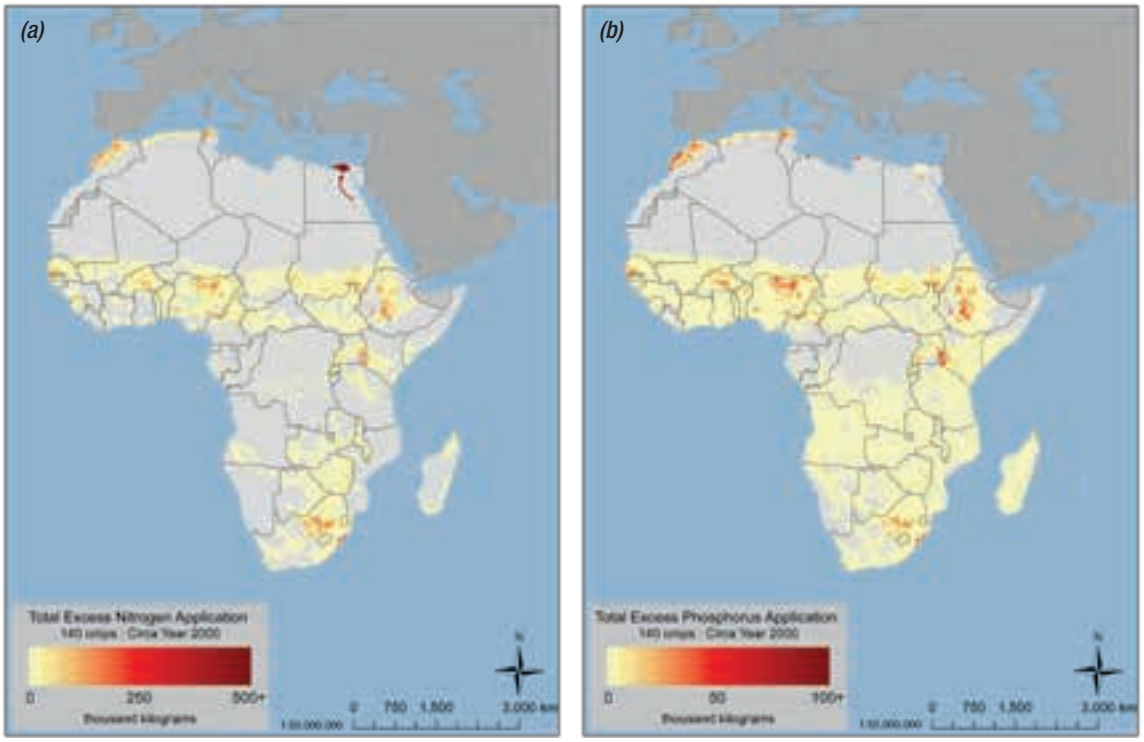


Figure 8.2: Nitrogen (a) and phosphorus (b) excess application in Africa. Data are based on administrative-level and crop-specific fertilizer application rates modelled at 5' spatial resolution (~10 km) using crop area and yield data as inputs. Given uncertainties in the model estimates at the grid cell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

To address the challenges associated with nitrogen and phosphorous, 37 countries in Africa adopted the *Kampala Statement for Action on Reactive Nitrogen in Africa and Globally* during the sixth International Nitrogen Conference held in Kampala, Uganda, in November 2013. The statement of action included three specific issues: (a) improving soil fertility status, nutrient use and supply; (b) acting on nutrient and fertilizer policy; and (c) reducing nitrogen's contribution to degradation of water bodies and air pollution (International Nitrogen Initiative 2014b).

Other forms of pollution are having serious impacts on African countries' freshwater ecosystems. Currently, in many African countries, less than 30 per cent of waste water is treated in sewage treatment plants (Nyenje et al. 2009). Furthermore oil pollution in estuaries and lagoons is a threat to aquatic systems where oil production is active. For example, an oil spill in July 2010 destroyed about 6,000 fishponds in Delta State in Nigeria, affecting an estimated US $100 million worth of fish (Amaize 2010). The poorly regulated use of pesticides is also an important source of contamination in African lakes and rivers. Furthermore, untreated wastewater effluents cause primary organic pollution, which can be seen in the Bujumbura area of Lake Tanganyika and around much of Lake Victoria (Darwall et al. 2011).

While strengthening enforcement of regulations against pollution is crucial, there is also a need to institute detailed environmental assessments of developments that are likely to pollute African countries' ecosystems. The impact of the above mentioned pollution on the functioning of terrestrial and marine ecosystems is still poorly monitored and documented, and with the further development of African infrastructure, pollution is likely to increase.

Box 8.1: Sustainable Land and Water Management.

Sustainable land and water management is being used by a number of African countries to increase efficiency in nutrient use. Such management practices include agroforestry in Malawi and Senegal; conservation agriculture in Zambia; rainwater harvesting in Burkina Faso; and integrated soil fertility management in West Africa (Winterbottom et al. 2013). These practices have produced positive outcomes on both soil quality and crop yields. For example, West Africa's adoption of integrated soil fertility management across more than 200,000 hectares resulted in 33-58 per cent yield increases in maize, cassava and cowpea by over a four-year period. Other examples include the use of "micro-dosing" techniques in Mali, Burkina Faso and Niger. Micro-dosing combines conventional agricultural technology with improved seed varieties to reduce the overall amount of fertilizer required. Innovative and efficient farming practices increase soil organic matter, replenish soil nutrients, reduce soil erosion, increase efficiency of water use, and all together reduce land degradation and save biodiversity while increasing food productivity (Winterbottom et al. 2013).

In conclusion, the available data makes it hard to assess the progress in Africa towards this target. Africa in general uses relatively low amounts of fertilizer in its agricultural production systems and hence is below the global average in many aspects of Target 8. Yet it is expected that this usage will increase as countries become wealthier, and seek to improve the living standards, and as more large agricultural development projects are developed.

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)

Invasive alien species (IAS) are a major threat to biological diversity, food and water security and human, plant and animal health. Terrestrial and freshwater ecosystems, estuarine and marine systems are severely impacted by their spread. Across Africa nearly all countries are affected by IAS while offshore islands are particularly badly affected.

A number of African counties have programmes in place to manage IAS; for example, South Africa, Ethiopia, Malawi, Mali, Niger, Rwanda, South Africa and Uganda. Burkina Faso has established species lists, Egypt and Benin have allocated resources to study IAS and Sierra Leone, Somalia, Sudan and Swaziland have implemented programs to raise awareness on the effects of IAS.

IAS are increasing in numbers and severity of impact in Africa and have the potential to become a significant challenge across the region. The Global Register of Introduced and Invasive Species (GRIIS), an on-going initiative hosted by the Invasive Species Specialist Group (ISSG) to document IAS, indicates that 100 of the 154 introduced species in Seychelles are known invasive species with documented impacts. Similarly in Cameroon, 148 introduced species have been identified and this includes eight species with known major impacts on biodiversity (ISSG 2014). Many of these IAS are on a list of the 100 of the World's Worst Invasive Alien Species, a global list of those IAS with the highest impacts on biodiversity, generated by the Invasive Species Specialist Group of the IUCN (Lowe et al. 2000). Species on this list include water hyacinth (*Eichhornia crassipes)*, the wide-spread invasive shrub Lantana (*Lantana camara)*, the fast growing leguminous (nitrogen-fixing) tree Black wattle (*Acacia mearnsii)* and the dryland trees and shrubs of the genus *Prosopis* (the "mesquites" of tropical dryland America).

Those species that are already established in a country need to be managed with cost effective control measures to prevent their further spread. Eradication must be planned with appropriate assessment of cost, benefit and success rate, with the possible best information and assessment method. South Africa is one of the leaders in the region in this regard. For example, 559 invasive species and 560 prohibited alien species are listed by the Department of Environmental Affairs of South Africa (2004) in the Biodiversity Act 2004, and activities such as importing, possessing, growing, conveying, selling, releasing, and spreading of these priority species is restricted. Further, South Africa published the Alien and Invasive Species regulations in April 2014, relating to the government's National Environmental Management: Biodiversity Act (Department of Environmental Affairs, Govenrment of South Africa, 2014).

IAS eradications from islands represent an important action to contribute to Aichi Biodiversity Target 9. Within Africa, the majority of successful eradications have been undertaken on the island nations and territories in the Indian Ocean, including the Seychelles and Mauritius (Beaver and Mougal 2009).

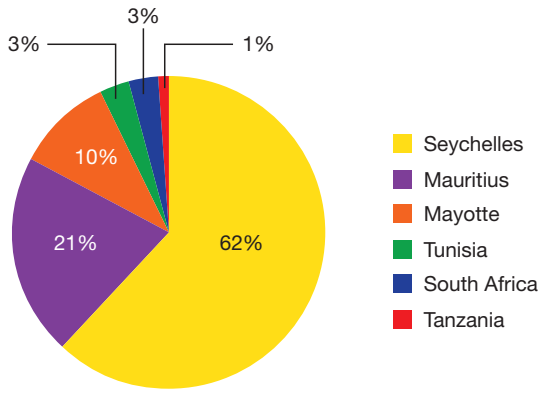


Figure 9.1: Percentage of successful invasive vertebrate species eradications from Seychelles, Mauritius, Mayotte, Tunisia, South Africa and Tanzania (n=70) (source: Database of Islands and Invasive Species Eradications, June 2014 (Island Conservation, University of California at Santa Cruz, IUCN SSC Invasive Species Specialist Group, University of Auckland and Landcare Research New Zealand 2014)).

Box 9.1: Example of IAS Control in Practice.

In 2011, the Bureau of Environment and Land Administration of Ethiopia, in collaboration with other research institutions, undertook monitoring activities at the northern part of Lake Turkana. The outcome of the study indicated that the lake area was infested by water hyacinth. The plant affected 20,000 hectare of the lake's surface area, and affected fifteen areas of three adjacent districts. Subsequently in 2012, the Government of Ethiopia established a steering committee comprised of major stakeholders, and held awareness-raising campaigns which involved preparation and wide distribution of manuals on the impacts of the plant and techniques for its removal. The campaign lasted for three months and involved about 160,000 local communities who cleared 90-95 per cent of the weed infestation mechanically. As a result, aquatic birds that were previously deprived of their feeding, breeding and brooding habitats returned to the Lake and the wetland areas (Government of Ethiopia 2014).

In conclusion, governments and others are increasingly taking steps to manage IAS that have already become established in Africa. However, the process for identifying priority species and pathways based on the risk of biological invasion tends to be limited. Furthermore weak border controls in many countries and limited expertise in biodiversity sciences, such as taxonomy, ecology and technologies for rapid species identification are obstacles to the attainment of this target. Unless efforts are increased, it is unlikely that this target will be reached by the deadline.

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 then climate change or ocean acidification." (CBD 2016c)

Anthropogenic pressures pose a serious threat to Africa's ecosystems. Many African countries' ecosystems are vulnerable to climate change, particularly coral reefs, seasonal wetlands, semi-arid transition regions such as the Sahel, and high mountain tops. International market demand for reef resources, overfishing and excessive and destructive fishing are major threats on the coral reefs in East Africa. Dynamite fishing is of particular concern, as it is extremely destructive to ecosystems, particularly coral reefs (African Conservation Foundation 2013). Preventing the use of such destructive fishing practices would help to reduce the pressures on corals reefs and thereby increase the likelihood that they will be able to cope with the effects of climate change.

Global trends indicate that countries are moving away from the target due to anthropogenic pressures. The information contained in the fifth national reports suggests that the situation is similar in Africa. However, there are some signs of progress; both Madagascar and the Seychelles have implemented projects to reduce pressures on marine ecosystems. However overall there is insufficient information to assess progress towards this target for the Africa region (CBD 2015b).

In terms of marine and coastal ecosystems, Africa supports important tropical coral reef communities in northern and Eastern Africa, and cold water corals in Southern Africa (Reef Base 2014). Erratic weather conditions, changes in surface temperature and rising sea-levels followed by ocean acidification have all affected African coral reef systems (Figure 10.1). Future predicted increases in sea surface temperature, sea level rise and coastal erosion, are likely to put pressures on coastal ecosystems, including islands, estuaries, beaches, coral reefs and marine biodiversity. Sea level rise in combination with extreme weather events is likely to intensify flooding as the majority of coastland is low-lying, resulting in saline intrusion of aquifers (IUCN 2009).

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Figure 10.1: Degree of threat to African coral reefs (source: Reef Base 2014).

Figure 10.2: Severity of coral bleaching in African coral reefs and areas of high thermal stress in the region's surrounding oceans. (source: Reef Base 2014).

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 representivity, connectivity and management effectiveness of protected areas." (CBD 2016c)

Protected areas are a key strategy for conserving biodiversity (Geldmann et al. 2013). Africa has long been at the forefront of global efforts to develop protected area networks (Figure 11.1), including some of the world's best known protected areas, for example the Serengeti and Mt Kilimanjaro National Parks in Tanzania and the Kruger National Park in South Africa.

Target 11 addresses a number of issues related to protected areas including their coverage, their management, their representativeness, and ensuring that they are well connected and integrated into the wider landscapes and seascapes. By August 2014, the World Database on Protected Areas included 7,622 protected areas in the 57 African countries and territories (Figure 11.1) (IUCN and UNEP-WCMC 2014). Protected area coverage in Africa has been increasing steadily since 1990, (Figure 11.2). In 2014, 13.8 per cent of terrestrial and inland waters and 3.7 per cent of marine and coastal areas were covered by protected areas. This is below the global average of protected area coverage, which is at 15.4 per cent for land and 8.4 per cent for marine and coastal areas (Juffe-Bignoli et al. 2014) and below the coverage levels set in Aichi Biodiversity Target 11.

Elements of Target 11 have already been achieved or are likely to be achieved by 2020 for several countries in Africa. There is good progress in protected area designation for terrestrial and inland water areas, with 39.3 per cent of the countries and territories in the region meeting the seventeen per cent target for terrestrial and inland areas. Some countries and overseas territories have more than one third of their area covered by protected areas: Reunion Islands (76.3%), Seychelles (42.1%), Morocco (33.6%), Namibia (37.9%), Zambia (37.9%), Congo (35.2%), and Tanzania (32%). While progress in protected area coverage in Africa is positive, the protected area coverage of inland waters is not well known(UNEP-WCMC 2014).

There are currently not enough marine protected areas to cover at least ten per cent of Africa's marine and coastal areas. For the territorial seas (0 to 12 nautical miles) 8.4 per cent of the area is protected. Conversely, 2.5 per cent of the area between Economic Exclusion Zones (12 and 200 nautical miles) is protected. Only three countries and territories - Mayotte Islands, Tanzania, and South Africa- have at least 10 per cent of their marine and coastal areas within protected areas (UNEP-WCMC, 2014). However it is possible to strengthen joint trans-boundary actions with bordering nations as the network of marine managed areas stretch over 23 sites in six countries of Western Africa.

In terms of internationally designated sites, as of August 2014, 50 African Parties have designated 362 Ramsar sites, covering 90,238,578 hectares. Among the Parties, Algeria has the highest number of Ramsar sites with 50 sites covering 2,991,013 hectares, while Chad has the largest surface area with 12,405,068 hectares within its six Ramsar sites (The Ramsar Convention on Wetlands 2014).

UNESCO has also designated 81 biosphere reserves within 33 African countries (Department of Environmental Affairs, Government of South Africa, and UNESCO 2013), which promote sustainable regional development. Biosphere reserves are qualified as adequate protected area categories for cultural landscapes especially in Africa, since they address both protection and sustainable use of biological diversity and ecosystem services.

Progress towards the other elements of the target is more complicated to assess. There is limited information available on ecological representativeness, connectedness and management effectiveness of protected areas in Africa. However, information in the fifth national reports to the CBD suggests that increased efforts will be needed if all parts of this target are to be met by 2020.

The implementation of REDD+ can also support achievement of Target 11, by reducing deforestation and forest degradation through the conservation of existing forests, and by maintaining, and potentially expanding, an effective network of protected areas.

The Congo Basin, one of the world's major tropical forest basins, is an area of opportunity for the implementation of REDD+. In Africa, investment in forest protected areas is especially important as not all protected areas are currently completely effective due to a lack of resources, and loss of forest cover within protected areas is still common. Effectiveness, as required by Target 11, could be improved through better management and supported by increased availability of resources to the relevant agencies.

Protected areas in Africa tend to be very large and far apart. In a global assessment of protected area connectivity, Santini et al. (2015) found that most of the countries with high connectivity are found in Africa, and many countries in West, South and East Africa have high transboundary connectivity. However, protected area connectivity in Africa is driven by the size of individual protected areas, and connectivity between protected areas was generally low across the continent (Santini et al. 2015).

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

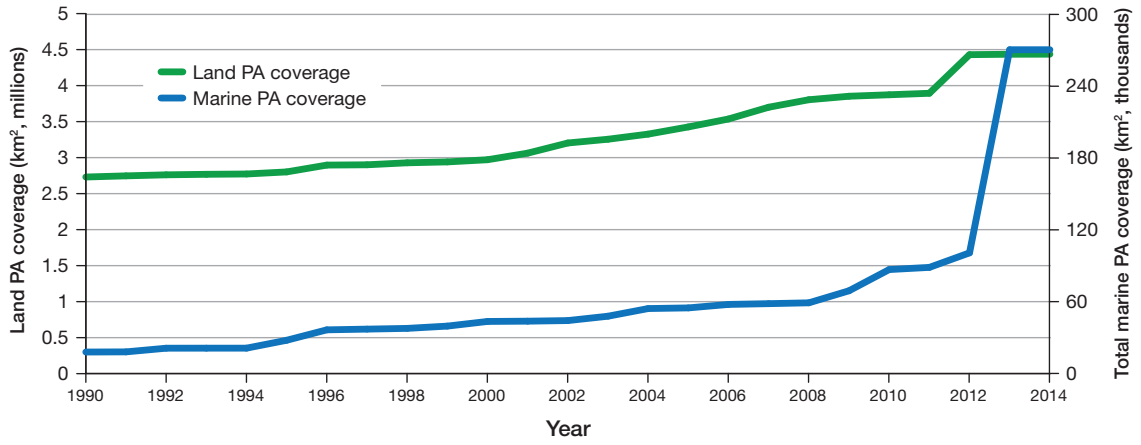

Figure 11.2: Trends in terrestrial and marine protected area coverage over time (source: UNEP-WCMC 2014).

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

South Africa: The Prince Edward Islands (PEI) Marine Protected Area (MPA), in South Africa, is one of the world's largest marine protected areas. The area covers 180,000 square kilometres, protecting marine biodiversity of global importance. The islands are home to diverse marine wildlife, including albatrosses, penguins, seals, killer whales and Patagonian toothfish. However, these islands are threatened by multiple anthropogenic factors, including illegal and unsustainable fishing practices, invasive alien species, pollution and climate change (WWF 2013).

Seychelles: Seychelles has surpassed the area aspects of Target 11 in 2011, when its Government declared new protected areas in the archipelago. This new declaration resulted in over half of its total land area becoming protected areas (Dogley 2011). In addition to protecting its terrestrial land area, Seychelles has created fourteen marine protected areas covering 30 per cent of the nation's total marine territory, with fifteen per cent of the total marine environment being designated as no-take areas (Perez 2014).

Namibia: Namibia finalized a framework and guidelines for the development of park management plans in 2011. Management plans for nine national parks have been developed in line with the new management plan guidelines, and assessments undertaken in 2011 have shown a significant improvement in the management of all protected areas, comparative to assessments conducted in 2004 and 2009 (Government of Namibia 2014).

Despite considerable progress to expand protected area estates, there are significant challenges to manage the existing reserve networks adequately and to ensure that they are equitable and provide benefits to surrounding communities who are often poor. Other barriers include lack of institutional capacities, disparities in governance, social capital and availability of ecological data. In particular, many countries cannot afford to undertake comprehensive and detailed research, making the identification and development of protected areas difficult (Abdulla et al. 2009).

A particular focus of reserve expansion in many African countries involves the engagement and management of local communities, in the form of community-based forest and wildlife management. In some countries, for example Namibia, this kind of conservation management is providing a way for local people to benefit from conservation, while animal populations are also increasing. In other countries, the results are less tangible and the benefits to the local communities are small and often do not compensate for the losses suffered from crop raiding by animals and other negative factors.

Box 11.2: Protected Areas Improve Livelihoods of Local People in Rwanda.

The Sabyinyo Community Livelihood Association (SACOLA) was created in 2004 with two objectives: (i) to improve and promote the lives of populations surrounding the Volcans National Park who were suffering heavily from the consequences of the guerrilla war of 1997-1998, and (ii), to protect the National Park against human activities and disease transmission from humans to gorillas (Republic of Rwanda 2009). By providing jobs, creating community cooperatives, promoting tourism products, profit sharing with surrounding communities and constructing houses for the poor and vulnerable among other activities, SACOLA is able to invest back into the community. Additionally, awareness-raising activities, including a gorilla naming ceremony introduced in 2005, promote the safeguarding of the mountain gorilla and thus contribute to biodiversity conservation in protected areas.

In conclusion, many African countries have designated protected networks that are making progress towards the terrestrial and marine coverage elements of Aichi Target 11. With the current rate of progress is it likely that the African region as a whole might meet these elements of Target 11. However further efforts are needed to progress issues associated with management effectiveness, equity, connectivity and representativeness.

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 current extinction rates. 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. However, 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)

Africa supports a diverse range of species, the majority of which live south of the Sahara and on islands. There is a large difference between the flora and fauna of mainland Africa and the evolutionarily isolated endemic species of offshore islands such as Madagascar.

Limited information makes assessing progress toward Target 12 and its elements challenging. Global trends indicate that no progress is being made towards preventing the extinction of known threatened species and that progress is moving away from improving the conservation status of those species most in decline (GBO-4 2014). The situation in Africa is similar to what is observed globally.

A detailed analysis of bird species on the IUCN Red List (Figure 12.1) shows that bird species are moving towards extinctionat the global level. However, birds in Africa are doing slightly better than the global average (shown by higher Red List Index (RLI) values than for the global RLI).

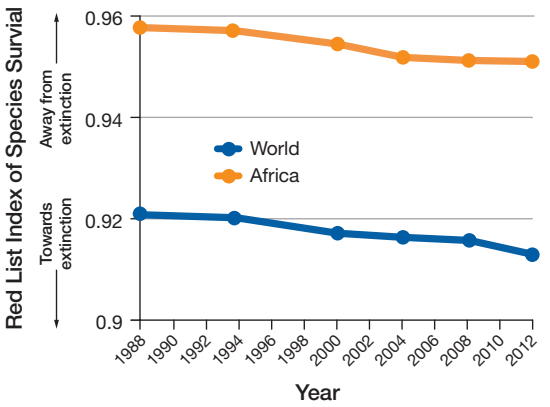

Figure 12.1: IUCN Red List Index of species survival for African birds (1988-2012). A Red List Index value of 1.0 means that all species are categorized as of 'Least Concern', and hence none are expected to go extinct in the near future. A value of zero indicates that all species have gone extinct (source: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

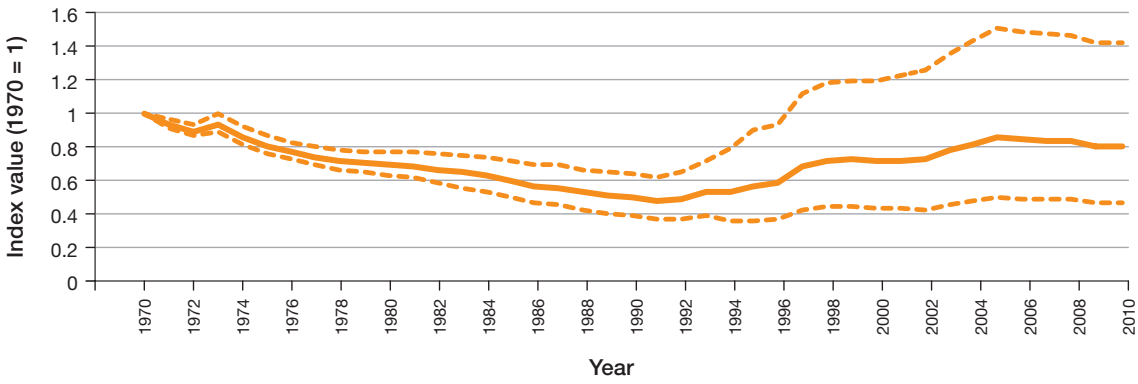

Figure 12.2: Afrotropical Living Planet Index 1970 – 2010. Dashed lines indicate confidence limit (source: McRae et al. 2014). There is also more uncertainty in the trend between 1990 and 2010 due to a large amount of variability in the species data underpinning the index. This graph is based on data from 25 species of terrestrial and freshwater fish, two species of amphibians, twelve species of reptiles, 104 species of birds and 121 species of mammals.

For populations of African vertebrate species overall, the *Living Planet Index*, shows a 19 per cent reduction between 1970 and 2010 (Figure 12.2). However, in recent years, the rate of decline has slowed.

The major cause of species declines in Africa is the loss of habitat. In addition to habitat loss, the other main threat to African species is human use, which includes many different subsistence uses (for example timber, firewood, medicines, and bushmeat).

For the larger charismatic mammals in Africa, one of the major causes of population decline is wildlife crime. For example in 2013, over 20,000 African elephants were poached across the continent, and between 2007 and 2013 there was a 7,000 per cent increase in rhino poaching (CITES 2016b). A specific example of the challenges caused by wildlife crime, is a case from the Central African Republic where an armed militia entered the Sangha Trinational Park and killed at least 26 elephants in April 2013 (Scanlon 2013).

The Convention on International Trade in Endangered Species (CITES) collects information on trade in endangered organisms (or parts of organisms). The trade database (compiled and managed by UNEP-WCMC) was used to analyse annual trade in organisms, sourced from wild populations (or where the source was unknown), being exported from states in the African region during 2012 (CITES 2016b).

Each trade transaction describes the type of goods being traded. Whereas some of the trade records corresponds to transactions of whole organisms, some corresponds to trade in parts of organisms (e.g. skins, feet). To estimate the number of whole organisms that trade represents in each case, parts of organisms were scaled conservatively. This was done separately for different taxonomic groups (mammals, birds, reptiles, amphibians, invertebrates and plants). So for example, trade in mammalian feet would be scaled by a factor of ¼ so that 4 feet are equivalent to 1 organism, or amphibian legs would be scaled by ½. Subsequently the estimated trade in whole organisms was aggregated for each taxonomic group for the year 2012, and between individual states (Figure 12.4).

The different CITES member states are arranged as segments around the visualisation. The outer axis graduations and coloured strip along the axis mark the total trade volume (exports plus imports) involving that state (Figure 12.3). The width of the links connecting states represents the volume of trade between those parties.

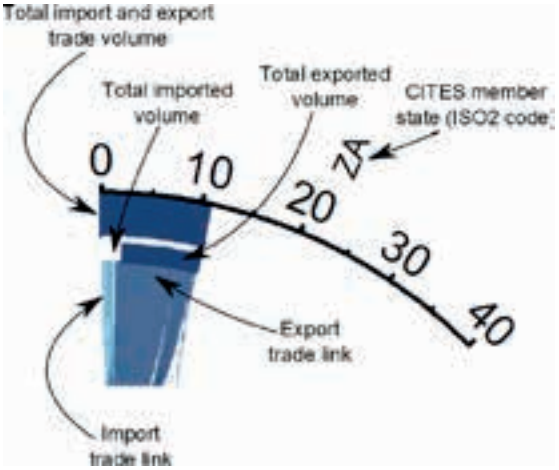

Figure 12.3: Key to trade volumes indicated in trade visualisations. (see figure 12.4)

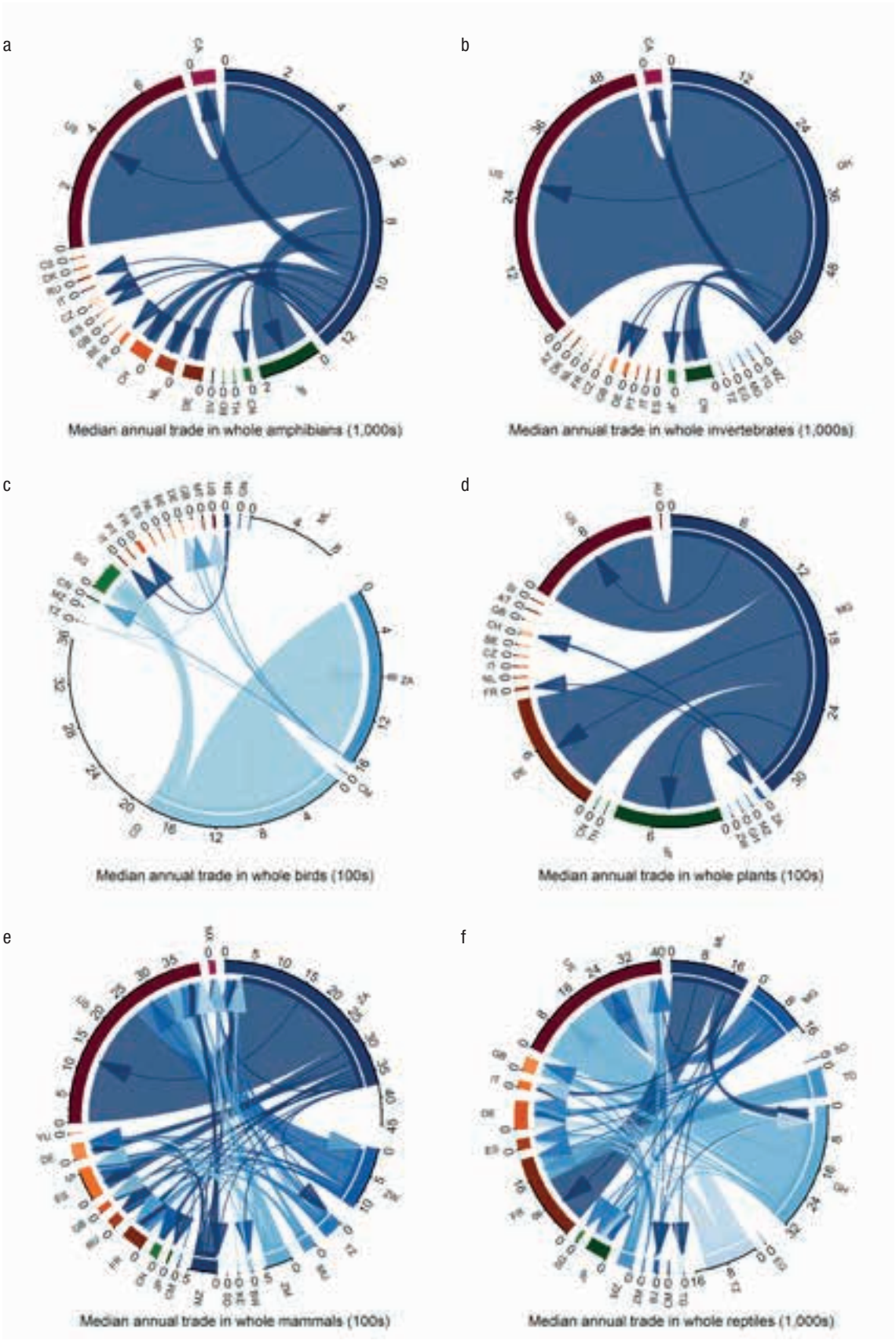

Figure 12.4: Median annual trade in 2012 in whole (a) amphibians (b) invertebrates (c) birds (d) plants (e) mammals plants and (f) reptiles in Africa (figures produced by UNEP-WCMC using data from CITES 2016b).

At the international level, two key Multi-lateral Environmental Agreements directly address Target 12; the *Convention on Migratory Species of Wild Animals* (CMS) and the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES), to which 44 and 53 African countries are Contracting Parties respectively (CITES 2016a; CMS 2016).

Box 12.1: Tackling Wildlife Crime in Africa.

While conventionally known as a mechanism which regulates wildlife trade, CITES also addresses issues related to law enforcement. CITES is working with African countries on a number of issues related to wildlife crime. For example:

- A landmark global law enforcement operation, led by Interpol, code-named "Operation Cobra II", came into operation in early 2014. This operation resulted in more than 400 arrests in Africa and Asia, of poachers and traffickers of endangered elephants, rhinos, tigers, pangolins, turtles and other species (CITES 2014).
- To address illegal trade in wildlife, particularly focusing on the survival of Africa's elephants, African nations have developed nineteen National Ivory Action Plans (CITES 2014).
- African countries hosted and actively participated in high-level conferences on illegal trade in wildlife, held in Gaborone, London, Marrakech, Nairobi and Paris in 2013 and 2014. The declarations and action plans produced at these conferences specifically highlighted the importance of law enforcement and financial support from donors to implement the political commitments made by governments. In particular, the African Elephant Summit held in Gaborone, Botswana, – in December 2013, produced "14 Urgent Measures" which adopt a zero tolerance approach to wildlife trafficking, and seek to strengthen cooperation among law enforcement agencies, particularly through participation in the activities of the CITES Ivory Enforcement Task Force (ICUN 2013).
- As an effort to address illegal killing and trade in ivory, the *Monitoring the Illegal Killing of Elephants* (MIKE) programme under CITES is monitoring the conservation of elephant populations. It provides information on levels and trends of illegal killing and assesses the extent to which observed trends are related to CITES decisions on the ivory trade. MIKE has documented alarming increases in levels of illegal hunting of elephants across much of Africa, and its information is being extensively used to catalyse the responses of the international community and the African governments to the poaching crisis (CITES 2013).
- African countries are benefiting from the international enforcement efforts that are increasingly advancing with the latest technology for detection, analysis and communication. Monitoring and data collection through the *Wildlife Enforcement Monitoring System* (WEMS), for example, helps countries track illegal wildlife trade, monitor legal enforcement, capture trends and share the information among participants (UNEP 2014).

Box 12.2: Transboundary Conservation of the River Gorilla.

At the regional level, a number of transboundary conservation measures have been carried out by African countries to assist with the conservation of large mammals. For example, Nigeria and Cameroon developed a *Regional Action Plan for the Conservation of the Cross River Gorilla (Gorilla diehli) (2014-2019),* which was adopted at the first Meeting of Parties to the Gorilla Agreement under the CMS. This Action Plan aims to address the continuing loss of these gorillas whose population is only 300 individuals (Dunn et al. 2014). Actions included as part of the plan are increasing the budget for law enforcement, and the training and deployment of eco-guards.

The action plan also produced a habitat analysis, published in 2012, which mapped the distribution of forest and other terrain in the Cross River region and combined this with other environmental data to determine the extent of the gorilla's habitat. Scientists from the Wildlife Conservation Society (WCS), the North Carolina Zoo, Cameroon and Nigeria used satellite images, geographic information systems, global positioning systems, CyberTracker software and touch-screen systems for park rangers to develop precise location mapping and on-site data recording. Using these technologies, it was discovered that the Cross River Gorilla roams more than 50 per cent than previously thought (Global Spatial Data Infrastructure 2012). The analysis concluded that considerable forest habitat remains and much larger gorilla population can be supported if these areas are well protected (Wildlife Conservation Society 2012).

Picture 12.2: Critically endangered Cross-river Gorilla in Cameroon and Nigeria. © The Earth Times

In conclusion, available evidence suggests that we are moving away from this target in Africa with more species becoming threatened and populations of many species are still declining. In particular there is considerable pressure on some of the iconic species in Africa: elephants and rhinos, gorillas and chimps, lions and other predators. Much of this pressure comes from the illegal trade in wildlife for various uses: ivory for carvings, rhino horns and lion bones for Asian medicines, chimps and gorillas for pets and for food, etc. This crisis is affecting populations of many species and is posing a very significant conservation challenge.

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 which 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)

Africa is home to genetically diverse livestock, cultivated plants and wild relatives. For example Africa's unique cattle diversity supports more than 70 per cent of the rural poor (Hanotte et al. 2010). However, Africa's genetic diversity of domesticated animals is threatened. Examples of this include the Sheko, a unique cattle breed from Ethiopia, which is decreasing in number with only a few thousand left. Similarly, in Uganda, Ankole cattle that are indigenous to the country are disappearing due to crossbreeding with European commercial dairy breeds. The direct driver of this crossbreeding has been increasing demand for processed milk (Okeyo et al. 2010).However data deficiency makes it difficult to accurately assess the real risk and conservation needs for species in the region.

Threats to Africa's domesticated animals genetic diversity are varied, ranging from crossbreeding with commercial breeds to change in agricultural practices, particularly a shift from subsistence to commercial agriculture (FAO 2010). Other contributing factors include competition, a lack of infrastructure and policy frameworks for sustainable breed improvement programmes; shortages of skilled staff; and limited access to relevant technologies (Hanotte et al. 2010; Scholtz et al. 2010).

A total of 1184 breeds have been reported in Africa, including 839 local breeds and 345 transboundary breeds. Data provided by FAO from the DAD-IS (FAO 2015) shows the risk status of transboundary breeds in the African region is representative of the global situation, with 57 per cent of breeds reported as 'not at risk', 4 per cent reported as 'at risk' and 38 per cent with an 'unknown' status (Figure 13.1) (FAO 2015). With regards to local breeds 2 per cent and 6 per cent are reported as 'at risk' and 'not at risk' respectively. However there is a lack of information regarding the risk status of local breeds in Africa, The extinction risk is reported as unknown for 92 per cent of local breeds in Africa, compared to 64 per cent globally. (FAO 2015).This demonstrates a need for improved data collection and compilation.

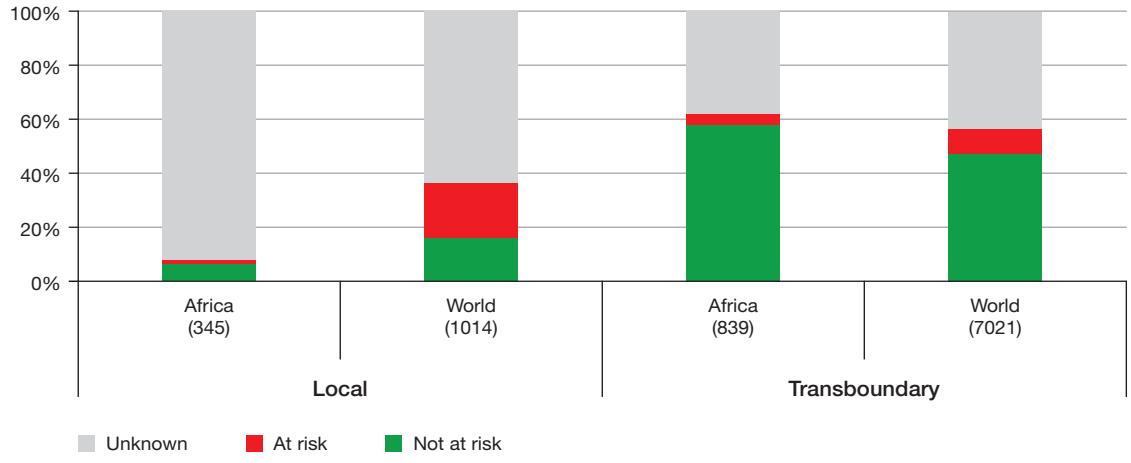

Figure 13.1: Percentage of breeds at risk of extinction in the Africa region and the World, for both local and transboundary breeds. The absolute numbers for each category are included in brackets (graph produced using data from DAD-IS (FAO 2015)).

© unsplash

African countries have previously initiated a number of actions to better capture and assess plant genetic resources. Nigeria and Uganda have put effort in to conserving indigenous, medicinal and traditional plant species, and other countries have taken actions to conserve genetic resources by improving legislative instruments on biosafety. Additionally, Benin, Burkina Faso, Ethiopia, Kenya, Malawi, Namibia, Niger, Tanzania and Zimbabwe have adopted molecular technologies for the characterization of their genetic resources. Molecular techniques have enabled the rice genome to be sequenced as well as comparisons to be made between different genomes (FAO 2010). Use of these technologies will help to identify high priority locations in Africa for the conservation of wild relatives of, for example, finger millet (*Eleusine* species), pearl millet (*Pennisetum* species), garden pea (*Pisum* species) and cowpea (*Vigna* species).

The FAO's *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* (Second GPA) provides guidance on the types of actions that can be taken to reach Target 13. The Second GPA is an agreed set of eighteen priority activities organized into four priority areas, namely *in situ* conservation and management; *ex situ* conservation; sustainable use; and sustainable institutional and human capacities. African countries can fully implement the Second GPA, by determining their own priorities in the light of the priority activities agreed in the Plan, and through mobilizing domestic funding for the implementation. At least twenty four African countries have so far participated in this activity, by providing national information on their genetic resources (FAO 2012b).

There are initiatives to build institutional capacities for improved facilities and breeders, including the Plant Breeding Capacity Building (GIPB), Biosciences Eastern and Central Africa (BECA) and the Southern African Development Community (SADC) Plant Genetic Resources Centre (SPGRC). GIPB is an international initiative to enhance the sustainable use of genetic resources in developing countries, helping to build capacity in plant breeding and seed systems. BECA enables scientists from developing countries to apply their knowledge and skills to specific national crop improvement challenges. Finally, SPGRC maintains more than 10,500 accessions of a range of crops important for African agriculture. These international and regional initiatives will significantly help African countries build capacity to effectively manage and preserve genetic diversity.

In conclusion, the genetic diversity of African crops and livestock remains high and although there are local declines it is more robust than in most regions. However, despite the actions taken, the available information suggestions that for this target to be met additional action will need to be taken. Existing and emerging information, computing, genomic technologies, and regional and international support mechanisms as well as the implementation of the *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* offer potential solutions for the conservation of Africa's cultivated plant and livestock genetic resources.

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. However, some ecosystems are particularly important in that they provide services that directly contribute to human health, livelihoods and 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)

Combined data on carbon, water and ecotourism illustrates where the largest amounts of natural assets are found across Africa (Figure 14.1). Provisioning services from forest ecosystems, notably timber and fuelwood from trees, medicinal plants and animals, wild foods, and bushmeat from wildlife species, are the critical sources of maintaining food, medicine and livelihoods for many African people, particularly forest dwellers under poverty. The high dependence on forest resources, and commercial markets that have developed in towns and cities, has led to hunting and commercial bushmeat trade, which is common in many parts of Africa, but best described in the Congo Basin and West Africa (Abernethy et al. 2013).

Many terrestrial animal and plant species are used by humans for food and medicine. The unsustainable use of these species must be prevented and their ecosystems conserved in order to ensure the continued supply of these ecosystem services. Data from Cameroon between 2000 and 2010 indicate that food animals have become increasingly less affordable, while in Tanzania, medicinal plants have become increasingly more affordable (Figure 14.2).

There is a strong link between Aichi Biodiversity Target 14 and the Cancun safeguards for REDD+. Safeguard (e) supports the protection and conservation of natural forests and their ecosystem services, whilst safeguard (d) promotes the full and effective participation of relevant stakeholders, particularly indigenous people and local communities. Community consultations may help to identify essential ecosystem services that can be incorporated into REDD+ planning and the design of REDD+ actions to secure their provision. In Côte d'Ivoire, Ethiopia and Kenya, valuation and analysis of forest ecosystem services is being undertaken in collaboration with local stakeholders, which aims to make the case for retaining and restoring forest, and to inform implementation of REDD+ in the countries (Crafford et al. 2012). Tanzania also has an active programme for sustaining economic growth while promoting human development in line with sustainable use and consumption of natural resources, through it's Green Economy programme (UN-REDD 2015b).

Mangrove forest restoration in Kenya.

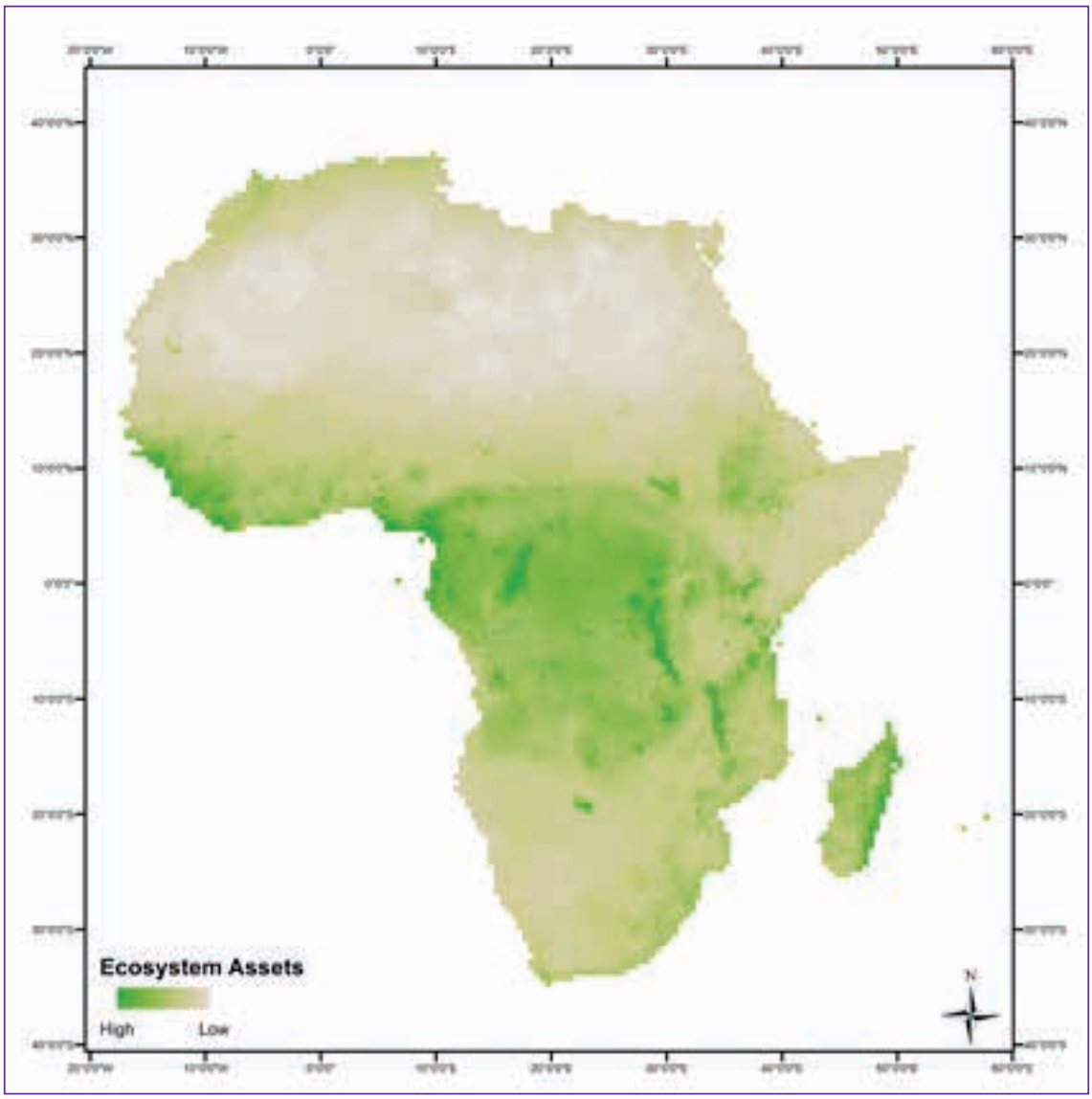

Figure 14.1: Composite map of ecosystem assets in Africa (water, carbon, agricultural suitability). The realization of these assets by people makes these assets into services.

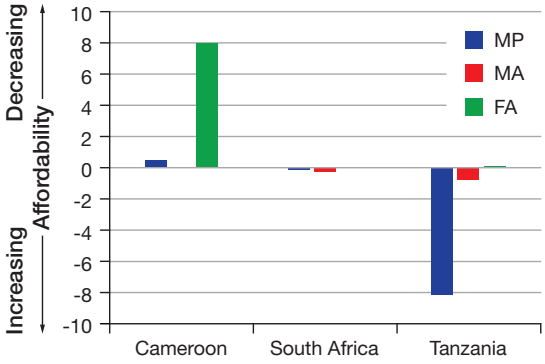

Figure 14.2: Change in percentage of GDP per capita used to purchase baskets of goods of the poorest 10 per cent (medicinal plants (MP), medicinal animals (MA) and animals for food (FA)) 2000-2010. This index indicates affordability of MP, MA and FA (source: TRAFFIC & IUCN/ SSC Medicinal Plant Specialist Group 2010).

With regards to the marine environment, the Ocean Health Index (OHI) compares and combines information on ten key elements of the ocean's health and provides a measure of the services derived from it (Ocean Health Index 2015). Across Africa a number of changes can be seen in these ten measures of ocean health (Figure 14.3).

Within the Africa region, Livelihoods and Economies scores are relatively high (82 in 2012 and increasing to 84 in 2014), followed by Biodiversity, which has remained stable at 83 over the three assessed years. However, 50 per cent of the Biodiversity score is based on habitat data which has not been updated in recent years, meaning the stability in the score could be due to missing information in global habitat health databases, and is not explained by lack in habitat decline. The change in biodiversity is currently measured through the species diversity sub-goal score, based on IUCN Red List average extinction risk categories and population trends (Halpern et al. 2015). The African Biodiversity score is lower than the global average score of 86, and significantly less than 100, indicating that there are still steps to be taken in the region to protect marine biodiversity. The region's lowest scored goal is Natural Products, with a score of 35 in 2012 decreasing to 33 in 2015. The target relates to the harvesting of the maximum sustainable amount of non-food products. The low score indicates that as a whole the region is not gaining all the benefits it could from sustainable harvesting.

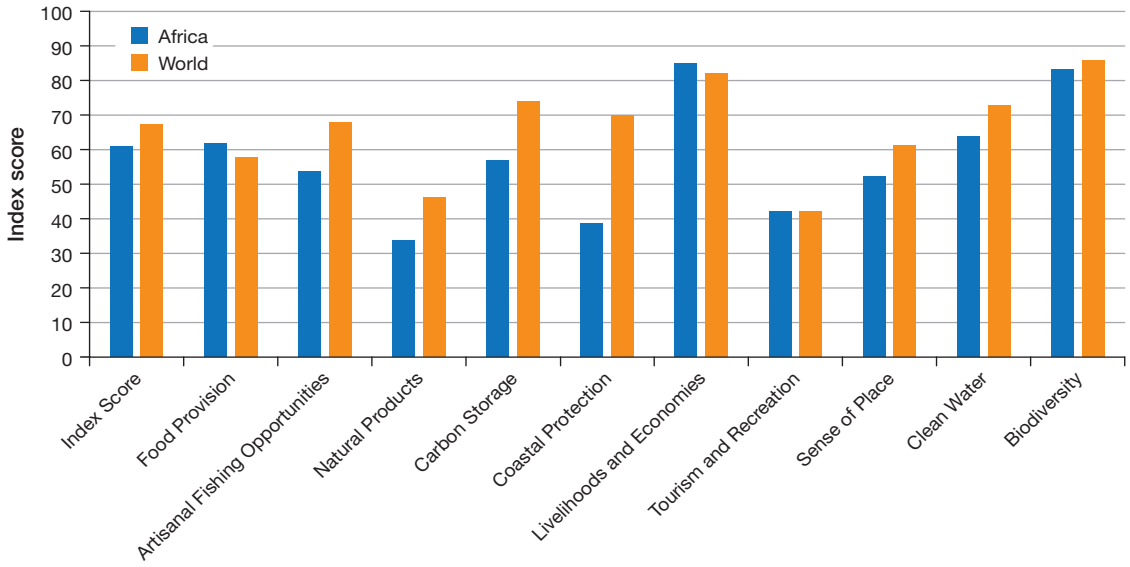

Figure 14.3: Comparison of the Ocean Health Index's ten goal scores and the overall average score for Africa and the World in 2014 (source: Ocean Health Index 2015).

Africa's wetlands, lakes and rivers also provide important ecosystem services for human well-being. They support floodplain agriculture, freshwater and offshore fisheries, water extraction for manufacturing and domestic water supply. They also improve water quality through wastewater treatment, provide habitats for invertebrates, fisheries, mammals and other biodiversity, and bring socio-economic benefits to surrounding communities by providing both consumptive values, such as clean drinking water, food and fuel, and non-consumptive values, such as aesthetics and recreational space. However, despite their importance, there is relatively little information available on the provision of ecosystem services from these ecosystems.

In conclusion, African countries receive many benefits from biodiversity in terms of providing essential ecosystem services to support their health, livelihoods and well-being. Continued degradation of many habitats important for ecosystem services indicates that more progress is needed if Target 14 is to be met by its deadline. However, the information base on the status and trends in ecosystem services in Africa is limited and considerable work needs to be completed to get a better idea of how these services are changing in Africa and what actions are being taken to address negative changes.

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 and the rural poor. The conservation, restoration and sustainable management of forests, soils (especially peatlands), freshwater and coastal wetlands and other ecosystems are proven, cost-effective, safe and immediately-available means to sequester carbon dioxide and prevent the loss of other greenhouse gases." (CBD 2016c)

Ecosystem resilience means 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 and adaptive capacity of ecosystems, contribute to climate change adaptation and mitigation, and generate additional benefits for local people.

Africa has a long experience with ecosystem-based conservation and restoration, including afforestation, rangeland regeneration, catchment rehabilitation and community-based natural resource management (Niang et al. 2014). Ecosystem restoration can stabilize coastlines, safeguard freshwater ecosystems and biodiversity, and contribute to climate change adaptation and mitigation. In a number of countries in Africa, for example in Sierra Leone and Ghana in West Africa there have been ongoing efforts to restore and re-plant degraded areas of mangroves – particularly around major cities where they are cut for firewood and building materials.

The fifth national reports to the CBD indicate that overall, several African countries are taking actions related to restoration. For example, Algeria, Benin, Chad, Morocco, Niger, the Seychelles and Sudan, have restoration projects, including reforestation, underway. Burundi and Côte D'Ivoire have commenced the process of determining the carbon sequestration capacity of forest ecosystems by integrating REDD+, and Cameroon uses protected areas as a tool for ecosystem restoration (CBD 2015b). AFR100 (the African Forest Landscape Restoration Initiative), launched at UNFCCC COP21, represents a regional effort that aims to restore 100 million hectares of land in Africa by 2030, and currently includes the involvement of Democratic Republic of Congo, Ethiopia, Kenya, Liberia, Madagascar, Malawi, Rwanda, Togo and Uganda. Several of these countries have included forest restoration activities within the Intended Nationally Determined Contributions to global emissions reductions submitted to the UNFCCC in 2015 (UNEP 2015b).

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Box 15.1: Examples of Restoration Activities.

One of the most-widely adopted restoration efforts for terrestrial ecosystems is farmer-managed natural regeneration with *Faidherbia albida* on croplands, as discussed in Target 7. Millions of African farmers in Niger, Nigeria, Burkina Faso, Mali, Senegal and several other countries in the Sahel region are growing sorghum or millets in association with *Faidherbia* trees, transforming degraded agricultural landscapes into more productive, sustainable and resilient systems (ICRAF 2010; Niang et al. 2014). In Southern Niger, this natural regeneration has led to large increases in tree cover across 4.8 million hectares, and to decreased sensitivity to drought (Reij et al. 2009; Tougiani et al. 2009; Sendzimir et al. 2011). In addition, some 500,000 farmers in Malawi, Tanzania and Zambia, who cultivated their crops in *Faidherbia* agroforests, reported that their maize yields doubled or tripled (ICRAF 2010). Therefore, this regeneration has not only led to re-greening major parts of the Sahel, but also has led to increased resilience in crop yields in many African countries.

In conclusion, African countries are making efforts to build ecosystem resilience, through farmer-managed natural regeneration practices, mangrove restoration, and other activities. These actions can contribute to climate change mitigation and adaptation, given that the abovementioned ecosystems play a major role in carbon sequestration. However additional actions will be needed if this target is to be met by the deadline.

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), which was adopted in 2010, significantly advances the CBD's objectives by providing a strong basis for greater legal certainty and transparency for both providers and users of genetic resources.

Target 16 consists of two elements: the entry into force of the Nagoya Protocol; and the Protocol being operational, consistent with national legislation. The first element of Target 16 – the entry into force – has been successfully achieved, as the Protocol entered into force on 12 October 2014 following its ratification, accession and approval by 51 Parties to the CBD. Accordingly, the First meeting of the Conference of the Parties serving as the meeting of the Parties to the Nagoya Protocol on ABS (COP-MOP-1) was held in Pyeongchang, Republic of Korea, in October 2014.

For the Nagoya Protocol to be "operational, consistent with national legislation" and achieve the second element of Target 16, certain enabling conditions need to be met at the national level for its effective implementation. In particular, countries will need, depending on their specific circumstances, to revise legislative, administrative or policy measures already in place or develop new measures in order to meet the obligations set out under the Protocol. Countries will also need to determine the institutional structure needed for implementing the Protocol.African countries have made considerable progress in terms of the Nagoya Protocol (Table 16.1 and Box 16.1). As of December 2015, 30 African countries have ratified the Nagoya Protocol on Access and Benefit Sharing and others are in the process of doing so. The information from Fifth National reports also indicate that several of the countries that have ratified the Protocol have ongoing efforts related to its operationalization nationally. For example, Burkina Faso, Ethiopia, South Africa, Swaziland, Tanzania and Uganda are among some of the countries making progress in terms of access and benefit-sharing, through the development of regulations and the training of staff.

Table 16.1: Status of African countries in achieving Target 16 (source: CBD, 2016b).

	Countries that have ratified, acceded or approved the Protocol	Countries that have not ratified the Protocol, but are participating in the *Global Support for the Ratification and Entry into Force of the Protocol*	Central African countries that have not ratified the Protocol, but are participating in the *Ratification and Implementation of the Protocol for the COMIFAC countries*
African Countries	Benin, Botswana, Burkina Faso, Burundi, Comoros, Côte d'Ivoire, DR Congo, Egypt, Ethiopia, Gabon, Gambia, Guinea Bissau, Guinea, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Lesotho, Namibia, Niger, Rwanda, Seychelles, South Africa, Sudan and Uganda	Angola, Djibouti, Liberia, Mauritania, Nigeria, Sierra Leone, Swaziland, Togo and Zimbabwe	Cameroon, Chad, Central African Republic, Equatorial Guinea, Republic of Congo and São Tomé and Principe
Total	26	9	6

Although efforts are being made through these projects, African countries are facing several difficulties in ratifying and implementing the Nagoya Protocol on ABS. Such difficulties include lack of capacity in drafting legal and policy frameworks in order to integrate ABS into their national legislation. Assistance is being provided by the ABS Capacity Development Initiative implemented by UNDP (ABS Initiative, 2016) and through various GEF projects (GEF, 2016a).

Box 16.1: Role of UNEP in Supporting the Nagoya Protocol.

A UNEP Project – *Global Support for the Ratification and Entry into Force of the Nagoya Protocol on ABS* – has been supporting sixteen African countries since May 2013, and has led seven project-supported African countries to ratify or accede to the Nagoya Protocol. These countries include Burkina Faso, Côte d'Ivoire, Guinea Bissau, Lesotho, Malawi, Niger and Uganda. The project carries out three major activities leading to ratification or accession to the Protocol, including (a) rapid capacity needs assessment; (b) stakeholder engagement; and (c) monitoring and evaluation. Through these activities, participating countries are being prepared not only to ratify or accede to the Protocol, but also to implement the Protocol after its ratification or accession. For example, as of June 2014, 79 per cent of participating countries have submitted their progress reports, which contain information regarding identification of institutions, policies, laws and regulations relevant to the ratification and implementation of the Protocol. This activity indicates that African countries are making efforts to achieve the second component of Target 16 (the Protocol being operational, consistent with national legislation).

A second UNEP Project – Ratification and Implementation of the Nagoya Protocol on ABS for the member countries of the Central African Forests Commission (COMIFAC) – is supporting ten Central African countries to ratify and implement the Nagoya Protocol. More specifically, the Project aims to achieve that 70 per cent of parliamentarians are trained on the importance of ABS by 2016; and that at least nine COMIFAC countries have implementation strategies and action plans and execute activities by 2017. The project has other specific targets for COMIFAC countries to achieve ratification or accession to the Protocol and the implementation of its basic provisions. The execution of the project began in the first quarter of 2015.

A third UNEP Project - Implementation of national strategy and action plan on access to genetic resources and the fair and equitable sharing of benefits accruing from their utilization for Gabon - aims at strengthening the capacity of stakeholders by mapping out the principal actors to define their place and role in the ABS process. It also includes training principal actors in local communities and management personnel in Customs Administration, and the Ministry of Water and Forests, on ABS procedures. The project also builds on the interest of Gabon to implement its national strategy and action plan on access to genetic resources and the fair and equitable sharing of benefits accruing from their utilization.

A fourth project is a national initiative to develop the Microbial Biotechnology Industry from a soda lake in Kenya, in line with the Nagoya Protocol. It addresses three pillars of Kenya's vision for 2030 and supports the country's roadmap on industrial transformation using the soda lake's microbial biotechnology. It achieves this through the following three components: (a) enhance the legal and regulatory frameworks on ABS in Kenya; (b) operationalize technology transfer between resource provider and users; and (c) establish a model ABS agreement between provider and users in compliance with the Nagoya Protocol.

African countries are making substantial efforts to implement the Nagoya Protocol at the national level (Box 16.2). In their fifth national reports to the CBD Secretariat, a number of African countries have addressed ABS in great detail, with specific mentioning of Competent National Authorities (CNA); Prior Informed Consent (PIC); and Mutually Agreed Terms (MAT), all of which are the important components for the implementation of the Protocol (CBD 2016a).

Box 16.2: Examples of Country Efforts Towards Implementing the Nagoya Protocol.

Namibia reported that in 2013 it had finalized the revision of a draft ABS Bill. The bill has objectives related to the regulation of access to genetic resources and associated traditional knowledge based upon prior informed consent; protecting local communities' rights and traditional knowledge over genetic resources; and other objectives. It also reported that 40 per cent of progress had been made in building institutional arrangement for CNA and National Focal Points, including for genetic resources and traditional knowledge unit within the Ministry of Environment and Tourism (Government of Namibia 2014).

Uganda has reported that it has designated the Uganda National Council for Science (UNCS) as its CNA, which will facilitate the negotiation of all accessory and materials transfer agreements, including the terms and conditions upon which access is to be granted. Under these terms and conditions, applicants must obtain a written prior informed consent form to get access to genetic resources (NEMA 2014).

In conclusion, Target 16 has been achieved to some extent, as the Nagoya Protocol on ABS has been ratified, acceded or approved by 30 African Parties. It is notable that several other African countries that have not ratified, acceded or approved the Protocol are preparing national legislation to move towards the attainment of Target 16.

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 by 2015. " (CBD 2016c)

Preparing NBSAPs is required by Article 6 of the Convention on Biological Diversity to ensure that Parties integrate biodiversity values into national biodiversity strategies. Of 54 African Parties to the CBD, 44 Parties have submitted at least one NBSAP to the Secretariat of the CBD since 1993, while three Parties are developing their first NBSAP. Of the 44 Parties that have completed their NBSAPs, seven Parties have revised them at least once. Ten Parties have submitted a post-2010 NBSAP to the CBD (Table 17.1). 19 Parties have submitted a post-2010 NBSAP to the CBD (Table 17.1). However the fifth national reports to the CBD contain relatively limited information regarding the adoption of NBSAPs as policy instruments (CBD, 2015b).

Table 17.1: Status of African Countries' NBSAP Development (as of February 2016) (source: CBD 2016d).

Parties	*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*
Algeria	X	X	
Angola	X	X	
Benin	X	X	
Botswana	X	X	
Burkina Faso	X		X
Burundi	X		X
Cameroon	X		X
Cape Verde	X	X	
Central African Republic	X	X	
Chad	X	X	
Comoros	X	X	
Congo	X	X	
Côte d'Ivoire	X	X	
Democratic Republic of Congo	X	X	
Djibouti	X	X	
Egypt	X	X	
Equatorial Guinea	X	X	
Eritrea	X	X	
Ethiopia	X	X	
Gabon	X	X	
Gambia	X	X	

Parties	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
Ghana	X	X	
Guinea	X	X	
Guinea-Bissau	X	X	
Kenya	X	X	
Lesotho	X	X	
Liberia	X	X	
Libya		X*	
Madagascar	X	X	
Malawi	X	X	
Mali	X		X
Mauritania	X		X
Mauritius	X	X	
Morocco	X	X	
Mozambique	X	X	
Namibia	X		X
Niger	X		X
Nigeria	X	X	
Rwanda	X	X	
Sao Tome and Principe	X	X	
Senegal	X	X	
Seychelles	X		X
Sierra Leone	X	X	
Somalia		X*	
South Africa	X	X	
South Sudan		X*	
Sudan	X		X
Swaziland	X	X	
Tanzania	X	X	
Togo	X		X
Tunisia	X	X	
Uganda	X	X	
Zambia	X	X	
Zimbabwe	X	X	
Total	51	35	19

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

Box 17.1: African NBSAPs – Burkina Faso and Cameroon.

Burkina Faso's updated NBSAP outlines its Biodiversity Action Plan (2011-2015), which is currently under implementation and was developed with consideration of the conclusions of Global Biodiversity Outlook 3. This Action Plan links the *Strategic Plan for Biodiversity 2011-2020* and the country's National Strategy for Accelerated Growth and Sustainable Development, which was adopted in 2010. Emphasis has been placed on a decentralized approach to biodiversity management involving local communities, especially women (Government of Burkina Faso 2011).

In Cameroon, as part of the process of revising its NBSAP, the country undertook a range of studies and stocktaking exercises which, among other things, analysed gaps between the previous NBSAP and the current situation in the country, identified the causes and consequences of biodiversity loss in Cameroon and explored the specific contributions that NGOs have made to biodiversity.

Cameroon's updated NBSAP sets out four strategic goals, twenty national biodiversity targets and ten ecosystem-specific targets, in line with the *Strategic Plan for Biodiversity 2011-2020*. Each national target is clearly linked to each Aichi Biodiversity Target, indicating extensive synergies between them. This linkage will significantly advance Cameroon to the achievement of the *Strategic Plan for Biodiversity 2011-2020 (Ministry of the Environment, Protection of Nature and Sustainable Development, Republic of Cameroon 2012).*

Box 17.2: UNEP-DELC, CMS and CBD Secretariats Provide Training to National Governments.

A capacity-building workshop for thirteen Anglophone African countries was held on 26 – 28 November 2012 in Harare, Zimbabwe. The workshop brought together 46 national focal points of CBD, CMS and CITES to discuss how to integrate the objectives of biodiversity related conventions into the updating of the National Biodiversity Strategies and Action Plans (NBSAPs). The United Nations Environment Programme-Division of Environmental Law and Conventions (UNEP-DELC), in collaboration with the Secretariats of CBD and CMS, organized and conducted the workshop. Financial support was provided by various donors, such as the Ministry of Environment of Sweden, the Government of Japan through the Japan Fund for Biodiversity, and the Government of Germany. Further support in facilitating the arrangements in the host country was provided by the Ministry of Environment and Natural Resources of Zimbabwe. Further capacity building workshops have also been held in the region, for example in South Africa in 2014.

At the international level, considerable efforts have been carried out to assist African countries to revise and update their NBSAPs. Since 2011, six regional and sub-regional capacity-building workshops were held for African countries under the CBD, with a focus on the information needs and use of indicators in setting and monitoring national targets to support the process of updating NBSAPs.

Table 17.2: Status of NBSAPs as policy instruments in African countries' NBSAPs (source: Fifth National Reports submitted by African countries to the CBD).

N=30	Adopted as instrument relevant to wider sectors of government	*Adopted as instrument relevant to environment sector*	*Not enough information*
African Countries	Benin, Cameroon, Burundi, Comoros, Equatorial Guinea, Guinea-Bissau, Liberia, Morocco, Namibia, Rwanda, South Africa, Sudan, Tanzania, Uganda	Chad, DRC, Ethiopia, Gambia, Cote D'Ivoire, Madagascar, Mauritania, Niger, Nigeria, Republic of Congo, Senegal, Somalia, Togo	Malawi, Mali, São Tomé and Príncipe
Total	14	13	3

Box 17.3: Mainstreaming Gender into NBSAPs.

The Convention 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. Building on guidance provided in its earlier decisions (IX/24, X/9 and XI/19), the 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, suggested that parties could:

- Request that gender experts review the draft national biodiversity strategies and action plans in order to assess gender sensitivity and provide guidance on improvements.
- Ensure that stocktaking exercises associated with national biodiversity strategy and action plan 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 national biodiversity strategy and action plan 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 national biodiversity strategies and action plans 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 national biodiversity strategies and action plans.

In conclusion, significant progress has been made in the development of revised or updated NBSAPs. Many African countries now have these plans in place and more are in the process of being developed. However, there is limited information on to what extent these documents have been adopted as policy instruments and the critical test of the NBSAP process will be the degree of implementation between now and 2020, when the Aichi Biodiversity Targets are evaluated.

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 the sustainable use of biological diversity. This target 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 this target due to "limited support, recognition and capacities" (GBO-4 2014). The 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.

Traditional knowledge is very important in Africa where many people remain closely connected to the natural environment and there are numerous distinctive ethnic and language groups on the continent and its offshore islands. Indigenous people carry knowledge on natural resources, accumulated through generations of hunting, agricultural practices and land management. The maintenance of these cultural and spiritual relationships is vital to the conservation and sustainable use of biodiversity, and many indigenous people are experts and guardians of environmental knowledge, particularly in the context of protecting and conserving biodiversity in ecosystems (UN-HABITAT 2011).

Examples from the fifth national reports of the types of actions countries are taking to reach this target include using local communities and strategies to conserve forests (Benin and Chad), the use of traditional farming practices (Guinea-Bissau and Sierra Leone), and the documentation of traditional knowledge and medicine (Egypt, Madagascar and Uganda) (CBD, 2015b).

Linguistic diversity can be used as an indicator for measuring trends in traditional knowledge, as knowledge is mainly transmitted orally from generation to generation, and indigenous people identify themselves as 'indigenous' through the use of their language (Larsen et al. 2012). The data suggest that there has been a gradual decline in language diversity in Africa since 1970 (Figure 18.1).

According to the *UNESCO Atlas of the World's Languages in Danger*, 338 languages in 34 African countries are recorded as Vulnerable, Endangered or Extinct. Sudan has the largest number of threatened languages, with 36 languages threatened. However, there are gaps in this information and there are twenty African countries with no information regarding their language status. This lack of information hinders accurate assessment of the status of linguistic diversity in African countries.

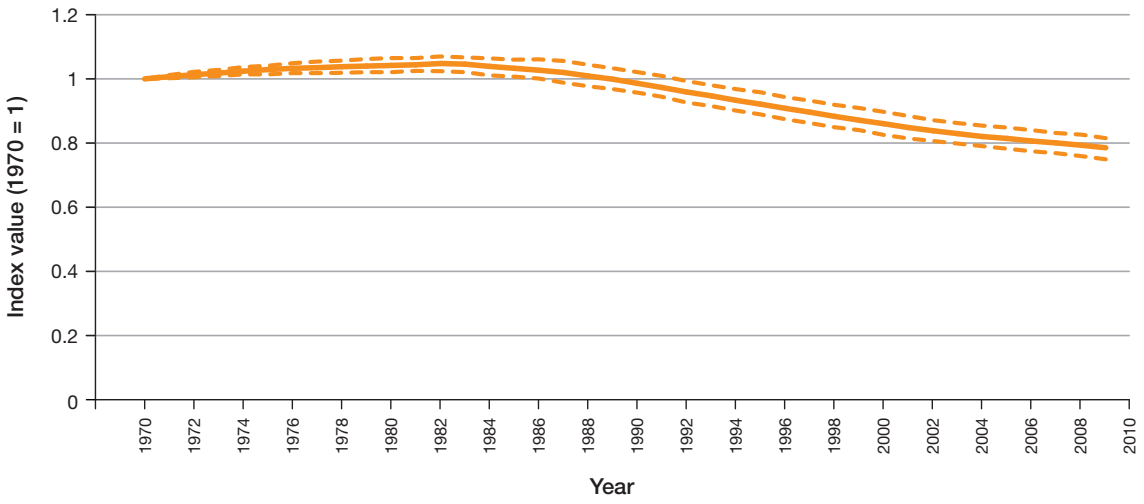

Figure 18.1: Afrotropical Index of Linguistic Diversity 1970-2010. Dashed lines indicate upper and lower confidence limits (source: Loh and Harmon 2014).

The practice of traditional occupation provides a further means to assess progress towards Target 18. Many indigenous people in Africa are occupied in traditional livelihood activities, such as pastoralism, fishing, herding, weaving and carving (SCBD 2014). However, these occupations are becoming increasingly difficult, due to pressure on their lands, non-recognition of their traditional way of life, climate change, and other discriminatory factors.

Community-based natural resource management is one of the major ways to achieve both the conservation of natural resources and the promotion of traditional knowledge, and is being increasingly utilized by African countries. Community based management is now a major part of the conservation effort in southern African countries, and in Eastern Africa in Kenya and Tanzania (Roe et al. 2012).

Box 18.1: Promoting Indigenous Knowledge in the Sahel.

Local farmers in the Tohoua region in Niger previously had difficulties in cultivation, due to frequent droughts in their farming areas. Farmers decided to revive *tassa*, the traditional hand-dug planting pit technique developed by the local and indigenous communities to address this. *Tassa*, also known as *Zaï pits*, are constructed by digging out soil and placing it on the downslope side. These pits are fifteen centimeter deep, 40 centimeter in diameter and spaced every 80 centimeter (International Fund for Agricultural Development 2008). Revival of *tassa* has significantly improved the crop yields and soil conditions, bringing 4,000 hectares back into production. As it is a drought-resilient technique, the adoption of *tassa* led to doubling of the yields even in drought periods. Recognizing these benefits of utilizing *tassa*, this traditional technology is being introduced and replicated in Burkina Faso and Cape Verde.

In conclusion, there is little evidence of progress towards this target in African countries, as shown by the decline in language, land and traditional occupation indicators. However, there are also positive developments, for example, that human and property rights for indigenous and local communities are protected by international law. The UN Permanent Forum on Indigenous Issues (UNPFII) recommends that states take effective measures to halt land alienation in indigenous territories (UN 2010), as one of the steps in progressing towards achieving Target 18 by 2020.

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 determine priorities for conservation and sustainable 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)

Knowledge, science and technology play a crucial role in assessing the status of biodiversity, identifying threats and setting priorities for biodiversity conservation and its sustainable use. While African countries are making substantial progress in improving knowledge, science and technology for the better management and conservation of biodiversity, a number of challenges exist. Key information is often missing or not up to date and data collection is often limited due to the lack of resources.

The availability of African species records in open access biodiversity data initiatives such as the Global Biodiversity Information Facility (GBIF) can be used as an indication of progress towards the wide sharing of biodiversity information as part of Target 19. Between 2008 and 2014 the number of occurrences of African species records has increased from around five million to almost twenty million (Figure 19.1). Decreases in Figure 19.1 are due to data management issues rather than a reduction in records.

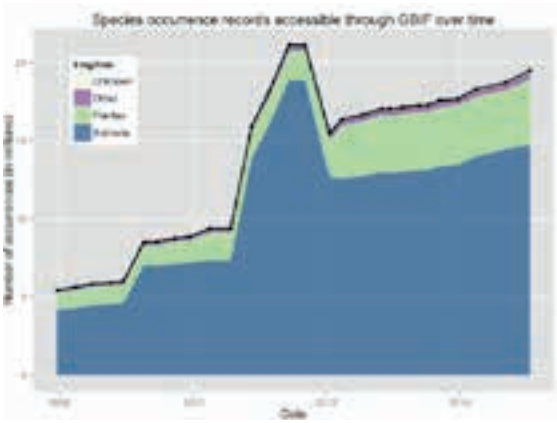

Figure 19.1: Growth in the number of species occurrence records accessible through Global Biodiversity Information Facility between 2008 and 2014 (source: GBIF 2015).

However, many African species records are 'repatriated', i.e. held in non-African institutions, and therefore Figure 19.1 does not accurately represent data mobilization capacity within the region. As an alternative, Figure 19.2 shows the contribution of African institutions to the mobilization of data and skills for the recording of African species, providing an indication of Africa's capacity for sharing information on its biodiversity. While the records over this time period are almost entirely from South African institutions, other countries such as Benin are showing increasing trends reflecting rapid increases in their capacity.

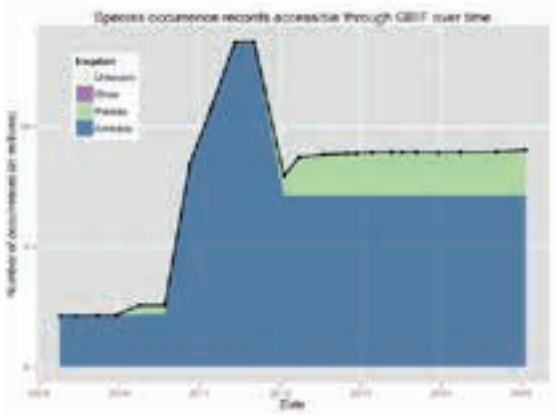

Figure 19.2: Growth in African species occurrence records from African institutions published through the Global Biodiversity Information Facility (GBIF) network between 2008 and 2014 (source: GBIF 2015).

A growing number of active African universities and institutions study, monitor and disseminate information on biodiversity. For example one of the main organizations generating biodiversity information is the South African National Biodiversity Institute (SANBI) in South Africa, which plays a bridging role between science and policy. It gives policy support and advice regarding biodiversity issues, and disseminates knowledge through teaching at education departments. Furthermore, SANBI is among the most active institutes in developing ecosystem accounting and national ecosystem indicators. In 2011 it published the National Biodiversity Assessment report, which focuses on wetlands, indigenous species and climate change (Driver 2013). SANBI is currently conducting nationwide biodiversity conservation assessments involving reptiles, butterflies and spiders, and is updating the Southern African Bird Atlas. All of its projects involve field trips for the collection of data and public participation. It has also contributed to the rehabilitation of 94 wetland sites.

In Central Africa, data availability about the state of the forests and forest biodiversity has been promoted under the Commission Ministérielle des Forêts d'Afrique Centrale (COMIFAC). The Observatoire des Forêts d'Afrique Centrale (OFAC) is a unique regional observatory to monitor forest resources spanning 10 countries, and 187 million hectares of rain forests. OFAC annually collects, verifies and harmonizes general data on forests through a network of partners and disseminates information through a web-based information system. This data is analysed by experts to produce the "State of the Congo Basin Forests" reports (SOF).

Box 19.1: Research Networks and Initiatives in Africa.

The growing number of active African universities and institutions that study, monitor and disseminate information on biodiversity indicates improvements to the availability of biodiversity information. For example between 2006 and 2012 the University of Ouagadougou in Burkina Faso, published 58 reports of which 67 per cent were on biodiversity, and between 2007 and 2012, 330 articles have been published by the Institute of Environment and Agricultural Research (INERA) of National Centre of Science and Technology Research. Mzuzu University, the University of Malawi and the Lilongwe University of Agriculture and Natural Resources (LUANAR) in Malawi offers programmes on environmental management, the latter of which has implemented a Fish Node Project. The project, in partnership with international universities, has educated five master's students and one PhD student in fish taxonomy. In the Gambia, projects including the Integrated Coastal Area Management (ICAM) I & II, the Gambia Biodiversity Management and Institutional Strengthening (GMBIS), the National Forest Assessment (NFA) and the Environment and Energy have provided resources to carry out studies on some terrestrial and marine mammals, aquatic invertebrates and forest cover. Monitoring activities of flagship species has also resulted in the development of an online database, which includes management plans for some of these species. Another example includes the establishment of a National Centre of Excellence in Biodiversity in Rwanda.

Dissemination of scientific knowledge for biodiversity conservation is also being carried out through a number of training programmes at various levels. On the oceans and marine biodiversity, the "Training Programme in Ocean Governance for Africa" by the International Ocean Institute – Southern Africa (IOI-SA) in Cape Town, South Africa, is providing a number of courses that promote the role of science and technology in supporting the development and implementation of ocean governance systems. This programme contributes to effective ocean governance with a variety of technical measures. For example, the programme's module three "Governance Tools" teaches technological tools, including modelling and geographic information systems (GIS), standard setting, and monitoring and assessment. These technical modules can assist relevant stakeholders manage marine biodiversity sustainably (IOI-SA 2014).

In conclusion progress towards this target is being made through international, regional and national initiatives. However a number of major data gaps exist and further effort is required to make information and knowledge on Africa and its species, habitats and ecosystem services more widely available. International efforts are helping to facilitate capacity development for endogenous biodiversity researchers, which will improve knowledge in the longer run. This knowledge will assist conservation management and thus assist the achievement of all relevant Aichi Biodiversity Targets.

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.

"Limited capacity, both financial and human, is a major obstacle to the implementation of the Convention. The capacity that currently exists in 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 this target will have implications on the feasibility of achieving the other nineteen targets contained in the Strategic Plan." (CBD 2016c)

The African Group at the 11th Conference of the Parties (COP) to the CBD in 2012 reported that although every effort had been made by African countries to reach the Aichi Biodiversity Targets, progress was limited due to the lack of funding. Financial constraint is one of the biggest challenges that African countries face in implementing the Aichi Biodiversity Targets.

With the improvement of many African economies, national and regional funding could increase in the future. For example, Algeria, Burundi, Burkina Faso, Chad, Gambia, Morocco and Rwanda, plan to increase national funding, suggesting progress toward this target. African governments are pursuing other innovative ways of mobilizing resources for biodiversity conservation. For example, African ministers in 22 countries sharing the West, Central and Southern African coast of the Atlantic Ocean gathered at the COP-10 to the Abidjan Convention and called for "environment tax" on extractive and polluting industries as a new source of adequate and predictable revenue. Such a tax could take the form of entry and usage fees and voluntary contributions for protected areas, among other things. If implemented, this tax could reduce the environmental impacts of mining, oil exploration and extraction, transportation, unsustainable fishing practices and other development projects. Ministers therefore requested UNEP to undertake a feasibility study on the possibility of implementing an environment tax (UNEP 2012a).

In addition, the UN Development Programme's Biodiversity Finance Initiative (BIOFIN) is currently working in six pilot countries in Africa, (Botswana, Uganda, Zambia, Rwanda, South Africa, and the Seychelles) supporting governments in reviewing policies and institutions relevant for biodiversity finance, determining baseline investment and assessing the costs of implementing NBSAPs, quantifying the biodiversity finance gap.

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Flows of biodiversity related aid to Africa have increased since 2006, with a slight dip after 2010 (Figure 20.1).

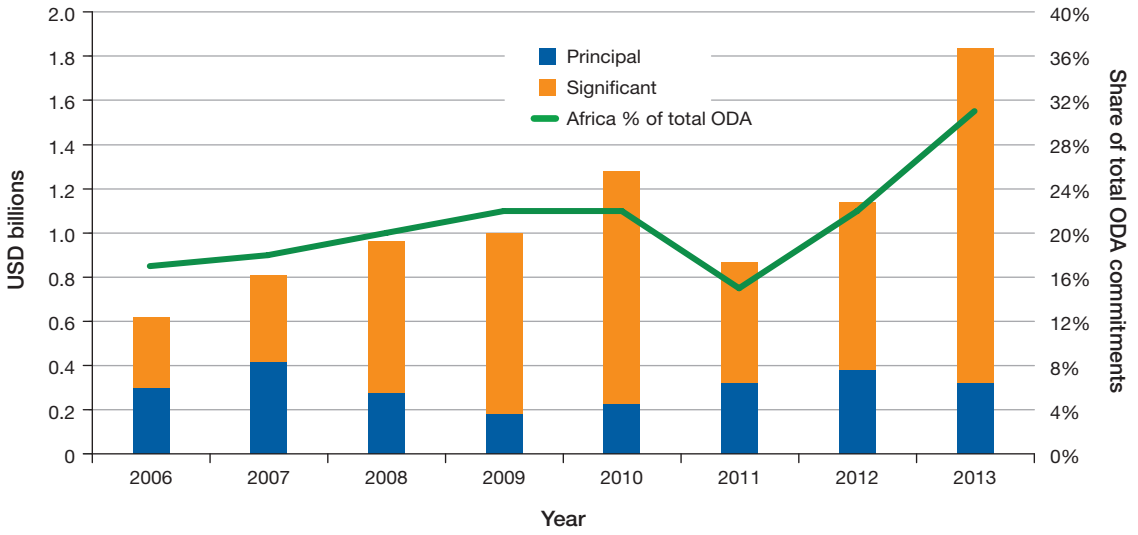

Figure 20.1: Biodiversity-related aid to Africa 2006-2013. Graph shows data collected under the 'Rio marker' for 'biodiversity' only. For an activity to be labelled with this 'Rio marker' it must promote one of the three objectives of the CBD: the conservation of biodiversity, sustainable use of its 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, 2 = Principal objective (source: OECD 2015).

Moreover, information from AidData shows 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 20.2). Since the 1990s the number of these environmentally related projects has risen. Unfortunately, there has been a less consistent rise in the funds committed, with large variation between 1990 and 2010. 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.

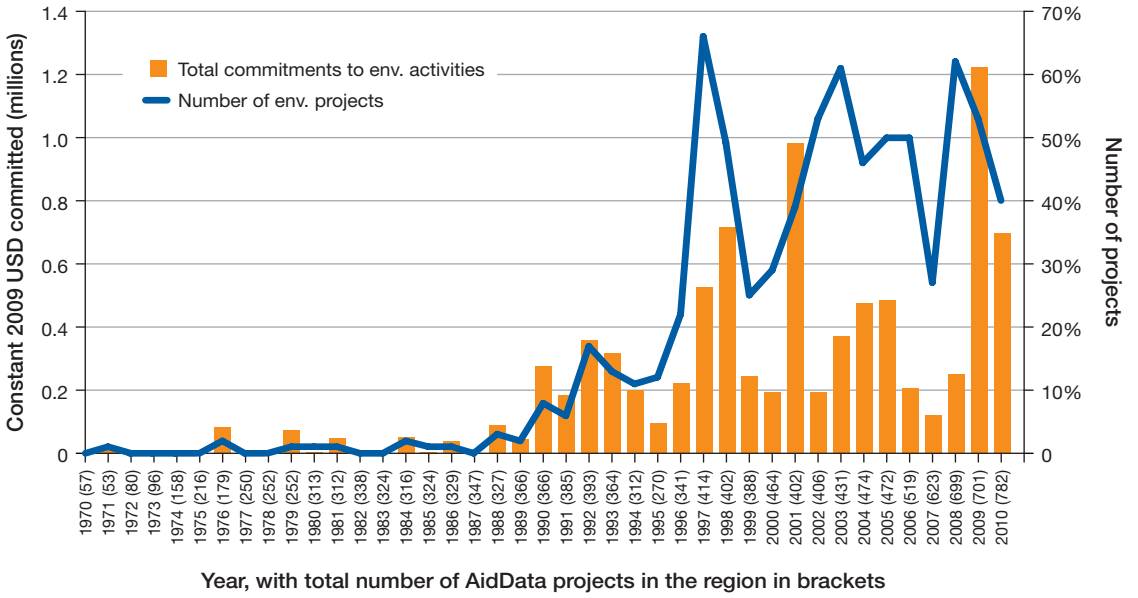

Figure 20.2: Investment in Africa in six activities related to the Aichi Biodiversity Targets by donors on AidData between 1970 and 2010 (source: Tierney et al. 2011).

Serving as the major source of funding for developing countries to meet their obligations under the CBD, the major international financial mechanism assisting Africa for biodiversity conservation is the Global Environment Facility (GEF). Between 1991 and 2016, the GEF has distributed US $694.5 million on 311 biodiversity related projects to Africa (GEF 2016). Grant volume for biodiversity projects is greatest in countries such as South Africa (US $86 million) and Tanzania (US $36 million), with less investment destined to other more conflict-prone countries such as South Sudan (US $220,000) Niger or Chad (US $2 million) (GEF 2016).

According to its Fifth Overall Performance Study (OPS5), the GEF has distributed US $3,183 million to Africa at the sixth GEF replenishment, which is 24 per cent of the global distribution, indicating that the region has received the second largest funding after Asia (Table 20.1). It is clear that the total grant volume of each replenishment is progressively increasing. However, the GEF reported that spending in Africa continues to show a decline when only the GEF Trust Fund is considered (GEF IEO 2014a).

Table 20.1: GEF Funding (source: GEF IEO 2014a).

	Pilot		GEF-1		GEF-2		GEF-3		GEF-4		GEF-5		GEF-6	
Region	M$	%	M$	%	M$	%	M$	%	M$	%	M$	%	M$	%
Africa	118	18	192	19	350	19	813	27	767	25	943	27	3,183	24
Asia	228	35	273	26	425	23	639	22	890	30	1,043	30	3,498	27
ECA	58	9	237	23	239	13	367	12	322	11	356	10	1,579	12
LAC	153	23	141	14	477	26	560	19	607	20	655	19	2,593	20
Interregional/ Global	106	16	193	19	327	18	597	20	436	14	510	15	2,169	17
Total	662	100	1,037	100	1,818	100	2,977	100	3,021	100	3,506	100	13,022	100

NOTE: ECA = Europe and Central Asia; LAC = Latin America and the Caribbean. Data are as of September 30, 2013, and include all trust funds.

For African countries to secure funding and mobilize resources, it is crucial to seize the opportunity provided by bilateral and multilateral assistance, as well as to continue seeking new and additional funding at the national level. In particular, 22 African countries that ratified the Nagoya Protocol can receive financial support from the GEF for the implementation of the Protocol, specifically by giving priority to access and benefit-sharing activities in their national development plans. Moreover, funding is available from the GEF to support eligible countries in the development and updating of their NBSAPs and the preparation of the fifth national reports.

GEF funds have been and are being utilized for 985 projects in Africa, of which 369 projects are based on biodiversity focal areas (GEF 2013). The biodiversity projects are most commonly focused on mainstreaming biodiversity into laws, policies and regulations. For example, after the evaluation of national and regional projects in Tanzania, Eritrea and Sierra Leone, GEF Annual Country Portfolio Evaluation Report has concluded that GEF support has played a significant role in creating the enabling framework necessary to underpin the development of environmental policy and laws in the three countries (GEF IEO 2014b).

International financial mechanisms such as REDD+ and Clean Development Mechanism (CDM) offer the potential for significant funding for reducing greenhouse gas emissions, as a means to mitigate climate change and contribute to biodiversity conservation. Furthermore, private sector engagement is crucial in enhancing resource mobilization. There are a number of cases of voluntary compensation by oil and mining companies for impacts on biodiversity in Ghana, Guinea, Madagascar and South Africa (Madsen et al. 2010).

In conclusion, resources for biodiversity conservation are often limited in African countries. International support remains an important source of funding and this is likely to continue. Recent trends in official development assistance suggest that this situation in this regard is improving. However in order for this target to be met it is clear that resources provided by all sources will need to increase.

6. OPPORTUNITIES AND RECOMMENDATIONS FOR THE FUTURE

Since 2010, African countries have made considerable efforts to deliver on the *Strategic Plan for Biodiversity 2011-2020*, both at national and regional levels and there are many individual examples of success highlighted in this report. However, greater efforts will be needed in order to implement the Strategic Plan and the Aichi Biodiversity Targets by 2020. 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.

This section draws together under common themes some of the main opportunities and suggestions of further actions. Some of these can be implemented over a five-year time frame and others will require more time to achieve lasting results.

Use international mechanisms that support the sustainable use of ecosystems

There are real opportunities provided by international mechanisms 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.

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

Further actions are required not only to expand protected areas but also in particular to improve management effectiveness and biodiversity representation. Effective protected area management requires good governance as a prerequisite especially where protected areas support rural livelihoods.

Strengthen trans-boundary actions

The rapid increase in trans-boundary natural resource management demonstrates that this approach, despite some challenges, has high potential for replication and for managing Africa's diverse shared ecosystems. This is particularly important for the large numbers of migratory species that regularly cross international borders. Given that 70 per cent of river basins are shared by two or more countries, collaborative governance is crucial for African countries to achieve effective conservation and sustainable use of biodiversity (UNEP 2012b).

Strengthen engagement of local communities in governance systems

Illegal hunting and wildlife trade is a contributory factor in the decline of some iconic wildlife populations in Africa. One of the major underlying causes of this illegal activity is poverty and the exclusion of local communities from the management of natural resources. Addressing these issues requires strong linkage between wildlife management and community development through awareness-raising activities (Target 1), the integration of biodiversity values into government policies (Target 2), appropriate incentives (Target 3) and other actions that would encourage stakeholders to preserve and sustainably use biodiversity and ecosystem services.

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Ensure enforcement of law

For Target 8, pollution control relies on effective enforcement of regulations but also implementation of detailed and high quality EIAs of developments, which may pollute key ecosystems. Also in relation to Target 9, national legislation to control IAS backed up by comprehensive strategies, management plans and monitoring is vital to tackle a growing pressure on biodiversity. Target 10 requires a zero tolerance level approach to illegal use of explosives for dynamite fishing

Opportunities to implement the rule of law in addressing illegal use and trade in wildlife (Target 12) stem from the outcome declarations and action plans established at the high-level conferences held in Gaborone and Kasane (Botswana), London, Marrakech, Nairobi and Paris in 2013, 2014 and 2015. In particular, the "14 Urgent Measures" formulated in Gaborone, Botswana in 2013, are considered to be critical in underpinning efforts to halt and reverse the trend in illegal wildlife trade. Furthermore, the outcome statement of the Kasane Conference in March 2015 called upon the UN General Assembly to address effectively the issue of the illegal wildlife trade at its sixty-ninth session. (Representatives of Governments and Regional Economic Integration Organisations, 2015).

Increase awareness of the contribution of biodiversity to people's lives

As discussed in Target 1, behavioural change that reflects the importance of biodiversity and ecosystems, including social, environmental and economic values, is required. Awareness can be raised by a number of actions, through education and workshops; mainstreaming of biodiversity into government policies; incentives; campaigns by civil society and non-governmental organizations; partnership with private sector; and many other measures as well as by developing national ecosystem accounting as part of mainstreaming biodiversity and ecosystem services across government.

Create positive incentives for sustainable land management

While some African governments are increasing subsidies for specific issues, like fertilizers, fewer have applied incentives to encourage more sustainable practices. Incentivising sustainable practices can create a viable option for conservation and sustainable use. Global support to tackle the continued existence of harmful global subsidies which drive overexploitation of African resources, including fisheries (Target 3), is also essential.

Mobilize resources from private and global funds

Resources for biodiversity conservation are often very limited in Africa. International support remains an important source of funding and this is likely to continue. Yet as African economies improve, the ability of nations to fund conservation measures in their own countries will also likely improve. Continuing efforts to draw in funds from REDD+ and to establish practicable systems of payments for ecosystem services create opportunities to further mobilize resources from the private sector. Much can also be done to improve understanding of financial resources available for effective management of natural resources, for example, through UNDP's BIOFIN project.

LONGER TERM ACTIONS

Address the information deficit

A recurring constraint is the lack of information and data to accurately assess the status and trends, threats, and conservation needs for biodiversity in Africa. There is a great need in this region to strengthen the access to information. National ecosystem assessments in particular have immense value in synthesizing existing data and presenting it to governments in useful ways that address key questions about the state of biodiversity and ecosystems and policy options. Where data collection is constrained due to lack of resources, continued efforts to build institutional capacity is 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 decision-making processes.

Mainstream biodiversity across government sectors

Mainstreaming considerations of biodiversity into the daily decision-making in African countries is an important conservation need. This entails placing biodiversity goals within sectoral decision-making, including other government agencies and not just those directly related to biodiversity issues, (for example, ministries of finance, infrastructure development, planning, agriculture, tourism) and ensuring coherence amongst legislation, policy, incentives and guidance across government departments.

Build institutional capacity to implement the biodiversity-related Conventions

There are seven international conventions focusing on biodiversity issues, namely the Convention on Biological Diversity (CBD); Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Convention on the Conservation of Migratory Species of Wild Animals (CMS); The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA); Convention on Wetlands (Ramsar Convention); World Heritage Convention (WHC) and the International Plant Protection Convention (IPPC). Regional conventions include the Nairobi Convention and the African Convention. These conventions provide assistance and capacity-building workshops for African countries for a variety of purposes, In addition to the Conventions, there are many organizations in the UN system supporting countries (GEF, UNEP, UNDP, FAO, to name a few), together with a multitude of NGOs supporting countries with their conservation efforts.

7. CONCLUSION

The *Strategic Plan for Biodiversity 2011-2020*, including its Aichi Biodiversity Targets, has stimulated new approaches and actions by African countries, including valuing, conserving, restoring and wisely using biodiversity and ecosystems. There is a new focus on mainstreaming biodiversity across government and society, seeking to enhance the benefits to all from biodiversity and ecosystem services. These approaches also facilitate the achievement of a significant number of targets of the Sustainable Development Goals. Further efforts are needed to ensure that these approaches are consolidated and promoted. For African countries, it should be emphasized that efforts to attain the Strategic Plan and its Aichi Biodiversity Targets will not only lead to biodiversity conservation, but will also contribute to poverty alleviation and socio-economic development, through sustainable use of their natural resources and biodiversity.

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