IRAQ'S NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (2015-2020)

IRAQ'S NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (2015-2020)

This document has been prepared with the support of Global Environment Facility and United Nations Environment Programme. NBSAP is a principle instrument for implementing the Convention on Biological Diversity at the national level.

VISION

BY 2050 IRAQ HAS SPREAD THE KNOWLEDGE AND THE AWARENESS ABOUT BIODIVERSITY IMPORTANCE AND USES ITS NATURAL RESOURCES SUSTAINABLY, FOR A BETTER LIFE FOR PRESENT AND FUTURE GENERATIONS

ACRONYMS AND ABBREVIATIONS

ABS	Access and Benefit Sharing
AZE ABCbirds	Alliance for Zero Extinction - American Bird Conservancy
BCH	Biosafety Clearing House
BD	Biological Diversity
BEG	Biodiversity Expert Group
CBD	Convention on Biological Diversity
CEPA	Communication, Education and Public Awareness
CHM	Clearing House Mechanism
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COP	Conference of the Parties to the Convention on Biological Diversity
GEF	Global Environment Facility
GIS	Geographic Information System
INES	Integrated National Energy Strategy
ISSG	Invasive Species Specialist Group
IUCN	International Union for the Conservation of Nature
KBA	Key Biodiversity Area
MEAs	Multilateral Environmental Agreements
MoEI	Ministry of Environment of Iraq
NBSAP	National Biodiversity Strategy and Action Plan
NC-NPC	National Committee of National Protected Areas
NDP	National Development Plan
NESAP	National Environment Strategy and Action Plan
NGO	Non-Governmental Organization
PA	Protected Areas
PMU	Project Management Unit
SCBD	Secretariat of the Convention on Biological Diversity
SWLRI	Strategy for Water and Land Resources of Iraq
UN	United Nationa
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme
UNEP-ROWA	United Nations Environment Programme – Regional Office of West Asia
UNEP-WCMC	United Nations Environment Programme - World Conservation Monitoring Centre
UNFCCC	United Nations Framework Convention on Climate Change

MESSAGE FROM THE MINISTER OF ENVIRONMENT

حرصا من الدولة بأهمية القضايا البيئية في العراق و بأن الحفاظ على بيئتنا أصبح أمراً ضروريا لحماية صحة المجتمع و زيادة الإنتاج بالأستغلال الأمثل للموارد الطبيعية, اعتبرت قضية التنوع البيولوجي احد اوائل تلك القضايا و أحد اهم الموارد الطبيعية الأساسية لتوفير القاعدة المادية لحياة الفرد العراقي, اذ ان حمايتها وصيانتها و الحفاظ على ديمومتها تشكل الحجر الأساس في التوازن البيئي وانعكاساته على الأمن الغذائي والتنمية الاقتصادية حيث بات موضوع حماية التنوع البيولوجي في العراق من التحديات البيئية التي تواجه الانسان العراقي في الوقت الراهن، علما ان هذا الموضوع تحول من قضية علمية الى قضية عامة و سياسية في الكثير من الدول المتقدمة, وقد زاد الاهتمام العالمي بقضية التنوع البيولوجي بعد ادراك حجم الأنواع والاصناف والسلالات النباتية والحيوانية المنقرضة او المهددة بالانقراض نتيجة الاستخدام الجائر للموارد الطبيعية واستخدام المواد الكيمياوية من مبيدات وغيرها في مكافحة الافات الزراعية وتلوث المياه في الأنهار والبحيرات والبحار بالمواد السامة الكيميائية وغير الكيميائية منها. أننا بحاجة ماسة للتنوع البيولوجي اكثر من أي وقت مضى ونحن نعيش على كوكب يقطنه 6 بلايين شخص يصلوا الى ما يزيد عن 9 بلايين شخص بحلول عام 2050 وهو ما يمثل تحدياً ضخما للحفاظ على الموارد الطبيعية والتي يتم استنزافها من اجل التنمية وإطعام مزيد من البشر واقامة مدن جديدة في مناطق الغابات والأراضي الزراعية، الأمر الذي له بالغ الأثر على فقدان الموائل الطبيعية وضياع الانواع المهددة بالانقراض.

وادراكا منا بأهمية حماية التنوع البيولوجي في العراق يسرنا أطلاق أول أستراتيجية للتنوع البيولوجي في العراق وخطة العمل التنفيذية، ان هذه الوثيقة تعد حصاد لعمل شاق لوزارتنا ومواصلة السير نحو وضع وتنفيذ البرامج والخطط والاستراتيجيات الرامية الى المحافظة على التنوع البيولوجي في العراق بأعتباره جزءاً اساسياً من مواردنا ورأسمالنا الطبيعي والمحافظة عليه بشكل مستدام من اجل جيل الحاضر واجيال المستقبل، و حققت وزارتنا خطوات مهمة للمحافظة على التنوع البيولوجي وتنميته وذلك عبر وضع مجموعة من التشريعات والنظم وعن طريق وضع وتنفيذ مجموعة من البرامج المهمة لحماية الانواع المهددة بالانقراض. إن وضع استراتيجية رفيعة المستوى للتنوع البيولوجي قابلة للقياس على ارض الواقع أحد أهم أولويات وزارة البيئة و من خلال العمل مع الشركاء و استحداث تقييم تشاركي للاستراتيجية الحالية للتنوع البيولوجي والبدء في عمليات التخطيط للتنوع البيولوجي على ان تكون الأهداف الوطنية للتنوع متوافقة مع ألاهداف العالمية للتنوع البيولوجي والمسماة أهداف آيشي، وان تكون متلائمة بشكل كامل مع الخطة الاستراتيجية العالمية للتنوع البيولوجي لغرض الحفاظ على التنوع البيولوجي ومنع فقدان الموائل الطبيعية والعمل على اقامة المزيد من المحميات الطبيعية والحفاظ على الانواع النادرة والمهددة بالانقراض واعداد الاجراءات الملائمة لمعالجة بعض الأسباب المباشرة للضرر الواقع على النظم البيئية مثل التلوث وغزو الانواع الغريبة وفي نفس الوقت العمل على الاستخدام المستدام للموارد الطبيعية والتقاسم العادل والمنصف للمنافع الناتجة من استغلال الموارد الوراثية عن طريق الوصول الملائم الى الموارد الوراثية والنقل الملائم للتكنولوجيا والتوصل لأفضل السبل للاستفادة من معارف المجتمعات الأصلية والمعارف التقليدية ذات الصلة من أجل دعم تنفيذ أهداف (إيشي) 2011-2020 بالإضافة الى التعاون العلمي والتقني بين الدول الأطراف والشبكات العلمية والمراكز البحثية والمنظمات المعنية بالبيئة وعلى الأخص بالتنوع البيولوجي, ان الحكومة العراقية تولي قضية المحافظة على التنوع البيولوجي أهمية قصوى من خلال العديد من الخطط والبرامج الطموحة، فبالإضافة إلى إعلان العديد من المحميات الطبيعية، فقد أعتمد نهج حماية البيئة والمحافظة على التنوع البيولوجي كأسلوب معتمد في التخطيط من خلال المخطط الهيكلي الاستراتيجي للبلد. كل ذلك سيمكننا من توحيد أهدافنا ورؤيتنا والمتمثلة بحماية وصون تنوعنا البيولوجي الذي يعد أحد الركائز التي يقوم عليها مجتمعنا واقتصادنا وتراثنا العريق اذ أن تنفيذ الخطة الاستراتيجية للتنوع البيولوجي مسؤولية جماعية تعني ضمناً احترام جميع نظم المعارف والاعتراف بها وتكاملها على قدم المساواة. وينبغي تنفيذ الاستراتيجية بأستخدام فرق عمل متنوعة ومتعددة التخصصات والخبرات والمشاركة الكاملة للمجتمعات المحلية في التنمية المستدامة.

وختاماً يسعدني توجيه الشكر والتقدير لكل من ساهم في إعداد وإصدار هذه الوثيقة من خبراء ومؤسسات وطنية وعالمية وشركاء حكوميين' راجين من الله العزيز القدير في ان نكون قد خدمنا العراق وخدمنا العمل البيئي والتوفيق للجميع في حماية بيئتنا الغالية.

د. قتيبة ابراهيم الجبوري
وزير البيئة
جمهورية العراق

FOREWORD

نحتفل اليوم بإطلاق الاستراتيجية الوطنية للتنوع البيولوجي في العراق وإننا باحتفالنا اليوم فإننا نكلل جهود سنوات من العمل المضني الدؤوب ليكون المنتج بهذا الشكل والصورة البهية ..اننا ومن خلال تعاوننا مع شركائنا في العمل سواء على المستوى المحلي او الشركاء الدوليين في منظمة الامم المتحدة ومرفق البيئة العالمي وسكرتارية اتفاقية التنوع البيولوجي ومجاميع الخبراء الدوليين والمحليين انجزنا هذا المشروع الرائد والذي يؤدي الى تمكين العراق من اعداد الاستراتيجية للتنوع البيولوجي واعداد التقرير الوطني الخامس عن حالة التنوع البيولوجي في العراق (التقرير الثاني بالنسبة للعراق) كجزء من متطلبات والتزامات العراق تجاه الاتفاقية الدولية للتنوع البيولوجي والتي تعرف .

وبعد انضمام العراق الى اتفاقية التنوع البيولوجي عام ٢٠٠٩ ونظرا لأهمية توفر استراتيجية للعمل لحماية التنوع البيولوجي في العراق والحفاظ على الثروات الطبيعية في ارضنا الحبيبة وما عقبه من انضمام العراق الى مرفق البيئة العالمي (وهي جهة دولية مانحة) وحصولنا على العضوية في شباط ٢٠١٢، وبموجبه فقد بدأ العمل بمشروع لإعداد اول استراتيجية وطنية للتنوع البيولوجي في العراق واعداد التقرير الوطني الخامس لاتفاقية التنوع البيولوجي؛ باعتبارهما ضمن التزامات العراق تجاه الاتفاقية اعلاه.

لقد كان نهجنا ومنذ الوهلة الاولى عند إطلاق الاستراتيجية الوطنية للتنوع البيولوجي نهجاً تشاركيا شفافاً من اجل مشاركة أكبر عدد ممكن من الجهات ذات العلاقة والاهتمام وملامسة بموضوع التنوع البيولوجي يأتي هذا الحرص تطبيقا للنهج التشاركي الذي تنتهجه وزارتنا بكل مفاصلها مما يتيح مساحة حركة وشفافية أكبر للفريق المكلف بإعداد الاستراتيجية.

تكون مشروع اعداد الاستراتيجية الوطنية من خمسة مكونات رئيسية ..فكان المكون الاول يتمثل بالجرد والتقييم حيث تم الاعداد لهذه المرحلة والتي تتضمن تحديد اصحاب العلاقة ومستوى ارتباطهم وعلاقتهم بالتنوع البيولوجي ومن ثم تم وضع استراتيجية خاصة لإشراكهم في تقييم حالة التنوع البيولوجي ، اضافة الى ذلك تم جرد السياسات والتشريعات الوطنية ،و تم المضي بإقامة ورشة العمل الوطنية الاولى الموسومة "الجرد والتقييم لمشروع الاستراتيجية الوطنية للتنوع البيولوجي الخطة التنفيذية والتقرير الوطني الخامس" في بغداد للفترة ١٩-٢٠١٢/١٢/٢٠، التي تهدف تنفيذ المكون الأول من المشروع كما وجهت الدعوات الى الجهات المسؤولة عن تنفيذ اتفاقية التنوع البيولوجي من المؤسسات الحكومية ومنظمات المجتمع المدني خاصة تلك الممثلة في كل من اللجنة الوطنية للتنوع البيولوجي واللجنة الوطنية للمواقع المحمية ، نتج عن هذه المرحلة تقرير فني "الجرد والتقييم"، والذي لاحقا نال استحسان برنامج الأمم المتحدة للبيئة وطالبت به بعض الدول للاستفادة منه في تنفيذ مرحلة الجرد والتقييم والذي يعتبر البناة الرئيسية للمراحل اللاحقة من المشروع .

بعد ذلك شرعنا بالأعداد وتنفيذ المكون الثاني للمشروع والذي يعنى بتحديد الأولويات الرئيسية والمبادئ والاهداف للاستراتيجية الوطنية، إذ تم تنظيم اربعة فعاليات على المستوى الوطني لجمع كل المعلومات ذات الصلة والاستشارة من اصحاب العلاقة لتحديد الأولويات ووضع الاهداف والمؤشرات.

ان الاستشارة الوطنية والمحلية التي اجريت لتعكس راي كافة المحافظات في العراق وتضمين أكثر عدد ممكن من أصحاب العلاقة والاستفادة من خبرتهم. حيث تضمنت إقامة ورشة وطنية بالإضافة الى ثلاث ورش إقليمية التي قُسمت على الأساس الجغرافي للعراق (شمال وجنوب ووسط وغرب) مغطين بذلك كل مناطق العراق ودعي الى الورش أكثر من سبعين جهة حكومية كالأمانة العامة لمجلس الوزراء ومجلس النواب وحكومة اقليم كردستان واقسام معنية في الوزارات ومجالس المحافظات ومديريات البيئة والزراعة والسياحة لمناطق الوسط والفرات الاوسط بالإضافة الى مشاركين عن وزارة البيئة ومنظمات مجتمع مدني ،و خلال الورش أعلاه تم تقسيم الحضور الى خمس مجاميع عمل للتشاور و ملئ استمارات الاستبيان المعدة لتخدم أغراض الورشة وخلالها تم تحديد مجموعة من الأهداف الوطنية والمحلية، واستخلصت نتائج المناقشات والتحليل في تقرير شامل سمي بتقرير الاستشارة .

بعدها بدأنا تنفيذ المكون الثالث من المشروع (اعداد الاستراتيجية وخطة العمل (الأهداف والمؤشرات)) حيث تعاقد برنامج الأمم المتحدة للبيئة – المكتب الإقليمي لغرب آسيا مع المركز العالمي لرصد صون الطبيعة في حزيران ٢٠١٣، لدعم فريق المشروع في عملية صياغة الأهداف والمؤشرات للاستراتيجية الوطنية وفق السياق العالمي والاولويات الوطنية

ووفق خطة العمل للمشروع أُقيمت الورشة الدولية الخاصة بالمشروع الموسومة "وضع الأهداف الاستراتيجية والمؤشرات" في عمان عام ٢٠١٣ بالتنسيق مع مكتب غرب آسيا لبرنامج الأمم المتحدة للبيئة وبالتعاون مع المركز العالمي لرصد صون الطبيعة تكللت الورشة بوضع الاهداف الوطنية للعراق وصياغة اولية للمؤشرات ورسم خارطة الطريق للاستراتيجية الوطنية للتنوع البيولوجي، بالإضافة الى اعداد التقرير الخاص بالورشة من قبل المركز العالمي لمراقبة الصون وبرنامج الامم المتحدة للبيئة - مكتب غرب اسيا .

وعلى هذه الوتيرة المتصاعدة من العمل ، ارسلت سكرتارية التنوع البيولوجي رسالة تهنئة خاصة الى وزارة البيئة العراقية والتي ذكروا فيها بان العراق يبذل جهود طيبة ونجاح جيد للإيفاء بالتزاماته تجاه الاتفاقية، بالرغم من الظروف الصعبة التي يواجهها البلد. بالإضافة الى ذلك فقد ذكروا في رسالتهم بأن الجهود المتعددة المبذولة في صون التنوع البيولوجي والاستخدام المستدام والتنفيذ للمعاهدات البيئية هو مثال حقيقي على التقدم المحرز نحو تحقيق الاهداف العامة للخطة الاستراتيجية العالمية للتنوع البيولوجي ٢٠١١-٢٠٢٠ واهداف ايشي في العراق.

ولأجل تنفيذ المكون الرابع من المشروع (اعداد مسودة الاستراتيجية والخطة التنفيذية) وفق خطة العمل والمتضمنة استكمال اعداد الاستراتيجية الوطنية من خلال اعداد الخطة التنفيذية أقيمت ورشة العمل الوطنية الثالثة الموسومة "الخطة التنفيذية لاستراتيجية التنوع البيولوجي الوطنية: تحديد خطة العمل ومراعاة دمج التنوع البيولوجي في الخطط الوطنية"، في بغداد للفترة ٩-١١/٣/٢٠١٤، بهدف اتاحة الفرصة لأصحاب العلاقة لتحديد الخطة التنفيذية للاستراتيجية.

تم اعداد مسودة الاستراتيجية الوطنية للتنوع البيولوجي وخطة العمل التنفيذية المرفقة بها في شهر آب /٢٠١٤ بناء على الاهداف التي تم اختيارها من قبل اصحاب المصلحة ووضعها بشكل نهائي بالإضافة الى ما تم صياغته من مؤشرات كما ترجمت الى اللغة العربية من قبل الفريق الفني والخبراء الوطنيين للمشروع وتم واعمامها مع استمارة معدة خصيصا لتسهيل عملية تقييم الاستمارة من قبل الجهات المقيمة حيث تم الاعمام الى الامانة العامة لمجلس الوزراء/ مكتب الأمين العام بالإضافة الى مجلس النواب و مكتب دولة رئيس الوزراء و هيئة النزاهة و الوزارات كافة/ مكتب الوزير، بالإضافة الى ٤٦ قسم معني في كافة وزارات ومؤسسات الدولة كما تم ارسال مسودة الاستراتيجية الى حوالي خمسين جهة وشخص من اللذين شاركوا في الورش السابقة وساهموا من خلال مشاركتهم الفاعلة في اعداد الاستراتيجية وبناءا على ما سبق فقد تم اعمام الاستراتيجية الوطنية للتنوع البيولوجي على ما يقارب ٣٠٠ جهة وطنية .

في البدء نود ان نبين بان اعداد التقارير الوطنية الى سكرتارية اتفاقية التنوع البيولوجي يهدف الى بيان وتحليل حالة التنوع البيولوجي في الدول بشكل دوري كل اربعة سنوات، ويكون أعداد هذه التقارير وفق متطلبات الاتفاقية والإطار التوجيهي المتبع فيها فقد قدم العراق عام 2010 بعد انضمامه مباشرة للاتفاقية التقرير الوطني الرابع، الذي تضمن على كمية كبيرة من المعلومات الخاصة بالتنوع البيولوجي.

ومن خلال مشروعنا في اعداد الاستراتيجية الوطنية للتنوع البيولوجي، تم اعداد التقرير الوطني الخامس الذي يعد تحديث لما ورد في التقرير الوطني الرابع. بدأت الخطوة الأولى من خلال مرحلة التقييم وجرد من المشروع، حيث تمت دعوة الجهات المعنية لتبادل ما لديهم من المعلومات والبحوث والخبرات حول التنوع البيولوجي العراقي وتم عمل استبيان أيضا كانت تستخدم لتقييم تقريبي حول التنوع البيولوجي وتحديد الاحتياجات الوطنية. ومع ذلك، كانت المعلومات التي تم جمعها خلال ورشة العمل غير كافية لتحقيق هدف الاستفادة من المعلومات المحدثة حول التنوع البيولوجي للتقرير الوطني الخامس والخطوات اللاحقة للمشروع.

لهذا السبب قررنا بصفتنا مديراً للمشروع استخدام وسيلة أخرى لجمع البيانات اللازمة، من خلال إرسال خطابات رسمية ورسائل البريد الإلكتروني لمعظم المؤسسات الحكومية وغير الحكومية ذات الصلة بالتنوع البيولوجي وقضايا البيئة، يطلبون المزيد من البيانات. وبين الجدول أدناه المؤسسات المستهدفة.

تم ارسال المسودة الاولى للتقرير الوطني الخامس كانون الثاني 2014 الى كل من سكرتارية اتفاقية التنوع البيولوجي وبرنامج الامم المتحدة للبيئة ومرفق البيئة العالمي ومجموعة من الخبراء، لغرض مراجعته وابداء الرأي، وقد جاءت في اغلب الردود الاشادة بالعمل المنجز.

لقد أخذت تجربة اعداد الاستراتيجية صدى طيب واهتماما من الجهات الدولية التي اطلعت على آلية الاعداد والتنفيذ للمشروع والمنجزة في الظرف الحالي للعراق، مما دعا برنامج الامم المتحدة للبيئة الى تقديم رسالة تهنئة الى وزارة البيئة العراقية معبرة فيها عن تقديرها العالي للعمل الدؤوب والجهود المبذولة من قبل فريق اعداد الاستراتيجية الوطنية للتنوع البيولوجي ومدى الالتزام العالي لوزارة البيئة لتنفيذ المشروع بهذا المستوى العالي من الشفافية والتفاني في تحقيق التزاماتها والتي اصبح العراق بذلك من الدول الأكثر تقدما في مجال التنوع البيولوجي في المنطقة من حيث تقديم المشاريع العالمية التي تساهم حماية البيئة بشكل عام والتنوع البيولوجي بشكل خاص.

ومن الله التوفيق

د. علي عبدالزهرة اللامي

رئيس فريق أعداد الاستراتيجية الوطنية للبيئة وخطة العمل التنفيذية

عضو اتصال اتفاقية التنوع البيولوجي العالمية

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

The National Biodiversity Strategy and Action Plan of Iraq is a guiding framework for conserving our biodiversity over the coming years. In 2009, the Government of Iraq became a party to the CBD, under which and beside many steps taken, Iraq has developed its first NBSAP. The general mission of Iraq's National Biodiversity Strategy is country's striving to achieve better living condition for its population, by using and valuing biodiversity in a sustainable way and following a widespread increase of knowledge and awareness about biodiversity values. The Strategy presents 23 strategic targets and 35 actions defined for a 5-year period (2015/2020). The targets has been set within the framework of Aichi biodiversity strategic goals and targets (global biodiversity strategy). The national strategy has been mainstreamed into the existing nation frameworks or plans. It aims at giving strategic political orientations in order to allow actors for biodiversity in Iraq to work in partnership.

Biodiversity, or biological diversity, is the variety of all life forms. There are three levels of biodiversity:

- Genetic diversity—the variety of genetic information contained in individual plants, animals and micro-organisms
- Species diversity—the variety of species
- Ecosystem diversity—the variety of habitats, ecological communities and ecological processes.

Iraq is a vast, biodiversity-rich and biogeographically diverse country, which encompasses seven main terrestrial ecoregions (Zagros Mountain forest steppe – PA0446; Eastern Mediterranean conifer-sclerophyllous-broadleaf forests – PA1207; Middle east steppe - PA0812; Mesopotamian shrub desert - PA1320; Arabian Desert and East Sahero-Arabian xeric shrublands - PA1303; Red Sea Nubo-Sindian tropical desert and semi-desert – PA1325; South Iran Nubo-Sindian desert and semi-desert – PA1328), three freshwatwer ecoregions (the upper Tigris and Euphrates – 442; the lower Tigris and Euphrates – 441; the Arabian interior - 440) and one marine ecore-

gion (the Arabian Gulf)[1]. Iraq lies in southern Asia and because of its strategic location; it is considered an important link between the east and west, both as concerns transportation and ecological corridors. The variety of natural habitats including low lands, desert, steppes, plateaus and mountains, wetlands, coastal and marine habitats is providing the country with natural, biological and economical diversity.

Nevertheless, the biodiversity and ecosystems in Iraq has suffered and still, many problems caused by natural and human factors and wrong policies. Number of the most serious biodiversity losses occurrences have been evaluated for various regions or habitats; like: reduction in freshwater resources, plant cover reduction, wildlife stocks reduction, loss of traditional agriculture and local races, loss of native endemic species and loss of cultural and heritage values. In order to halt the causes behind the biodiversity loss, an urgent need for the preparation of the NBSAP in Iraq has been raised.

The strategy is a guiding framework for biodiversity conservation; it sets out priorities, which will direct the efforts to achieve healthy and resilient biodiversity and to provide with a basis for living sustainably.

In this context, the Iraqi Government by the Ministry of Environment has embarked the preparation process of this strategy with the support of GEF and UNEP. The preparation process has permeated a very well management and an active participatory approach, which has led Iraq to be a successful case at the regional and international levels though the severe challenges that, is facing. The Strategy pays particular attention to creating more coherence and filling the gaps existing in biodiversity conservation and human well-being and in Iraq's sectors, which deals with biodiversity and optimizing integration of biodiversity concern at national and international level.

The strategy is composed of 7 chapters, divided into two parts, the first part is a setting to the

---

[1] Ref. WWF, Global 200 Ecoregions http://wwf.panda.org/about_our_earth/ecoregions/maps/ ; Freshwater eco-regions of the World (FEOW) http://www.feow.org/index.php.

context of the strategy which composed of a general introduction, assessment of biodiversity and legislative and institutional situation of biodiversity in Iraq. While the second part is the core part of the strategy that includes the strategic vision and mission, the pillars of the strategy and strategic targets. In addition to the action plan of the strategy with the responsibility and the time frame of the implementation. The mainstreaming part is also included in the strategy to apply the mainstreaming approach into the national plans and actions to avoid duplication and to harmonize the implementation. The part on monitoring and evaluation and measuring the success has not been forgotten, and it is planned to have Four-year cycle for assessing the progress in the implementation.

As mentioned above, that Iraq has set 23 national targets that can be summarized as follow:

Strategic targets of the strategy:
1. By 2020, 25% of urban and rural people have awareness of the status of biodiversity, its benefits for people, the pressures that affect it, and the actions they can take for its conservation and sustainable use
2. By 2020, 50% of policy makers and planners have awareness of the status of biodiversity, its benefits for people, the pressures that affect it, and the actions they can take for its conservation and sustainable use
3. By the end of 2016 a national survey of tools used for public awareness of biodiversity is completed.
4. By 2020 the use of tools (films, publications, educational programmes, guidance materials, and training) for raising awareness of biodiversity is improved with locally defined, area based and targeted awareness programs (e.g. governorate level)
5. By the end of 2020 a GIS database of the extent, condition (i.e. healthy or degraded) and protection status of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq has been developed.
6. By the end of 2020 the reasons for loss and degradation (i.e. the species that used to be present in that habitat are not there anymore, and the services that the people expected or used are reduced or absent) of each of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq

have been identified to inform conservation actions.
7. By the end of 2016 the main pressures on forest ecosystems are identified and studied
8. By the end of 2020 legislation to address the main pressures on forest ecosystems and native forest species is issued, promoting sustainable management, restoration and conservation.
9. By the end of 2020, about 1,000 square km of desertified shrubland grassland is restored
10. By end of 2017 a national monitoring programme is established for identification of the main sources and diffusion paths of chemical and physical pollutants in the natural ecosystems and the effects of pollution on natural ecosystems
11. By the end of 2018 environmental standards are issued and enforced for prevention and control of priority pollutants in the natural ecosystems (not altered by human intervention).
12. By the end of 2014 a decree is issued for the establishment of protected areas in Iraq
13. By the end of 2016 at least three training workshops on PA management have been conducted
14. By the end of 2016 a study and GIS maps of the most sensitive habitats (i.e. under high level of threats and containing high numbers of globally threatened species) have been developed.
15. By the end of 2020 ten new Protected Areas have been gazetted and established
16. By the end of 2016 a national assessment is published of the state of provisioning, regulating and cultural services supplied by natural ecosystems and their importance for rural and urban people and on management options to be developed for the sustainable supply of ecosystem services
17. By the end of 2018 a national strategy/subnational strategies are established for the sustainable management of ecosystems to supply important ecosystem services for rural and urban people
18. By the end of 2017 legislation is enacted to control the introduction and diffusion of nonnative species into the natural environment
19. By the end of 2020 the list of invasive species of Iraq and their impacts and invasion pathways has been published.
20. By the end of 2020 the list of threatened species of Iraq has been published and an ac-

tion plan for the conservation of priority species is produced

21. By 2020 legislation for the conservation of threatened species is issued and enforced

22. By the end of 2020 a survey of indigenous and local communities' traditional knowledge, use and practices relevant for the conservation and sustainable use of biodiversity is published.

23. By 2016 a Resource Mobilization Plan for implementation of the NBSAP is established and implemented.

1 INTRODUCTION

This chapter gives an overview of the Iraqi environmental context and the recent history and developments in the environmental field. It also mentions the funding mechanism thanks to which this Strategy could be drafted and the main project components that have been completed or that are in development.

The previous achievements and the background scenarios that made possible the drafting of the Strategy are also briefly presented in section 1.3.

1.1 ENVIRONMENTAL BACKGROUND OF IRAQ

In the last decades Iraq has been the theatre of wars and conflicts that are not solved yet. In this picture the environmental concerns and problems have been often overlooked; on the other hand, precisely because of the wars and conflicts, the environment and the services it provides have been hampered.

Environmental concerns and awareness in Iraq are relatively recent; although environmental legislation and provisions existed also during the Saddam Hussein dictatorship.

Before the Ministry of Environment was established there was an "Environmental Protection and Improvement Board" that was a body of the Ministry of Health; and this structure was in force from 1975 to 1997, with the sole function of promulgating environmental laws. From 1997 to 2003 the Board was transferred under the direction of the Council of Ministers and its activity was experiencing a decline.

In 2003 with the entrance into Iraq of the coalition forces, the political and institutional asset of the country changed and among these changes there was the creation for the first time in Iraq's history of a Ministry of Environment. This new Ministry began to gradually replace the environmental department in the Ministry of Health and assume leadership for environmental legislation.

In the Kurdistan region there is a different and parallel development of the environmental institutional bodies. Starting from 1992 (and as a consequence of the first Gulf war) Iraqi Kurdistan emerged as an autonomous entity with its own local government and Parliament. In 2006 the Ministry of Environment for the Kurdistan region was established and abolished after only three years to be replaced by the High Commission on Protection and Improvement of the Environment, having the same responsibilities of the previous MoEI.

To date, nationally the two most encompassing and, therefore, most important environmental laws in Iraq and the Kurdistan region are the Protection and Improvement of the Environment of Iraq (Law 27/2009) and the Protection and Improvement of the Environment of Kurdistan law (Law 8 of 2008). Each of these outlines the general structure of environmental protection and the principles of protection for water, air, soil, natural heritage, and toxic substances.

Besides the national framework on the environment, Iraq has taken several steps to join relevant international conventions and to align its policies to the international context. Since 2004, the Iraqi Ministry of Environment (MOEI) has been involved in a number of initiatives and accomplishments deriving from the adherence of the country to the main Multilateral Environment Agreements (MEAs) concerning the environment. Among these it is worth to mention the national program to survey the country's biological diversity (KBA Project), the declaration of the first Ramsar site (wetland of international importance), the restoration of the Mesopotamian marshlands and the declaration of the first Iraqi National Park in 2013 (The Mesopotamian marshland National Park). The Convention on International Trade in Endangered Species (CITES), the Convention on the Conservation of Migratory Species (CMS), the United Nations Framework

Convention on Climate Change (UNFCCC) and the Kyoto Protocols, and the United Nations Convention for Combating Desertification (UNCCD) have been also joined by Iraq lately.

Notwithstanding the institutional and legislative accomplishments, Iraq has still a complex and long way forward as concerns the implementation and the application of the environmental laws and policies.

At the end of July 2009, Iraq deposited its instrument of accession to the Convention on Biological Diversity (CBD) with the Secretary-General of the United Nations, and on the 26th October of 2009 became the 192nd Party to the Convention.

Within the framework of the Convention on Biological Diversity great efforts have been made to collect all available information about biodiversity, ecosystems and relevant threats and pressures, in order to build the baseline for new activities and monitoring that will inform conservation actions. This information is presented in the Fourth and Fifth National Reports to the Convention on Biological Diversity, issued respectively in July 2010 and in March 2014.

Concluding, in a context such as the Iraqi one at the present time, the picture concerning the environmental priorities and emergencies has been traced with the maximum possible accuracy, and taking also into account the views of the various stakeholders that have been involved through a broadly consultative process (e.g. workshops and conferences).

1.2   GEF PROJECT

The present Strategy and the activities related with building an enabling environment for the implementation in Iraq of the Convention on Biological Diversity have been carried out thanks to the financial support provided by the Global Environment Facility in its fifth replenishment period (starting from 2007).

In particular the National Biodiversity Strategy and Action Plan(s) is categorized under the Biodiversity focal area enabling activities, with the following objective: "With the overarching goal of integrating CBD Obligations into National Planning Processes through Enabling Activities, the main objective of this project is to enable Iraq to develop its National Biodiversity Strategy and Action Plan (NBSAP) and to prepare the Fifth National Report to the CBD". The GEF agency for implementation and support is the UNEP-ROWA, while the executing Agency is the Iraqi Ministry of Environment.

The justification for Iraq to benefit of the GEF funding is breifly explained in the following.

The Convention requires countries to prepare a National Biodiversity Strategy (or equivalent instrument) and to ensure that this strategy is mainstreamed into the planning and activities of all those sectors whose activities can have an impact (positive and negative) on biodiversity.

As a new CBD Party since late 2009, Iraq has never received any biodiversity enabling activity assistance from GEF and this is the first biodiversity GEF project. Furthermore, Iraq does not have a National Biodiversity and Action Plan (NBSAP) like most of the CBD parties. Therefore, this project will enable the Government of Iraq to develop the country's first NBSAP in compliance with the new biodiversity Strategic Plan 2011-2020 and Aichi targets. This project is strategic as it will set up a national institutional framework for BD conservation and pave the way for the government of Iraq to ensure sustainable development in the long term. In addition, Iraq's state of biodiversity is under particular threat after decades of war and conflicts compounded by environmental pressures and emerging issues such as land degradation, drought and desertification. More importantly, the 2011-2020 Strategic Plan for Biodiversity & Aichi BD Targets that came out with new biodiversity targets are a great opportunity to guide this first NBSAP process for Iraq.

Besides the NBSAP the GEF project has encompassed also the drafting of the 5th National Report to the Convention (already completed and submitted as of March 2014).

Article 26 of the Convention states that the objective of national reporting is to provide information on measures taken for the implementation of the Convention and the effectiveness of these measures.

In terms of the GEF strategies, the project is consistent with the **GEF 5 Results chain and** Biodiversity focal area strategies as follows:

i.   **GEF Strategic Goal**: This project is aligned to the GEF 5 Strategic Goal 4 - Build national and regional capacities and enabling conditions for global environmental protection and sustainable development

ii. **Focal Area Goal**: Conservation and sustainable use of biodiversity and the maintenance of ecosystem goods and services

iii. **Focal area objective**: The project addresses focal area Objective Five: Integrate CBD Obligations into National Planning Processes through Enabling Activities

iv. **Project objective**: With the overarching goal of improving decision-making for the conservation of global biodiversity, the main objective of this project is to enable Iraq to develop its NBSAP and to develop the Fifth National Report to the CBD.

The Project is made up of various components, each involving a number of activities to be accomplished.

Component 1: Stocktaking and Assessment

This component will entail (a) Rapid stocktaking and review of relevant plans, policies and reports; (b) Identification of stakeholders and raising awareness and (c) Rapid assessment of the causes and consequences of biodiversity loss highlighting the value of biodiversity and ecosystem services and their contribution to

Human well-being. Part (a) will be implemented by national consultants before it is shared and discussed with key stakeholders, while parts (b) and (c) will be implemented in a consultative fashion, through a series of multi-sectoral stakeholder meetings.

Component 2: National Targets, Principles, & Priorities of the Strategy

Before the developing of the NBSAP, Iraq will determine its targets and priorities taking into account the results emerging from Component 1. Small multi-sectoral committees will undertake the ground work, which will then be discussed and validated by all stakeholders. This component will be further guided by the relevant decisions of the CBD COPs including emerging issues which are relevant to Iraq.

Component 3: Strategy and action plan development

This component will include the definition of a national strategy and associated actions required to implement the agreed targets. This will be achieved through national stakeholder consultations on the draft NBSAP at the sub-national and local level, as appropriate. Based on results from stakeholder consultations, a small team of national experts will be commissioned to draft the final Strategy and Action Plan, which will later be reviewed and validated by the key stakeholders.

Component 4: Development of Implementation Plans

Once there is a draft strategy and a broad action plan, further consultations will be required to develop fully costed implementation plans and related activities. This component will address the necessary supporting systems for the NBSAP implementation process, and will cover several areas including (a) development of a costed plan for the development of national capacity in BD conservation; (b) a technology needs assessment; (c) development of a costed communication and outreach strategy to support the NBSAP; and (d) Development of a

costed plan for resource mobilization to support NBSAP implementation.

Component 5: Institutional monitoring, reporting and exchange

This component will assist in the establishment of national coordination structures including the national Biodiversity Unit and the Clearing House Mechanims (CHM) at the Ministry of Environment of Iraq (MOEI). The component will also support the development of the Fifth (Second for Iraq) National Report to the CBD which will be prepared following the guidelines given by the COP and the SCBD. Using the framework for goals and targets adopted by the CBD COP in its Decision 10 and the Guidelines for the Fifth National Report to the CBD, the development of the report will use the data already gathered during consultations for the NBSAP process and from data gathered by various experts. This means the development of the national report and the development of the NBSAP will be undertaken as one integrated process but with two distinct and different products. The outputs of this project will feed into the SCBD portal that will established on NBSAP and National Reporting.

CHM Training

The primary target of this training will be that the staff of MOEI will be responsible to set-up and manage the CHM in the long term. However, also other external stakeholders are expected to participate in selected aspects of the training. These include staff of national environmental NGOs, as well as other relevant government agencies, that should be able to understand the scope and objectives of the national and global CHM and to contribute to the development and continuous updating of the national CHM, once it is in place and operational. The CHM will provide a universal platform that will be designed to exchange information and data about biodiversity and also to serve other related CBD commitments such as e.g.

the Biosafety BCH[2] and ABS[3] trade related information exchange and technology transfer. Therefore a broad based IT infrastructure will be set-up in the framework of this project.

1.3 PROCESS AND RESULTS OBTAINED FOR DEVELOPING THE STRATEGY

The Strategy has been developed through a broad consultative process that has been framed into 5 main steps:

1. Start to organize the work and set the baseline environment for the Strategy's activities.
2. Inventory and review (stocktaking) of biodiversity information about the country in order to put the baseline for further work.
3. Consultation of involved institutions and bodies (stakeholders) that deal with biodiversity issues.
4. Drafting and refinement of the National Targets and objectives to meet in the time frame of the Strategic Plan for Biodiversity (2011-2020)
5. Developing the Strategy and the Action Plan

For the most part of the above steps international, national or regional meetings and workshops have been organized in order to achieve the objectives for each working phase. The following Table summarizes main activities and outcomes for each project phase.

The outcomes of the project phases that are essential for building the baseline of the overall strategy are summarized in the following paragraphs and refer mainly to the stocktaking and assessment phase; the results of project phases 3, 4 and 5 provide the bulk of the strategy (chapters 3 and 4).

---

[2]Biosafety Clearing House (BCH) is an international portal to exchange information on genetically modified organisms (GMOs)
[3]Access and Benefit Sharing (https://www.cbd.int/abs/)

TABLE 1: STEPS FOR DEVELOPING THE STRATEGY

Project phase	Objectives	Outcomes	Meeting	Place and date
1. Start to organize the work	- draft the work plan of the project - define the responsibilities - define the budgetary arrangements of the project; - define the technical expertise needed for every project phase	- Draft operational Workplan of the project - definition of the draft timeframe of the project - setting the Project Management Unit (PMU) - setting the biodiversity national and international expert group (BEG) - preliminary budget allocation	Planning Meeting between UNEP-ROWA and MOEI	Amman (Jordan) 23-24 June 2012
	- inform the National Biodiversity Committee and the National Committee on Protected areas about the project and share with them relevant documents and project related activities; - involve the National Biodiversity Committee and the National Committee on Protected areas in the Strategy development process.	- Participation of members of the two committees into the stocktaking phase meetings and activities.	Coordination meeting with National Committees	Baghdad, 25th of September 2012
2. Inventory and review	- build the baseline for the Strategy; - stakeholder identification - review the country situation concerning: environmental legislation and policies, biodiversity and main threats to biodiversity, ecosystem services of the country	- Stocktaking and Assessment Report	- Coordination meeting Biodiversity Expert Group (BEG) - National Stocktaking and Assessment Workshop	- Baghdad, 18th of December 2012 - Baghdad, 19th -20th of December 2012
3. Consultation	- define the national priorities concerning biodiversity conservation; - setting the National Targets and indicators - involve the key stakeholders in the project - start up of the mainstreaming process	- Consultation reports (National, regional, international); - National Targets and indicators	- National and sub-national (central Iraq) Workshop on setting targets and indicators; - Sub-national Workshop on setting targets and indicators (Northern Iraq); - Sub-national Workshop on setting targets	- Baghdad, 26th -27th of May 2013; - Sulaimaniyah, 19th 20th of June 2013; - Basra, 26th - 27th of June, 2013;

Project phase	Objectives	Outcomes	Meeting	Place and date
			and indicators (Southern Iraq)	
4. Drafting the National Targets	Define the final list of National targets taking into account the SMART (specific, measurable, achievable, realistic, timebound) principles	- The 23 National Targets	- International Workshop on Target setting and indicators - Webinar on indicators building (UNEP-WCMC)	- Amman (Jordan), 1st -4th of July 2013 - 10th of October 2013
5. Developing the strategy and Action Plan	- define the strategy to meet the National Targets by the following: - setting the main (focal) areas of the strategy; - define the vision and the principles that are underlying the strategy - define, for each focal areas, the actions that will allow to meet the country's needs and targets	- Vision and principles of the Strategy - Strategy and Action Plan	- National Workshop on Action planning and biodiversity mainstreaming	- Baghdad, 11th – 13th of March 2014

1.3.1 BIODIVERSITY VALUES AND THREATS

A baseline biodiversity assessment was carried out during the stocktaking phase, using the available information about main biodiversity features of the country, updated whenever possible with new findings and further knowledge acquired and collected concerning the status of natural resources.

The main sources of information at that stage were the 4th National Report issued by the MOEI in July 2010 and, as most of the information available therein was considered outdated, new researches and studies from various institutions and NGOs were used as the baseline to update mainly the status of knowledge about biodiversity in order to be capable of deriving important trends about the improvement or deterioration of natural resources.

The approach adopted to evaluate the country's biodiversity focused on the main ecoregions and habitat identified, providing for a rough assessment of the values, the services

and the threats affecting these systems, as summarized in the following tables.

TABLE 2: HABITAT/ECO-REGION APPROACH TO EVALUATE THE COUNTRY'S BIODIVERSITY

MAIN HABITAT/ECO-REGION	STATUS	THREATENED	MAIN BIODIVERSITY VALUES	MAIN THREATS
Marshlands (Wetlands)	Known	Seriously	Most important fresh-water system of the region	Large scale ecosystem conversion and drainage; Oil and industrial pollution
			Migratory birds from Eurasia	Over-hunting; trapping; habitat loss
			Spawning fish from the Gulf	Over-fishing; hydraulic in-frastructures
			Endemic species	Illegal activities (hunting and capturing for food, sport and trade)
			Traditional knowledge	Urbanization and agricul-tural expansion
Arabian desert	Unknown	Partially	Unique plant species	Change in land manage-ment; fuel wood collection, grazing
			Important bird and mammal species	Illegal activities (hunting and capturing for food, sport and trade)
			Endangered species	Illegal activities (hunting and capturing for food, sport and trade); habitat loss
			Traditional knowledge	-
			Medicinal plants	Change in land manage-ment; grazing
Mesopotamian shrub de-sert	Moderately known	Partially	Migratory birds from Eurasia	Over-hunting; trapping; habitat loss
			Endangered species	Illegal activities (hunting and capturing for food, sport and trade); habitat loss
			Rangeland value for local livelihoods	Change in land manage-ment; fuel wood collection, grazing
Steppe Habitats of the Middle East	Unknown	Partially	Migratory birds from Eurasia	Over-hunting; trapping; habitat loss
			Endemic species	Illegal activities (hunting and capturing for food, sport and trade)
			Endangered species	Illegal activities (hunting and capturing for food, sport and trade); habitat loss
			Rangeland value for local livelihoods	Change in land manage-ment; fuel wood collection, grazing
Zagros Mountain Forests	Medium	Partially	Forest ecosystems and rich flora diversity	Deforestation
			Migratory species	Over-hunting; trapping; habitat loss
			Endemic species	Illegal activities (hunting and capturing for food, sport and trade)
			Endangered species	Illegal activities (hunting and capturing for food, sport and trade); habitat

MAIN HABITAT/ECO-REGION	STATUS	THREATENED	MAIN BIODIVERSITY VALUES	MAIN THREATS
				loss
			Natural cave systems	Unregulated cave exploration and disturbance
Coastal marine habitats	Known	Seriously	Support of marine life	Pollution (oil, ship wrecks, war residuals)
			Presence of a recently discovered Coral reef in the territorial waters of Iraq	Overfishing and exploitation of marine resources
			Fishery resource for local livelihoods	Invasive species threats

The rough evaluation of main biodiversity values and threats for the country as reported above, was the starting point for the gap assessment and for the further research of information about biodiversity; this process was resumed through the recent release of the 5th National Report (as of March 2014).

1.3.2   4TH NATIONAL REPORT/5TH NATIONAL REPORT

Iraq had acceded to the Convention on Biological Diversity (in 2009) and its first National Report (the 4th for the Convention) had been issued as of July 2010.

This Report, though partially missing some information and data, has represented a milestone and the essential starting point for building future knowledge about biodiversity and assessing the progress made. Given the Iraqi current political situation, getting a reliable picture especially about the status and trends of natural resources represents a continuous challenge.

Nevertheless, with great efforts and with the fundamental commitment of the MOEI and other institutional agencies, both nationally and internationally, many steps have been taken and progress achieved in improving the methods and tools to collect and analyze basic biodiversity data. This has been done thanks also to the support of international organizations and partnerships that have greatly contributed to raise the overall level of capacity especially in getting internationally available data and in providing guidance on how to handle and to analyze these data.

The situation of the country's biodiversity depicted by the 4th National Report has therefore been overcome with recent and newly collected data that has been fed into the 5th National Report, where an effort has been made to show trends in data and build indicators there from.

In order to compare the evolution of the biodiversity research and information gathering, the indicators that were proposed in the 4th National Report are also reported in the below Tables, under the relevant areas that were defined/used in the 4th National Report format. According to this format, the Indicators of biodiversity state and change were grouped together, as well as the threats and impacts to biodiversity that were addressed as "pressures".

The overall situation depicted by the 5th National report of Iraq highlights first of all the methodic and systematic collection of historical and recent researches and scientific papers that can add up to the overall knowledge about biodiversity and that, through the National Report tool, can be archived and referenced for multiple purposes and users.

Additionally, specific information about the habitats and eco-regions mentioned in Paragraph 1.3.1 above has been collected and analyzed (as far as possible) to build indicators that have been also graphically represented. In some cases, due to lack of specific data to address a biodiversity component, proxy indica-

tors[4] were used, that could indirectly provide information about the status of the component. The main biodiversity or biodiversity related issues addressed in the Fourth National Report[5] and Fifth National Report[6] are summarized in the following.

---

[4]Indirect measure or sign that approximates or represents a phenomenon in the absence of a direct measure or sign. Also called indirect indicator.

[5]   http://www.cbd.int/doc/world/iq/iq-nr-04-en.pdf

[6]   http://www.cbd.int/doc/world/iq/iq-nr-05-en.pdf

TABLE 3: STATUS INDICATORS FROM THE 4TH AND 5TH NATIONAL REPORTS

Status Indicators[7]		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
4TH NATIONAL REPORT (STATUS AND CHANGE OF BIODIVERSITY)		
1. Eco-regions[8] status in Iraq	The global ecological status of the eco-regions in Iraq is not well assessed. Seasonal surveys to identify quality representative habitat for each eco-region to be carried out	Some (the KBA work allows to evaluate representative habitat samples within the eco-regions)
2. Water Resources allocation in the Tigris-Euphrates River Basins	Information about water resources management and projects should be made available for biodiversity conservation planning. Center for information sharing and developing management agreements over water resource issues between different stakeholders, decision-makers, and users.	No
3. Change in habitat boundaries	Long term tracking of habitats and habitat change using remote sensing/GIS technology shall be established in order to detect changes and plan for the proper conservation/restoration actions.	No
4. Biodiversity census in terrestrial ecosystems	A systematic census and classification has not been done to determine status of species within major terrestrial habitats and eco-regions. Develop Iraq terrestrial species checklists; Mapping major habitats types for species conservation; Database of species of the different groups (birds, mammals; amphibians etc) based on habitat utilized; Habitat surveys; and develop an Iraqi Habitat Classification system for all terrestrial habitats found in Iraq based on international standards	Some (the work of an Iraqi NGO in partnership with BirdLife International has allowed to evaluate the local occurrence of main bird species whose status is assessed globally, as well as recording rare or unique animal and plant presences)
5. List of threatened species by group in terrestrial ecosystems	Determining conservation status of other species groups is still needed; The development of systematic checklists for flora and fauna groups is needed. Checklists informed and verified by field survey work for flora and fauna groups; Updating status on species and habitats	Some (the work of an Iraqi NGO in partnership with BirdLife International has allowed to evaluate the local occurrence of main bird species whose status is assessed globally, as well as recording rare or unique animal and plant presences)

[7]Indicators that should depict how is the status of biodiversity currently
[8] Eco-region: a broad ecological unit

Status Indicators[7]		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
6. Biodiversity in freshwater ecosystems	A systematic census and classification has not been done to determine status of species within major freshwater habitats and eco-regions	Some (fish occurrence and records from the KBA project, in addition to the information from Brian Coad publications and website[9])
7. List and total number of threatened species by group in freshwater ecosystems.	A systematic census and classification has not been done to determine status of species within major freshwater habitats and eco-regions	Some (the fish records from KBA and Coad are the baseline for assessing presence, the status is unknown or referred to external sources like FishBase[10])
8. Biodiversity in marine ecosystems	A systematic census and classification has not been done to determine status of species within major marine habitats	Some (coral reef discovery in Iraqi territorial waters and listing of found species[11])
9. List and total number of threatened species by group in marine ecosystems.	Regularly updated information about fisheries in all Iraqi commercial fishing locations handling marine fish. It is not currently possible to find such data covering wild marine fisheries. Regular monitoring of key fisheries in rivers, lakes and marshlands to be carried out.	No
10. Water Quality- Nutrients, Physical & Chemical Parameters, BOD, heavy metals, and other pollutants	Regular monitoring campaigns are needed at catchment level.	Yes (the SWLRI[12] strategy has been completed and its results shall be made available for biodiversity planning)
11. Soil Quality	Soil quality in term of soil pollutant (e.g. nutrient N, P loads, heavy metal, pesticides, etc); Satellite images of different years (annually) can help evaluate land and soil degradation	No
12. Ethnic & Language Groups	Ethno-biology/Ethno-medicine information is incomplete or lacking. There is also a lack of information on overall ethno-religious groups as this information may have other political implications.	Some (efforts are on-going to integrate this traditional component in the biodiversity agenda, through workshops and involvement of local communities representatives)
5ᵀᴴ NATIONAL REPORT		

---

[9] http://www.briancoad.com/Iraq/Checklists_Iraq.htm

[10] http://www.fishbase.org/search.php

[11] More information about the discovery is available on the 5th National Report to the Convention on Biological Diversity (http://www.cbd.int/reports/search/)

[12] Strategy for Water and Land Resources of Iraq (Ministry of Water Resouces)

Status Indicators[7]		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
13. Number of globally threatened species/terrestrial habitat	Marshland habitats, followed by permanent freshwater lakes, arable land and steppe habitat have the highest numbers of threatened species. These ecosystems are particularly vulnerable and/or they have experienced drastic changes and the typical species are undergoing sharp declines that contribute to their negative conservation status globally.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
14. Occurrence status of Iraqi freshwater fish	57 freshwater fish species have been recorded in Iraq[13]. The non-native fish are significantly present as compared to the endemic or region-endemic ones.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
15. Conservation Status of Iraqi freshwater fish	In 1996 the Iraqi freshwater fish species assessed as globally threatened were 11, recently their number appear to have decreased to 5. However it has to be remarked that a high number of species (35) has not been assessed against the conservation status and the recent lower number of globally threatened species might be due to a lack of assessment.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
16. Abundance of sensitive native fish species in Shatt Al-Arab	Research has shown 11 native species to the Shatt Al-Arab river. Their presence has been assessed in the eighties and in recent years (2007-2008), showing a decrease in the species found (10 in the eighties, 6 in the two thousands)	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
17. Threat status of marine fish of Iraq	A list of marine fish of Iraq exists, the conservation status of these species is very poorly known with a total of 23 out of which 1 is near threatened, 4 are least concern and the other 18 are not evaluated.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
18. Breeding birds of Iraq	This indicator is important because it gives the measure of the importance some Iraqi habitats have for granting the good conditions for supporting birds during this important phase of their life cycle. Out of 410 bird species recorded to	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)

---

[13] Reference species taken form Coad website: http://www.briancoad.com/Iraq/Checklists_Iraq.htm

Status Indicators[7]		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
	occur in Iraq, 201 are confirmed breeding birds and 23 unconfirmed but possibly breeding.	
19. Status of Iraqi endemic species	This indicator provides for the number of species endemic to Iraq, among various animal classes. The highest number of endemic species refers to insects; however further research is needed in order to complete the checklist of endemic species of Iraq.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)

TABLE 4: CHANGE INDICATORS FROM THE 5ᵀᴴ NATIONAL REPORT

Change Indicators[14]		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
5ᵀᴴ NATIONAL REPORT		
20. Total surface of land affected by desertification and lands under desertification threat of Iraq	According to the figures presented by this indicator, 93% of Iraqi land is either desertified either under desertification threat.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
21. Desertification types that affect Iraqi land	The various types of desertification that affect Iraq are shown by this indicator, with the highest percentage (63,22%) due to soil hardening. This might arise from wrong agricultural practices, unsuitable and unsustainable irrigation schemes and drainage operations that might have played a major role into the emergence of this problem.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
22. Land use of Iraq in 2005	No change of land uses is shown by this indicator because data are available for the sole year 2005, where the desert land' category contributes with the highest amount (31%) followed by 'arable land' (28%). An assessment can be framed with the collection of more recent data for comparison.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
23. Deforestation	The forest coverage area has been analyzed through the period 1990-2011, showing an overall increase from 8040 sqKm to 8250 sqKm. In general terms it can be stated that the increase in forest coverage contributes positively to biodiversity by reducing desertification risk and increasing the total plant diversity. However, considering that also urban parks and plantations are accounted inside this indicator, the problem of planting non-native and even invasive species maybe unsuitable to Iraqi climate, can limit the positive effect of the overall increased forested surface.	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)

---

[14] Indicators that should depict how the status of biodiversity is changing

TABLE 5: THREAT INDICATORS FROM THE 4TH AND 5TH NATIONAL REPORTS

Threat Indicators		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
4TH NATIONAL REPORT (PRESSURES ON BIODIVERSITY)		
24. Land Cover and Use Variables	Land use in undeveloped areas, particularly those of high value to biological diversity, is not well understood and it might reveal criticalities and pressures on the ecosystems	Some (recently progress has been made to produce a land cover map from various sources)
25. Change in land use, conversion of forest & steppe lands to other land uses (e.g. deforestation rate)	Surveys to map existing stands of mature and important forests, remnant steppe ecosystems and evaluate species assemblages, status and threats of deforestation, overgrazing, and/or habitat conversion. Improved reporting on commercial forestry practices is needed.	Some (these issues are partially addressed by "change" indicators of the Fifth National Report)
26. Fish Catch Assessments	Regular monitoring of key fisheries in rivers, lakes and marshlands (Frame & Landing Surveys) to characterize the fishing effort, fishing gear, species landed (by species type, weight, and time).	Some (this issue is partially addressed by "impact" indicators of the Fifth National Report)
27. Alien & Invasive Species	Checklist of alien, invasive species currently of management concern in Iraq; Information on level of current trade in species across borders.	Yes (the checklist of the invasive alien species of Iraq is provided as Annex to the Fifth national Report and the source is the IUCN; this list need to be cross-checked by national experts)
28. Hunting	Information on degree of current hunting efforts and target species; information on species entering animal markets and zoos; information on species crossing national borders	No
29. Unsustainable Fishing Practices	Unsustainable fishing practices shall be addressed by means of case studies at multiple sites to determine the reasons behind the use of these methods and most effective means for controlling such activities; Fisheries studies based on target species to determine proper timing of fishing moratoriums.	No
30. Desertification	Studies on extent and threat of desertification.	Yes (Indicator n. 8 of Fifth National Report)
31. Road Building Impacts	Studies on road building impacts, methods and mitigation techniques; Dataset of proposed road projects mapped in sensitive areas	No
32. Mining & Resource Ex-	Studies on oil development, mining & road building impacts,	Some (no indicator has

	Threat Indicators		
Indicator	**Meaning of the indicator**		**Has progress been made to evaluate the indicator?**
traction	methods and mitigation techniques; Dataset of proposed projects mapped in sensitive areas.		been built on this issue but some assumption could be deducted from the geo-graphic localization of oil fields and pipelines, availa-ble at MOEI and other au-thorities)
33. Polluted & Hazardous sites	National Database of Polluted & Hazardous Sites; Impact as-sessment to surrounding ecosystems; and Mitigation plans & activities		Some (information availa-ble about mine fields and de-mined areas has been used to build Indicators 13 and 14 of the Fifth National Report)
34. Land mines	Updated information on delineated field boundaries; Infor-mation on recently cleared lands to identify new, priority survey sites.		Some (information availa-ble about mine fields and de-mined areas has been used to build Indicators 13 and 14 of the Fifth National Report)
	5TH NATIONAL REPORT		
35. Mine field (military landmines) surface per governorate	This indicator gives an idea of the mined surface of some Iraqi governorates: the total mined area of Basra, Diyala, Maysan, Muthanna and Wasit is estimated at 128,709 sqKm, with 26,211 in Basra, 15,684 in Diyala, 45,33 in Maysan, 37,479 in Muthanna and 4 in Wasit.		Negative
36. Demining surface in some gover-norates	For Basra, Diyala and Maysan the mine field areas have been cleared, corresponding to the surface of the indicator 13.		Positive
37. Threats iden-tified in KBA areas	Various types of threats have been evaluated for the natural areas where the Key Biodiversity Project has been carried out (2005-2010). Overall high or very high threats have been associated to: Pollution, opening of new transportation corridors, overex-ploitation of natural resources and residential develop-ments.		Negative

TABLE 6: IMPACT INDICATORS FROM THE 5TH NATIONAL REPORT

Impact Indicators[15]		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
38. Ecological footprint of Iraq	This indicator evaluates how much area of biologically productive land and water a population/country requires to produce all the resources it consumes and to absorb all the waste it generates. The ecological footprint is matched and compared with the biocapacity, that is the capacity of ecosystems to produce useful biological materials and to absorb waste generated by human activities. The ideal situation would be when a country can reach to have the biocapacity always above the ecological footprint. Unfortunately this is not the case of Iraq, with the ecological footprint being always well above the biocapacity (except for a short period of time during the sixties).	Yes (the indicator has been calculated; the source information need to be updated and improved for future monitoring and evaluation)
39. Fertilizer consumption (% of produced fertilizers)	This indicator gives the fertilizer consumption of the country expressed as a percentage of the fertilizer production. The comparison is made with the World figure: the averages of world countries are using less fertilizers than they are producing; Iraq on the contrary is using much more than it is producing. This figure *per se* does not tell us whether or not fertilizers are used efficiently in the country even though there is a suspect that they are not.	Difficult to evaluate
40. Fertilizer consumption (kg/ha of arable land)	This indicator for Iraq shows numbers that are on average well below the "world" figure; this could be a positive signal for the prevention of soil and water contamination from dangerous chemicals; however it has to be considered that into the category "arable land" are comprised also lands that are temporarily not cultivated or orchards and cultivations for which the use of fertilizers is maybe reduced or absent; this would therefore increase the pressure of fertilizers on the remaining cultivated land, meaning that the use of these products might still be excessive and not responsible.	Difficult to evaluate
41. Use of pesticides and herbicides (liters)	Pesticides also pose a risk, not only to non-target animal and plant species, but to humans as well; depending on their chemical properties they can enter the organism, bio accumulate in food chains and consequently influence also human health. Overall, intensive pesticide application results in several negative effects in the environment that cannot be ignored. This indicator shows that high amounts of pesticides have been and are used in Iraq, especially brushwood pesticides, which have been recorded in the enormous amount of 92.963.909 litre in 2010	Negative
42. Annual fish	The indicator shows a steady increase of freshwater fish catch	Negative

---

[15] The impact of the changes in biodiversity and the socio-economic implications of these changes

Impact Indicators[15]		
Indicator	**Meaning of the indicator**	**Has progress been made to evaluate the indicator?**
catch of freshwater and marine resources	through the years. This can be attributed to many reasons, such as the increasing population or an increasing fish demand from local and international markets. This figure can also indicate that the fish catch has been brought to higher levels due to artificial introduction into freshwater rivers of non-native and highly productive species that are thus replacing the native and local species. On the other hand the marine fish catch is much lower in Iraq, and this is to be expected since Iraq is not a country that benefits so much of the coastal resources, except for the southern province (Basra).	
43. Iraq livestock estimate 2006-2009	This indicator is meant to indirectly show the possible impacts that are generated by livestock breeding both in terms of exceeding use of pastures (rangelands) and natural resources and also in terms of generating waste (e.g. from intensive breeding). The figure that emerges shows that the species present in the higher numbers are sheep followed by goats. These species are usually bred in extensive ways so the intensive breeding pollutants are avoided, on the other hand the grazing impact of these two species if not adequately planned and balanced can quite negatively affect the natural pastures.	Difficult to evaluate

1.3.3 VALUES OF BIODIVERSITY AND ECO-SYSTEM SERVICES FOR HUMAN WELL-BEING

One of the most important issues related with biodiversity and its importance is the clear and strong link it has with human well being. Human well being depends on many often complex factors, the major ones that relate to bio-diversity being the following:

1. Availability of basic (raw) materials for construction, food and domesticated animals;
2. Fair and equitable access to natural or nature-derived resources;
3. Human health and the right to a healthy/safe environment;
4. Safety from natural disasters;
5. Spiritual, aesthetic and cultural values;
6. Natural components conservation for maintaining a healthy environment and for future generations benefits

The main topics cross-cutting biodiversity and ecosystem services and human well being, as above listed, have been analyzed and evaluated in Iraq according to the habitat/eco-region approach, the results of this assessment are presented in the following[16].

---

[16] More information can be found in "Stocktaking and Assessment report", one of the related reports to the strategy preparation process (http://www.biodiv.be/iraq).

TABLE 7: ECOSYSTEM SERVICES PROVIDED (BY MACRO-ECOSYSTEM) AND RELATED HUMAN WELL-BEING FACTOR

ECOSYSTEM SERVICE	Marshland	Arabian Desert	Mesopotamian Shrub Desert	Steppe Habitat of the Middle East	Zagros Mountain Forests	Coastal Marine Habitats	HUMAN WELL BEING COMPONENT
PROVISIONING (FOOD, FRESH WATER, FUEL, WOOD AND FIBER)							
1.Food production	Fish, vegetables rice, cattle and dairy products	Pasture for livestock, orchards	Agricultural products, forage for livestock	Agricultural products, forage for livestock	Agricultural products, vines, nuts	Fish and sea food	
2.Water for domestic needs	Plentiful source of surface freshwater	Ground sources	River catchment area, storage reservoirs	River, catchment area, lakes	Catchment area, mountain rivers and streams	Nearby marshes and Shatt-al-Arab	
3.Fisheries	Large freshwater fish stocks	-	Fish stock and Aquaculture	Fish stock and Aquaculture	-	Diverse marine fish fauna	
4.Water for irrigation	Plentiful source	Ground sources	Rain and storage reservoirs	Plentiful source	Rain and storage reservoirs	Nearby marshes and Shatt-al-Arab	1 & 2
7.Source for raw industrial material	Various plants and animal products	Desert plants	Industrial crops and animal products	Industrial crops and animal products	Plants and animal products	Material for industrial production	
8.Genetic resources	Plant and animal native species	Plant and animal native species	Plant and animal native species	Plant and animal native species	Plant and animal native species	Plant and animal native species	
9.Biochemicals	From natural plants	From natural plants	Natural & medicinal plants	Natural & medicinal plants	Natural & medicinal plants	Natural & medicinal plants	
ECOSYSTEM SERVICE	Marshland	Arabian Desert	Mesopotamian Shrub Desert	Steppe Habitat of the Middle East	Zagros Mountain Forests	Coastal Marine Habitats	HUMAN WELL BEING COMPONENT
REGULATING (CLIMATE, FLOOD, DISEASE AND CONTROL, WATER PURIFICATION)							
1.Regulate the water cycle and maintaining long-term water cycling	Large reserves of fresh and ground water	Large reserves of ground water	Large reserves of fresh and ground water	Large reserves of fresh and ground water	Large reserves of fresh and ground water	Large water volume reserve	3 & 4
2.Regulate floods	Managed wetlands to absorb floods	Man-made small dams	Reservoirs with high storage capacity	Reservoirs with high storage capacity	Reservoirs with high storage capacity	Natural tidal wetlands to regulate flooding	

						events
3.Reduce climate change impacts	Hydrological cycle, freshwater reservoir, flood absorption, carbon storage	-	-	-	Hydrological cycle, carbon storage	Coastal wetlands protect from storms and sea-level rise and erosion
4.Regulation of soil leaching	Effective role	-	Effective role	Effective role	Effective role	Effective role
5.Filtering and water purification	Surface water	Ground water	-	-	Surface water	Surface water
6.Capturing carbon dioxide from the atmosphere	Effective	-	Moderate	Moderate	Effective	Effective
7. Fisheries	Large natural stocks	-	Large stocks	Large stocks	Large stocks	Large stocks
8.Invasion Resistance	Diverse habitat but highly vulnerable	Harsh environment less vulnerable to alien species	Vulnerable to alien species	Vulnerable to alien species	Vulnerable to alien species	Vulnerable to alien species

ECOSYSTEM SERVICE	Marshland	Arabian Desert	Mesopotamian Shrub Desert	Steppe Habitat of the Middle East	Zagros Mountain Forests	Coastal Marine Habitats	HUMAN WELL BEING COMPONENT
	3. CULTURAL (AESTHETIC, SPIRITUAL, EDUCATIONAL, RECREATIONAL)						
1.Natural surrounding	Unique	High quality	High quality	High quality	High quality	High quality	5
2.Scenic values	Very high value	High value	High value	High value	Very High value	High value	
3.Tranquility	High	High	High	High	High	Tranquil	
4.Religious values	Various shrine sites	Various shrine sites	Various shrine sites	Various shrine sites	Various shrine sites	-	
5.Recreation sites	Potentially high quality	Ecotourism and game birds and mammals	Ecotourism and game birds	Ecotourism and game birds	Ecotourism and game birds and mammals	Ecotourism and fishing	
ECOSYSTEM SERVICE	SUPPORTING (NUTRIENT CYCLING, SOIL FORMATION, PRIMARY PRODUCTION)						HUMAN WELL BEING COMPONENT
1.Nutrient cycling	High	Low	Medium	Medium	Medium	High	6
2.Production of atmospheric oxygen	High	Low	Low	Medium	High	Medium	
3.Soil forming	Fast	Slow	Normal	Normal	Fast	Fast	
4.Primary production	High	Low	Medium	Medium	High	High	

1.3.4 CONSEQUENCES OF BIODIVERSITY LOSS IN IRAQ

Due to the many anthropogenic activities and pressures on biodiversity and natural resources, it is a matter of priority to evaluate the main occurrences of biodiversity loss, the factors driving it and the consequences and the effects of this loss for the natural balance and human kind.

Below, are the most serious biodiversity losses occurrences evaluated for various eco-regions/habitats, the identified drivers for these losses and finally the consequences of these losses if they are not adequately and timely addressed.

TABLE 8: THE DRIVERS AND CONSEQUENCES OF BIODIVERSITY LOSS

Driver of Biodiversity loss	Biodiversity loss	Consequence of biodiversity loss
Lack of water and precipitation. Dam construction. Water and soil salinization due to drainage and irrigation schemes. Water pollution due to absence of sewage and industrial treatment plants.	**Reduction in freshwater resources**	No freshwater available for human needs.
Lack of water and precipitation. Over exploitation of pastures and rangelands. Clear cutting activities for various purposes (residential and industrial development, military activities, plant collection for cooking fuel)	**Plant cover reduction**	Increase in desertified lands. Absence of sufficient forage for livestock. Habitat fragmentation and species extinction. Decrease in genetic diversity
Poor implementation and enforcement of wildlife regulations. Poverty. Lack of awareness	**Wildlife stocks reduction**	Species extinction. Decrease or absence of wild food. Ecosystem collapse and absence of products and services.
Unplanned agricultural and residential expansion. Application of agricultural schemes centered on intensive methods with large use of chemicals and genetically modified organisms.	**Loss of traditional agriculture and local races**	Decrease in soil fertility and crop productivity. Loss of genetic diversity. Major vulnerability to pests and disease.
Introduction of non-native competitors to various purposes (trade, ornamental, production). Pollution. Overexploitation (hunting, fishing). Trade.	**Loss of native endemic species**	Decrease in genetic diversity. Species extinction. Ecosystem collapse and absence of products and services. Loss of unique values.
Unsustainable modernization of the society. Gap between rural communities and decision makers. Isolation and distrust of some rural communities. Lack of interest towards rural traditions and components	**Loss of cultural and heritage values**	Loss of unique values. Loss of people's identity. Loss of membership feeling. Vulnerability to external influences. Neglecting the home country and its resources/values

1.3.5 STAKEHOLDER IDENTIFICATION AND ANALYSIS

The stocktaking phase also aimed at providing a full and comprehensive list of the various actors that could be involved in the Strategy drafting and implementation, depending also on their power, roles and responsibilities.

First of all the main stakeholder groups relevant for the NBSAP process have been identified in the following (see Figure below):

1. national institutions/bodies
2. scientific community
3. indigenous people
4. NGOs
5. Private companies and associations

As a second step a number of stakeholders have been selected to the purposes of participating in the NBSAP process, as reported in the below   Table.

FIGURE 1: MAIN STAKEHOLDERS GROUPS OF RELEVANCE FOR THE NBSAP
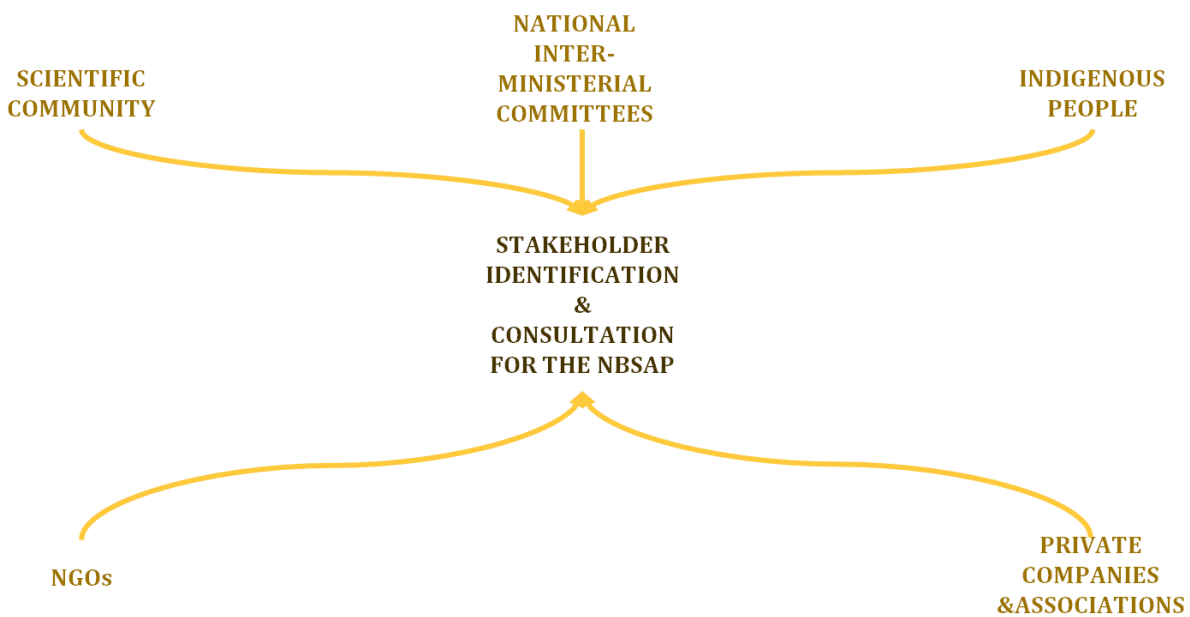
TABLE 9: STAKEHOLDER SELECTE FOR THE CONSULTATION PROCESS

STAKEHOLDER	ROLE IN THE STRATEGY
Ministry of Municipalities and Public Works	Consulting
Ministry of Health	Informing and Consulting
Ministry of Industry	Informing and Engagement
Ministry of Defense	Informing and Engagement
Ministry of Labor and social affair	Informing
Ministry of higher education and scientific research	Engagement and consulting
Ministry of Human Right	Informing
The State Ministry for Women's Affairs	Informing
Ministry of Justice	Consulting
Ministry of Oil	Collaboration and Engagement
Ministry of Foreign Affairs	Consulting
Ministry of Agriculture	Engagement and consulting
Ministry of Water Resources	Engagement and consulting
Ministry of science and technology	Engagement and consulting
Ministry of Planning	Engagement and consulting
Ministry of Culture	Informing
Iraqi Parliament	Consulting
Provincial Councils	Informing
Kurdistan Regional Government	Engagement and consulting
Intergovernmental Organizations	Consulting
Media and Communications Agencies	Informing
The Scientific Community	Consulting
Non-governmental organization (NGOs)	Engagement
Tourist companies	Informing
Private companies and multinational	Informing and Engagement
Agencies and Financial mechanisms	Consulting and Engagement
The private sector	Informing and Engagement
The general public	Informing
Celebrities	Informing
Citizens of urban centers	Informing
International experts	Consulting
Indigenous and local communities	Informing and Engagement
Religion leaders	Informing
Professors, teachers and the teaching staff	Engagement
Professional hunters	Engagement

Among the selected stakeholders also the specific departments, institutions, agencies, companies have been listed in detail, in order to have a clearer indication on who to contact and on the type of balance that could be reached in the consultation process.

The combination of the level of stake of the identified stakeholders and of the potential impacts or benefits they can generate to biodiversity in general and to the NBSAP, can be summarized in the Stakeholder matrix.

The "level of Stake" reported in the Stakeholder Matrix below, represents the level of involvement of the stakeholder in the biodiversity issues; this can be high, medium or low. For example the Ministry of Municipalities has a high stake in biodiversity issues because it is directly involved in the regulation and control of water supply and sanitation projects. These projects can indirectly have positive effects (+) on biodiversity (in case good sanitation and sustainable water supply schemes are planned) or negative effects (-) (in case the water supply is unsustainable and causes water resource depletion or in case the sanitation infrastructures are not well planned and maintained).

TABLE 10: STAKEHOLDER MATRIX

NBSAP STAKEHOLDER MATRIX	LEVEL OF STAKE (HIGH MEDIUM LOW)	IMPACT ON BIODI-VERSITY (+) (-)	CAN BE DIRECTLY OR INDIRECTLY AFFECT-ED BY BD CHIOCES (YES) (NO)
Ministry of Municipalities and Public Works	HIGH	+/-	YES (I)
Ministry of Health	HIGH	+	YES (I)
Ministry of Industry	HIGH	–	YES (I)
Ministry of Defense	HIGH	+	YES (I)
Ministry of Labor and social affair	MEDIUM	+	YES (I)
Ministry of higher education and scientific re-search	HIGH	+	YES (I)
Ministry of Human Right	MEDIUM	+	YES (I)
The State Ministry for Women's Affairs	MEDIUM	+	YES (I)
Ministry of Justice	HIGH	+/-	NO
Ministry of Oil	HIGH	–/+	YES (I)
Ministry of Foreign Affairs	HIGH	+	NO
Ministry of Agriculture	HIGH	+/-	YES (I)
Ministry of Water Resources	HIGH	+/-	YES (I)
Ministry of science and technology	HIGH	+/-	NO
Ministry of Planning	HIGH	+/-	NO
Ministry of Culture	MEDIUM	+	YES (I)
Ministry of Transportation	MEDIUM	–	YES (I)
Ministry of Interior	MEDIUM	+/-	YES (I)
Ministry of Electricity	MEDIUM	–	YES (I)
Iraqi Parliament	HIGH	+/-	NO
Provincial Councils	HIGH	+/-	YES (I)
Kurdistan Regional Government	HIGH	+/-	NO
Intergovernmental Organizations	HIGH	+	YES (I)
Media and Communications Agencies	MEDIUM	+/-	NO
The Scientific Community	HIGH	+	YES (I)
Non-governmental organization (NGOs)	HIGH	+	YES (I)
Tourist companies	MEDIUM	+/-	YES (I)
Private companies and multinational	HIGH	–	YES (D)
Agencies and Financial mechanisms	HIGH	+	NO
The private sector	HIGH	+/-	YES (I)
The general public	LOW	+/-	YES (I)
Citizens of urban centers	LOW	+/-	YES (D)
Indigenous and local communities	HIGH	+/-	YES (D)
Religion leaders	LOW	+/-	YES (I)
Professors, teachers and the teaching staff	LOW	+	YES (I)
Professional hunters	MEDIUM	+/-	YES (D)

2 CONSTITUTIONAL, LEGAL AND INSTITUTIONAL FRAMEWORK

2.1 CONSTITUTIONAL AND LEGAL FRAMEWORK

Iraq's experience with law and legal framework dates back to early civilizations of the land between Rivers Tigris and Euphrates (Mesopotamia), when the first scripts of legal articles were laid.

Today, the interest to enhance the law and the regulations of activities especially those concerned with human life and environment still come in the forefront of the country's constitution. In the modern constitution of Iraq which was issued in 2005, article 3 stipulates: To formulate environmental policy to ensure the protection of the environment from pollution and to preserve its cleanliness, in cooperation with the regions and governorates that are not organized in a region. Moreover, clause first of article 33, stipulates that: Every individual has the right to live in safe environmental conditions, and clause second stipulates: The State shall undertake the protection and preservation of the environment and its biological diversity.

However, article 114 of the constitution stipulates: The following competencies shall be shared between the federal authorities and regional authorities: Clause 3rd: To formulate environmental policy to ensure the protection of the environment from pollution and to preserve its cleanliness, in cooperation with the regions and governorates that are not organized in a region.

In the present day, the Ministry of Environment has the lead role in reviewing, proposing, modernizing and issuing environmental legislative framework. These efforts ensure best environmental practices for Iraq, and to parallel environmental rules, regulations and clauses with the new Constitution. Many steps have been taken to revolutionize the environmental laws of Iraq. The modern legislative framework make the country come closer, and parallel, to global standards.

Several components to the Environmental legislative Framework in Iraq have been arrived at since the establishment of the Ministry of Environment in 2004. One outstanding example in this respect was when the MoEI identified and included environmental issues and considerations, and ways to address them, as priorities in the present National Development Plan NDP (up to 2017). This is in fact a cross-sector plan aims to ensure that future human and economic development activities take into consideration, and apply, environmental standards. Another significant step was the issuance of an outstanding document, the "protection and improve the environment Act" No. 27 of 2009. It aimed to the conservation of natural resources, improve environmental awareness, sustainable development, and prevent environmental pollution. Also other significant contributions were Law Number (3) of (2010) "The Law of Environmental Protection and Improvement Board in Iraqi Kurdistan Region" and the latest significant addition to the legislative framework was the Regulation No. (2) of 2014 "The Regulation of the Protected Area system". Iraq actively prepared its new Biodiversity Strategy and Action Plan (NBSAP) following its accession to the CBD, and the stated National Targets and due to the sensitive biodiversity it deals with, urges further and continuous updating to modernize the environmental legal system so that it responds to biodiversity protection issues in a lawful fashion.

3   OUR CHALLENGE AND A VISION FOR THE FUTURE

In this Chapter the vision, mission and overall messages that guide the Iraqi NBSAP are presented and summarized.

- The conservation of biodiversity is an important issue both globally and nationally. On biodiversity conservation and maintenance of the ecosystems' balance depends the delivering of essential services to human kind.
- The rural communities and those people living and depending on natural resources will be particularly affected by the changes in environmental components that in turn affect the quantity and quality of ecosystem services available to them. Biodiversity is also an essential component of human well-being in Iraq with a particular reference to the tribal communities where biodiversity plays a role in the ethical, religious and social values.
- The bulk of the services provided by natural resources in Iraq are coming from the highly diverse and sometimes unique habitats and species. Biodiversity provides many important services to the nation. Foremost provision is that of food resources, materials for rural buildings, and also raw materials for industrial activities and pharmaceutical products. Other important services provided by biodiversity for national as well as global benefits are climate change and desertification mitigation and carbon sequestration.
- Despite its importance, however, the flora and fauna of Iraq, as components of the more complex set of ecosystems and habitats, are experiencing sharp decline from the levels that existed even a few decades ago because of a number reasons, among which a broadly recognized lack of environmental awareness and knowledge at all levels; poverty and unmet basic needs; political instability, wars and conflicts.

- There are significant challenges in the manner of dealing with the implementation of the National Development Plan of Iraq.
- The country is a diversified country in terms of ecosystems, climate, ethnic groups and traditions: these diversities shall be maintained and harmonized to provide richness for the country and heritage for the future generations. The economic potentialities of the country are big due to the presence of oil richness and, with a view to sustainable development; they must account for improving wealth and life quality for all society components as well as take care of the environment.
- The main concepts underlying the Iraqi biodiversity strategy can therefore be summarized in the country's strive to achieve a better living condition for its population, by using and valuing biodiversity in a sustainable way and following a widespread increase of knowledge and awareness about biodiversity values.

TABLE 11: THE MAIN CONCEPTS, THE VISION AND THE MISSION OF THE IRAQI NBSAP

MAIN CONCEPTS	VISION	MISSION
HUMAN LIFE AWARENESS SUSTAINABILITY KNOWLEDGE	THE ENVIRONMENT GIVES US LIFE: LET US TAKE CARE OF IT. BY 2050 IRAQ HAS SPREAD THE KNOWLEDGE AND THE AWARENESS ABOUT BIODIVERSITY IMPORTANCE AND USES ITS NATURAL RESOURCES SUSTAINABLY, FOR A BETTER LIFE FOR PRESENT AND FUTURE GENERATIONS	THE COUNTRY STRIVES TO ACHIEVE A BETTER LIVING CONDITION FOR ITS POPULATION, BY USING AND VALUING BIODIVERSITY IN A SUSTAINABLE WAY AND FOLLOWING A WIDESPREAD INCREASE OF KNOWLEDGE AND AWARENESS ABOUT BIODIVERSITY VALUES.

- The main concepts, the values and the objectives that are defined and set out in the present Strategy are aligned and consistent with the Strategic Framework of the Biodiversity Convention and in particular with its Strategic Plan 2011-2020 and the Aichi Biodiversity Targets, in particular as concerns the core issues of **'conserve biodiversity'**, **'valuing biodiversity'**, **'delivering services essential for all people'** and **'contribute to human wellbeing and poverty eradication'**.

TABLE 12: THE GLOBAL STRATEGIC PLAN FOR BIODVERSITY 2011-2020 VISION

Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets

At the Nagoya UN Biodiversity Summit in October 2010, 192 countries agreed to an ambitious conservation plan to protect global biodiversity. This new 'Strategic Plan' provides a flexible framework for all 193 Parties to the Convention of Biological Diversity to drive action on biodiversity by all Parties. It established a new global vision for biodiversity – a world of "living in harmony with nature" where:

• 'By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.'
Parties also agreed a shorter term ambition to:

• ' Take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human wellbeing, and poverty eradication..'

To deliver this ambition, Parties agreed on a set of strategic goals and targets (the 'Aichi' targets) to drive action on biodiversity.

4   THE STEPS OF THE STRATEGY

The main steps of the Strategy and pillars or milestones around which the NBSAP is centered are briefly explained in this Chapter

FIGURE 2: STRATEGY COMPONENTS
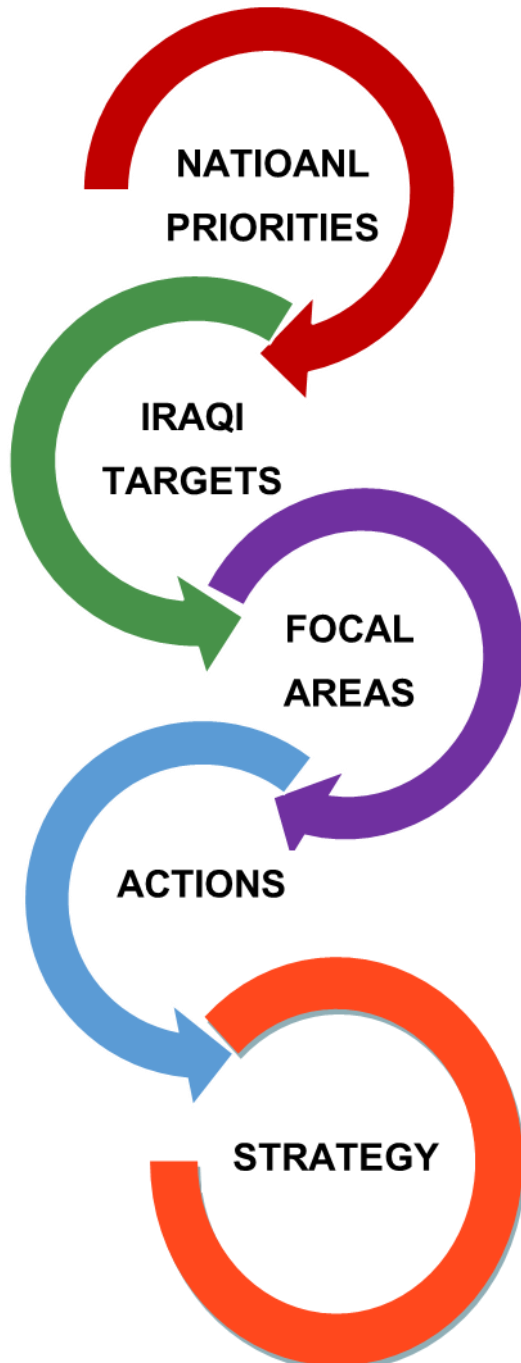
- Within the framework of the Strategic Plan of the Convention and with a view to its main concepts and values, the Iraqi national priorities are set, taking into account the particular na-

tional context and the country's needs.

- 23 ambitious National Targets (often phrased as real instructions and action plans) are set, covering main areas of interest for stakeholders and policy makers, as well as responding to the most urgent needs of the country.
- The numerous national Targets have identified focal areas where action will be prioritized in the time horizon of the Strategy.
- The Government will play a leading role in delivering the main messages and the vision that support the Iraqi NBSAP. It will also play a crucial role in following up the implementation steps and the policy mechanism to achieve the intended outcomes.

4.1   PILLARS OF THE STRATEGY: PRINCIPLES AND PRIORITIES

- In Iraq an important lack of awareness about biodiversity and its benefits has been recognized from many sources and stakeholders; huge data and methodological gaps for relevant assessments and continuous monitoring of environmental parameters have also been addressed many times by the stakeholders as a fundamental step to inform and plan conservation actions.
- Policy measures and legislative reviews have also been recognized as a basis to renew and address emerging environmental concerns, as well as their implementation and enforcement.
- The main message the Strategy wants to deliver is that IRAQ NEEDS TO CONSERVE ITS BIODIVERSITY BOTH THROUGH DIRECT CONSERVATION ACTIONS AND THROUGH IMPROVING SUPPORTING SECTORS FUNCTIONAL TO CONSERVATION, such as:

- IMPLEMENTING AND ENFORCING RELEVANT **POLICY AND LEGISLATION** CONCERNING THE ENVIRONMENT;
- **ASSESSMENT, MONITORING AND RESEARCH** OF BIODIVERSITY AND ENVIRONMENTAL DATA.
- THE **AWARENESS AT ALL LEVELS** ABOUT BIODIVERSITY VALUES; THE SERVICES IT PRO-

VIDES TO HUMAN KIND AND THE PRIORITY OF ENVIRONMENTAL ISSUES ARE RECOGNIZED AS THE <u>BUILDING BRICKS OF THE STRATEGY</u> AND PROVIDE THE ESSENTIAL BACKGROUND TO CARRY ON ALL STRATEGY'S ACTIVITIES.

FIGURE 3: THE MAIN STEPS THAT HAVE ALLOWED DEFINING THE ACTIONS OF THE STRATEGY
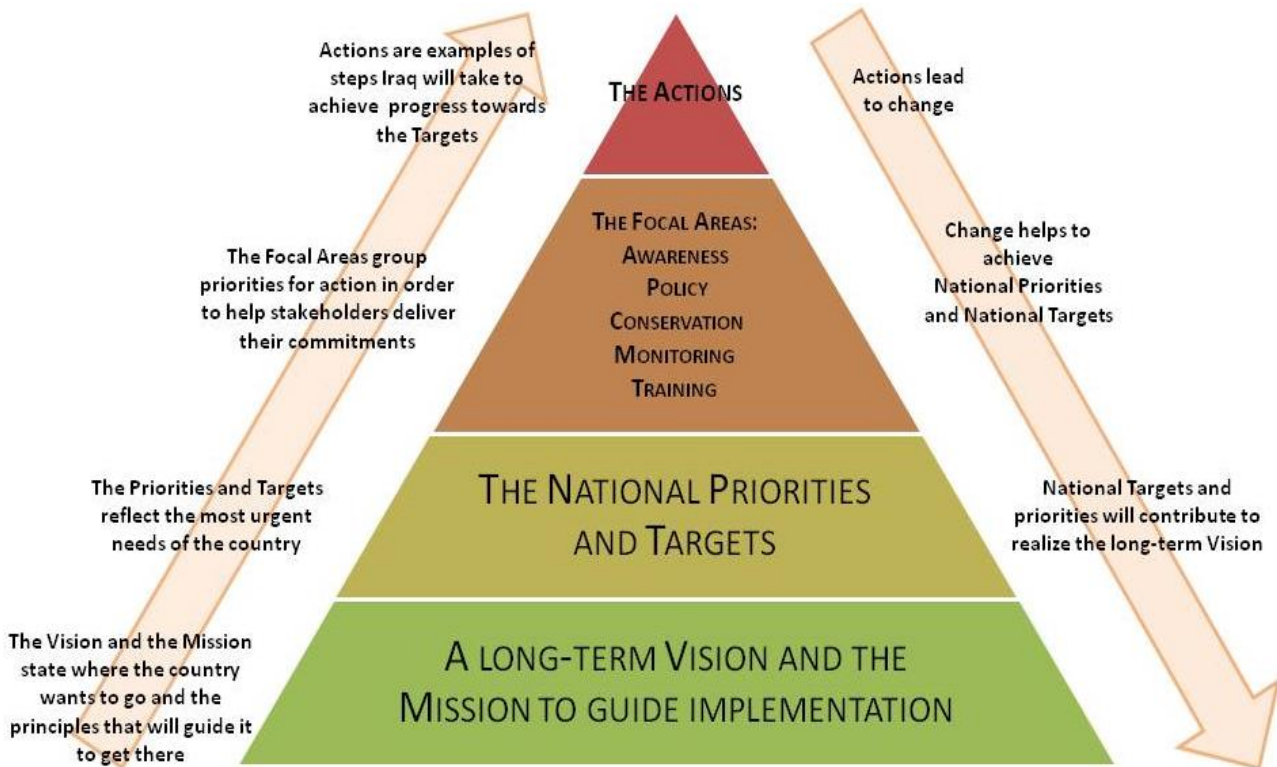
5 THE NATIONAL STRATEGIC TARGETS

This Chapter goes into the detail of the National Targets, how they have been defined and the main focal (Aichi) areas that they cover.

The Actions that have been derived from the National Targets and that will allow meeting the targets are also listed as separated Tables in chapter 6.

In paragraph 6.1 and 6.1.1 the responsibilities, roles and timeframe are identified for the implementation of each action identified to meet the national targets. It is important also to identify other national plans and strategies that can overlap or be in conflict with these actions in order to work on appropriate mainstreaming strategies; this is presented in paragraph 6.1.2. In paragraph 6.1.3 a number of steps for the implementation of the actions are suggested as a general guideline for policy makers and implementing bodies.

As an output of a broad consultative process with relevant stakeholders, Iraq has set its national targets, within the framework of the CBD Strategic Plan 2011-2020[17] and of the Aichi Biodiversity Targets. In particular the Aichi targets that Iraq has addressed as most important for the country's needs are referring to:

- Awareness
- Habitat loss
- Pollution
- Invasive and alien species
- Protected areas
- Species extinction
- Ecosystem services
- Traditional knowledge and
- Financial resources

Among these 9 themes, Iraq has developed 23 targets, as shown in the following table.

The Aichi Targets are in total 20, as reported in the Annexed Strategic Plan of the Convention. They cover widely the biodiversity themes and issues and are very ambitious and challenging.

Every country is free to select all of them, some or even create new National Targets depending on the priorities and special issues that are identified nationally. The selection of a limited number of Aichi Targets to frame the national ones, responds to the need of having a few and clear national objectives that the country is able to meet.

In the particular Iraqi context, proposing a wide array of national targets covering all the Aichi thematic areas would have resulted in an unfeasible task because too ambitious and not realistic.

For this reason the focal issues that have been addressed by Iraq cover 9 out 20 Aichi Targets.

---

[17] Annexed to the document (Appendix 1)

TABLE 13: THE NATIONAL STRATEGIC TARGETS AND THEIR RELATION WITH THE CBD STRATEGIC GOALS AND AICHI TARGETS

CBD Strategic Goal	Aichi Target (The selected ones at the national level)	National Target (Arranged in accordance to their linkage to Aichi Targets)
Strategic Goal (A) Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society	*Target 1 - Awareness increased*	**1. By 2020, 25% of urban and rural people have awareness of the status of biodiversity, its benefits for people, the pressures that affect it, and the actions they can take for its conservation and sustainable use**
		2. By 2020, 50% of policy makers and planners have awareness of the status of biodiversity, its benefits for people, the pressures that affect it, and the actions they can take for its conservation and sustainable use
		3. By the end of 2016 a national survey of tools used for public awareness of biodiversity is completed.
		4. By 2020 the use of tools (films, publications, educational programmes, guidance materials, and training) for raising awareness of biodiversity is improved with locally defined, area based and targeted awareness programs (e.g. governorate level)
Strategic Goal (B) Reduce the direct pressures on biodiversity and promote sustainable use	*Target 5 - Habitat loss*	**5. By the end of 2020 a GIS database of the extent, condition (i.e. healthy or degraded) and protection status of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq has been developed.**
		6. By the end of 2020 the reasons for loss and degradation (i.e. the species that used to be present in that habitat are not there anymore, and the services that the people expected or used are reduced or absent) of each of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq have been identified to inform conservation actions.
		7. By the end of 2016 the main pressures on forest ecosystems are identified and studied
		8. By the end of 2020 legislation to address the main pressures on forest ecosystems and native forest species is issued, promoting sustainable management, restoration and conservation.
		9. By the end of 2020, about 1,000 square km of desertified shrubland grassland is restored
	Target 8 - Pollution reduced	**10. By end of 2017 a national monitoring programme is established for identification of the main sources and diffusion paths of chemical and physical pollutants in the natural ecosystems and the effects of pollution on natural ecosystems**
		11. By the end of 2018 environmental standards are issued and enforced for prevention and control of priority pollutants in the natural ecosystems (not altered by human intervention).
	Target 9 - Invasive and alien species	**18. By the end of 2017 legislation is enacted to control the introduction and diffusion of non-native species into the natural environment**
		19. By the end of 2020 the list of invasive species of Iraq and their impacts and invasion pathways has been published.
Strategic Goal (C) To improve the status of biodiversity by safe-	*Target 11 - Protected Areas*	**12. By the end of 2014 a decree is issued for the establishment of protected areas in Iraq**
		13. By the end of 2016 at least three training workshops on PA management have been conducted
		14. By the end of 2016 a study and GIS maps of the most sensitive habitats (i.e. under high level of threats and contain-

CBD Strategic Goal	Aichi Target (The selected ones at the national level)	National Target (Arranged in accordance to their linkage to Aichi Targets)
guarding ecosystems, species and genetic diversity		ing high numbers of globally threatened species) have been developed.
		15. By the end of 2020 ten new Protected Areas have been gazetted and established
	Target 12 - Threatened species	20. By the end of 2020 the list of threatened species of Iraq has been published and an action plan for the conservation of priority species is produced
		21. By 2020 legislation for the conservation of threatened species is issued and enforced
Strategic Goal (D) Enhance the benefits to all from biodiversity and ecosystem services	Target 14 - Ecosystem services	16. By the end of 2016 a national assessment is published of the state of provisioning, regulating and cultural services supplied by natural ecosystems and their importance for rural and urban people and on management options to be developed for the sustainable supply of ecosystem services
		17. By the end of 2018 a national strategy/sub-national strategies are established for the sustainable management of ecosystems to supply important ecosystem services for rural and urban people
Strategic Goal (E) Enhance implementation through participatory planning, knowledge management and capacity building	Target 18 - Traditional knowledge	22. By the end of 2020 a survey of indigenous and local communities' traditional knowledge, use and practices relevant for the conservation and sustainable use of biodiversity is published.
	Target 20 - Financial resources for implementation	23. By 2016 a Resource Mobilization Plan for implementation of the NBSAP is established and implemented

FIGURE 4: AICHI TARGET 1 WITH THE RELATED NATIONAL TARGETS (1, 2, 3, 4)
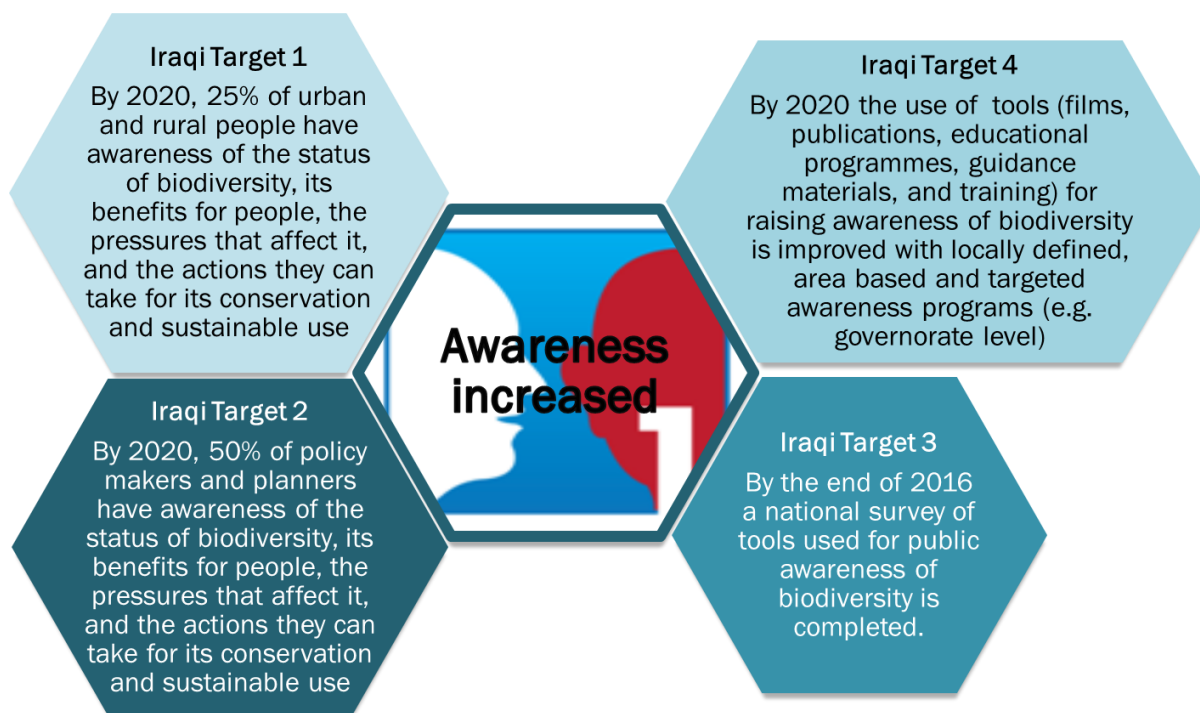
5.1 NATIONAL TARGET 1

> **By 2020, 25% of urban and rural people have awareness of the status of biodiversity, its benefits for people, the pressures that affect it, and the actions they can take for its conservation and sustainable use**

This target aims to achieve a better knowledge about biodiversity and its importance for the well-being of people in a relatively short time, by setting a threshold of the 25% of urban and rural population. The awareness about biodiversity in a sample of urban and rural population has to be tested with statistical tools in order to assess the 25% threshold that will allow meeting the target.

5.2 NATIONAL TARGET 2

> **By 2020, 50% of policy makers and planners have awareness of the status of biodiversity, its benefits for people, the pressures that affect it, and the actions they can take for its conservation and sustainable use**

This targets aims to achieve a better knowledge about biodiversity and its importance for the well-being of people for policy makers, planners and managers. The threshold of 50% (higher than for the common people) has been set in order to signify that the level of awareness on biodiversity issues, of those people influencing the choices and future economic development of the country has to reach much higher standards because they will have the responsibility of taking care of the environment in a responsible way.

5.3 NATIONAL TARGET 3

By the end of 2016 a national survey of tools used for public awareness of biodiversity is completed.

The awareness about biodiversity at all levels can be spread in many different ways: through education institutions, through the media, through organizing target events etc.. In order to plan for a gap filling program and to produce tools and communication materials that are effective and target oriented, a comprehensive review needs to be carried out about the existing tools that are currently available and used in Iraq to the purpose of spreading information about biodiversity.

5.4 NATIONAL TARGET 4

By 2020 the use of tools (films, publications, educational programmes, guidance materials, and training) for raising awareness of biodiversity is improved with locally defined, area based and targeted awareness programs (e.g. governorate level).

In order to develop an effective gap filling program concerning the production and use of awareness tools, the awareness raising programs have to be specifically tailored to the needs and particular situations of the various governorates, target people, needs and priorities of specific areas of the country, that means providing different tools depending on the specific local situations and needs.

FIGURE 5: AICHI TARGET 5 WITH THE RELATED NATIONAL TARGETS (5, 6, 7, 8, 9)

Iraqi Target 5
By the end of 2020 a GIS database of the extent, condition (i.e. healthy or degraded) and protection status of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq has been developed.

Iraqi Target 9
By the end of 2020, about 1,000 square km of desertified shrubland grassland is restored

Habitat loss

Iraqi Target 6
By the end of 2020 the reasons for loss and degradation (i.e. the species that used to be present in that habitat are not there anymore, and the services that the people expected or used are reduced or absent) of each of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq have been identified to inform conservation actions.

Iraqi Target 8
By the end of 2020 legislation to address the main pressures on forest ecosystems and native forest species is issued, promoting sustainable management, restoration and conservation.

Iraqi Target 7
By the end of 2016 the main pressures on forest ecosystems are identified and studied

5.5 NATIONAL TARGET 5

By the end of 2020 a GIS database of the extent, condition (i.e. healthy or degraded) and protection status of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq has been developed.

In order to assess the rate of loss and the degradation of the habitats in Iraq many steps have to be taken. First of all the habitats of Iraq are not all 'natural' meaning that most of them have been partially or totally modified by human intervention; nevertheless they are providing essential services to people, for this reason all the habitats need to be included in the assessment foreseen by this target. Their extent is relatively easy to be assessed, when relying on GIS layers and tools. Determining their condition is more complex and will possibly involve the use of key species or ecological indicators to perform an evaluation of their status. This target is very ambitious and involves also the acquirement of technological skills to build and maintain the GIS database.

5.6 NATIONAL TARGET 6

By the end of 2020 the reasons for loss and degradation (i.e. the species that used to be present in that habitat are not there anymore, and the services that the people expected or used are reduced or absent) of each of the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq have been identified to inform conservation actions.

The knowledge about the loss and degradation of the habitats is a pre-requisite for achieving this target; also some examples on how to assess loss and degradation are provided inside the target itself and other information on these two factors should be obtained in parallel with the work in progress for target 5 above. The causes and reasons that have determined and are determining the loss and degradation of the habitats need to be investigated and known as a main outcome of this target in order to plan for the appropriate conservation and remediation actions.

5.7 NATIONAL TARGET 7

By the end of 2016 the main pressures on forest ecosystems are identified and studied.

This target aims at a short term review of the main threats and pressures that the few forest ecosystems of Iraq are suffering. As a first step all the forest ecosystems have to be identified and possibly mapped, then through both, field surveys and office surveys at relevant departments, the pressures and threats that are affecting them will be identified, listed and studied (meaning that the drivers of these pressures and the possibilities to remove them will be also suggested).

5.8 NATIONAL TARGET 8

By the end of 2020 legislation to address the main pressures on forest ecosystems and native forest species is issued, promoting sustainable management, restoration and conservation.

This target is truly an action that requires the commitment and the cooperation of the competent institutional bodies in order to issue the most appropriate and effective legislation act to the purpose of protecting and conserving forest ecosystems. The achievement of the target will only involve the issuance of the legislation; however it is essential that every new legislation act issued or any review of existing legislation is closely followed up as concerns its implementation and enforcement.

5.9 NATIONAL TARGET 9

By the end of 2020, about 1,000 square km of desertified shrubland grassland is restored.

Despite being very short in wording this target is very complex. The main issue here is to define and assess in the field the 'desertified shrubland grassland' habitat type. The first step is to compare the current land uses and habitats with historical information (possibly by using GIS tools and maps) in order to identify the desertified lands of Iraq. Among the total amount of desertified lands found, about 1,000 Km^2 have to be chosen to be restored with the most advanced technologies and by carefully planning for their subsequent long-term maintenance.

FIGURE 6: AICHI TARGET 8 WITH THE RELATED NATIONAL TARGETS (10, 11)

Iraqi Target 10
By end of 2017 a national monitoring programme is established for identification of the main sources and diffusion paths of chemical and physical pollutants in the natural ecosystems and the effects of pollution on natural ecosystems.

Pollution reduced 8

Iraqi Target 11
By the end of 2018 environmental standards are issued and enforced for prevention and control of priority pollutants in the natural (not altered by human intervention), semi-natural and human modified habitats of Iraq..

5.10 NATIONAL TARGET 10

> **By end of 2017 a national monitoring programme is established for identification of the main sources and diffusion paths of chemical and physical pollutants in the natural ecosystems and the effects of pollution on natural ecosystems**

This target has a very short term deadline for being accomplished; the issue here is to draft the monitoring programme that means a plan with all the requirements and timeline for identify the sources and the diffusion paths of chemical (e.g. dangerous compounds or elements affecting the water quality because of their dangerous effects when entering into living organisms) or physical pollutants (e.g. colour change, suspended solids, foaming, temperature).

5.11 NATIONAL TARGET 11

> **By the end of 2018 environmental standards are issued and enforced for prevention and control of priority pollutants in the natural ecosystems (not altered by human intervention).**

This target has a short term deadline due to the fact that it represents already an action to be carried out in a relatively easy way. International environmental standards about the thresholds of pollutants allowed in the natural environment are present from many sources: the reference could be international with the necessary national adjustments, as needed.

FIGURE 7: AICHI TARGET 11 WITH THE RELATED NATIONAL TARGETS (12, 13, 14, 15)
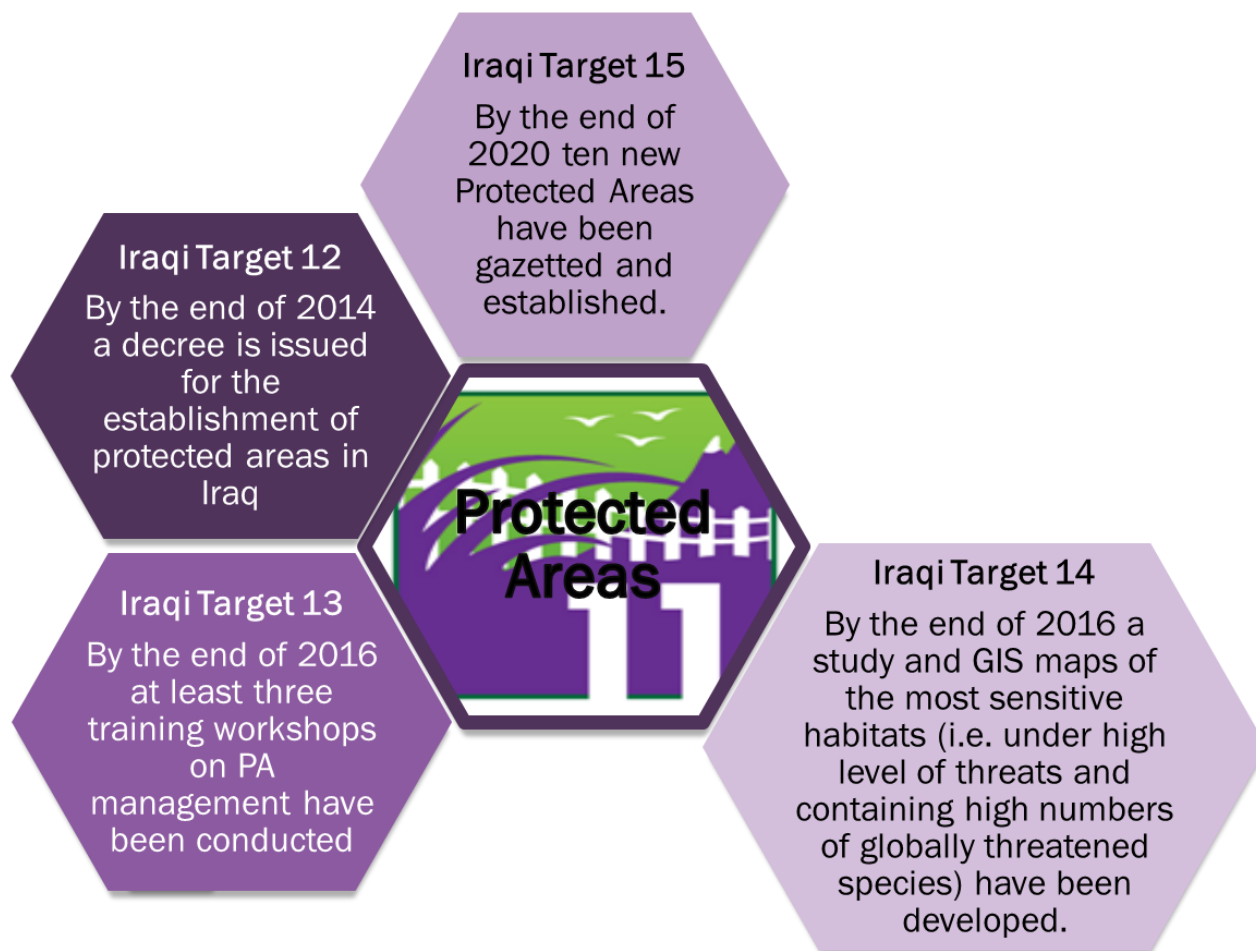
5.12 NATIONAL TARGET 12

By the end of 2014 a decree is issued for the establishment of protected areas in Iraq.

This Target is actually already accomplished since the protected areas law has been issued as of March 2014 (Law n.2/2014). In the same year, according to the law and as a step forward for its implementation, the National Committee of the Natural Protected Areas (NC-NPA) has been established. The committee has started its activities in 2015, by holding meetings and studying the proposals of the sites to be as protected areas, and other steps will be taken by following up its management after their declaration and establishment, according to the law.

5.13 NATIONAL TARGET 13

By the end of 2016 at least three training workshops on PA management have been conducted.

This target is an action and it involves the commitment and organizational skills of institutional bodies and also a financial allocation in order to be fully achieved.

5.14 NATIONAL TARGET 14

By the end of 2016 a study and GIS maps of the most sensitive habitats (i.e. under high level of threats and containing high numbers of globally threatened species) have been developed.

This target implies the identification of the 'most sensitive habitats of Iraq'; a suggestion is given inside the wording of the target itself identifying for instance the sensitive habitats as those habitats being subject to high levels of threats or as being home of high numbers of globally threatened species. In general terms sensitive habitats can be identified with those natural or semi-natural environments where due to a number of reasons, it is more likely that a changed balance between the ecosystem components will result in an irreversible damage event (such as species extinction or failed delivery of essential services like clean water).the identification of such habitats nationally and the creation of a database and a research on this issue will be the output of this target. The deadline for accomplishment is very ambitious and implies the use of GIS knowledge and skills, besides relying on a certain degree of generalization in assessing the 'sensitive habitats'.

5.15 NATIONAL TARGET 15

By the end of 2020 ten new Protected Areas have been gazetted and established.

This target is an action: the process of assessing and declaring a number of protected areas is on-going, under the lead of the Ministry of Environment, the institutional body responsible for Protected Areas.

FIGURE 8: AICHI TARGET 14 WITH THE RELATED NATIONAL TARGETS (16, 17)

5.16 NATIONAL TARGET 16

By the end of 2016 a national assessment is published of the state of provisioning, regulating and cultural services supplied by natural ecosystems and their importance for rural and urban people and on management options to be developed for the sustainable supply of ecosystem services

The ecosystems are not only important for their own sake, but since they provide important services to human people such as clean air and water and food. These services are usually categorized into provisioning services such as the fish that is obtained from a marsh or from the sea, regulating, such as the flood prevention function of coastal marshes and cultural such as the aesthetical and heritage values. The objective of this target is to list and assess, according to this categorization, all the services provided by Iraqi natural systems, together with suggesting possible options for their sustainable utilization.

5.17 NATIONAL TARGET 17

By the end of 2018 a national strategy/sub-national strategies are established for the sustainable management of ecosystems to supply important ecosystem services for rural and urban people.

After the main ecosystem services and the natural habitats that supply them have been identified nationally, a national strategy and local strategies for their conservation need to be set in place. This target calls for the drafting of national and local strategies/action plans by 2018.

FIGURE 9: AICHI TARGET 9 WITH THE RELATED NATIONAL TARGETS (18, 19)

Iraqi Target 18

By the end of 2017 legislation is enacted to control the introduction and dispersal of non-native species into the natural environment.

Invasive Alien species

Iraqi Target 19

By the end of 2020 the list of invasive alien species of Iraq and their impacts and invasion pathways has been published.
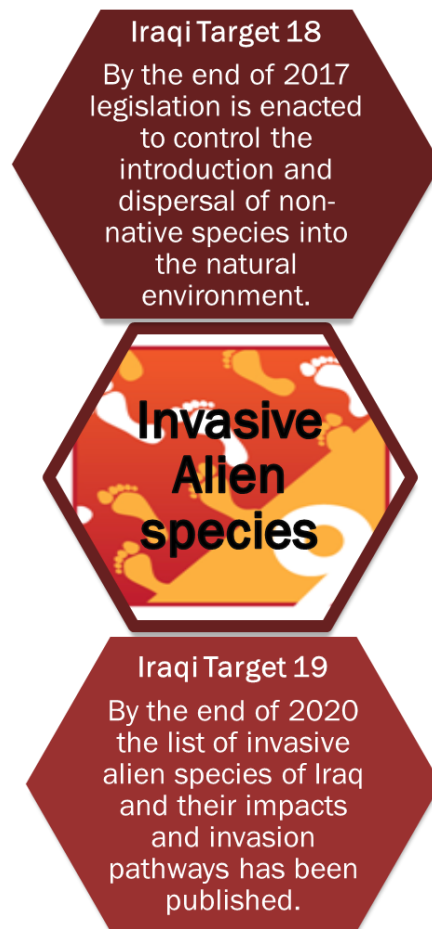
5.18 NATIONAL TARGET 18

> **By the end of 2017 legislation is enacted to control the introduction and diffusion of non-native species into the natural environment**

This target is an action that involves the issuance of legislation; the preparation and issuance of the law can be relatively easy and can be accomplished in the short term. The effectiveness of the legislative provision depends on the commitment of the involved institutional bodies and on the capacity of the institutional power to implement and enforce the provisions.

5.19 NATIONAL TARGET 19

> **By the end of 2020 the list of invasive species of Iraq and their impacts and invasion pathways has been published.**

A good progress in achieving this target has already been achieved by compiling a national list of non-native or invasive species with the support of ISSG (Invasive Species Specialist Group) of IUCN within the framework of the Iraqi 5th National Report to the CBD. This list needs to be further refined and completed, especially as concerns the invasiveness status of many non-native species. The research of invasion pathways needs also to be discovered in order to enact the appropriate measures of control.

FIGURE 10: AICHI TARGET 12 WITH THE RELATED NATIONAL TARGETS (20, 21)

5.20 NATIONAL TARGET 20

> **By the end of 2020 the list of threatened species of Iraq has been published and an action plan for the conservation of priority species is produced**

This target is very ambitious since it requires the collection of all research and information about Iraqi (animal) species as well as an update and analysis of this information with recent assessments and surveys, in order to evaluate the conservation status of species whose status is recognized as critical nationally due to a number of reasons and pressures. Also an action plan for their conservation must be drafted, maybe starting from the ones that are recognized (also at the international level) as being most threatened with extinction.

5.21 NATIONAL TARGET 21

> **By 2020 legislation for the conservation of threatened species is issued and enforced.**

Once the threatened species of Iraq have been identified a specific legislation for their conservation must be created with a new legislative act or by using and adapting the framework of an already existing provision. The important issue for this type of legislation as for all the others that are mentioned in the National targets is that they are implemented and enforced.

FIGURE 11: AICHI TARGET 18 WITH THE RELATED NATIONAL TARGET (22)
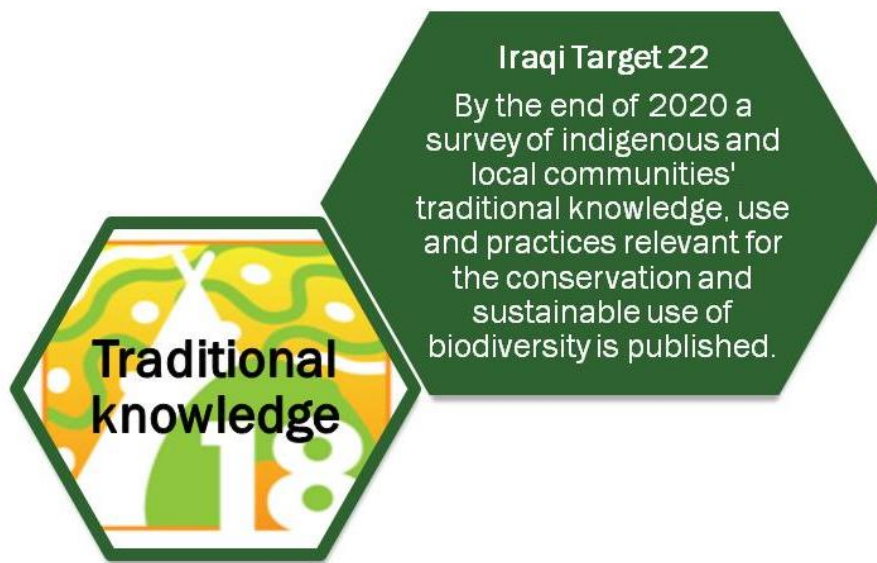
5.22 NATIONAL TARGET 22

By the end of 2020 a survey of indigenous and local communities' traditional knowledge, use and practices relevant for the conservation and sustainable use of bio-diversity is published.

This target involves broadly the participation and cooperation of the local authorities and institutions besides local conservation groups and NGOs. The first step is to carry out a locally oriented survey that will cover the whole country as much as possible and feasible. Target questionnaires can be used in order to collect the relevant information about the way in which the local communities are using and benefitting of the services provided by ecosystems and also on their traditional ways to conserve and improve the environment.

FIGURE 12: AICHI TARGET 20 WITH THE RELATED NATIONAL TARGET (23)
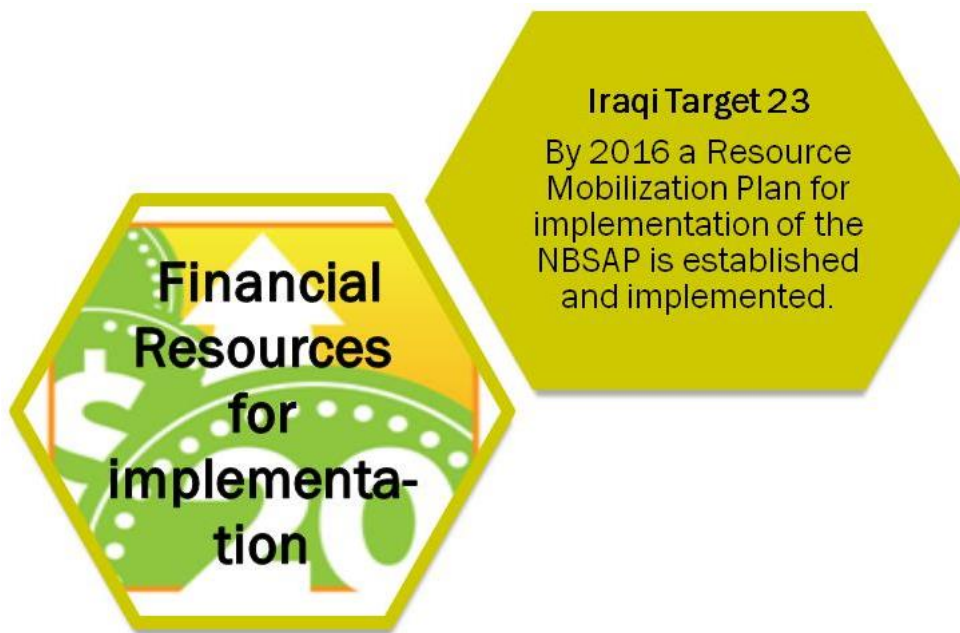
5.23 NATIONAL TARGET 23

> **By 2016 a Resource Mobilization Plan for implementation of the NBSAP is established and implemented**

This target is essential to achieve all the other National targets and to implement the NBSAP. The relatively short term that is set for the resource mobilization plan, responds to the need of avail as soon as possible the necessary resources to start up with the actions and activities that will allow meeting the strategy's objectives.

6 THE ACTIONS

Focal Area	Action	National Target
Focal Area 1: Awareness & traditional knowledge	**A.1.a** By the end of 2016 a national survey is completed to know how many awareness tools (films, documentaries, publications, educational programs, guidance materials and trainings) on environment and biodiversity exist.	**Target 3** Survey the tools for awareness
	A.1.b Starting from the Strategy approval (2015), each ministry organizes two annual workshop for their employees and manager in order to raise awareness and update about biodiversity issues.	**Target 2** Awareness of policy makers **Target 4** Tools for awareness increased
	A.1.c By 2016 groups, local associations and NGOs have been established to raise awareness among the local and public; also schools, universities and the media are used to raise awareness among the locals and the public.	**Target 1** Awareness of people **Target 4** Tools for awareness increased
	A.1.d By 2018 develop, research, and distribute the knowledge about the most important plants traditionally used as medicine (drugs).	**Target 4** Tools for awareness increased **Target 22** Survey on traditional knowledge
	A.1.e By 2018 develop, research and distribute at all levels (from locals to policy makers) knowledge about the meaning, the importance and the sustainable use and management of ecosystem services.	**Target 1** Awareness of people **Target 2** Awareness of policy makers **Target 16** Assessment on state of ecosystem services
	A.1.f By the end of 2020, estimation has been made to know the percentage of people and policy makers /governmental employees who know about biodiversity by using questionnaires (specific and simple questions to reflect the general knowledge on biodiversity).	**Target 1** Awareness of people **Target 2** Awareness of policy makers
	A.1.g By 2020 a national survey about the various ethnic groups of Iraq, their specific traditions and practices and their linkage with the conservation and sustainable use of biodiversity is published.	**Target 4** Tools for awareness increased **Target 22** Survey on traditional knowledge
	A.1.h By 2020, every governorate to produce a report about the traditional knowledge of their province local communities (such as the traditional crafts and any other traditional manifestation); to support economically initiatives for the launching and spreading of traditional components and to support the establishment of local NGOs of the traditional communities.	**Target 4** Tools for awareness increased **Target 22** Survey on traditional knowledge

Focal Area	Action	National Target
Focal Area 2: Policy	**A.2.a** By the end of 2014 a decree is issued for the establishment of protected areas in Iraq.	**Target 12** Decree issued on protected areas
	A.2.b By end of 2015 assess the forestry legislations currently in force and identify the gaps.	**Target 8** Legislation on forestry
	A.2.c By end of 2016 identify all the governmental bodies concerned with the control and management of invasive alien species.	**Target 18** Legislation on non-native species **Target 19** List of invasive species
	A.2.d By 2016 assessing current environmental standards and identify gaps that need to be addressed. By 2020 environmental standards and limitations are issued to address the identified gaps.	**Target 11** Environmental standards
	A.2.e By 2017 Issuance of a Legislation to control the introduction and dispersal of non-native species.	**Target 18** Legislation on non-native species
	A.2.f By 2016 an evaluation of the effectiveness of the legislations currently in force about threatened species is carried out and by 2020 legislation for the conservation of threatened species is issued and enforced.	**Target 21** Legislation on threatened species
	A.2.g By 2016 determine the services provided by natural ecosystems that are used by rural and urban people and by 2018 a strategy should be developed and in place to use sustainably the ecosystems that supply important services to urban and rural people.	**Target 16** Assessment on state of ecosystem services **Target 17** Strategy on ecosystem services management
	A.2.h By 2018 Amend existing legislation or develop a new regulation for the protection of lands from desertification risk and restoration of desertified lands, thereby providing special measures to protect restored lands.	**Target 6** Habitat loss and degradation **Target 9** Desertification
	A.2.i By 2018 amend the old forestry legislation and enforce the new provisions.	**Target 8** Legislation on forestry
	A.2.j By 2018 cross-sectoral Guidelines for sustainable use (of natural resources) and sustainable production and consumption methods are drafted to be integrated into relevant sectoral policies.	**Target 16** Assessment on state of ecosystem services **Target 17** Strategy on ecosystem services management
FA	**A.3.a** By 2016 the purposes and values of the ten pro-	**Target 15** Establish ten new protect-

Focal Area	Action	National Target
	posed PAs have been identified and by the end of 2020 ten new protected areas have been gazetted and established, by detailed planning over the years. Within one year from the PAs establishment the management plan is defined (in accordance with the National legislation on PAs and with international guidelines, including identification of values and criteria, the PAs qualifying for AZE[18] sites, the management authority, the funds, the staff, the social aspects etc.).	ed areas
	A.3.b By 2017 the list of threatened species of Iraq is published and the collection of data on their abundance and the main threats affecting them is started in order to inform conservation actions and to identify existing and potential protected areas where Endangered and Critically Endangered species are ~95% confined to single sites (AZE sites). An Action Plan (about conservation of threatened species) is also drafted by 2018. By 2020 the Action Plan is completed, published and on-going.	**Target 20** List of threatened species
	A.3.c By 2017 identify the desertified areas of Iraq, by comparison with historical data and evaluate the total surface of these lands and select among all the inventoried desertified lands 1000 sqKm of ecologically valuable shrubland-grassland to be restored. By 2018 draft an action plan for restoration of the selected lands; by 2020 the action plan is on-going.	**Target 9** Desertification
Focal Area 4: Monitoring and assessment	**A.4.a** By 2016, using the existing available data on habitats under high level of threats (e.g. over hunting and grazing, pollution, war residuals), or with high number of threatened species, develop a GIS map on the most sensitive habitats of Iraq.	**Target 14** Mapping sensitive habitats
	A.4.b By 2016 designing a gap-filling program based on the available data for building the GIS database for the identification, extent, condition and protection status of the natural, semi-natural and human modified habitats, to be followed up by an inter-ministerial team.	**Target 5** Database on habitat status
	A.4.c By 2016 design and carry out a Field work scheme in order to detect loss and degradation of main natural, semi-natural and human modified habitats of Iraq and their reasons, by making a comparison with the natural (old) status – based on the references and literatures and using indicators such as, species, habitat size, ecosystem services provided, etc.. By 2020 summarize and store in a complete database the obtained information.	**Target 6** Habitat loss and degradation
	A.4.d By 2016 perform an inventory of the main forested areas of Iraq and their type. By 2018 identify and evalu-	**Target 7** Identify pressures on eco-

---

[18] Alliance for Zero Extinction : http://www.zeroextinction.org/

Focal Area	Action	National Target
	ate, through comparison with historical data, the forest loss and the main pressures that have caused the loss and that still exist.	systems
	A.4.e By 2017 a national monitoring programme is established for identification of the types of pollutants, the sources and diffusion paths.	**Target 10** Monitoring pollution
	A.4.f By 2016 assessments at Region level are carried out about the state of ecosystem services with reference to their provisioning, regulating and cultural functions and their importance for urban and rural people. By 2018 management options are developed nationally in order to use them sustainably. By 2020 the regional assessments and the management options are summarized, published and spread.	**Target 16** Assessment on state of ecosystem services
	A.4.g By 2018 fill the data gaps about identification, extent, condition and protection status of the natural, semi-natural and human modified habitats by collecting the missing information and store these data in a GIS database and by 2020 deliver and share the complete GIS database containing the information on the natural, semi-natural and human modified habitats.	**Target 5** Database on habitat status
	A.4.h By 2018 the existing list of invasive species of Iraq (published in the 5NR) is reviewed and updated. By 2020 research is completed and published to ascertain the invasive status, the impact and invasion pathways of the 30 most dangerous/problematic (known or assumed) alien species of the list.	**Target 19** List of invasive species
Focal area 5: Trainings	**A.5.a** By the end of 2016 at least one training workshop on PAs management has been completed and other two workshops are planned.	**Target 13** Trainings on PAs
	A.5.b By 2016, at least one training has been organized for the Governorate employees to raise their awareness about the importance of traditional knowledge and biodiversity conservation.	**Target 2** Awareness of policy makers **Target 22** Survey on traditional knowledge
	A.5.c By 2020 a set of inter-ministerial conferences addressing crucial biodiversity issues are organized, referring in particular to: - Ecosystem services and human well-being - Invasive alien species - Protected areas management - Habitat loss - Pollution Sustainable development	**Target 2** Awareness of policy makers
	A.5.d By 2020 a set of trainings are organized targeting the academics, researchers, field teams, local organizations of volunteer or conservation groups, technical em-	-

Focal Area	Action	National Target
	ployees from governmental bodies, focusing in particular on the following: - Ecosystem services and human well-being - Invasive alien species - Protected areas management - Habitat loss - Assessment methodologies for field work and data collection - Analysis techniques and trend estimations - Building indicators - Environmental standards Sustainable development	
	A.5.e By 2020 a set of inter-ministerial trainings are carried out about the international guidelines and policies concerning the environment, their relevance and implementation in the Iraqi context.	-

6.1　NBS ACTION PLAN AND MILE-STONES

The definition of actions within the framework of a Strategy always requires adequate and punctual planning for its success.

For each action of the Strategy one or more responsible body is mentioned and addressed as a reference for that action. This means that the action can be implemented in different ways with the cooperation and contribution of one or more of the indicated bodies or maybe even with the cooperative contribution of all of them.

The way in which the responsibility of implementing the action will be dispatched will depend on the involved actors/bodies. It might be that various bodies will each play a different role: such as managing the practical issue, providing financial support, feeding in relevant data and research; or also the various bodies, on base of cooperation agreements will all equally contribute to the action implementation in terms of financing, skills and technical advice.

6.1.1　TIMEFRAME AND RESPONSIBILITY

Focal Area 1: Awareness and Traditional Knowledge		
Action	**Timeframe**	**Responsibility**
A.1.a Awareness tools	2016	Ministry of Culture, Ministry of Higher Education Ministry of Education Iraqi Media Net Kurdistan Regional Government
A.1.b Institutional awareness	2020	All the Ministries Kurdistan Regional Government
A.1.c Public awareness	2016	Governorate Councils. Governorates Directorates: Environment, Agriculture, Water Resources, Education, Culture. NGOs Kurdistan Regional Government
A.1.d Research on traditional uses of medicinal plants	2018	Universities, in coordination with other related institution NGOs Universities in Kurdistan Regional Government
A.1.e Ecosystem services knowledge spread at all levels	2018	Universities and research institution, NGOs, Ministries: Environment, Agriculture, Water Resources, Education Kurdistan Regional Government
A.1.f Estimation of institutional and public awareness	2020	Ministries: Environment, Planning Kurdistan Regional Government
A.1.g Ethnic groups of Iraq and their linkage with biodiversity	2020	Ministry of Culture, Ministry of Tourism and Antiquates NGOs Kurdistan Regional Government
A.1.h Support local traditional communities	2020	Governorate Councils Ministry of Culture

Kurdistan Regional Government

Focal Area 2: Policy

Action	Timeframe	Responsibility
A.2.a Protected area legislation	2014	Ministry of Environment Kurdistan Regional Government
A.2.b Forestry legislations review	2015	Ministry of Agriculture Kurdistan Regional Government
A.2.c Responsible bodies for the control of invasive alien species.	2016	Ministries: Environment, Agriculture, Trade Kurdistan Regional Government
A.2.d Environmental standards review	2016-2020	Parliament/ The committee of Environment and Health Ministries: Environment, Health Kurdistan Regional Government
A.2.e Invasive alien species legislation	2017	Ministries: Environment, Agriculture, Trade Kurdistan Regional Government
A.2.f Reviewing and updating threatened species legislation	2016-2020	Ministries: Environment, Agriculture Kurdistan Regional Government
A.2.g Strategy for the sustainable use of ecosystem services	2016-2018	Universities and research institution, NGOs, Ministries: Environment, Agriculture, Water Resources, planning Kurdistan Regional Government
A.2.h Legislation to prevent desertification	2018	Ministries: Environment, Agriculture Kurdistan Regional Government
A.2.i Enforce the reviewed forestry legislation	2018	Ministry of Agriculture Kurdistan Regional Government
A.2.j Cross-sectoral Guidelines for sustainability	2018	Ministry of Environment Kurdistan Regional Government

Focal Area 3: Protected Areas and conservation

Action	Timeframe	Responsibility
A.3.a Establishment and management of ten new protected areas	2016	Ministries: Environment, Agriculture, Water Resources, Tourism and Antiquates The National Committee for Protected Areas Universities and research institution NGOs Kurdistan Regional Government
A.3.b List of threatened species of Iraq published and Action Plan for conservation actions.	2017-2020	Ministry of Environment, Universities and research institution NGOs Kurdistan Regional Government
A.3.c Identify and restore desertified	2017-2020	Ministries: Environment, Agriculture,

lands.		Water Resources, Planning. Universities and research institution. Kurdistan Regional Government

Focal Area 4: Monitoring and Assessment

Action	Timeframe	Responsibility
A.4.a GIS map of most sensitive habitats of Iraq	2016	Ministries: Environment, Planning Related universities Kurdistan Regional Government
A.4.b Planning a GIS database for habitat assessment	2016	Universities and research institution, NGOs, Ministries: Environment, Agriculture, Water Resources, Planning Kurdistan Regional Government
A.4.c Database on habitat loss	2016-2020	Ministry of Planning Universities and research institution, NGOs Kurdistan Regional Government
A.4.d Inventory of forests of Iraq, forest loss and pressures	2016-2018	Ministries: Agriculture, planning Kurdistan Regional Government
A.4.e Monitoring pollutants	2017	Ministries: Environment, Agriculture, Oil, Industry, Municipalities, Water Resources, Science and Technology, Planning, Health Universities and research institution Kurdistan Regional Government
A.4.f Regional assessments and management on ecosystem services	2016-2020	Governorate Councils. Governorates Directorates: Environment, Agriculture, Water Resources. NGOs. Universities and research institution Kurdistan Regional Government
A.4.g Completing a GIS database for habitat assessment	2018-2020	Universities and research institution, NGOs, Ministries: Environment, Agriculture, Water Resources, Planning Kurdistan Regional Government
A.4.h List of invasive species of Iraq reviewed and published and research on dangerous species completed	2018-2020	Ministry of Environment Universities and research institutions, NGOs Kurdistan Regional Government

Focal Area 5: Training

Action	Timeframe	Responsibility
A.5.a Training Workshops on Protected Areas	2016	Ministry of Environment Kurdistan Regional Government
A.5.b Trainings for local institutional bodies on biodiversity and traditional knowledge	2016	Governorate Councils Local Universities and research institution, Local NGOs Kurdistan Regional Government
A.5.c Governmental conferences on biodiversity issues	2020	All the Ministries Universities and research institution, NGOs Kurdistan Regional Government
A.5.d Trainings for technical staff	2020	All the concerned Ministries Universities and research institution, NGOs Kurdistan Regional Government
A.5.e Trainings on international policy concerning the environment	2020	All the Ministries Kurdistan Regional Government

6.1.2 MAINSTREAMING THE ACTIONS WITH EXISTING RELEVANT STRATEGIES

- In the Table below each of the actions of the Strategy is tested against the existing national strategies, policies and plans that can be present nationally, in order to avoid duplication of efforts and resources and, where possible, to harmonize the implementation.
- The Table reports only those strategies where clear goals, objectives or projects are mentioned and that can in an evenly clear way, be associated with corresponding or partially corresponding actions of the NBSAP. In particular the Table refers to the Iraqi National Development Plan 2013-2017 (NDP), to the National Environmental Strategy and Action Plan (NESAP), to the Poverty eradication Strategy, to the Higher Education Strategy 2011-2020, to the Iraqi Energy Strategy (INES).
- The SWLRI (Strategy for Water and Land Resources of Iraq) has not been released yet, for this reason the detailed analysis of its objectives and the cross-matching with the NBSAP actions cannot be carried out at the moment. However, the SWLRI Strategy will be essential for the NBSAP and the implementation of the two strategies shall be surely mainstreamed.

The objective of the SWRLI project is to define the strategy and the related investment plan that will guide the sustainable management and development of the water and land resources of Iraq for the next twenty-five years. The activities to be performed include data collection, archiving, and analysis, as well as performing all the planning activities required for the development of the Strategy.

- In addition to the above, at ministerial level, plans, policies and strategies might be available that will also cross-cut biodiversity and environmental issues in general and the actions of the NBSAP in particular; in that case each Ministry is therefore urged to review its internal plans and policies and search the possible sectoral actions that can be mainstreamed and harmonized with the NBSAP actions.

TABLE 14: MAINSTREAMING THE ACTIONS OF THE STRATEGY WITH OTHER NATIONAL STRATEGIES

Action	Mainstreamed with (strategy)	
A.1.a Awareness tools		
A.1.b Institutional awareness	National Environmental Strategy and Action Plan (NESAP)	Project 1.1.4, environmental awareness about damage of burning waste. Project 3.1.3, Raising awareness about urban expansion to agricultural lands and orchards. Project 3.3.6, Environmental awareness in the fight against desertification. Project 3.3.11, Raising awareness to decision-maker level on implementing green belts in Baghdad and governorates.
A.1.c Public awareness	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 5, point 5. Goal 10, point 7
	NESAP	Project 1.1.4, Environmental awareness about damage of burning waste. Project 3.1.3, Raising awareness about urban expansion to agricultural lands and orchards.

Action	Mainstreamed with (strategy)	
		Project 3.3.6, Environmental awareness in the fight against desertification. Project 5.4.1, Integration of biodiversity in the curricula of research, education and training. Project 10.4.1, Raising environmental awareness among students in schools, institutes and universities Project 10.4.3 Environmental awareness and education among communities women and youth Project 10.4.4, Environmental awareness in the most vulnerable areas.
	Poverty Strategy 2010-2014	Outcome 3.6, Improve the curricula of the technical education schools and match them with the needs of labor market, especially for rural and agricultural sectors. Outcome 4, action 4.3.6, awareness of rural people about the surrounding environment.
	Higher Education Strategy 2011-2020	Program 4, Update the curricula with current scientific developments Program 6, Raising capacities in line with the sustainable development needs
A.1.d Research on traditional uses of medicinal plants		
A.1.e Ecosystem services knowledge spread at all levels	NESAP	Project 10.4.2, Environmental awareness and education among parliamentarians, decision makers, religious leaders and opinion leaders. Project 10.4.3 Environmental awareness and education among communities women and youth
A.1.f Estimation of institutional and public awareness	NESAP	Project 10.4.2, Action 10.4.3, Action 10.4.4
A.1.g Ethnic groups of Iraq and their linkage with biodiversity	NESAP	Project 5.7.1, Outreach and inventory of cultural environmental heritage
A.1.h Support local traditional communities	NESAP	Project 1.9.1, Building a database on craft industries in Iraq Project 5.7.1, Outreach and inventory of cultural environmental heritage.
A.2.a Protected area legislation	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 10, point 2
	NESAP	Project 10.1.1, Modernizing legal framework for environment
A.2.b Forestry legislations review	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 10, point 2
	NESAP	Project 10.1.1, Modernizing legal framework for environment

Action	Mainstreamed with (strategy)	
A.2.c Responsible bodies for the control of invasive alien species.		
A.2.d Environmental standards review	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 10, point 2
	NESAP	Projects 1.4.1, 1.7.3, 1.11.1, 1.13.1, Identifying the national air pollutants. Project 10.1.1, Modernizing legal framework for environment
A.2.e Invasive alien species legislation	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 10, point 2
	NESAP	Project 10.1.1, Modernizing legal framework for environment
A.2.f Reviewing and updating threatened species legislation	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 10, point 2
	NESAP	Project 5.6.2, Monitoring and activation of compliance with laws Project 10.1.1, Modernizing legal framework for environment
A.2.g Strategy for the sustainable use of ecosystem services	NESAP	Project 5.6.1, Developing the institutional framework for biodiversity management.
A.2.h Legislation to prevent desertification	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 3, point 5. Goal 10, point 2
	NESAP	Project 10.1.1, Modernizing legal framework for environment
A.2.i Enforce the reviewed forestry legislation	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 10, point 2
	NESAP	Project 5.6.2, Monitoring and activation of compliance with laws Project 10.1.1, Modernizing legal framework for environment
A.2.j Cross-sectoral Guidelines for sustainability	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 10, point 3. Goal 3, point 5
A.3.a Establishment and management of ten new protected ar-	National Development Plan (NDP)	Chapter 7, Goal 5, point 2.

Action	Mainstreamed with (strategy)	
eas	2013-2017	
	NESAP	Project 4.4.1, Preservation of biodiversity in the marine environment. Project 4.5.1, Integrated management of Iraqi coast Project 5.1.1, Establishment of national protected areas network.
A.3.b List of threatened species of Iraq published and Action Plan for conservation actions.	NESAP	Project 5.1.6, Inventory of biodiversity and lists of endemic and endangered species.
A.3.c Identify and restore desertified lands.	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 3, point 1.
	NESAP	Project 3.3.3 (1.1.3), Monitoring and assessing deserts, draught and rainfall. Project 3.1.1, Management and use of soil and land and mapping of degraded soils.
A.4.a GIS map of most sensitive habitats of Iraq	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 5, point 4.
A.4.b Planning a GIS database for habitat assessment		
A.4.c Database on habitat loss	Iraqi National Energy Strategy (INES)	Strategic Objective 5, Environmental sustainability
	NESAP	Project 2.5.3, Development of national environmental database and atlases Project 2.7.2, Using remote sensing techniques and GIS for the marshlands (monitoring and evaluation) Project 3.1.1, Management and use of soil and land and mapping of degraded soils. Project 9.1.2, Impact of agricultural pesticides on marshland environment.
A.4.d Inventory of forests of Iraq, forest loss and pressures	NESAP	Project 2.5.3, Development of national environmental database and atlases Project 2.7.2, Using remote sensing techniques and GIS for the marshlands (monitoring and evaluation)
A.4.e Monitoring pollutants	National Development Plan (NDP) 2013-2017	Chapter 7, Goal 2, point 4. Goal 4. Goal 9, point 2, 3.
	NESAP	Project 1.13.2, Establishing a air quality monitoring network Project 1.13.3, Conducting studies and research on air

Action	Mainstreamed with (strategy)	
		quality monitoring
		Project 1.13.5, Establishing air quality control system in Baghdad and governorates
		Project 2.4.1, Developing a program for monitoring and control of different water resources and sources of pollution
		Project 2.4.4, Remote sensing project to monitor the water quality of Euphrates, Habbaniya lake and discharges flowing into them
		Project 2.4.6, Development of environmental monitoring and early warning systems
		Project 2.4.7, Improvement of quality of water resources in northern governorates through developing monitoring and install remote sensing systems
		Project 2.9.3, Establishing a program to monitor and locate sewage disposal in rivers (to be included within the sewage system development plan).
		Project 2.10.8, Monitoring and control of water quality in the downstream estuary.
		Project 4.1.1, National plan to study marine pollution sources (including land based sources etc.)
	Iraqi National Energy Strategy (INES)	Strategic Objective 5, Environmental sustainability
A.4.f Regional assessments and management on ecosystem services		
A.4.g Completing a GIS database for habitat assessment	NESAP	Project 2.5.3, Development of national environmental database and atlases Project 2.7.2, Using remote sensing techniques and GIS for the marshlands (monitoring and evaluation) Project 3.1.1, Management and use of soil and land and mapping of degraded soils. Project 5.1.5, Mapping of important areas of biodiversity and birds.
A.4.h List of invasive species of Iraq reviewed and published and research on dangerous species completed		
A.5.a Training Workshops on Protected Areas	NESAP	Project 5.6.3, Capacity building for the biodiversity-related staff
A.5.b Trainings for local institutional bodies on biodiversity and traditional knowledge	NESAP	Project 5.6.3, Capacity building for the biodiversity-related staff

Action	Mainstreamed with (strategy)	
A.5.c Governmental conferences on biodiversity issues	NESAP	Project 5.6.3, Capacity building for the biodiversity-related staff
A.5.d Trainings for technical staff	NESAP	Project 5.6.3, Capacity building for the biodiversity-related staff
	Higher Education Strategy 2011-2020	Program 6, Raising capacities in line with the sustainable development needs
A.5.e Trainings on international policy concerning the environment	NESAP	Project 5.6.3, Capacity building for the biodiversity-related staff

6.1.3   SUGGESTED STEPS FOR IMPLEMENTING THE ACTIONS

Once the actions have been identified together with the possible responsible bodies for implementing, promoting and sponsoring them, their practical implementation has to be launched as well.

For this reason a number of steps (or sub-actions) are proposed in the following for starting up the Strategy, with a step by step approach.

Not all of the actions have been split into implementation steps because some of them are very clear and short and already incorporate in their wording the clear steps that will bring to their accomplishment.

All the suggested actions as addressed below must be mainstreamed according to the Strategies and policies and across the identified bodies/institutions mentioned under paragraph 6.1.2 above.

The steps for implementation related to the Focal area 5 (Trainings) are considered as supporting steps/actions for implementing all the other focal areas' actions. The timing and organization of the trainings and capacity buildings shall be suited to the implementation needs of the other focal areas' actions.

- **A.1.a** Awareness tools

Step 1: prepare a list of all possible bodies that might have produced awareness tools (about biodiversity)
Step 2: verify the existence of the tool and its availability and effectiveness
Step 3: draft the final inventory of awareness tools and their reference/description

- **A.1.b** Institutional awareness

Step 1: allocate yearly budget for the two workshops;
Step2: draft a plan of priority themes to be addressed by targeting the specific working areas of every Ministry;
Step 3: recruit national/international experts to address the various subjects, as needed

- **A.1.c** Public awareness

Step 1: each governorate authority identifies the existing groups, associations, NGOs, schools, universities and media present locally;
Step2: the identified bodies/organizations are informed by governorates authorities about their role in the NBSAP and they are called to contribute raising the awareness for the public;
Step 3: the governorate authorities follow up and support these activities.

- **A.1.d** Research on traditional uses of medicinal plants

Step 1: at governorate level each authority, with the support of local communities, universities, experts, research institutes, to identify (if

existing) the local traditions and knowledge about medicinal plant;

Step 2: the governorate authorities liaise with universities and research institutions locally to develop the research about the medicinal plants and their traditional uses;

Step 3: use the awareness tools available to spread the research results.

- **A.1.e** Ecosystem services knowledge spread at all levels

Step 1: at ministerial level (Environment, Agriculture, Water Resources), with the support of universities, NGOs and research institutes develop research and tools about the meaning, importance and sustainable use of ecosystem services.

Step 2: use the awareness tools available to spread at all levels the research results.

- **A.1.f** Estimation of institutional and public awareness

Step 1: collect relevant population and socio-economic data from the Ministry of Planning;

Step 2: select a representative sample;

Step 3: prepare a questionnaire with suitable questions for each target group;

Step4: decide a suitable method/channel for delivering the questionnaire;

Step5: collect the answers

Step 6: analyze the data

- **A.1.g** Ethnic groups of Iraq and their linkage with biodiversity

Step 1: the responsible body, with the support of sectoral NGOs, collects and assesses the existing information about ethnic groups of Iraq, their traditions and practices (linkage with biodiversity);

Step 2: a national survey to fill the identified gaps, in cooperation and with support of the local authorities, is carried on;

Step 3: the national survey is developed and published

- **A.1.h** Support local traditional communities

Step 1: at governorate level each authority, with the support of local communities, collect and summarize in a report the information about the traditional knowledge;

Step 2: allocate funds to support the traditional activities of the local communities (e.g. traditional buildings, tools for handicrafts and marketing places, music instruments, traditional clothes);

Step 3: encourage and support the local group association by using other examples of NGOs and local groups that might be present in the territory.

- **A.2.b** Forestry legislations review and **A.2.i** Enforce the reviewed forestry legislation

Step 1: comprehensively collect and review existing and in force forestry legislation;

Step 2: set the important baseline requirements for assessing, restoring and sustainably managing Iraqi forest resources;

Step 3: identify and report the gaps of the existing forestry legislation in order to assess, restore and sustainably manage Iraqi forest resources.

Step 4: amend the old forestry legislation and enforce the new provisions.

- **A.2.c** Responsible bodies for the control of invasive alien species and **A.2.e** Invasive alien species legislation

Step 1: identify all the governmental bodies concerned with the control and management of invasive alien species;

Step 2: draft the legislation for controlling the introduction of the invasive alien species into the natural environment.

Step 3: deliver the legislation for issuance.

- **A.2.d** Environmental standards review

Step 1: comprehensively collect and review existing environmental standards in force;

Step 2: set the current parameters (of the environmental standards), in accordance with current developments and international reference;

Step 3: identify and report the gaps of the existing legislation in order to assess the quantity and the limitation of the pollutants in the environment and to harmonize them in accordance with current developments and international reference;

Step 4: update and complete the environmental standards and deliver them for issuance.

- **A.2.f** Reviewing and updating threatened species legislation

Step 1: comprehensively collect and review existing and in force legislation about threatened species;

Step 2: set the important baseline requirements for assessing, conserving and sustainably managing Iraqi threatened species;

Step 3: identify and report the gaps for assessing, conserving and sustainably managing Iraqi threatened species;

Step 4: update and complete the reviewed legislation and deliver for issuance;

Step 5: set in place a mechanism for controlling and reviewing progress in the implementation and enforcement of the legislation.

- **A.2.g** Strategy for the sustainable use of ecosystem services

Step 1: survey and list all the ecosystem services of the main ecosystems of Iraq;

Step 2: identify the uses of the ecosystems by urban and rural people;

Step 3: set the targets and develop a Strategy for a sustainable use of the identified ecosystem services;

Step 4: implement the strategy.

- **A.2.h** Legislation to prevent desertification

Step 1: comprehensively collect and review existing and in force legislation dealing with degraded dry lands and lands desertified or under desertification threat;

Step 2: set the important baseline requirements for protection of lands from desertification risk and restoration of desertified lands;

Step 3: identify and report the gaps with reference to Step 2;

Step 4: draft legislation with reference to Step 2, including special measures for the protection of restored lands.

- **A.2.j** Cross-sectoral Guidelines for sustainability

Step 1: develop guidelines for sustainable use of natural resources (and sustainable production and consumption methods), taking into account the international context and reference;

Step 2: identify the relevant institutional bodies to which the guidelines have to be mainstreamed and adopted;

Step 3: through the Council for protection and improvement of the environment, a joint agreement is reached among the relevant institutional bodies for the adoption of the guidelines.

- **A.4.a** GIS map of most sensitive habitats of Iraq

Step 1: develop a GIS map of Iraqi habitats by using existing land cover data and international habitat classification (e.g. IUCN)

Step 2: evaluate the threats to major Iraqi habitats by using available data;

Step 3: carry out a vulnerability analysis to identify the most sensitive habitats.

Step 4: produce a GIS map and dataset of the analysis.

- **A.4.b** Planning a GIS database for habitat assessment and **A.4.g** Completing a GIS database for habitat assessment

Step 1: set up an inter-ministerial team concerned with habitat assessment;

Step 2: By using the database developed within action **A.4.a** and other data, identify the available information about the current extent, condition and protection status of the natural, semi-natural and human modified habitats of Iraq;

Step 3: design the gap-filling program for building the GIS database, based on Step 2 results;

Step 4: fill the data gaps by collecting the missing information and storing them in the final GIS database.

Step 5: deliver and share the complete GIS database.

- **A.4.c** Database on habitat loss

Step 1: By using the database developed within action **A.4.b,** compare the current habitat status with the previous (based on the literature reference);

Step 2: identify the components (e.g. species, habitat size, ecosystem services provided ...etc) to be used in the habitat loss assessment; and draft and carry out a field work scheme for detecting the loss and degradation of natural, semi-natural and human modified habitats;

Step 3: summarize and develop a complete database with the obtained information.

- **A.4.d** Inventory of forests of Iraq, forest loss and pressures

Step 1: map the forested area of Iraq and their types;

Step 2: compare the data of step 1 with historical figures, to identify the forest loss;

Step 3: review and identify the past and present pressures on forest areas

- **A.4.f** Regional assessments and management on ecosystem services

Step 1: by using the information collected under action A.2.g on the services provided by natural ecosystems to urban and rural people; carry on regional assessments to evaluate the state of the ecosystem services with reference to their provisioning, regulating and cultural services;

Step 2: identify management options nationally for their sustainable use;

Step 3: summarize the regional assessments and management options for publication.

- **A.4.h** List of invasive species of Iraq reviewed and published and research on dangerous species completed

Step 1: Review the existing list of invasive species

Step 2: select the 30 most dangerous or problematic species (e.g. from national and international sources or from literature)

Step 3: draft a work plan to ascertain the invasive status the impact and invasion pathways of the 30 selected species

Step 4: complete and publish the research results.

6.2 NBSAP IMPLEMENTATION STRATEGY

For the implementation process of NBSAP, many other supporting systems will be necessary, as shown in the following chart.

Essential components that contribute and support the whole NBSAP success relate with three main groups:

1. The necessary **capacity** and **technological needs** to perform research and biodiversity conservation/evaluation; as well as the necessary skills and abilities to calculate and refine **indicators;**

2. The ability and commitment to spread the NBSAP message and results through **communication and outreach tools**, the design and implementation of a good **Clearing house mechanism (CHM)** and the paramount need to evaluate progress in achieving results, thereby developing a sound **monitoring and reporting system**.

3. The essential supporting component is the **financial resource mobilization strategy/plan;** without a budgetary allocation no one or very few of the previous activities would hardly be realized.

FIGURE 13: THE SUPPORTING SYSTEMS/ SUPPLEMENTARY COMPONENTS TO THE NBSAP
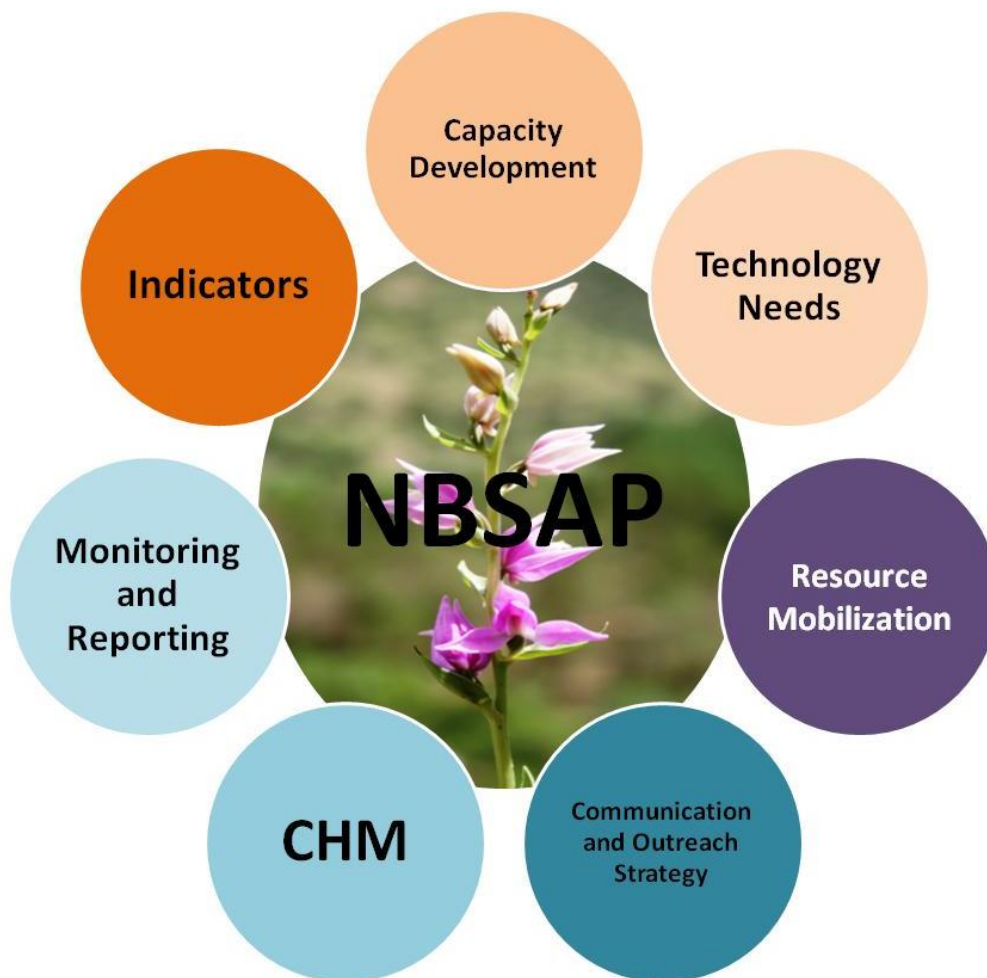
7 MEASURING SUCCESS

This Chapter focuses on the process and tools to measure the implementation of the actions and therefore the extent to which the National Targets that have been set have been accomplished within the defined timeframe.

7.1 MONITORING AND EVALUATION OF NBSAP IMPLEMENTATION AND RESULTS

This is the first NBSAP for Iraq. The implementation of the chosen actions as a contribution to the overall Strategy will be a great challenge, especially considering the national context and situation. However we will try to set in place a mechanism (basically tailored on the development and use of sound indicators), that will allow to assess the delivery of the Strategy. It is important that these indicators will be limited in number so that they are easily understood and easy to use. It is also very important to propose indicators for which data are either completely or partially available or anyway easy to be found within reasonable time and costs, and well in advance the deadlines for monitoring and evaluation purposes.

The 5 focal areas of the Strategy are addressed with a number of 'possible elements to measure' in order to assess the progress towards the Strategy implementation and the National Targets accomplishment.

The table also summarizes the availability of data to build the indicators and the development needs for building the indicators, in case these are complex and need a certain degree of analysis and elaboration.

TABLE 15: MEASURING PROGRESS AGAINST FOCAL AREAS AND ACTIONS

FOCAL AREA	POSSIBLE ELEMENTS TO MEASURE	AVAILABILITY OF DATA AND INDICATORS	CONTRIBUTES TO ACHIEVE NATIONAL TARGET
FOCAL AREA 1: AWARENESS AND TRADITIONAL KNOWLEDGE	1. Awareness tools developed 2. Number of awareness initiatives organized 3. Number of local groups and NGOs established 4. % of people and policy makers aware about biodiversity issues	Data available, some development needed for the indicators	Targets: 1, 2, 3, 4, 16, 22
FOCAL AREA 2: POLICY	5. Number of reviewed amended, updated and officially enforced legislation concerning biodiversity and its conservation 6. Number of policies action plans and strategies in place and implemented 7. legislation and management plans to control and prevent spread of invasive alien species	Data and indicators available	Targets: 6, 8, 9, 11, 12, 16, 17,18, 19, 21

Focal area	Possible elements to measure	Availability of data and indicators	Contributes to achieve National Target
Focal Area 3: Protected Areas and conservation	8. Number of action plans or management plans for conserving target areas/ecosystems/species 9. Number of protected areas established 10. Area (Km2) of desertified land all over Iraq 11. Number and types of restoration measures adopted 12. Coverage (Km2) of restored areas 13. Number of threatened species of Iraq	Data available, some development needed for the indicators	Targets: 9,15, 20
Focal Area 4: Monitoring and Assessment	14. Surface (or percentage) of sensitive habitats of Iraq 15. Number, extent and condition of natural, semi-natural and human modified habitats of Iraq 16. Number and extent of natural habitats lost 17. Number of species that have decreased or disappeared from a target ecosystem 18. Health and well being of communities directly dependant on ecosystem goods and services 19. Trends in number of invasive alien species; 20. Monitoring program for Identification the types of pollutants and its sources and diffusion paths.	Most data available, some development needed for the indicators	Targets: 5, 6, 7, 10, 14, 16, 19
Focal Area 5: Trainings	21. Number of trainings and capacity building activities about biodiversity and environmental aspects	Data and indicators available	Targets: 13

7.2 *EVALUATION OF OUTCOMES FOR RE-VIEW*

According to the guidance given by The Conference of the Parties of the CBD, every Party should report about its achievements and implementation of the Convention at four-yearly intervals. Given this link between preparation of the national report and identification of the need to revise the NBSAP, it will be logical and cost-effective for countries to operate a similar four- year cycle for updating the NBSAP.

The following diagram represents and proposes a cyclical process of the NBSAP and a detail of the proposed cyclical process for evaluating the outcomes and assessing progress in implementing the Strategy of Iraq.

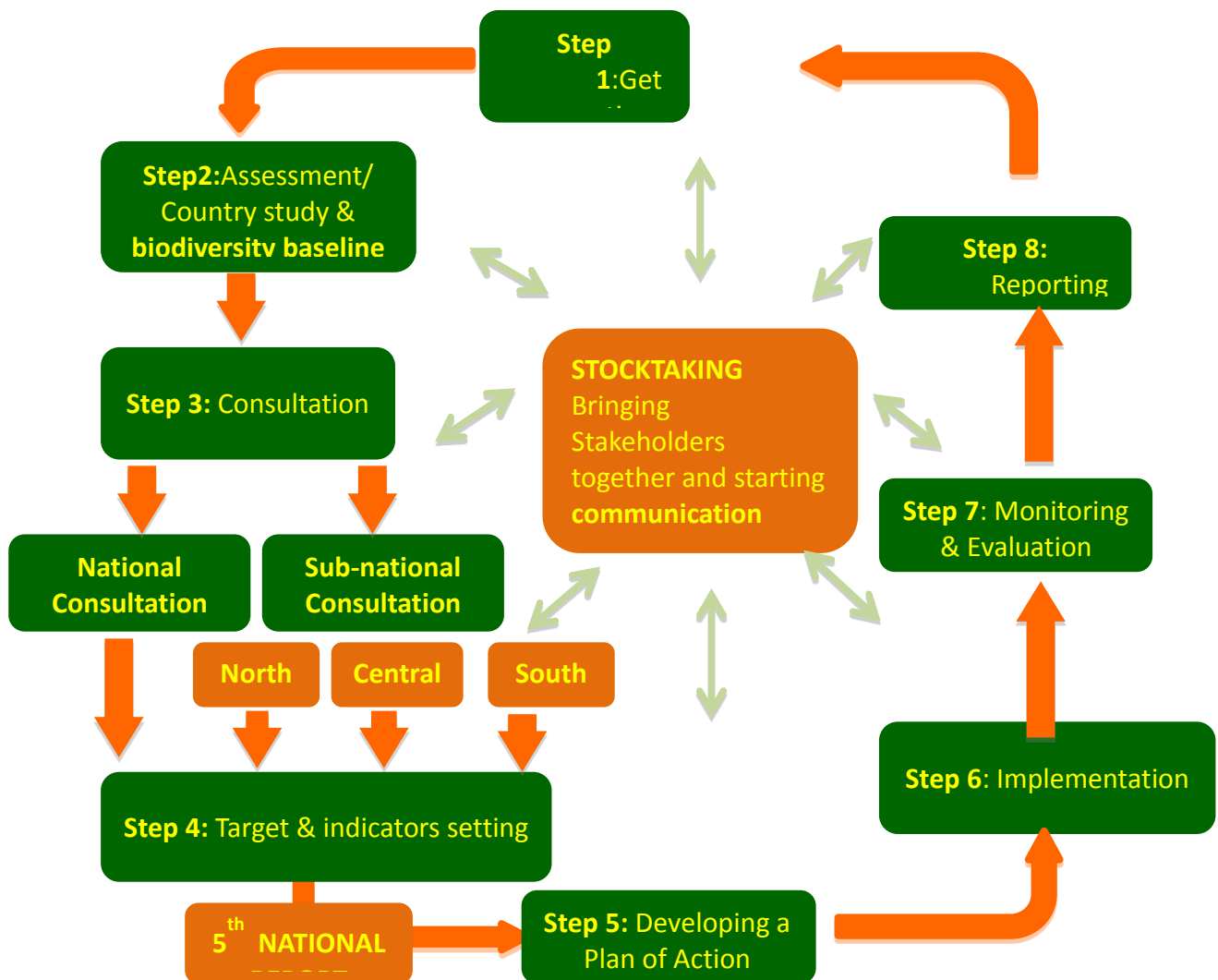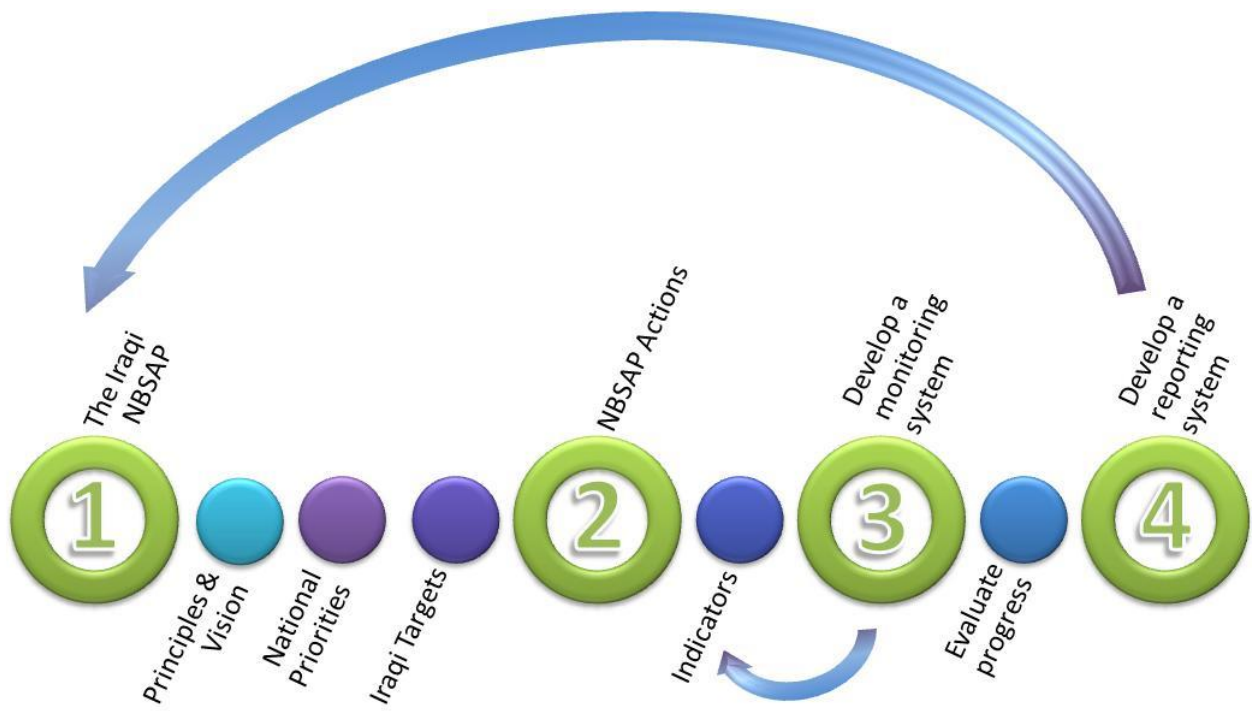FIGURE 14: THE CYCLICAL PROCESS OF THE FIRST IRAQI NBSAP

FIGURE 15: THE FOUR-YEAR CYCLE TO ASSESS PROGRESS IN IMPLEMENTING THE IRAQI NBSAP

REFERENCES

Iraqi Fourth National Report to the Convention on Biological Diversity, Ministry of Environment, July 2010.

First NBSAP for Iraq and Development of Fifth National Report to the Convention of Biological Diversity - NBSAP Stocktaking and Assessment Report, Ministry of Environment, December 2013.

First NBSAP for Iraq and Development of Fifth National Report to the Convention of Biological Diversity - Report of the National and Sub-National consultations (North, Central and South Iraq) for the NBSAP, Ministry of Environment, August 2013.

First NBSAP for Iraq and Development of Fifth National Report to the Convention of Biological Diversity - Report of the International Workshop on the National Biodiversity Strategy and action plan (NBSAP) and Indicators for Iraq, Ministry of Environment, November 2013.

Fifth National Report to the Convention on Biological Diversity – Iraq, Ministry of Environment, March 2014.

APPENDIX 1 –GLOBAL STRATEGIC PLAN FOR BIODIVERSITY 2011-2020 AND THE AICHI BIODIVERSITY TARGETS

"Living in harmony with nature"

1. The purpose of the Strategic Plan for Biodiversity 2011-2020 is to promote effective implementation of the Convention through a strategic approach, comprising a shared vision, a mission, and strategic goals and targets ("the Aichi Biodiversity Targets"), that will inspire broad-based action by all Parties and stakeholders. The Strategic Plan will also provide a flexible framework for the establishment of national and regional targets and for enhancing coherence in the implementation of the provisions of the Convention and the decisions of the Conference of the Parties, including the programmes of work and the Global Strategy for Plant Conservation as well as the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising from their Utilization. It will also serve as the basis for the development of communication tools capable of attracting the attention of and engaging stakeholders, thereby facilitating the mainstreaming of biodiversity into broader national and global agendas. A separate Strategic Plan has been adopted for the Biosafety Protocol that will complement the present one for the Convention.**[8]**

2 .The text of the Convention, and in particular its three objectives, provide the fundamental basis for the Strategic Plan.

I.THE RATIONALE FOR THE PLAN

3. Biological diversity underpins ecosystem functioning and the provision of ecosystem services essential for human well-being. It provides for food security, human health, the provision of clean air and water; it contributes to local livelihoods, and economic development, and is essential for the achievement of the Millennium Development Goals, including poverty reduction.

4. The Convention on Biological Diversity has three objectives: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising out of the utilization of genetic resources. In the Convention's first Strategic Plan, adopted in 2002, the Parties committed themselves "to a more effective and coherent implementation of the three objectives of the Convention, to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth." The third edition of the Global Biodiversity Outlook (GBO-3), drawing upon national reports, indicators and research studies, assesses progress towards the 2010 target, and provides scenarios for the future of biodiversity.

5. The 2010 biodiversity target has inspired action at many levels. However, such actions have not been on a scale sufficient to address the pressures on biodiversity. Moreover there has been insufficient integration of biodiversity issues into broader policies, strategies, programmes and actions, and therefore the underlying drivers of biodiversity loss have not been significantly reduced. While there is now some understanding of the linkages between biodiversity, ecosystem services and human well-being, the value of biodiversity is still not reflected in broader policies and incentive structures.

6. Most Parties identify a lack of financial, human and technical resources as limiting their implementation of the Convention. Technology transfer under the Convention has been very limited. Insufficient scientific information for policy and decision making is a further obstacle for the implementation of the Convention. However, scientific uncertainty should not be used as an excuse for inaction.

7. The 2010 biodiversity target has not been achieved, at least not at the global level. The diversity of genes, species and ecosystems continues to decline, as the pressures on biodiversity remain constant or increase in intensity mainly, as a result of human actions.

8. Scientific consensus projects a continuing loss of habitats and high rates of extinctions throughout this century if current trends persist, with the risk of drastic consequences to human societies as several thresholds or "tip-

ping points" are crossed. Unless urgent action is taken to reverse current trends, a wide range of services derived from ecosystems, underpinned by biodiversity, could rapidly be lost. While the harshest impacts will fall on the poor, thereby undermining efforts to achieve the Millennium Development Goals, no-one will be immune from the impacts of the loss of biodiversity.

9. On the other hand, scenario analysis reveals a wide range of options for addressing the crisis. Determined action to value and protect biodiversity will benefit people in many ways, including through better health, greater food security and less poverty. It will also help to slow climate change by enabling ecosystems to store and absorb more carbon; and it will help people adapt to climate change by adding resilience to ecosystems and making them less vulnerable. Better protection of biodiversity is therefore a prudent and cost-effective investment in risk reduction for the global community.

10. Achieving this positive outcome requires actions at multiple entry points, which are reflected in the goals of this Strategic Plan. These include:

(a) *Initiating action to address the underlying causes of biodiversity loss*, including production and consumption patterns, by ensuring that biodiversity concerns are mainstreamed throughout government and society, through communication, education and awareness, appropriate incentive measures, and institutional change;

(b) *Taking action now to decrease the direct pressures on biodiversity*. Engagement of the agricultural, forest, fisheries, tourism, energy and other sectors will be essential to success. Where trade offs between biodiversity protection and other social objectives exist, they can often be minimized by using approaches such as spatial planning and efficiency measures. Where multiple pressures are threatening vital ecosystems and their services, urgent action is needed to decrease those pressures most amenable to short-term relief, such as over-exploitation or pollution, so as to prevent more intractable pressures, in particular climate change, from pushing the system "over the edge" to a degraded state;

(c)*Continuing direct action to safeguard and, where necessary, restore biodiversity and ecosystem services*. While longer-term actions to reduce the underlying causes of biodiversity are taking effect, immediate action can help conserve biodiversity, including in critical ecosystems, by means of protected areas, habitat restoration, species recovery programmes and other targeted conservation interventions;

(d) *Efforts to ensure the continued provision of ecosystem services and to ensure access to these services, especially for the poor who most directly depend on them*. Maintenance and restoration of ecosystems generally provide cost-effective ways to address climate change. Therefore, although climate change is an additional major threat to biodiversity, addressing this threat opens up a number of opportunities for biodiversity conservation and sustainable use;

(e) *Enhanced support mechanisms for: capacity-building; the generation, use and sharing of knowledge; and access to the necessary financial and other resources*. National planning processes need to become more effective in mainstreaming biodiversity and in highlighting its relevance for social and economic agendas. Convention bodies need to become more effective in reviewing implementation and providing support and guidance to Parties.

II.VISION
11. The vision of this Strategic Plan is a world of "Living in harmony with nature" where "By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

III.THE MISSION OF THE STRATEGIC PLAN

12. The mission of the Strategic Plan is to "take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the

planet's variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach."

IV.STRATEGIC GOALS AND THE AICHI BIODIVERSITY TARGETS

13. The Strategic Plan includes 20 headline targets for 2015 or 2020 (the "Aichi Biodiversity Targets"), organized under five strategic goals. The goals and targets comprise both: (i) aspirations for achievement at the global level; and (ii) a flexible framework for the establishment of national or regional targets. Parties are invited to set their own targets within this flexible framework, taking into account national needs and priorities, while also bearing in mind national contributions to the achievement of the global targets. Not all countries necessarily need to develop a national target for each and every global target. For some countries, the global threshold set through certain targets may already have been achieved. Others targets may not be relevant in the country context.

Strategic goal A. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1: 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.

Target 2: 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.

Target 3: 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.

Target 4: By 2020, at the latest, Governments, business 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.

Strategic goal B. Reduce the direct pressures on biodiversity and promote sustainable use

Target 5: 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.

Target 6: 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.

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9: 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.

Target 10: 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.

Strategic goal C. Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 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.

Target 12: 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.

Target 13: 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.

Strategic goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 14: 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.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16: 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.

Strategic goal E. Enhance implementation through participatory planning, knowledge management and capacity-building

Target 17: 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.

Target 18: 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.

Target 19: 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.

Target 20: 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

V.IMPLEMENTATION, MONITORING, REVIEW AND EVALUATION

14. **Means for implementation:** The Strategic Plan will be implemented primarily through activities at the national or subnational level, with supporting action at the regional and global levels. The means of implementation for this Strategic Plan will include provision of financial resources in accordance with respective obligations under the Convention, taking into account Article 20 of the Convention. The Strategic Plan provides a flexible framework for the establishment of national and regional targets. National biodiversity strategies and action plans are key instruments for translating the Strategic Plan to national circumstances, including through the national targets, and for integrating biodiversity across all sectors of government and society. The participation of all relevant stakeholders should be promoted and facilitated at all levels of implementation. Initiatives and activities of indigenous and local communities, contributing to the implementation of the Strategic Plan at the local level, should be supported and encouraged. The means for implementation may vary from country to country, according to national needs and circumstances. Nonetheless, countries should learn from each other when determining appropriate means for implementation. It is in this spirit that examples of the possible means for implementation are provided in the note by the Executive Secretary on the Strategic Plan for Biodiversity 2011-2020: provisional technical rationale, possible indicators and suggested milestones for the Aichi Biodiversity Targets . It is envisaged that implementation will be further supported by the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising from their Utilization and other components of the international regime on access and benefit-sharing which will facilitate the fair and equitable sharing of benefits arising from the use of genetic resources.

15. **The programmes of work:** The thematic programmes of work of the Convention include: biodiversity of inland waters, marine and coastal biodiversity, agricultural biodiversity, forest biodiversity, biodiversity of dry and sub-humid lands, mountain biodiversity and island biodiversity. Together with the various cross-cutting issues[11] they provide detailed guidance on implementation of the Strategic Plan, and could also contribute to development and poverty reduction. They are key tools to be considered in the updating of national biodiversity strategies and action plans.

16. **Broadening political support** for this Strategic Plan and the objectives of the Convention is necessary, for example, by working to ensure that Heads of State and Government and the parliamentarians of all Parties understand the value of biodiversity and ecosystem services. Parties to the Convention should be encouraged to establish national biodiversity targets that support the achievement of the Strategic Plan and the Aichi Biodiversity Targets and outline the measures and activities that will achieve this, such as the development of comprehensive national accounting, as appropriate, that integrates the values of biodiversity and ecosystem services into government decision-making with the full and effective participation of indigenous and local communities and other stakeholders.

17. **Partnerships** at all levels are required for effective implementation of the Strategic Plan, to leverage actions at the scale necessary, to garner the ownership necessary to ensure mainstreaming of biodiversity across sectors of government, society and the economy and to find synergies with national implementation of multilateral environmental agreements. Partnerships with the programmes, funds and specialized agencies of the United Nations system, as well as with other conventions and multilateral and bilateral agencies, foundations, women, indigenous and local communities, and non-governmental organizations, will be essential to support implementation of the Strategic Plan at the national level. At the international level, this requires partnerships between the Convention and other conventions, international organizations and processes, civil society and the private sector. In particular, efforts will be needed to:

(a)Ensure that the Convention, through its new Strategic Plan, contributes to sustainable development and the elimination of poverty, and the other Millennium Development Goals;

(b)Ensure cooperation to achieve implementation of the Plan in different sectors;

(c)Promote biodiversity-friendly practice by business; and

(d)Promote synergy and coherence in the implementation of the multilateral environmental agreements.

18. **Reporting by Parties:** Parties will inform the Conference of the Parties of the national targets or commitments and policy instruments they adopt to implement the Strategic Plan, as well as any milestones towards these targets, and report on progress towards these targets and milestones, including through their fifth and sixth national reports. Suggested milestones, as well as suggested indicators, are to be developed in accordance with the processes laid out in paragraphs 3 (b), (e) and 17 (g) of decision X/2 on the Strategic Plan as well as decision X/7 on goals, targets and associated indicators. Parliamentarians, by responding to the needs and expectations of citizens on a regular basis, should play a role in reviewing the implementation of the Convention at the national and subnational levels, as appropriate, to help Governments produce a more comprehensive review.

19. **Review by the Conference of the Parties:** The Conference of the Parties, with the support of other Convention bodies, in particular the Ad Hoc Open-ended Working Group on Review of Implementation of the Convention, will keep under review implementation of this Strategic Plan, and support effective implementation by Parties ensuring that new guidance is informed by the experience of Parties in implementing the Convention, in line with the principle of adaptive management through active learning. The Conference of the Parties will review the progress towards the Aichi Biodiversity Targets as set out in the Strategic Plan and make recommendations to overcome any obstacles encountered in meeting those targets, including revision of the provisional technical rationale, possible indicators and suggested milestones for the Aichi Biodiversity Targets and measures contained therein, and, as appropriate, to strengthen the mechanisms to support implementation, monitoring and review. To facilitate this work, the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) should develop a common set of biodiversity metrics to be used to assess the status of biodiversity and its values.

VI. SUPPORT MECHANISMS

20. **Capacity-building for effective national action:** Many Parties, especially the developing countries, in particular the least developed countries, small island developing States and the most environmentally vulnerable countries, as well as countries with economies in transition, may require support for the development of national targets and their integration into national biodiversity strategies and action plans, revised and updated in line with this Strategic Plan and guidance from the Conference of the Parties (decision IX/8). Global and regional capacity-building programmes could provide technical support and facilitate peer-to-peer exchange, complementing national activities supported by the financial mechanism in line with the four-year framework of programme priorities related to utilization of GEF resources for biodiversity for the period from 2010 to 2014 (decision IX/31). Capacity-building on gender mainstreaming in accordance with the Convention's gender plan of action, and for indigenous and local communities concerning the implementation of the Strategic Plan at national and subnational levels should be supported.

21. The Strategic Plan will be implemented through the programmes of work of the Convention on Biological Diversity, implementation of national biodiversity strategies and action plans, and other national, regional and international activities.

22. **Clearing-house mechanism and technology transfer:** Collectively those involved in implementing the Convention have a wealth of experience and have developed many useful good practice cases, tools and guidance. There is additional useful information beyond this community. A biodiversity knowledge network will be developed, including a database and network of practitioners, to bring together this knowledge and experience and to make it available through the clearing-house mechanism to facilitate and support enhanced implementation of the Convention.[14] National clearing-house mechanism nodes comprising networks of experts with effective websites should be developed and sustained so that in each Party, all have access to the information, expertise and experience required to implement the Convention. National clearing-house mechanism nodes should also be linked to the central clearing-house mechanism managed by the Convention Secretariat, and information exchange between these should be facilitated.

23. **Financial resources:** The strategy for resource mobilization including the proposed concrete initiatives, targets and indicators to be developed, and processes for developing innovative mechanisms, provides a roadmap for achieving the effective implementation of Article 20, paragraphs 2 and 4, of the Convention, in order to pro-

vide adequate, predictable and timely new and additional financial resources, in support of the implementation of this Strategic Plan.

24.**Partnerships and initiatives to enhance cooperation:** Cooperation will be enhanced with the programmes, funds and specialized agencies of the United Nations system as well as conventions and other multilateral and bilateral agencies, foundations and non-governmental organizations and indigenous and local communities, to support implementation of the Strategic Plan at the national level. Cooperation will also be enhanced with relevant regional bodies to promote regional biodiversity strategies and the integration of biodiversity into broader initiatives. Initiatives of the Convention such as South-South cooperation, promoting engagement of subnational governments, cities and local authorities, and business and biodiversity and promoting the engagement of parliamentarians, including through inter-parliamentary dialogues will contribute to the implementation of the Strategic Plan.

25.**Support mechanisms for research, monitoring and assessment:** The following are key elements to ensure effective implementation of the Strategic Plan:

(a)Global monitoring of biodiversity: work is needed to monitor the status and trends of biodiversity, maintain and share data, and develop and use indicators and agreed measures of biodiversity and ecosystem change;

(b)Regular assessment of the state of biodiversity and ecosystem services, future scenarios and effectiveness of responses: this could be provided through an enhanced role for the Subsidiary Body on Scientific, Technical and Technological Advice as well as the proposed intergovernmental platform on biodiversity and ecosystem services;

(c)Ongoing research on biodiversity and ecosystem function and services and their relationship to human well-being;

(d)The contributions of knowledge, innovations and practices of indigenous and local communities relevant to the conservation and sustainable use of biodiversity to all the above;

(e)Capacity-building and timely, adequate, predictable and sustainable financial and technical resources.