Prepared by Institute for Biodiversity Network e.V. on behalf of German Federal Agency for Nature Conservation

Research needs expressed in the CBD decisions

Contents of the study

Germany as a party to the Convention on Biological Diversity (CBD) and as a member of the European Union (EU) committed itself to the target to significantly reduce (CBD) and even halt (EU) the loss of biodiversity until 2010 and is also committed to the Aichi Biodiversity Targets until 2020. To reach these ambitious targets there is (amongst others) a need for an enhanced cooperation between science and decision makers, in order to come to decisions based on the best available scientific advice.

The CBD in its different thematic programmes of work (e.g. on forests, mountains, inland waters, agricultural and dry and sub-humid biological diversity) as well as in programmes to cross-cutting issues (e.g. protected areas, impact assessment) formulates research needs in a more or less explicit way in the goals and actions of the respective programmes. In order to facilitate the recognition of the research needs the current study wants to highlight the research needs expressed in all the programmes of work as formulated in the COP Decisions under the CBD.

For that purpose, 276 Decisions of all thirteen COP meetings held so far were checked for passages that express research needs. These 276 Decisions include all Decisions that are mentioned under the respective headings of the issues on the CBD web pages.

The whole study only cites text from existing COP Decisions. All the research needs listed are already formulated in official CBD documents and therefore are in no way new requirements or opinions set up by the author of the study.

For each of the 29 thematic and cross-cutting issues under the CBD a table was created listing the cited research needs as expressed in the respective COP Decisions. As the study was updated last in 2017 the most recent Decisions that could be included were those from COP 13 (2016 in Cancun, Mexico).

Dec/COP	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
1				X			X	X	X	X	X	X	X
2						X	X	X	X	X	X	X	X
3					X	X	X	X	X	X	X	X	X
4					X	X	X	X	X	X	X	X	X
5					X	X	X	X	X	X	X	X	X
6					X		X	X	X	X	X	X	X
7		X			X	X	X	X	X	X	X	X	X
8				X	X	X	X			X	X	X	X
9			X	X		X	X	X		X	X	X	X
10			X	X	X	X	X			X	X	X	X
11		X				X	X		X	X	X	X	X
12		X				X	X	X	X	X	X	X	X
13						X	X		X	X	X	X	X
14			X			X	X	X	X	X	X	X	X
15			X	X	X	X	X	X	X	X	X	X	X
16					X		X		X	X	X	X	X
17					X		X		X	X	X	X	X
18					X		X		X	X	X	X	X
19						X	X	X	X	X	X	X	X
20								X	X	X	X	X	X
21								X	X	X	X	X	X
22						X		X	X	X	X	X	X
23					X	X		X	X	X	X	X	X
24						X	X	X		X	X	X	X
25					X			X		X	X	X	X
26					X	X		X		X	X	X	X
27							X	X		X	X	X	X
28							X	X		X	X	X	X
29							X	X		X	X	X	X
30						X	X	X		X	X	X	X
31										X	X	X	X
32									X	X	X	X	X
33										X	X	X	X
34										X		X	X
35										X		X	
36										X			
37										X			
38										X			
39										X			
40										X			
41										X			
42										X			
43										X			
44										X			
45										X			
46										X			
47										X			

Grey cells: existing COP Decisions
X marked cells: Decisions checked for research needs

How to read the tables

All 29 tables for thematic and cross-cutting issues are built according to the following scheme:

- The chapeau gives a very short introduction to the issues and includes the link to the respective introductory page of the CBD web pages. The chapeau also lists the Decisions from which text expressing research needs is cited as well as those Decisions that are relevant for the respective issue and therefore were checked but where no research needs were found.
- For each citation the first columns of the table name the Decision and the respective para or annex/appendix where the text is cited from. The column 'Chapeau / Heading' gives the heading of the respective annex (e.g. Bonn Guidelines) or the beginning of the sentence that is cited (e.g. The Conference of the Parties urges Parties to…).
- The last column of the table gives the link to the respective COP Decision.
- Highlighting of passages in **bold letters** is done by the author of the study to identify those parts of the sentences that are most relevant to research.
- The table is divided into two sections: the first section cites text that expresses research needs explicitly (direct research needs), the second section cites text that mentions research needs implicitly (indirect research needs).
- In each section the citations are listed in chronological order of their existence. The oldest Decisions therefore are cited first. This was done because more recent Decisions in many cases build upon or even directly repeat text from former Decisions and would be not understandable without knowledge of these older Decisions.

List of tables

Thematic issues:

Cross-cutting issues:

- Protected Areas
- Ecosystem Restoration
- Communication, Education and Public Awareness
- Sustainable Use of Biodiversity
- Technology Transfer and Cooperation
- New and emerging issues, synthetic biology

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Thematic Work Programme on Agricultural Biodiversity

Agricultural biodiversity (http://www.cbd.int/agro/default.shtml) provides not only food and income but also raw materials for clothing, shelter, medicines, breeding new varieties, and performs other services such as maintenance of soil fertility and biota, and soil and water conservation, all of which are essential to human survival. Nearly one third of the world's land area is used for food production.

The cited Decisions that express research needs are V/5 (where the work programme is annexed), VI/5, VI/8, VIII/23, IX/1, IX/2, X/34, X/37, XI/27, XIII/3 and XIII/15, also checked was Decision VII/3.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
V/5	Annex V Programme Element 2 Activity 2.1	Programme of work on agricultural biodiversity.	**Carry out a series of case-studies**, in a range of environments and production systems, and in each region: To **identify key goods and services** provided by agricultural biodiversity, **needs for the conservation and sustainable use** of components of this biological diversity in agricultural ecosystems, **and threats** to such diversity; To **identify best management practices**; and To **monitor and assess the actual and potential impacts of existing and new agricultural technologies**. This activity would address the multiple goods and services provided by the different levels and functions of agricultural biodiversity and the interaction between its various components, as set out in the appendix hereto with a focus on certain specific and cross-cutting issues, such as: The **role and potential of wild, under-utilized and neglected species, varieties and breeds, and products**; The **role of genetic diversity in providing resilience, reducing vulnerability, and enhancing adaptability of production systems to changing environments and needs**; The **synergies and interactions between different components** of agricultural biodiversity; The **role of pollinators**, with particular reference to their economic benefits, and the effects of introduced species on indigenous pollinators	cop-05.shtml?m=COP-05&id=7147

			and other aspects of biological diversity; The **role of soil and other below-ground biodiversity** in supporting agricultural production systems, especially in nutrient cycling; **Pest and disease control mechanisms**, including the role of natural enemies and other organisms at field and landscape levels, host plant resistance, and implications for agro-ecosystem management; The **wider ecosystem services** provided by agricultural biodiversity; The **role of different temporal and spatial patterns** in mosaics of land use, including complexes of different habitats; **Possibilities of integrated landscape management** as a means for the conservation and sustainable use of biodiversity.	
VI/5	Para 22	The Conference of the Parties	Acknowledges **the need for additional research regarding the potential risks of specific genetic use restriction technologies**;	COP-06&id=7179
VI/5	Annex II Para 3	Plan of action for the international initative for the conservation and sustainable use of pollinators.	**Pollination as a science requires detailed investigation**, and the technological application of management practices is intricate. In most cases, **there is a lack of knowledge about the exact relations between individual plant species and their pollinators**, but studies in this field demonstrate that they are often quite specific.	COP-06&id=7179
VI/5	Annex II Element 1 Activity 1.3	Assessment.	**Assess the state of scientific and indigenous knowledge on pollinator conservation, in order to identify gaps** in knowledge and opportunities for application of knowledge; including: **Taxonomic knowledge; and the knowledge, innovations and practices of farmers and indigenous and local communities in sustaining pollinator diversity and agro-ecosystem services** for and in support of food production and food security.	COP-06&id=7179
VI/5	Annex II Element 1 Activity 1.4		Promote the development of **identification keys for bee genera**.	
VI/5	Annex II Element 2 Activity 2.1	Adaptive management.	**Carry out a series of case-studies**, **in a range of environments and production systems, and in each region**: To **identify key goods and services** provided by pollinator diversity, the role of components of biological diversity in agricultural and other	COP-06&id=7179

			ecosystems in supporting such diversity, and threats to such diversity including, for example, use of pesticides, habitat change and the introduction of exotic pollinators; To **identify best management practices**; and To **monitor and assess the actual and potential impacts** of existing and new agricultural technologies. This activity would **address the multiple goods and services provided by pollinator diversity and the interaction between its various** components, for example: The impacts of introduction of pollinators; The impacts of alien invasive species on pollinators; The impacts of fragmentation and habitat loss on pollinators diversity, and the ecosystems that support them; The impact of pesticides on pollinators diversity and abundance, including pest control programmes; Sustainable management of pollinators; Decline of Honeybees, other bees and other pollinators; The dynamics of pollinators diversity decline; The interactions between pollination and genetically-modified crops; Conservation and restoration of pollinators diversity; Mainstreaming and stakeholder engagement; Economics of pollination.	
VI/5	Annex II Element 3 Activity 3.4	Capacity building.	**Build taxonomic capacity to carry out inventories of the pollinator diversity** and distribution in order to optimise their management, through, *inter alia*, the training of taxonomists and parataxonomists of bees and other pollinators.	COP-06&id=7179
VI/5	Annex II Element 3 Activity 3.5		This may include developing and updating global and national lists of threatened pollinator species, and produce multilingual manuals on pollinator conservation and restoration for farmers.	
VI/8	Annex I Part II Planned Activity 12	Agricultural biological diversity.	Within the programme of work on agricultural biological diversity, several areas require taxonomic capacity in order to deliver fully on their objectives. The **need for taxonomy ranges from classical taxonomy of the species living in agricultural ecosystems, to the taxonomy of wild relatives of agriculturally important species, to access to existing taxonomic information including basic knowledge on the**	cop-06.shtml?m=COP-06&id=7182

			functional relationships between organisms often recorded by taxonomists. Within the agricultural biodiversity work programme specific taxonomy-related activities are envisaged in the following subject areas: **pollinators; soil and other below-ground biodiversity, to support agricultural production systems, especially in nutrient cycling; and natural enemies of pests and diseases**.	
VIII/23	Annex I Element 1 Activity 1.1	Proposed framework for a cross-cutting initiative on biodiversity for food and nutrition.	Compilation, review and **analysis of**: (a) **Existing scientific information**, indigenous and traditional knowledge on the links between biodiversity, food and nutrition (in a manner consistent with Article 8(j) and related provisions of the Convention) according to national legislation ; (b) **Case-studies on the links between biodiversity, food and nutrition**; (c) The value of biodiversity for food and nutrition.	COP-08&id=11037
VIII/23	Annex I Element 1 Activity 1.2		**Stimulating further research** and the generation and systematic compilation of new data.	
VIII/23	Annex I Element 1 Activity 1.3		**Development of an indicator** (or indicators) on biodiversity in use for food, consistent with decision VII/30.	
VIII/23	Annex I Element 3 Activity 3.2		**Identification** and promotion **of species currently underutilized or of potential value to human food and nutrition**, including those important in times of crisis, and their conservation and sustainable use.	
VIII/23	Annex I Element 3 Activity 3.11		**Research** and conservation **of native plants or animals, local races, wild relatives of cultivated or domesticated species in order to improve the knowledge on their genetic variability**, regarding important traits for agriculture such as: biotic/abiotic resistance, yield and nutritional value.	
VIII/23	Annex II Objective 2 Activity 2.4	International initiative for the conservation and sustainable use of soil biodiversity:	**Mobilize targeted participatory research and development in order to enhance understanding of soil biodiversity functions and ecosystem resilience** in relation to land use and sustainable agriculture.	COP-08&id=11037
VIII/23	Annex II Objective 2		**Identify and develop datasets on soil biodiversity** at national level that are important for agriculture.	

	Activity 2.5	framework for action.		
VIII/23	Part C	The Conference of the Parties	*Encourages* Parties, other Governments, relevant organizations, and interested stakeholders to: **Continue to undertake further research**, within the mandate of decision V/5 section III, **on the impacts of genetic use restriction technologies, including their ecological, social, economic and cultural impacts**, particularly on indigenous and local communities;	COP-08&id=11037
IX/1	Para 5	The Conference of the Parties	*Invites* Parties and other Governments and relevant organizations to finance and **undertake research** as appropriate to further develop and apply methods and **techniques for assessing and monitoring the status and trends of agricultural biodiversity and other components of biodiversity in agricultural ecosystems, and collect and refine the collated data into a coherent information** set on best monitoring practices;	cop/?id=11644
IX/1	Para 21	The Conference of the Parties	*Invites* the FAO in collaboration with Parties, other Governments and relevant organizations, to continue the implementation of the International Initiative for the Conservation and Sustainable Use of Pollinators (decision VI/5) and, in particular: To **complete information on pollinator species, populations and their taxonomy, ecology and interactions**; To **establish the framework for monitoring declines and identifying their causes**; To **assess the agricultural production, ecological, and socio-economic consequences of pollinator declines**;	cop/?id=11644
IX/1	Para 34	The Conference of the Parties	*Invites* Parties and other Governments and relevant organizations to finance and **undertake research** that would contribute to the implementation of the programme of work on agricultural biodiversity including, for example: To **assess the performance of agricultural policies** in achieving the target of significantly reducing the rate of biodiversity loss; To **undertake multidisciplinary studies to evaluate the capability of different farming systems to conserve agricultural biodiversity** and use it sustainably and to provide economic viability; To further **investigate the use of agricultural biodiversity to develop**	cop/?id=11644

			sustainable agricultural systems that contribute to improved livelihoods, enhance biodiversity and make use of its benefits, as well as conserving the most vulnerable and potentially useful species; To **evaluate and characterize germplasm potentially suitable for adaptation to climate change**; **Research to enhance resilience of agricultural systems**;	
IX/2	Para 5	The Conference of the Parties	*Calls upon* Parties, other Governments, **the research community**, and invites other relevant organizations **to continue to investigate and monitor the positive and negative impacts of the production and use of biofuels on biodiversity** and related socio-economic aspects, including those related to indigenous and local communities,	cop/?id=11645
X/37	Para 7	The Conference of the Parties	*Invites* Parties, acknowledging different national conditions, other Governments and relevant organizations, **bearing in mind ecosystem functions and services**, to: (a) **Develop national inventories so as to identify areas of high biodiversity value, critical ecosystems**, and areas important to indigenous and local communities; and (b) **Assess and identify areas** and, where appropriate, ecosystems **that could be used in, or exempted from, the production of biofuels**; so as to assist policy-makers in applying appropriate conservation measures and **identifying areas deemed inappropriate for biofuel feedstock production**;	cop/?id=12303
XIII/3	Para 29	The Conference of the Parties	*Further encourages* Parties and *invites* other Governments to promote further research and development on increasing sustainable productivity based on ecosystem services and functions directly or indirectly relevant to agriculture	decisions/cop/?m=cop-13
XIII/15	Para 7t	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account national circumstances, as appropriate, to enhance monitoring of the status and trends of all pollinators, pollinator-friendly habitats and pollinator community structure as well as the identification of potential pollinator deficits using consistent and comparable methodologies;	decisions/cop/?m=cop-13
XIII/15	Para 7u	The Conference	*Encourages* Parties, and *invites* other Governments and other relevant	decisions/cop/?m=cop-13

		of the Parties	organizations and stakeholders, taking into account national circumstances, as appropriate, to build taxonomic capacity on pollinators;	
XIII/15	Para 7v	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account national circumstances, as appropriate, to assess the benefits of pollinators and pollination, taking into account the economic value to agriculture and food production and the value to conservation and sustainable use of biodiversity, as well as cultural and other values;	
XIII/15	Para 7w	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account national circumstances, as appropriate, to undertake research on the socioeconomic implications of pollinator decline in the agricultural sector;	
XIII/15	Para 7x	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account, to promote and share further research to address gaps in knowledge identified in the Assessment, as appropriate and in accordance with national legislation, including the effects of the partial loss of pollinators on crop production, and potential impacts of pesticides, in particular neonicotinoids and other systemic pesticides, taking into account their possible cumulative effects, and of living modified organisms, on pollinator populations, under field conditions, including differential impacts on managed and wild pollinators, and on social versus solitary pollinators, and the impacts on pollination of both crop and non-crop plants over both the short and long term, and under different climatic conditions;	
XIII/15	Para 7y	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account, to promote further research to identify practical ways that pollinator-friendly practices can be integrated into farming systems as part of efforts to increase production and mainstreaming of biodiversity into agricultural production systems;	
XIII/15	Para 7z	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account, to promote further research to identify risks to pollination under climate change and	

			potential adaption measures, including the potential loss of keystone species and their effect on ecosystem resilience;	
XIII/15	Para 7aa	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account, to promote further research and analysis on pest management, taking into account the impact of drivers of pollinator decline, to support development of more feasible and sustainable alternatives;	
XIII/15	Para 9	The Conference of the Parties	*Encourages* academic and research bodies, and relevant international organizations and networks to promote further research to address gaps in knowledge identified in the Assessment, including the issues identified in paragraph 7, subparagraphs (t) to (aa), above, to expand research to cover a wider variety of pollinators and to support coordinated global regional and national monitoring efforts and build relevant taxonomic capacity, especially in developing countries, where there have been fewer research and monitoring efforts to date;	
XIII/15	Para 13a	The Conference of the Parties	*Requests* the Executive Secretary to promote, as a priority, efforts to address data gaps and capacity for monitoring the status and trends of pollinators and pollination in developing countries, in particular those in Africa, Latin America, Asia and Oceania;	

Indirect research needs

Decision	**Paragraph**	**Chapeau / Heading**	**Text**	**Source** http://www.cbd.int/decisions/
V/5	Annex V Programme Element 1 Activity 1.5	Programme of work on agricultural biodiversity. Programme of work on agricultural biodiversity..	**Develop methods and techniques for assessing and monitoring the status and trends of agricultural biodiversity** and other components of biodiversity in agricultural ecosystems, including: **Criteria and guidelines for developing indicators** to facilitate monitoring and assessment **of the status and trends of biodiversity in different production systems and environments,** and the impacts of various practices, building wherever possible on existing work, in accordance with decision V/7, on the development of indicators on biological diversity, in accordance to the particular characteristics and needs of Parties.	cop-05.shtml?m=COP-05&id=7147
V/5	Annex V Programme		**Identify** and promote the dissemination of **information on cost-effective practices and technologies**, and related policy and incentive	

	Element 2 Activity 2.2		measures that enhance the positive and mitigate the negative impacts of agriculture on biological diversity, productivity and capacity to sustain livelihoods, through: **Comprehensive analyses in selected production systems of the costs and benefits of alternative management practices** as identified from activity 2.1, and the **valuation of the goods and services** provided by agricultural biodiversity; **Comprehensive analyses of the impacts** of agricultural production, including their intensification and extensification, on the environment **and identification of ways to mitigate negative and promote positive impacts;** **Identification**, at international and national levels, in close collaboration with relevant international organizations, **of appropriate marketing and trade policies**, **legal and economic measures** which may support beneficial practices: **Promotion of neglected and under-utilized species, varieties and breeds**; **Promotion of local and indigenous knowledge**; **Measures to add value to products of production systems that sustain biodiversity, and to diversify market opportunities**; Access and benefit-sharing measures and intellectual property issues; Economically and socially sound measures that act as incentives, in accordance with Article 11 and consistent with Article 22;	
V/5	Annex V Programme Element 3 Activity 3.2		**Enhance the capacity of indigenous and local communities for the development of strategies and methodologies for in situ conservation, sustainable use and management of agricultural biological diversity,** building on indigenous knowledge systems.	
V/5	Annex V Programme Element 4 Activity 4.2		Support the **development** or adaptation **of relevant systems of information, early warning and communication to enable effective assessment of the state of agricultural biodiversity and threats** to it, in support of national strategies and action plans, and of appropriate response mechanisms.	
VI/5	Annex II Para 4	Plan of action for the international	In order to secure sustained pollinator services associated with agricultural ecosystems, **far more understanding is needed of the multiple goods and services provided by pollinator diversity** and	COP-06&id=7179

		initative for the conservation and sustainable use of pollinators.	the factors that influence their decline and activity. It is necessary to **identify adaptive management practices** that minimise negative impacts by humans on pollinators.	
VI/5	Annex II Element 1 Activity 1.1	Assessment.	**Monitor the status and trends of pollinators**, through: The establishment of a global network of cooperators to monitor changes in the diversity, population levels and frequency of pollinators through time in selected areas of the world. The network would share findings and discuss local and global trends in pollinators; The implementation of a pilot global monitoring programme in selected areas worldwide; The development, assessment and compilation of methods for monitoring pollinators, their diversity and efficiency; The progressive development and implementation of a global programme for monitoring pollinator diversity, building upon activities (a), (b) and (c) above.	COP-06&id=7179
VI/8	Annex I Part II Planned Activity 12	Agricultural biological diversity.	Outputs would include: easy-to-use **keys to families, genera and species of pollinators; automated identification systems for pollinators; development of standard methods for identification of soil biodiversity to different taxonomic levels; increased knowledge of soil biodiversity to aid in the identification of indicators of the "health" of below-ground biological diversity**.	cop-06.shtml?m=COP-06&id=7182
VIII/23	Annex II Part C	International initiative for the conservation and sustainable use of soil biodiversity: framework for action.	**Increase understanding of the role of soil biodiversity in agricultural production, traditionally applied land management practices and ecosystem and environmental health.**	COP-08&id=11037
VIII/23	Annex II Objective 2 Activity 2.2		**Develop**, apply and adapt **indicators** and tools **for assessment and monitoring of soil health and ecosystem functioning** for global, regional, and national use and in line with the framework contained in decision VII/30.	
X/34	Para 5	The Conference of the Parties	*Requests* the Executive Secretary [to consider] **Underutilized crops, wild relatives of cultivated plants** and other potential food sources, to improve human nutrition, to address the impacts of climate change and other pressures as well as to contribute	cop/?id=12300

			to food security; Further **exploring possibilities** for actions, where necessary, **to rehabilitate agricultural ecosystems and landscapes and restore their socio-economic functions** on land where agriculture has declined, or ceased, and where the land was degraded as a result;	
X/34	Para 20	The Conference of the Parties	*Invites* to undertake further studies on the valuation of the biodiversity and ecosystem services provided by agricultural ecosystems	cop/?id=12300
X/37	Para 10	The Conference of the Parties	*Encourages* Parties and other Governments to develop and use environmentally-sound technologies, and **support the development of research programmes and undertake impact assessments**, which promote the positive and minimise or avoid the negative impacts of biofuel production and use on biodiversity and impacts on biodiversity that affect related socio-economic conditions;	cop/?id=12303
X/37	Para 11	The Conference of the Parties	*Requests* the Executive Secretary, subject to the availability of financial resources, to: (a) Compile, analyse and summarize information on tools for voluntary use, including on available standards and methodologies to assess direct and indirect **effects and impacts on biodiversity of the production and use of biofuels, in their full life cycle as compared to that of other types of fuels,** and impacts on biodiversity that affect related socio-economic conditions;	cop/?id=12303
X/37	Para 12	The Conference of the Parties	*Requests* the Executive Secretary to **compile information on gaps** in available standards and methodologies identified in the work undertaken in paragraph 11 above;	cop/?id=12303
XI/27	Para 8	The Conference of the Parties	*takes note* of **gaps in scientific knowledge of biofuels** and in relevant tools and approaches, and remaining uncertainties, **in particular the inherent difficulty of measuring and addressing indirect impacts of biofuels on biodiversity**;	cop/default.shtml?id=13188
XIII/15	Para 7h	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account, to monitor and manage the movement of managed pollinator species, sub-species and breeds where appropriate, among countries, and as appropriate within countries, to limit the spread of parasites and pathogens to managed and wild pollinator populations, and to prevent the introduction of	decisions/cop/?m=cop-13

			potentially invasive pollinator species outside their native ranges;	
XIII/15	Para 7j	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account, to develop and implement national and as appropriate regional pesticide risk reduction strategies;	decisions/cop/?m=cop-13
XIII/15	Para 7m	The Conference of the Parties	*Encourages* Parties, and *invites* other Governments and other relevant organizations and stakeholders, taking into account, to improve, as appropriate, risk assessment procedures for pesticides and, where necessary, for living modified organisms to better take into account possible impacts, including sublethal and indirect effects, on both wild and managed pollinators, including, inter alia, a wider range of pollinator taxa, beyond honeybees and managed bumblebees, and toxicological studies, in risk assessment protocols, applying the precautionary approach in line with the preamble of the Convention, consistent with international obligations and taking into account climate variations and cumulative effects;	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Thematic Work Programme on Dry and Subhumids Lands Biodiversity

The biological diversity of dry and sub-humid lands (http://www.cbd.int/drylands/default.shtml) provides critical ecosystem services to support two billion people, 90% of whom live in developing countries. The conservation and sustainable use of the biodiversity of dry and sub-humid lands is, therefore, central to livelihood development and poverty alleviation.

The cited Decisions that express research needs are V/23 (where the draft programme of work is annexed), VI/8, VIII/2, IX/17 and X/35, also checked were Decisions VI/4 and VII/2.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
V/23	Annex I Part II Activity 4	Draft programme of work on dry and sub-humid lands.	**Building knowledge on ecological, physical and social processes that affect the biological diversity** of dry and sub-humid lands, **especially ecosystem structure and functioning** (e.g., grazing, droughts, floods, fires, tourism, agricultural conversion or abandonment).	cop-05.shtml?m=COP-05&id=7165
V/23	Annex I Part II Activity 5		**Identification of the local and global benefits**, including soil and water conservation, derived from the biological diversity of dry and sub-humid lands, assessment of the socio-economic impact of its loss, and the **undertaking of studies on the interrelationship between biodiversity and poverty**, including analysis of: (i) the benefits from biodiversity for poverty alleviation; and (ii) the impact of biodiversity conservation on the poorest.	
V/23	Annex I Part II Activity 7		**Promotion of specific measures** for the conservation and sustainable use of the biological diversity of dry and sub-humid lands**, through**, inter alia: The **establishment** and promotion **of research** and development programmes **with a focus on**, inter alia, **building local capacity for effective conservation and sustainable use** of the biological diversity of dry and sub-humid lands;	
V/23	Annex I Part II Activity 9		**Exploring innovative sustainable uses** of the biological diversity of dry and sub-humid lands for local income generation, and promoting their wider application.	

V/23	Annex I Part II Para 11	The activities [of part B] to be carried out through:	**Case-studies on successful management** of dry and sub-humid lands that could be disseminated through, inter alia, the clearing-house mechanism.	cop-05.shtml?m=COP-05&id=7165
VI/8	Annex I Part II Planned Activity 10	Dry and subhumid lands biodiversity.	The **knowledge base on the organisms that maintain the crucial soil crust should be developed** at national and regional levels, as well as **the need for greater knowledge of the micro-organisms in nutrient cycling, and increased taxonomic information of pests and diseases**. In many parts of the world, there is a **need to increase taxonomic capacity to identify the lichens**, and to then develop identification tools. Taxonomic work will need to develop easy-to-use **identikits for key soil lichens, algae, soil invertebrates, pest insects and other herbivores, and other taxa** that will be the harbingers of change.	cop-06.shtml?m=COP-06&id=7182
VIII/2	Para 4	The Conference of the Parties	***Recognizes*** **the urgent need for the systematic collection of biodiversity data at all three levels (genetic, species and ecosystem) and across all representative biomes of the programme of work on the biological diversity of dry and sub-humid lands** as a basis for decision-making on the conservation and sustainable use of biodiversity of dry and sub-humid lands and to facilitate the assessment of progress towards the 2010	COP-08&id=11014
VIII/2	Para 5		*Encourages* Parties, other Governments and relevant organizations to **improve national, regional and global data on dry and sub-humid lands ecosystem goods and services, their uses and related socio-economic values; on species at lower taxonomic orders including soil biodiversity; and on the threats to which dry and sub-humid lands ecosystems are subjected** in view of the ongoing assessment of progress towards the 2010 targets and other global goals;	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
V/23	Annex I	Draft	**Assessment of the status and trends** of the biological diversity of dry	cop-05.shtml?m=COP-

	Part II Activity 1	programme of work on dry and sub-humid lands.	and sub-humid lands, including landraces, and the effectiveness of conservation measures.	05&id=7165
V/23	Annex I Part II Activity 2		**Identification of specific areas** within dry and sub-humid lands **of particular value** for biological diversity and/or under particular threat, such as, inter alia, endemic species and low lying wetlands, with reference to the criteria in Annex I to the Convention on Biological Diversity.	
V/23	Annex I Part II Activity 3		Further **development of indicators** of the biological diversity of dry and sub-humid lands and its loss, for the various ecosystem types, for use in the assessment of status and trends of this biological diversity.	
V/23	Annex I Part II Activity 6		**Identification** and dissemination **of best management practices**, including knowledge, innovations and practices of indigenous and local communities that can be broadly applied, consistent with the programme of work under the Convention on Article 8(j) and related provisions.	
V/23	Annex I Part II Para 7	The activities [of part A] are to be carried out through:	**Targeted research**, including existing programmes of international and national research centres and research systems and other relevant international or regional programmes, with additional funding for priority work needed **to overcome barriers to the conservation and sustainable use** of the biological diversity of dry and sub-humid lands; **Multidisciplinary and interdisciplinary case-studies on management practices**, carried out primarily by national and regional institutions, including civil-society organizations and research institutions, with support from international organizations for catalysing the preparation of studies, mobilizing funds, disseminating results, and facilitating feedback and lessons learned to case-study providers and policy makers. New resources could be needed to promote such studies to analyse the results and to provide necessary capacity-building and human-resource development;	cop-05.shtml?m=COP-05&id=7165
IX/17	Para 2	The Conference of the Parties	*Encourages* Parties to **develop regional and subregional research centres and networks for the exchange of research**, information, traditional and cultural knowledge and technology concerning dry and sub-humid lands;	cop/?id=11660
IX/17	Para 17	The Conference of the Parties	*Requests* the Executive Secretary, in collaboration with relevant organizations, such as the International Strategy for Disaster Reduction, to **compile information on the impacts of drought on biodiversity**	cop/?id=11660

			and prepare proposals on management options for biodiversity and drought, including early-warning systems.;	
X/35	Para 2	The Conference of the Parties	*Urges* Parties and other Governments, where appropriate, to: **Develop** and implement, or revise existing, **drought-management plans and early-warning systems** at all levels, including regional and subregional and basin-level management plans, **taking into account the impact of drought and desertification on biodiversity** and the role of biodiversity and actions to combat desertification in increasing the resilience of dry and sub-humid lands, […] **Develop** and implement **best-practice guides for integrated planning between dry and sub-humid lands and wetlands** with a view to contributing to the conservation and sustainable use of the biodiversity of dry and sub-humid lands;	cop/?id=12301

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Thematic Work Programme on Forest Biodiversity

Forests are biologically diverse systems, representing some of the richest biological areas on Earth (http://www.cbd.int/forest/default.shtml). They offer a variety of habitats for plants, animals and micro-organisms. However, forest biodiversity is increasingly threatened as a result of deforestation, fragmentation, climate change and other stressors.

The cited Decisions that express research needs are VI/8 and VI/22 (where the expanded work programme is annexed), VIII/19, IX/5 and XIII/3, also checked were Decisions VII/1, VIII/9 and X/36.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/8	Annex I Part II Planned Activity 8	Forest biological diversity	**Taxonomic studies and inventories at the national level, which provide for a basic assessment of forest biological diversity**.	cop-06.shtml?m=COP-06&id=7182
VI/22	Annex I Programme Element 1 Goal 1 Objective 1	Goal 1: To apply the ecosystem approach to the management of all types of forests.	**Identify key structural and functional ecosystem elements** to be used **as indicators** for decision-making and develop decision-support tools on a hierarchy of scales. **Promote research and pilot projects** to develop understanding of the **functional linkages between forest biological diversity and agriculture** with the aim to developing practices that could improve the relations between forest management and other land use methods. **Promote assessment of functional linkages between mining, infrastructure and other development projects and forest biodiversity,** and develop best practice, guidelines for such development projects to mitigate adverse impacts on forest biodiversity.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 1 Goal 2 Objective 1	Goal 2: To reduce the threats and mitigate the impacts of threatening processes on	**Improve the knowledge of the impacts of invasive alien species** on forest ecosystems and adjacent ecosystems.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme		**Increase the understanding of the impact of pollution**, e.g., acidification and eutrophication, and other pollutants (such as mercury	

	Element 1 Goal 2 Objective 2	forest biological diversity.	and cyanide) on forest biodiversity; at genetic, species, ecosystem and landscape levels.	
VI/22	Annex I Programme Element 1 Goal 2 Objective 3		**Promote** monitoring and **research on the impacts of climate change** on forest biological diversity and **investigate the interface between forest components and the atmosphere**.	
VI/22	Annex I Programme Element 1 Goal 3 Objective 2	Goal 3: To protect, recover and restore forest biological diversity.	**Determine status and conservation needs of endemic or threatened species and the impacts of current forest management practices** on these species.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 1 Goal 4 Objective 4	Goal 4: To promote the sustainable use of forest biological diversity.	**Improve understanding of patterns of genetic diversity and its conservation in situ**, in relation to forest management, landscape-scale forest change and climate variations.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 2 Goal 2 Objective 1	Goal 2: Address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity.	**Increase knowledge on monetary and non-monetary cost-benefit** accounting for forest biodiversity evaluation.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 3 Goal 3 Objective 1	Goal 3: Improve understanding of the role of forest biodiversity and ecosystem functioning.	**Develop** and support **focused research to improve understanding of the relationship between forest biological diversity and ecosystem functioning**, taking into account forest ecosystem components, structure, functions and processes to improve predictive capability. **Develop** and support **research to understand critical thresholds of forest biological diversity loss and change**, paying particular attention to endemic and threatened species and habitats including	cop-06.shtml?m=COP-06&id=7196

			forest canopies. **Develop** and apply **forest ecosystem restoration techniques** to address biodiversity loss at the ecosystem level. **Develop** and support **research on impact of current forest management practices** for forest biodiversity within forests and on adjacent land.	
IX/5	Para 1	The Conference of the Parties	*Urges* Parties to: **Improve forest-biodiversity monitoring, inventorying** and reporting, at all appropriate levels; **identify areas of particular importance to forest biodiversity**, taking into account the target of having at least 10 per cent of each of the world's forest types effectively conserved; Promote multidisciplinary scientific research to **better understand the impacts of climate change**, including mitigation and adaption activities, and environmental degradation on ecosystem resilience, conservation and sustainable use of forest biodiversity and impacts on the livelihoods of indigenous and local communities; **Promote national and international research on agroforestry** and use the results to identify and disseminate good practices that promote the conservation and sustainable use of both forest and agricultural biodiversity; **Authorize the release of genetically modified trees only after completion of studies in containment**, including in greenhouse and confined field trials, in accordance with national legislation where existent, **addressing long–term effects as well as thorough, comprehensive, science-based and transparent risk assessments** to avoid possible negative environmental impacts on forest biological diversity; Further **develop knowledge on forest ecosystem services**, and implement, as appropriate, innovative tools for securing such services, such as Payments for Ecosystem Services (PES), consistent and in harmony with the Convention and other relevant international obligations;	cop/?id=11648
XIII/3	Para 54	The Conference of the Parties	*Further encourages* Parties and invites other Governments to use, develop or enhance mechanisms of monitoring and evaluation of the	decisions/cop/?m=cop-13

			impacts of policies, programmes, plans, projects and strategies relating to forest activities and...to monitor the biodiversity status using different monitoring methodologies, such as forest or biodiversity monitoring systems that provide information on the integral health of forest ecosystems;	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/8	Annex I Part II Planned Activity 8	Forest biological diversity.	In decision IV/7, the Conference of the Parties agreed that countries would review specific indicators of forest biological diversity derived by the major international processes related to sustainable forest management. **Depending on the selection of the criteria and indicators chosen, additional taxonomic studies and inventories will then be required**. While there is a need to continue **developing knowledge** in many components of forest ecosystems, the least known, and **highest priority**, is the **below-ground biological diversity**.	cop-06.shtml?m=COP-06&id=7182
VI/22	Annex I Programme Element 1 Goal 1 Objective 1	Goal 1: To apply the ecosystem approach to the management of all types of forests.	**Clarify the conceptual basis of the ecosystem approach** in relation to sustainable forest management. **Develop guidance** for applying the ecosystem approach in forest ecosystems. **Develop** and implement guidance to help the selection of **suitable forest management practices** for specific forest ecosystems. **Develop** and implement appropriate **mechanisms for the participation of all stakeholders** in ecosystem-level planning and management. **Promote activities that minimize the negative impacts of forest fragmentation on forest biodiversity**, including afforestation, forest restoration, secondary forest and plantation management, and agroforestry, watershed management and land use planning aimed at providing a combination of economic and environmental goods and services to stakeholders.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 1	Goal 2: To reduce the threats and	Reinforce, **develop** and implement **strategies** at regional and national level **to prevent and mitigate the impacts of invasive alien species** that threaten ecosystems, including risk assessment, strengthening of	cop-06.shtml?m=COP-06&id=7196

	Goal 2 Objective 1	mitigate the impacts of threatening processes on forest biological diversity.	quarantine regulation, and containment or eradication programmes taking into account the guiding principles on invasive alien species if adopted at the sixth meeting of the Conference of the Parties.	
VI/22	Annex I Programme Element 1 Goal 2 Objective 2		**Support monitoring programmes that help evaluate the impacts of air, soil and water pollution** on forest ecosystems, and address the impacts of changing environmental conditions on forest ecosystems.	
VI/22	Annex I Programme Element 1 Goal 2 Objective 3		**Develop coordinated response strategies and action plans** at global, regional and national levels. **Assess how the conservation and sustainable use of forest biological diversity can contribute to the international work relating to climate change**.	
VI/22	Annex I Programme Element 1 Goal 2 Objective 4		**Develop** and promote the use of **fire management tools** for maintaining and enhancing forest biological diversity, especially when there has been a shift in fire regimes. **Promote development of systems for risk assessment and early warning, monitoring and control**, and enhance capacity for prevention and post-fire forest biodiversity restoration at the community, national and regional levels.	
VI/22	Annex I Programme Element 1 Goal 2 Objective 5		**Develop** and promote management **methods that restore or mimic natural disturbances** such as fire, wind-throw and floods.	
VI/22	Annex I Programme Element 1 Goal 3 Objective 1	Goal 3: To protect, recover and restore forest biological diversity.	**Create and improve** where appropriate international, regional and national **databases and case-studies on the status of degraded forests, deforested, restored and afforested lands**.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 1 Goal 3 Objective 2		**Develop** and implement conservation **strategies for endemic and threatened species** for global or regional application, and practical systems of adaptive management at national level.	

VI/22	Annex I Programme Element 1 Goal 3 Objective 3		**Assess the comprehensiveness, representativeness and adequacy of protected areas** relative to forest types and **identify gaps and weaknesses**. **Assess the efficacy of protected forest areas** for the conservation of biological diversity.	
VI/22	Annex I Programme Element 1 Goal 4 Objective 1	Goal 4: To promote the sustainable use of forest biological diversity.	**Develop**, support and promote **programmes** and initiatives **that address the sustainable use of timber and non-timber forest products**.	
VI/22	Annex I Programme Element 1 Goal 4 Objective 4		Develop, harmonize and **assess the diversity of forest genetic resources**, taking into consideration the **identification of key functional/keystone species populations, model species and genetic variability at the deoxyribonucleic acid (DNA) level**. **Monitor developments in new biotechnologies** and ensure their applications are compatible with the objectives of the Convention on Biological Diversity with respect to forest biological diversity, and **develop** and enforce **regulations for controlling the use of genetically modified organisms (GMOs)** when appropriate.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 2 Goal 1 Objective 2	Goal 1: Enhance the institutional enabling environment.	**Develop a set of indicators** that might be used in assessing progress in implementing the national biodiversity strategies and action plans and relevant work programmes.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme Element 2 Goal 2 Objective 1	Goal 2: Address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity.	**Develop, test** and disseminate **methods for valuing forest biological diversity and other forest ecosystem goods and services** and for incorporating these values into forest planning and management, including through stakeholder analysis and mechanisms for transferring costs and benefits. **Develop** and disseminate **analyses of the compatibility of current and predicted production and consumption patterns** with respect to the limits of forest ecosystem functions and production.	cop-06.shtml?m=COP-06&id=7196
VI/22	Annex I Programme	Goal 1: To characterize	**Review** and adopt **a minimum forest classification for forest types**, compatible with remote sensing technologies, that includes broad	cop-06.shtml?m=COP-06&id=7196

	Element 3 Goal 1 Objective 1	and to analyse from forest ecosystem to global scale and develop general classification of forests on various scales in order to improve the assessment of status and trends of forest biological diversity.	indicators of biodiversity that can be taken into account in all international and regional forest-related programmes, plans and activities.	
VI/22	Annex I Programme Element 3 Goal 1 Objective 2		**Review existing national forest ecosystem classification systems and maps**. **Develop** and apply national **forest ecosystem classification systems and maps** that include key components of forest biological diversity to be used in assessment reports on forest types including socio-economic and cultural aspects. Use adapted technology, for example geographic information system, to **develop a baseline for assessing levels of deforestation and impacts on biodiversity**.	
VI/22	Annex I Programme Element 3 Goal 1 Objective 3		To **identify and prioritize relevant areas to carry out** these [specific forest ecosystems] **survey**s	
VI/22	Annex I Programme Element 3 Goal 2 Objective 1	Goal 2: Improve knowledge on and methods for the assessment of the status and trends of forest biological diversity, based on available information.	**Advance** the development and implementation of international, regional and national **criteria and indicators** based on key measures within the framework of sustainable forest management. **Develop and select** international, regional and national **criteria and** where appropriate quantifiable, **indicators for forest biological diversity**, taking into account, as appropriate, existing work and processes on criteria and indicators on sustainable forest management, as well as the knowledge held by indigenous and local communities. Such criteria and indicators should be used for assessment reporting at least 10-year intervals.	cop-06.shtml?m=COP-06&id=7196
VIII/19	Part B	The Conference of the Parties	***Recognizing*** **the uncertainties related to** the potential environmental and socio-economic impacts, including **long-term and transboundary impacts, of genetically modified trees on global forest biological diversity**, as well as on the livelihoods of indigenous and local communities, and **given the absence of reliable data and of capacity in some countries to undertake risk assessments and to evaluate those potential impacts**;	COP-08&id=11033

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Thematic Work Programme on Inland Waters Biodiversity

Inland water ecosystems are often extensively modified by humans, more so than marine or terrestrial systems, and are amongst the most threatened ecosystem types of all (http://www.cbd.int/waters/default.shtml). Physical alteration, habitat loss and degradation, water withdrawal, overexploitation, pollution and the introduction of invasive alien species are the main threats to these ecosystems and their associated biological resources.

The cited Decision that express research needs are VI/8, VII/4 (where the revised work programme is annexed) and X/28, also checked were Decisions VI/2, VIII/20 and IX/19.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/4	Annex I Programme Element 1 Goal 1.1 Activity 1.1.3	Goal 1.1: To integrate the conservation and sustainable use of biological diversity into all relevant sectors of water-resource and river-basin management, taking into account the ecosystem approach.	**Identify** and remove the **sources**, or reduce the impacts, **of water pollution** (chemical, thermal, microbiological or physical) on the biological diversity of inland waters.	cop-07.shtml?m=COP-07&id=7741
VII/4	Annex I Programme Element 1 Goal 1.3 Activity 1.3.2	Goal 1.3: To enhance the conservation status of inland water biological diversity	**Identify nationally priority candidate inland water ecosystems and/or sites for rehabilitation or restoration** and proceed to undertake such works, as resources allow. **In identifying potential candidate sites, consider the relative conservation status of the threatened species** involved, **and the potential gains for the overall ecosystem functioning, productivity and "health"** within each	cop-07.shtml?m=COP-07&id=7741

		through rehabilitation and restoration of degraded ecosystems and the recovery of threatened species.	drainage basin.	
VII/4	Annex I Programme Element 1 Goal 1.3 Activity 1.3.3		**Identify** nationally and then act, as appropriate, to improve **the conservation status of threatened species, including migratory species**, reliant on inland water ecosystems, (see activities 1.2.3 and 1.2.4), taking into account the programme of work on restoration and rehabilitation of degraded ecosystems being developed by the Conference of the Parties as part of its multi-year programme of work up to 2010.	
VII/4	Annex I Programme Element 3 Goal 3.1 Activity 3.1.1	Goal 3.1: To develop an improved understanding of the biodiversity found in inland water ecosystems, how these systems function, their ecosystem goods and services and the values they can provide.	**Encourage**, and where possible support, **applied research to gain an improved understanding of the status, trends, taxonomy and uses of biological diversity** in inland water ecosystems, including transboundary systems where applicable.	cop-07.shtml?m=COP-07&id=7741
VII/4	Annex I Programme Element 3 Goal 3.1 Activity 3.1.2		**Promote research to improve the understanding of the social, economic, political and cultural drivers within civil society that are directly impacting on the conservation and sustainable use** of the biological diversity of inland waters.	
VII/4	Annex I Programme Element 3 Goal 3.1 Activity 3.1.3		In line with the Global Taxonomy Initiative (GTI) **encourage studies aimed at improving the understanding of the taxonomy** of the biological diversity of inland water ecosystems.	
VII/4	Annex I Programme Element 3 Goal 3.1 Activity 3.1.4		**Support efforts to achieve international consistency and interoperability of taxonomic nomenclature, databases and metadata standards**, as well as data-sharing policies.	
VII/4	Annex I Programme Element 3 Goal 3.2 Activity 3.2.2	Goal 3.2: To develop, based on inventories, rapid and other assessments applied at the	**Identify the most cost-effective approaches and methods to describe the status, trends and threats** of inland waters and indicate their condition in functional as well as species terms.	cop-07.shtml?m=COP-07&id=7741
VII/4	Annex I		**Suitable organisms should be identified** as being particularly	

	Programme Element 3 Goal 3.2 Activity 3.2.3	regional, national and local levels, an improved understanding of threats to inland water ecosystems and responses of different types of inland water ecosystems to these threats.	important in the assessment of inland water ecosystems. **In view** of the great economic importance of some groups (e.g. inland water fish species and aquatic macro-invertebrates), and **of the large gaps in taxonomic knowledge for many species,** capacity-building in taxonomy should focus on inland water biodiversity of economic as well as ecological importance.	
VII/4	Annex I Programme Element 3 Goal 3.2 Activity 3.2.8		**Develop means of identifying and protecting groundwater recharge areas, groundwater aquifers, and surface waters fed by groundwater discharges**.	
X/28	Para 30	The Conference of the Parties	*Notes* the **importance of robust data on inland water spe**cies in determining the status and trends of these ecosystems;	cop/?id=12294
X/28	Para 31	The Conference of the Parties	*Urges* Parties and other Governments to **support strengthened capacity for the monitoring of the biodiversity of inland water ecosystems**, including at the species level;	cop/?id=12294
X/28	Para 32	The Conference of the Parties	*calls for* further policy-relevant **scientific assessments of the relationships between biodiversity, hydrology, ecosystem services and sustainable development,** in particular regarding, *inter alia*: **The relationships between the carbon and water cycles**, and policies and management interventions in each, and the ability of biodiversity to underpin both cycles; and The impact of the **direct anthropogenic use of water on terrestrial biodiversity, and *vice versa***, including, *inter alia*, fluxes between soil moisture, groundwater and evapo-transpiration of plants, and shifts in local and regional precipitation, taking into account any additional water-induced stresses on ecosystems through climate change;	cop/?id=12294

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/8	Annex I Part II Planned Activity 11	Inland waters biological diversity.	For the purposes of the GTI targeted activities in rapidly increasing worldwide **knowledge of freshwater fish and invertebrates are proposed as high priority**.	cop-06.shtml?m=COP-06&id=7182
VII/4	Annex I Programme Element 1 Goal 1.1 Activity 1.1.2	Goal 1.1: To integrate the conservation and sustainable use of biological diversity into all relevant sectors of water-resource and river-basin management, taking into account the ecosystem approach.	**Develop effective management strategies to maintain or improve the sustainability of inland water ecosystems**, including those identified as most stressed and facilitate a minimum water allocations to the environment to maintain ecosystem functioning and integrity. In so doing, consideration should also be given to the likely impacts of climate change and desertification, and factor in suitable mitigation and adaptive management approaches.	cop-07.shtml?m=COP-07&id=7741
VII/4	Annex I Programme Element 1 Goal 1.1 Activity 1.1.9		**Assess the linkages between inland water ecosystems and climate change** and the management options for mitigation of and adaptation to climate change.	
VII/4	Annex I Programme Element 1 Goal 1.2 Activity 1.2.2	Goal 1.2: To establish and maintain comprehensive, adequate and representative systems of protected inland water ecosystems within the framework of integrated catchment/watershed /river-basin management.	**Undertake** the necessary **assessments to identify priority sites** for inclusion into a system of protected inland water ecosystems, applying in particular the guidance on operationalizing annex I of the Convention on Biological Diversity and its harmonized application with the criteria for identifying Wetlands of International Importance under the Ramsar Convention.	cop-07.shtml?m=COP-07&id=7741
VII/4	Annex I Programme Element 1 Goal 1.2 Activity 1.2.3		As part of activity 1.2.2 above, **identify sites important for migratory species dependent** on inland water ecosystems.	
VII/4	Annex I	Goal 2.3: To provide	**Review the range and effectiveness of national incentives,**	cop-07.shtml?m=COP-

	Programme Element 2 Goal 2.3 Activity 2.3.1	the appropriate incentives and valuation measures to support the conservation and sustainable use of inland water biological diversity, and to remove, or reform appropriately, any perverse incentives opposing such conservation and sustainable use of ecosystems.	**subsidies, regulations, and other relevant financial mechanisms**, which can affect inland water ecosystems, whether adversely or beneficially.	07&id=7741
VII/4	Annex I Programme Element 2 Goal 2.3 Activity 2.3.3		**Undertake** comprehensive **valuations of the goods and services** of inland water biodiversity and ecosystems, including their intrinsic, aesthetic, cultural, socio-economic and other values, in all relevant decision-making across the appropriate sectors.	
VII/4	Annex I Programme Element 3 Goal 3.2 Activity 3.2.1	Goal 3.2: To develop, based on inventories, rapid and other assessments applied at the regional, national and local levels, an improved understanding of threats to inland water ecosystems and responses of different types of inland water ecosystems to these threats.	In accordance with the priorities set down in national biodiversity strategies and action plans, **undertake comprehensive national inventories and assessments of inland water biological diversity**, which may be regarded as important in accordance with the terms of Annex I of the Convention. Furthermore, **undertake assessments of threatened habitats and species, and conduct inventories and impact assessments of alien species in inland water ecosystems** using the guidelines adopted by the Conference of the Parties in decision VI/7 A. The transboundary nature of many inland water ecosystems should be fully taken into account in assessments, and it may be appropriate for relevant regional and international bodies to contribute to such assessments.	cop-07.shtml?m=COP-07&id=7741
VII/4	Annex I Programme Element 3 Goal 3.2 Activity 3.2.6		**Promote the development of criteria and indicators for the evaluation of the impacts** on inland water ecosystems **from both physical infrastructure projects and watershed activities**, including, *inter alia*, agriculture, forestry, mining and physical alteration, taking into consideration the natural variability of water conditions.	
VII/4	Annex I	Goal 3.3: To ensure	**Apply environmental impact assessments on water-development**	cop-07.shtml?m=COP-

	Programme Element 3 Goal 3.3 Activity 3.3.1	projects and actions with the potential to impact negatively on the biological diversity of inland water ecosystems are subjected, in accordance with national legislation and where appropriate, to suitably rigorous impact assessments.	**projects, aquaculture and watershed activities**, including agriculture, forestry and mining, and best predictions **with well designed sampling schemes** that can adequately distinguish the effects of anthropogenic activities from natural processes; **Incorporate**, where appropriate, **environmental flow assessments into impact assessment processes** for any projects with the potential to have negative effects on inland water ecosystems, and also **undertake baseline ecosystem assessments** in the planning phase to ensure that the necessary basic data will be available to support the environmental impact assessment process and the development of effective mitigation measures if necessary.	07&id=7741
VII/4	Annex I Programme Element 3 Goal 3.3 Activity 3.3.3		**For transboundary inland water ecosystems, undertake**, where feasible and appropriate and by agreement between the Parties concerned, **collaborative impact and environmental flow assessments** when applying the Convention's guidelines for incorporating biodiversity related issues into environmental impact assessment legislation and/or processes and in strategic environmental assessment.	
VII/4	Annex I Programme Element 3 Goal 3.4 Activity 3.4.1	Goal 3.4: To introduce and maintain appropriate monitoring arrangements to detect changes in the status and trends of inland water biodiversity.	**Introduce appropriate monitoring regimes** based on the Convention on Biological Diversity and other guidance for priority inland water biodiversity and ecosystems in the first instance, taking into account the implementation of decisions VI/7 A-C on identification, monitoring, indicators and assessments and possible adoption by the Conference of the Parties at its seventh meeting of principles for developing and implementing national-level monitoring and indicators.	cop-07.shtml?m=COP-07&id=7741
X/28	Para 18	The Conference of the Parties	*Requests* the Executive Secretary, in partnership with relevant organizations […] to continue **to investigate ways to reduce the negative impacts of agricultural water use and drainage on ecosystems** and to enhance their ability to provide water for food production for present and future generations	cop/?id=12294

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Thematic Work Programme on Island Biodiversity

Islands and their surrounding near-shore marine areas constitute unique ecosystems often comprising many plant and animal species that are endemic—found nowhere else on Earth (http://www.cbd.int/island/default.shtml). The legacy of a unique evolutionary history, these ecosystems are irreplaceable treasures. They are also key to the livelihood, economy, well-being and cultural identity of 600 million islanders—one-tenth of world population.

The cited Decisions that express research needs are VIII/1, where the work programme is annexed, and XI/15, also checked were Decisions VIII/3 Annex I Part IV and IX/21.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VIII/1	Annex I Appendix Goal 1 Priority Action 1.1.1	Goal 1: Promote the conservation of the biological diversity of island ecosystems, habitats and biomes.	**Identify, classify, map**, and prioritize **island ecosystems and sensitive areas** important for biodiversity and/or for the maintenance of ecosystem goods and services, with the full and effective participation of indigenous and local communities, taking into account practical issues of connectivity and implementation of conservation activities. **Improve understanding of ecological processes on and around islands**, including isolation and fragmentation of habitats such as, seamounts, cold water coral reefs, hydrothermal vents, and cold seeps in conserving biodiversity.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 1 Priority Action 1.1.2		**Identify and undertake rehabilitation of natural terrestrial ecosystems from which key components have been lost or significantly reduced**, in cooperation with local, traditional, and indigenous experts to identify key vegetation components that have been lost or significantly reduced. **Develop** and implement **methods to protect endangered species in their island environments** and to enhance or re-establish populations that have sustained extensive declines. **Explore the possibility of documenting traditional knowledge, innovations and practices relevant to local species**, taking on board the work of the Ad Hoc Open-Ended Inter-Sessional Working Group on Article 8(j) and related provisions while developing technical guidelines	

			for such activities, with the full and effective participation of indigenous and local communities, consistent with Article 8(j)**.**	
VIII/1	Annex I Appendix Goal 1 Priority Action 1.1.3		**Develop practical criteria for classifying degraded island ecosystems and selecting priority ecosystems for restoration**, based on their conservation and ecosystem service value and impact on other ecosystems or habitats. **Systematically compile existing and new data on the status and trend of degraded island ecosystems.** Establish a baseline measure of the extent of degraded island ecosystems as a means of determining progress towards restoration targets.	
VIII/1	Annex I Appendix Goal 1 Priority Action 1.2.1		**Develop** and apply active **conservation methods** that integrate *ex situ,* if appropriate, and *in situ* conservation. **Identify** and protect **areas of significance to migratory species**.	
VIII/1	Annex I Appendix Goal 2 Priority Action 2.1.1	Goal 2: Promote the conservation of island species diversity.	**Identify, map**, and prioritize **areas containing native threatened, endemic, and/or culturally important species** working closely with traditional, indigenous and local experts and communities. **Develop** and implement habitat protection, management, and if necessary, **species reintroduction strategies** giving priority to *in situ* activities. **Improve scientific capacity in conservation biology tools for recovery of endangered species, including population genetic studies as part of recovery efforts**.	
VIII/1	Annex I Appendix Goal 2 Priority Action 2.2.1		**Compile and/or update maps and undertake censuses of all native threatened endemic, and/or culturally important species**. **Undertake studies** and provide baseline data and information **on marine species, spawning and breeding sites**. **Survey and assess** known and potential **biodiversity hot spots**, with rapid assessments of components of island biodiversity. **Undertake taxonomic studies** or revisions **of important island taxa, including marine, freshwater and terrestrial species**. **List all endangered island species that are stored in *ex situ* collections**. **Understand the dynamics of key island populations and ecological**	cop-08.shtml?m=COP-08&id=11013

			communities, and what constitutes an adequate area of key habitat to ensure viable populations. **Assess genetic diversity and differentiation within and among island populations of wild flora and fauna**. **Undertake monitoring of those species at risk, especially, at a minimum, all critically endangered and endangered species**.	
VIII/1	Annex I Appendix Goal 3 Priority Action 3.1.1	Goal 3: Promote the conservation of island genetic diversity.	**Identify** and support **mechanisms for the restoration of lost germplasm** and associated information to communities and countries.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 4 Priority Action 4.1.1	Goal 4: Promote sustainable use and consumption.	**Understand how biodiversity is affected by pressures resulting from economic activities including tourism, agriculture, forestry and fisheries**, which are intensified in small island environments.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 4 Priority Action 4.2.1		**Develop** and implement **participatory standards and protocols** in establishing measures **for the sustainable utilization of marine-based resources**. **Develop an updated assessment of fishing gears and practices**.	
VIII/1	Annex I Appendix Goal 4 Priority Action 4.2.3		**Identify market opportunities** at the local, national, and international level to support the revitalization of sustainable agricultural production systems and consistent with international instruments, promote fair and equitable access to these markets for indigenous and local communities. **Identify key components of biological diversity in agricultural production systems** responsible for maintaining natural processes and cycles; monitor and evaluate the effects of different agricultural practices and technologies on these components and encourage restoration and other practices to attain appropriate levels of biological diversity.	
VIII/1	Annex I Appendix Goal 4 Priority		**Conduct research** and extension activities **on the propagation, production and use of native and endemic forest species**, and associated traditional knowledge, where applicable, to maintain the diversity of native species.	

	Action 4.2.4			
VIII/1	Annex I Appendix Goal 5 Priority Action 5.1.1	Goal 5: Pressures from habitat loss, land-use changes and degradation, and sustainable water use, reduced on islands.	**Assess** and address **underlying causes of habitat loss in small islands**, in particular in small island developing States. **Develop alternatives to prevent loss of habitats and overexploitation of existing natural resources** (e.g., forests, mangroves, marine resources) driven by mariculture, agriculture or tourism.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 6 Priority Action 6.1.1	Goal 6: Control threats to island biodiversity from invasive alien species.	**Collect baseline data on invasive alien species introductions**, and support regional and global databases providing comprehensive information on invasive species.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 6 Priority Action 6.1.3		**Collect baseline data for existing native and endemic species** in order to better understand what alien and invasive alien species populations have become established, so as to better assess their impacts. **Identify** and address likely **invasion processes** in the design of biodiversity conservation strategies. **Perform science-based risk assessment** for: (a) proposed deliberate introductions of alien species; and (b) importation of goods that may accidentally include invasive alien species (e.g. insects on food shipments). **Develop science-based risk assessment methodologies** applicable at the local, national and regional levels, including the risk of hybridization with endemic species.	
VIII/1	Annex I Appendix Goal 6 Priority Action 6.2.1		**Identify priorities** and **opportunities for the practical control and eradication of key invasive alien species from islands**, working closely with, civil society, business and local stakeholders. **Develop an inventory of invasive alien species on islands** based on surveys. Link this with inventory of species and ecosystems to identify the pressures, risks and most cost-effective opportunities for preventing	

			the introduction and spread of invasive alien species, thereby supporting the restoration of affected habitats.	
VIII/1	Annex I Appendix Goal 7 Priority Action 7.1.1	Goal 7: Adress challenges to island biodiversity from climate change, and pollution.	**Develop monitoring techniques to identify and monitor the impacts of climate change on key species**. **Develop models to understand the vulnerability of island biodiversity to climate change**, including: **Understand how sea level rise and other aspects of climate change threaten island biodiversity**; **Develop general circulation models** and other scientific tools to help understand and adapt to the impacts of climate change on island biodiversity. **Monitor and exchange information on the impacts of global climate change** on island biodiversity. **Identify species (e.g., corals) that are resilient to climate change** in order to use those species for restoration.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 7 Priority Action 7.1.2		**Identify** and protect **sites whose environmental conditions favour the maintenance and recovery of species and ecosystems under changed climate and sea level**.	
VIII/1	Annex I Appendix Goal 8 Priority Action 8.1.2	Goal 8: Maintain capacity of island ecosystems to deliver goods and services and support livelihoods.	**Identify** and implement **effective early-warning systems** (forecasting) and strategies that address natural hazards and their impacts on island biodiversity and its recovery capacity, such as tsunamis, hurricanes, storm surges, floods, and tropical storms and longer-term trends such as climate change, sea level rise, El Niño and La Niña phenomena	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 8 Priority Action 8.2.1		**Identify settled areas at risk** from mudslides, landslides and storm surge, and implement vegetation stabilization and other mitigation measures.	
VIII/1	Annex I Appendix Goal 10 Priority Action 10.1.1	Goal 10: Ensure the fair and equitable sharing of benefits arising	**Investigate** and document, subject to Article 8(j), **island genetic resources** and associated knowledge, and their existing and potential uses, including status, trends, and threats. **Identify** and assess **systems of information delivery**, and update them to improve the recording and cataloguing of island genetic	cop-08.shtml?m=COP-08&id=11013

		out of island genetic resources.	resources and, where appropriate, to implement alternative systems.	
VIII/1	Annex I Appendix Goal 10 Priority Action 10.2.1		**Investigate and document the potential for research, including bioprospecting, into island genetic resources**.	
VIII/1	Annex I Appendix Goal 11 Priority Action 11.2.1	Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention.	**Assess and identify suitable technology for conserving island biodiversity, at all scales**.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 11 Priority Action 11.2.2		**Identify existing island-based technology** that supports the implementation of the programme of work on island biodiversity.	
VIII/1	Annex I Appendix Goal 11 Priority Action 11.3.3		**Investigate perceptions of biodiversity** by island inhabitants, tourists, developers and other stakeholders to improve the legitimacy and effectiveness of island-specific, science-based policy making.	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VIII/1	Annex I Appendix Goal 1 Priority Action 1.1.1	Goal 1: Promote the conservation of the biological diversity of island ecosystems, habitats and biomes.	**Establish efficient** local, national, and regional ecosystem **monitoring programmes**.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 1 Priority Action 1.1.2		**Develop** and implement appropriate **techniques** and guidelines through reviewing and monitoring restoration projects globally. **Re-establish animal species in terrestrial and freshwater ecosystems from which they have been lost or significantly reduced.**	

			Re-establish depleted species into marine ecosystems (e.g. artificial reefs, coral transplanting and species restocking).	
VIII/1	Annex I Appendix Goal 1 Priority Action 1.1.3		**Restore selected island ecosystems** through control and management or, where feasible, the eradication of invasive alien species. **Restore degraded mangrove, seagrass and coral reef ecosystems**.	
VIII/1	Annex I Appendix Goal 2 Priority Action 2.1.1	Goal 2: Promote the conservation of island species diversity.	**Develop** and implement **recovery plans for selected single, multiple or region-wide island endangered species** in collaboration with indigenous and local communities, giving particular priority to species most at risk of extinction, those that are endemic, and species that will provide the broadest range of benefits. **Develop protocols for translocation of island endemics threatened by invasive alien species** to different islands or new locations within the same island.	
VIII/1	Annex I Appendix Goal 2 Priority Action 2.2.1		**Document traditional use** with the full and effective participation and prior informed consent of indigenous and local communities, consistent with Article 8(j). **Promote studies on key species life histories** with special emphasis on conservation biology tools and approaches to assist active recovery efforts. **Improve the infrastructure and resources for data and information collection, management and exchange**. **Provide taxonomic training** and prepare guides **to enable researchers to identify poorly known biological groups, coral species and other associated island species**.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 3 Priority Action 3.1.1	Goal 3: Promote the conservation of island genetic diversity.	**Develop**, with the full and effective participation of indigenous and local communities, **processes and mechanisms to facilitate the return of genetic resources held in *ex situ* collections to their ecosystems of origin**, with the view to assisting *in situ* conservation initiatives of indigenous and local communities.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 3 Priority		**Develop capacity to establish and maintain gene banks/genetic resources centres**, including for aquatic/marine species, crops, and livestock, subject to Article 8(j). **Develop a mechanism** that enables and facilitates the development of	

	Action 3.1.2		regional gene banks/genetic resources centres **to serve those islands that lack the resources and infrastructure to establish and maintain gene banks**.	
VIII/1	Annex I Appendix Goal 4 Priority Action 4.1.1	Goal 4: Promote sustainable use and consumption.	**Assess the effectiveness of policies** designed to make economic activities sustainable on islands, **and use** socio-economic and **scientific knowledge to develop them further**. **Assess the** current and potential **contribution of biodiversity to island peoples in terms of sustaining livelihoods, economic activity and cultural value**.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 4 Priority Action 4.2.1		**Assess** and promote **new techniques to help alleviate fishing pressures on coastal ecosystems**. **Develop** and implement **fishery management plans** to control pressure on resources and habitats, ensure stock replenishment and prevent loss of biodiversity/habitats, taking into account user's rights, zoning (including setting of no take zones), drawing on traditional and science-based knowledge. **Establish effective participatory monitoring, control and surveillance systems** to ensure compliance with regulations by users of **coastal and marine resources**, at the local, national and regional levels.	
VIII/1	Annex I Appendix Goal 4 Priority Action 4.2.2		**Establish effective monitoring, control and surveillance systems** to ensure compliance with regulations by users of **terrestrial and freshwater resources**, at the local, national and regional levels. **Develop** effective and generally accessible **information systems and management strategies** for terrestrial and freshwater resources.	
VIII/1	Annex I Appendix Goal 4 Priority Action 4.2.3		**Develop** and implement, through a participatory process, **a sustainable and integrated agriculture development plan**. **Compile**, in collaboration with FAO and other relevant bodies and organizations, and disseminate through the clearing-house mechanism and other means: **guidelines/tool kits** geared towards the development of sustainable agriculture systems, **case-studies, lessons learned and best-practice guidance** on sustainable agriculture systems.	
VIII/1	Annex I Appendix Goal 4		**Develop** and implement, through a participatory process, **a sustainable forestry plan**, integrating, where appropriate, the traditional knowledge, innovations and practices of indigenous and local communities, subject	

	Priority Action 4.2.4		to Article 8(j). **Develop plans for sustainable management of mangrove ecosystems and ensure sustainability of fuelwood harvests**.	
VIII/1	Annex I Appendix Goal 4 Priority Action 4.3.3		**Develop** and adopt **management plans for key species** to ensure that harvest for international trade in them is sustainable.	
VIII/1	Annex I Appendix Goal 6 Priority Action 6.1.3	Goal 6: Control threats to island biodiversity from invasive alien species.	**Develop contingency plans for the early detection and rapid response to the introduction of invasive alien species** that may affect the ecological, social, economic and cultural balance in both terrestrial and marine ecosystems. **Make available information on population dynamics, habitat (natural and semi-natural), reproductive biology and propagation features of potentially invasive species**.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 6 Priority Action 6.2.1		**Review** and, as necessary, facilitate the revision or development of **national and/or local legal instruments**, adapted to the situation of each island state or island region, to prevent undesired introductions and to manage or eradicate established invasive alien species.	
VIII/1	Annex I Appendix Goal 7 Priority Action 7.1.1	Goal 7: Adress challenges to island biodiversity from climate change, and pollution.	**Consider afforestation and reforestation projects that enhance island biodiversity**, noting that it *may* be possible for these projects to be eligible to generate certified emission reduction units under the Kyoto Protocol's Clean Development Mechanism.	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I Appendix Goal 9 Priority Action 9.1.2	Goal 9: Maintain socio-cultural diversity of indigenous and local communities of islands	**Develop** and implement effective **systems to respect, preserve and maintain traditional knowledge, innovations and practices**, where appropriate, for sustainable use of island resources. **Document traditional knowledge, innovations and practices** relevant to local species or the sustainable use of island biodiversity, with the full and effective participation and prior informed consent of indigenous and local communities consistent with Article 8(j).	cop-08.shtml?m=COP-08&id=11013
VIII/1	Annex I	Goal 10:	**Develop** and implement **a national access and benefit-sharing**	cop-08.shtml?m=COP-

	Appendix Goal 10 Priority Action 10.1.2	Ensure the fair and equitable sharing of benefits arising out of island genetic resources.	**strategy**, and national access and benefit-sharing measures, including legislative, administrative and policy measures with particular reference to endemic island species, taking into account the Bonn Guidelines.	08&id=11013
VIII/1	Annex I Appendix Goal 11 Priority Action 11.3.5	Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention.	**Establish monitoring systems** to assess the implementation and long-term impact of national biodiversity strategies and action plans and the programme of work. **Continue work on a vulnerability index** and other indicators that reflect the status of small islands, and integrate ecological fragility, socio-economic and cultural vulnerabilities. **Develop appropriate techniques for monitoring island biodiversity** in order to assess and report on long-term regional and global trends and on the drivers of biodiversity loss, including global change, and their impacts on biodiversity.	cop-08.shtml?m=COP-08&id=11013
XI/15	Para 1	The Conference of the Parties	*Urges* Parties, and invites other Governments, financial institutions and other relevant organizations to strengthen the implementation of the programme of work on island biodiversity and to build on successful island approaches by: d) **Maintaining and supporting key databases and information portals** [...] to enable effective invasive species monitoring and eradication prioritization on islands, as valuable tools in support of the implementation of the programme of work;	cop/default.shtml?id=13176

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Thematic Work Programme on Marine and Coastal Biodiversity

The oceans occupy more than 70% of the earth's surface and 95% of the biosphere (http://www.cbd.int/marine/default.shtml). Life in the sea is roughly 1000 times older than the genus Homo. There is broad recognition that the seas face unprecedented human-induced threats from industries such as fishing and transportation, the effects of waste disposal, excess nutrients from agricultural runoff, and the introduction of exotic species.
The cited Decisions that express research needs are VI/8, VII/5 (where the work programme is annexed), VIII/21, VIII/22, IX/20, X/29, XI/6, XI/17, XI/18, XII/22, XII/23, XIII/10 and XIII/11, also checked were Decisions VI/3 and XIII/12.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/8	Annex I Part II Planned Activity 9	Marine and coastal biological diversity.	Two major elements of **taxonomic work within marine and coastal ecosystems can be considered as high priority** for achieving the Convention's objectives in marine and coastal systems, namely **ballast water organisms, and key organisms for monitoring the health of mangrove systems through their invertebrate fauna**. The ballast water organisms sub-element will require, *inter alia*, a **focus on pelagic juvenile stages of benthic organisms**. The second element focuses on mangroves, which are among the world's most rapidly changing systems. Within the marine and coastal biodiversity programme of work there is a need to **develop taxonomic support for baseline monitoring of invertebrate fauna in mangrove systems**.	cop-06.shtml?m=COP-06&id=7182
VII/5	Annex I Appendix 1 Para 1 a	Scientific work plan on coral bleaching.	**Identification of coral-reef areas that exhibit resistance and/or resilience to raised sea temperatures**. **Identification, development, testing and refinement of management regimes to enhance reef resilience to and recovery from raised sea temperatures and/or coral bleaching**, through the application of, *inter alia,* appropriate protective status, reduction of reef stressors, management of reef communities, etc. **Investigation of factors that enable such resistance** such as, *inter alia* cool currents, cold up-wellings, genetic tolerance in certain species and genotypes of corals to raised sea temperatures, presence and necessary abundance of reef associated biodiversity that imbues reef	cop-07.shtml?m=COP-07&id=7742

			systems with resilience to raised sea temperatures and/or coral bleaching. **Investigation of the role(s) of sea currents**, local and larger scale, in the resistance and/or resilience of coral reefs to raised sea temperatures and/or coral bleaching.	
VII/5	Annex I Appendix 1 Para 1 c		**Explore utility and feasibility of short-term management interventions** to reduce severity of bleaching or to facilitate recovery after bleaching.	
VII/5	Annex I Appendix 1 Para 1 e		Assist reef managers to **identify**, implement and justify **actions that can reduce localized stressors** on reefs that will increase reef resilience to mass bleaching**.**	
VII/5	Annex I Appendix 1 Para 2 a		**Implement** and coordinate **targeted research** programmes, including predictive modelling, that increase understanding **of:** **The *mechanisms* that cause mass coral bleaching**, including: **Mechanisms that lead to variation in bleaching symptoms**; **Bleaching thresholds** for varying geographic locations and reef types for acute and chronic increases in sea temperature; **Synergistic relationships between global stressors**, such as warming, increased exposure to ultraviolet radiation and localized threats that already place reefs at risk, such as pollution and overfishing; **The *long-term consequences* of mass coral bleaching** under different warming scenarios, including: **Understanding of acclimation and adaptation potential** **Prediction of the frequency and extent** of mass bleaching; **Predict the impacts of mass bleaching** on ecological, social, and economic systems. The *management* of mass coral bleaching, including: **Effectiveness of short-term management interventions** in promoting reef resilience to bleaching and/or recovery after mass bleaching events. **Understanding of strategies to support long-term resilience** to bleaching, including connectivity, removal of localized stressors, etc. **Document instances of mass bleaching, and the impacts** of coral-bleaching and coral-mortality events on social and economic systems, and provide relevant information to the Secretariat through the Global	

			Coral Reef Monitoring Network (GCRMN).	
VII/5	Annex I Appendix 1 Para 2 b		**Implement baseline assessments** and long-term monitoring **to measure the extent and severity of coral bleaching, mortality and recovery and identify reef areas that exhibit resistance and/or resilience to raised sea temperatures**; **Widen**, as necessary, **the research on socio-economic impacts** of coral bleaching on communities dependent on coral reefs; **Identify pilot projects** that establish training programmes and survey protocols **and enhance availability of expert advice** at a range of scales, including classification of scale data.	cop-07.shtml?m=COP-07&id=7742
VII/5	Annex I Appendix 1 Para 4 b		**Develop approaches for assessing the vulnerability of coral-reef species to global warming**.	
VII/5	Annex I Appendix 4 Priority 2.1	Research priorities including research and monitoring projects associated with PE 3: Marine and coastal protected areas.	**Undertake initiatives to map ecosystems and habitats** within regions and biogeographic areas, and determine the minimum level of broad habitat categories required for assessing representativeness of marine and coastal protected areas networks. Use this **as a basis for assessing representativeness of the existing marine and coastal protected areas network**. This work should use a high-level framework that is compatible with the basis for global inventory work. One possible approach to this work is to hold regional workshops. **Assess connectivity** to determine bioregions, and apply this information for evaluation of the existing marine and coastal protected areas network, as well as for identifying priority areas for the future. **Assess the effectiveness of the current marine and coastal protected areas network** regionally and globally for the conservation and sustainable use of migratory species.	cop-07.shtml?m=COP-07&id=7742
VII/5	Annex I Appendix 4 Priority 2.3		**Develop and test a suite of effective assessment measures**, including indicators, on a number of existing sites (biological, socio-economic and governance-based indicators). Selected pilot sites must cover the range of cold, temperate and tropical regions. **Develop methods for evaluating the effectiveness of entire networks** of marine and coastal protected areas. **Develop methods for adapting marine and coastal protected areas**	

			management in response to possible changing species and habitat distribution patterns, which may result from climate change.	
VII/5	Annex I Appendix 4 Priority 3.1		**Evaluate the long-term benefits** (for example species changes, habitat changes and ecosystem changes) of protecting large-enough/significant-enough critical habitats and ecosystems, by developing case-studies.	
VII/5	Annex I Appendix 4 Priority 3.6		**Develop methods for estimating the percentage of non-extractive protection required**, in conjunction with national monitoring programmes, depending on the size and dynamics of local populations.	
VII/5	Annex I Appendix 5 Para a	Research priorities including research and monitoring projects associated with PE 4: Mariculture	**Development of research programmes to support establishment of efficient monitoring programmes to monitor impacts of mariculture on marine and coastal biological diversity**; **Development of criteria** for judging the seriousness of biodiversity effects of mariculture; Subsequent **establishment of monitoring programmes** to detect effects of mariculture biodiversity; **Research on the impact of escaped mariculture species on biodiversity**; **Development of criteria for when environmental impact assessments are required**, and for the application of environmental impact assessments at all levels of biodiversity (genes, species, ecosystems), in the context of the guidelines endorsed by the Conference of the Parties in decision VI/7 A and the recommendations endorsed in decision VI/10, annex II; Noting that the FAO glossary of terms is skewed towards marine capture fisheries, **expansion of this glossary with regard to its terminology related to aquaculture**; **Reinforcement of global assessments** of marine and coastal biological diversity.	cop-07.shtml?m=COP-07&id=7742
VII/5	Annex I Appendix 5 Para b		**Development of genetic resource management plans for broodstock**; Research aimed at understanding genetic effects of biotechnology developments in aquaculture; **Research aimed at understanding genetic structure of both the farmed and wild populations**, including:	

			Effects of genetic pollution from farmed populations on wild populations; **Maintenance of genetic viability** of farmed populations; **Studies of (genetics of) wild populations** as potential new candidates for mariculture.	
VII/5	Annex I Appendix 5 Para c		Support for **basic global-scale taxonomic studies**, possibly in conjunction with the Global Taxonomy Initiative (GTI); Support for **studies aimed at development of responsible aquaculture** using native species, including through consideration of traditional knowledge; **Development of methods and techniques for limiting by-catch of seed collection**.	
VII/5	Annex I Appendix 5 Para d		**Research on carrying capacity and carrying capacity models** for planning aquaculture, especially stocking rates; Comprehensive **studies to quantitatively and qualitatively assess effects of mariculture on biodiversity** for various aquatic ecosystems, selected by their sensitiveness degree; **Research on the competitive nature imposed on marine fisheries by capture and culture fisheries**; **Studies aimed at improved understanding of the effects of inputs**, such as chemicals, hormones, antibiotics and feeds on biodiversity; **Research on the impact of diseases** in cultured and wild species on biodiversity;	
VII/5	Annex I Appendix 5 Para e		Comparative **studies on legislation, economic and financial mechanisms for regulating mariculture activity**; **Development of** quantitative and qualitative **criteria to assess mariculture impacts** on the environment, including cultural and social impacts, as outlined in the recommendations contained in decision VI/10, annex II;	
VII/5	Annex I Appendix 5 Para f		Support for **mariculture-related disease monitoring programmes** at the global level; Support for **the transfer of biotechnological diagnostic tools** for wide use; **Update of taxonomic database** including genetic diversity at the intra-specific level.	

VII/5	Annex III Para 2	Improvement of available data for assessment of progress towards the global goal.	Global data on marine and coastal protected areas should be improved and/or gathered in the following critical categories: **Location** (physical coordinates and country or political unit, including the names of neighbouring country/countries where the marine and coastal protected areas is transboundary); **Total size** of the protected area, the relative size of the marine and coastal component and, where transboundary, the total area under country jurisdiction; **Temporal aspects** e.g. permanency or seasonality of protection or management; **Type of protection and management** proposed or being implemented, using a simple three-tier system; Representative highly-protected areas where extractive uses are excluded; Additional marine and coastal protected areas; Sustainable-management practice in the wider coastal and marine environment; **Effectiveness of protection and management** gauged against the regime being proposed or being implemented, using a simple three-tier system: Currently fully effective – no significant problems known; Currently partially effective – some deficiencies; Currently ineffective – significant implementation problems; **Nationally-designated names** for type of protection and management e.g. marine park, marine and coastal nature reserve, etc. **Habitats protected and managed** (3D not just benthic); **Species protected and managed** (3D not just benthic)**;** **Habitats and species specifically excluded from protection/management within the marine and coastal protected area** (i.e. that have no legal protection); **Nature of threats to habitats/species** **Name and contact details** of person(s) providing the above information and date on which this was done.	cop-07.shtml?m=COP-07&id=7742
VIII/21	Para 2	The Conference of the Parties	*Recognizes* that **given the** vulnerability and **general lack of scientific knowledge of deep seabed biodiversity, there is an urgent need to**	COP-08&id=11035

			enhance scientific research and cooperation and to provide for the conservation and sustainable use of these genetic resources in the context of the precautionary approach;	
IX/20	Para 8	The Conference of the Parties	*Invites* to cooperate in further **developing scientific and technical guidance for the implementation of environmental impact assessments** and strategic environmental assessments for activities and processes under their jurisdiction and control **which may have significant adverse impacts on marine biodiversity** beyond national jurisdiction,	cop/?id=11663
IX/20	Para 23	The Conference of the Parties	*Urges* Parties, other Governments and relevant organizations to **undertake further research to improve understanding of marine biodiversity, especially in selected seabed habitats and marine areas in need of protection**, including, in particular, elaboration of inventories and baselines to be used for, *inter alia*, assisting in the assessment of the status and trends of marine biodiversity and habitats, paying special attention to those ecosystems and critical habitats that are relatively unknown;	cop/?id=11663
X/29	Para 8	The Conference of the Parties	*invites* Parties, other Governments, relevant organizations, and indigenous and local communities, to **address climate-change adaptation and mitigation issues by:** Extending their efforts in **identifying current scientific and policy gaps** in order **to promote sustainable management, conservation and enhancement of natural carbon sequestration services** of marine and coastal biodiversity; **Identifying a**nd addressing the underlying **drivers of marine and coastal ecosystem loss and destruction**, and improving the sustainable management of coastal and marine areas;	cop/?id=12295
X/29	Para 10	The Conference of the Parties	*encourages* Parties, other Governments and organizations to further **enhance globally networked scientific efforts** […] and further **assess and map the distribution and abundance of species in the sea**, and *encourages* Parties and other Governments to foster further **research activities […] to explore marine communities where the current level of knowledge is scarce or inexistent**;	cop/?id=12295
X/29	Para 61	The Conference of the Parties	*Notes* that in order to provide reliable predictions on the potential adverse impacts on marine biodiversity of activities involving ocean	cop/?id=12295

			fertilization**, further work to enhance our knowledge and modelling of ocean biogeochemical processes is required**;	
X/29	Para 62	The Conference of the Parties	*Notes* also that there is a **pressing need for research to advance our understanding of marine ecosystem dynamics and the role of the ocean in the global carbon cycle**;	cop/?id=12295
X/29	Para 68	The Conference of the Parties	*Further notes* an **urgent need to further assess and monitor the impacts and risks of human activities on marine and coastal biodiversity**, building upon the existing knowledge;	cop/?id=12295
X/29	Annex		To further **research and investigate the role of the ocean and its ecosystems in the carbon cycle**;	cop/?id=12295
XI/6	Para 34	The Conference of the Parties	***Encourages* the development of further Arctic ecosystem resilience assessments and reports**;	cop/default.shtml?id=13167
XI/17	Para 7	The Conference of the Parties	*Takes note* of the **need to promote additional research and monitoring** [...] **to improve the ecological or biological information in each region** with a view to facilitating the further description of the areas already described, the future description of other areas meeting the scientific criteria for ecologically or biologically significant marine areas as well as other relevant compatible and complementary nationally and intergovernmentally agreed scientific criteria;	cop/default.shtml?id=13178
XI/18	Section A, Para 18	The Conference of the Parties	*Encourages* Parties, other Governments and relevant organizations, according to their priorities, to: a) **Promote research** with a view to further improving understanding of the issue [**anthropogenic underwater noise**]; d) **Develop indicators** and explore frameworks **for monitoring underwater noise** for the conservation and sustainable use of marine biodiversity	cop/default.shtml?id=13179
XI/18	Section A, Para 27	The Conference of the Parties	*requests* the Executive Secretary [...] to discuss ways to prevent and reduce the impact of marine debris on biodiversity and **strengthen research on the reduction and management of marine debris**, with a focus on addressing sources;	cop/default.shtml?id=13179
XI/18	Section B, Para 5	The Conference of the Parties	*Invites* Parties, other Governments and relevant organizations, in accordance with international law, including the United Nations Convention on the Law of the Sea, to **facilitate further research to fill gaps in knowledge**, as highlighted in the voluntary guidelines on marine and coastal areas, **in particular in areas beyond national**	cop/default.shtml?id=13179

			jurisdiction;	
XII/22	Para 11	The Conference of the Parties	*Invites* Parties and other Governments **[...] to undertake scientific and technical analysis of the status of marine and coastal biodiversity in areas** [...] described as meeting the EBSA criteria and contained in the EBSA repository;	doc/?meeting=cop-12
XII/22	Para 13	The Conference of the Parties	*Encourages* Parties and *invites* other Governments to collaborate with relevant international scientific bodies [...] **to address knowledge gaps and lack of scientific information regarding the description of areas meeting the EBSA criteria**;	doc/?meeting=cop-12
XII/23	Para 2	The Conference of the Parties	*Notes* that there has been a significant amount of research into the **impacts of underwater noise on aquatic life** over the past few decades, but that **there remain significant questions that require further study, with the largest gaps in knowledge relating to fishes, invertebrates, turtles and birds, and additional knowledge gaps on characteristics of major sound sources, trends in the prevalence and magnitude, as well as the intensity and spatial distribution, of underwater noise and on the potential impacts of underwater noise on ecosystems and animal populations**, including implications of cumulative and synergistic impacts of multiple sources of noise and other stressors;	doc/?meeting=cop-12
XII/23	Para 3	The Conference of the Parties	*Encourages* [...] relevant stakeholders, to take appropriate measures such as: a) **Defining and differentiating types or intensities of underwater noise** where there are adverse impacts, and characterizing noise by source; b) Conducting **further research on the remaining significant knowledge gaps noted in paragraph 2 above**; d) Including areas that are affected at **different levels of sound when mapping the spatial and temporal distribution of sound**; e**) Combining acoustic mapping with habitat mapping of sound-sensitive species** with regard to spatial risk assessments in order to identify areas where those species may be exposed to noise impacts;	doc/?meeting=cop-12
XII/23	Para 16	The Conference of the Parties	*recognizing* the **need for further work to identify the location and condition of deep-water corals and to understand the impacts of human activities on these corals**.....;	doc/?meeting=cop-12

XII/23	Para 18	The Conference of the Parties	*invites* relevant organizations to advance their work on enhancing methods and tools, including monitoring measures, for marine spatial planning;	doc/?meeting=cop-12
XII/23	Annex, Para 8.2	Parties are encouraged to undertake the following actions:	a) **Identify all sources of significant land-based and sea-based pollutants affecting coral reefs** and set up comprehensive national/local water quality monitoring programmes;	doc/?meeting=cop-12
XII/23	Annex, Para 11.3	Parties are encouraged to undertake the following actions:	a) **Research on multiple stressor interactions and effects on coral reefs** at the species, population and ecosystem level to identify the most damaging local stressors affecting coral reefs ecosystems at the site-based level; b) **Research to support a resilience-based approach to coral reef management** that is embedded within an integrated ecosystem-based management framework; c) Develop and implement **early warning systems for major reef health incidents** such as bleaching or disease events, tropical storms and flood plumes; d) Develop **water chemistry monitoring programmes for coastal and inshore waters** to determine the natural spatial and temporal variability of ocean carbon chemistry, and detect trends; e) **Research on the sensitivity of species, habitats and communities within coral reefs to changes in ocean carbon chemistry** and whether there is a potential for adaptation to ocean acidification in reef organisms; g) Further develop ecological and socio-economic criteria and variables for use in vulnerability assessments in coral reef regions; h) Develop mapping tools that combine data on the current status of coral reefs, management efforts and their effectiveness with predictive modelling of stressor effects to generate future scenarios of reef condition and ecosystem service provision;	doc/?meeting=cop-12

XIII/10	Annex Para 8		For land-based sources of marine debris, the following actions are suggested: a) Identify baseline data on the main land-based sources, quantities and impacts of marine debris; c) Support research aimed at developing, and encourage the transfer of, technology to better understand and reduce the environmental impacts of plastics on the marine environment, to design new or improved biodegradable products and to assess cost-effective production on a commercial scale; d) (i) Supporting the design of products that are long-lasting and reusable, reparable, re-manufacturable and recyclable with the most effective use of resources;	decisions/cop/?m=cop-13
XIII/10	Annex Para 12		For addressing knowledge gaps and research needs, the following actions are suggested: a) Support and promote, as appropriate, harmonized approaches to monitoring, analysis and reporting based on standardized methodologies, taking into account existing monitoring guidance for marine litter, such as the European Union Monitoring Guidance for Marine Litter in European Seas; c) Develop and promote means to identify sources, pathways and distribution of marine debris to understand individual and population-level effects of marine debris on marine species; d) Investigate and promote the best available techniques as well as research and develop additional techniques in wastewater treatment plants to prevent microparticles entering the marine environment; e) Promote research on the potential trophic transfer of marine microdebris in food webs to determine whether there is a bioaccumulation effect for plastics and harmful chemicals; g) Undertake socioeconomic research to better understand the social factors which may contribute to the production of marine debris, the impacts of marine debris on various coastal and maritime sectors and communities, and consumer preferences, perceptions and attitudes that can help to inform targeted outreach programmes designed according to local/cultural context; h) Develop a risk assessment of impact and implement a management	decisions/cop/?m=cop-13

			plan for debris on marine and coastal species and ecosystems, and identify hotspots of gear loss and their associated biodiversity impacts; i) Develop monitoring and follow-up strategies, taking account the following needs: i) To evaluate population-level impacts that consider, in a coordinated way, the migration routes and the distribution of species and populations; ii) To include species' life stages and their specific vulnerability to marine debris (for example, monitoring of juveniles to quantify the burden on adults); iii) To address sublethal effects while taking into account that a broad range of interacting natural and human factors determines the survival and reproductive success of individual animals; iv) To take into account that, in the case of highly endangered species, direct harm caused by marine debris on one individual can easily have an effect on the entire population; j) Apply modelling as a useful tool for marine debris management and mitigation, which can be used with spatial mapping to estimate debris distribution, encounter rates between debris and species and support the production of global risk assessments, especially for threatened species.	
XIII/11	Para 4d	The Conference of the Parties	*Encourages* Parties to enhance understanding of ecosystems in cold-water areas, including by improving the ability to predict the occurrence of species and habitats and to understand their vulnerability to different types of stressors, as well as to the combined and cumulative effects of multiple stressors;	decisions/cop/?m=cop-13
XIII/11	Annex I, Para 16		Greater understanding of the interactions between species within trophic webs is needed. Whether an impact of climate change on one organism will impact the survival of other organisms is poorly understood at present. Mesocosm experiments, where communities are subjected to projected future conditions, can help to address this.	decisions/cop/?m=cop-13
XIII/11	Annex I, Para 17		Impacts of ocean acidification on different life stages of cold-water organisms need to be studied. Early life stages of a number of organisms may be at particular risk from ocean acidification, with impacts including decreased larval size, reduced morphological complexity and decreased calcification. Further work needs to be done on different life stages of many cold-water organisms.	decisions/cop/?m=cop-13
XIII/11	Annex I,		Existing variability in organism response to ocean acidification needs to	decisions/cop/?m=cop-13

	Para 18		be investigated further, to assess the potential for evolutionary adaptation.	
XIII/11	Annex I, Para 23		Our understanding of the impacts of individual stressors is often limited, but we have even less understanding of the impacts that a combination of these stressors will have on cold-water marine organisms and ecosystems and the goods and services they provide. There is a pressing need to understand these interactions and the potentially combined and cumulative effects of multiple stressors.	decisions/cop/?m=cop-13
XIII/11	Annex II, Para 5.4	Parties are encouraged to take the following actions	Expand and improve monitoring and research on biodiversity in cold-water areas to improve fundamental knowledge of how, and over what time scales, climate change and other human-induced stressors will impact the long-term viability of, and ecosystem services provided by, cold-water biodiversity, habitats and ecosystems, including through activities outlined in annex III, with a focus on activities that: a) Improve knowledge of biodiversity in cold-water areas, including species identification, species distribution, community composition and taxonomic standardization, to provide baseline information for assessing the effects of climate change and other human-induced stressors; b) Assess the socioeconomic implications of the ongoing and predicted future pressures on cold-water biodiversity; c) Improve understanding of how climate change, acidification and other human-induced stressors will impact the physiology, health and long-term viability of cold-water organisms, habitats and ecosystems; d) Improve monitoring of environmental conditions in cold-water habitats to understand variability in carbonate chemistry; e) Develop or expand upon predictive model research to determine how projected climate change will impact cold-water biodiversity over different time scales.	decisions/cop/?m=cop-13
XIII/11	Annex III, Para 1	*Invites*.. research... organizations to promote... activities to address research and	Improve knowledge of biodiversity in cold-water areas to provide baseline information used for assessing the effects of climate change and other human-induced stressors: 1. Support research on biodiversity in cold-water areas to fill in gaps in fundamental knowledge of species identification, species distribution, and community composition, including taxonomic standardization; 2. Identify key habitat providers and their functional role within	decisions/cop/?m=cop-13

		monitoring needs identified in annex III	ecosystems to understand which organisms may be a priority in conservation and management; 3. Understand the biodiversity that key cold-water habitats support globally, and assess the gaps in current knowledge; 4. Map biodiversity and coral viability along natural gradients of carbonate saturation in order to identify the main predictors of coral biodiversity and health, assess changes related to carbonate saturation state, locate hotspots of biodiversity and endemism and help validate predictive models and improve understanding of how acidification affects ecosystem function and viability.	
XIII/11	Annex III, Para 2	*Invites*.. research... organizations to promote... activities to address research and monitoring needs identified in annex III	Assess the socioeconomic implications of current and predicted future pressures on cold-water biodiversity: 1. Enhance understanding of the ecosystem goods and services of cold-water areas; 2. Investigate connectivity (genetic and transfer of mobile species) between cold-water areas at multiple scales; 3. Investigate flow-on effects to ecosystems and ecosystem services that have significant environmental, social, cultural and economic impacts.	decisions/cop/?m=cop-13
XIII/11	Annex III, Para 3	*Invites*.. research... organizations to promote... activities to address research and monitoring needs identified in annex III	Conduct research to assess how climate change and other human-induced stressors will impact the physiology, health and long-term viability of cold-water organisms, habitats and ecosystems: 1. Carry out controlled laboratory experimentation, where feasible, on key individual species (ecosystem engineers, keystone species) to understand their metabolic, physiological and behavioural responses, and their tolerance limits/thresholds, to ocean acidification, potential interactive effects of warming and deoxygenation and human-induced stressors; 2. Implement experiments using mesocosms in the field to understand fundamental ecological responses to ocean acidification, including how acidification may alter plankton productivity, larval ecology, food webs and the competitive interactive strength of taxa; 3. Assess experimental designs for ocean acidification biodiversity research at the individual, population and ecosystem level to identify	

			best practices; 4. Identify the adaptive (or evolutionary) capacity of species with regard to single and multiple stressors, to assess the long-term resilience of key ecosystems and their continued provisioning of goods and services; 5. Conduct long-term experiments to assess whether organism survival comes with hidden energetic, structural or reproductive costs over a longer period; 6. Conduct experiments to assess whether larval stages are more susceptible to potential impacts at different life stages of organisms, and whether this impacts the long-term fitness of key species; 7. Incorporate broader assessments of ecological, physiological and microbiological impacts of acidification into research to consider wider impacts on individuals, species and ecological interactions.	
XIII/11	Annex III, Para 4	*Invites*.. research... organizations to promote... activities to address research and monitoring needs identified in annex III	Improve monitoring of environmental conditions in cold-water habitats to understand variability in carbonate chemistry: 1. Develop or expand upon existing physicochemical water chemistry monitoring programmes in cold-water areas to better understand the natural spatial and temporal variability of ocean carbon chemistry; 2. Integrate physicochemical water chemistry monitoring within national jurisdictions into international programmes, such as the Global Ocean Acidification Observation Network and initiatives such as the Global Ocean Observing System; 3. Support the development of technology for the rapid and economical assessment of seawater carbonate chemistry; 4. Integrate carbonate chemistry sampling into marine monitoring programmes, where possible.	
XIII/11	Annex III, Para 5	*Invites*.. research... organizations to promote... activities to address research and monitoring needs identified	Develop or expand upon predictive model research to determine how projected climate change will impact cold-water biodiversity over different time scales: 1. Improve ocean carbonate models to understand the temporal and three-dimensional spatial changes in carbonate saturation state and its main drivers, including changing atmospheric CO_2 conditions and ocean currents; 2. Document existing gaps in knowledge on global, regional and national scales that limit the predictive power of models;	

		in annex III	3. Couple ocean carbonate chemistry mapping and oceanographic models to biophysical and ecological information to predict the temporal and spatial variability of acidification impacts in order to help identify areas under the greatest threat as well as possible refugia; 4. Optimize habitat modelling to predict key habitats and biodiversity occurrence from seawater carbonate chemistry, oceanographic and water mass modelling and larval dispersal.	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/5	Annex I Appendix 1 Para 1 c	Scientific work plan on coral bleaching.	**Instigate and support initiatives** for marine protected areas managers **where resilience principles are being actively applied and tested**.	cop-07.shtml?m=COP-07&id=7742
VII/5	Annex I Appendix 4 Priority 1.1	Research priorities including research and monitoring projects associated with PE 3: Marine and coastal protected areas.	**Draft** action-oriented **strategies for establishing marine and coastal protected areas networks**, and implement those strategies in line with regional initiatives, for example by holding regional workshops.	cop-07.shtml?m=COP-07&id=7742
VII/5	Annex I Appendix 4 Priority 2.2		**Develop the high-level framework for the global inventory** (see annex IV below), and related advice to national managers on national inventories. **Develop national databases** for assessment of selected existing national/regional networks, selecting examples from the range of political, economic and biogeographic situations. **Undertake a global review of the current state of knowledge of marine and coastal protected areas** by region. Provide output in a format understandable for managers and policy makers. **Compiling information that illustrates the values, benefits and unique contributions of marine and coastal biodiversity**, *inter alia*, breeding, migration patterns of marine species, and spawning sites.	
VII/5	Annex I Appendix 4 Priority 3.2		**Provide a conceptual model** and best practice examples of criteria for selecting marine and coastal protected areas, by undertaking linked work in a small number of selected countries.	
VII/5	Annex I Appendix 4 Priority 3.3		**Development of** culturally sensitive marine and coastal protected areas development/management **approaches** to achieve effective participation, as appropriate, of indigenous and local communities and	

			relevant stakeholders. **Develop adaptive approaches** to marine and coastal protected areas establishment and management. This could be done by collection and dissemination of case studies of both best and worst-case examples of the degree to which an understanding of how target communities operate (socially/culturally) and "do business" can affect the success of the establishment and management of marine and coastal protected areas.	
VIII/21	Para 1	The Conference of the Parties	*Notes* that **deep seabed ecosystems beyond the limits of national jurisdiction**, including hydrothermal vent, cold seep, seamount, coldwater coral and sponge reef ecosystems, **contain genetic resources of great interest** for their biodiversity value and **for scientific research** as well as for present and future sustainable development and commercial applications;	COP-08&id=11035
VIII/21	Para 7		*Requests* the Executive Secretary, in collaboration with the United Nations Division for Ocean Affairs and the Law of the Sea, and **other relevant international organizations, to further analyse and explore options for preventing and mitigating the impacts of some activities to selected seabed habitats and report the findings to future meetings of the Subsidiary Body on Scientific, Technical and Technological Advice**;	
VIII/21	Para 9		*Emphasizes* the **urgent need**, especially in developing countries, **to build capacities relating to deep seabed biodiversity, including taxonomic capacity; to promote scientific and technical cooperation** and technology transfer; and to exchange information regarding activities undertaken within the deep seabed beyond the limits of national jurisdiction.	
VIII/22	Para 7	The Conference of the Parties	*Requests* the Executive Secretary, in collaboration with Parties, **relevant organizations** and indigenous and local communities, **to compile and analyse case-studies on successful and unsuccessful implementation of integrated marine and coastal area management**.	COP-08&id=11036
IX/20	Annex III		***Scientific identification of an initial set of ecologically or biologically significant areas***. The criteria in annex I to decision IX/20 should be used, considering the best scientific information available,	cop/?id=11663

			and applying the precautionary approach. This identification should focus on developing an initial set of sites already recognized for their ecological values, with the understanding that other sites could be added as more information becomes available. ***Develop/choose a biogeographic, habitat, and/or community classification system.*** This system should reflect the scale of the application and address the key ecological features within the area. This step will entail a separation of at least two realms–pelagic and benthic. *Drawing upon steps 1 and 2 above, iteratively use qualitative and/or quantitative techniques to* ***identify sites to include in a network.*** Their selection for consideration of enhanced management should reflect their recognised ecological importance or vulnerability, and address the requirements of ecological coherence through representativity, connectivity, and replication. ***Assess the adequacy and viability of the selected sites.*** Consideration should be given to their size, shape, boundaries, buffering, and appropriateness of the site-management regime.	
X/29	Para 24	The Conference of the Parties	*Recognizes* that the **Convention on Biological Diversity has a key role** in supporting the work of the General Assembly with regard to marine protected areas beyond national jurisdiction, **by focusing on provision of scientific and, as appropriate, technical information and advice relating to marine biological diversity**, the application of the ecosystem approach and the precautionary approach;	cop/?id=12295
X/29	Para 48	The Conference of the Parties	*Invites* Parties and other Governments to **foster research and monitoring activities**, in accordance with international law, including the United Nations Convention on the Law of the Sea**, to improve information on key processes and influences on the marine and coastal ecosystems which are critical for structure, function and productivity of biological diversity in areas where knowledge is scarce** and to facilitate the systematic collection of relevant information in order to continue proper monitoring of these areas;	cop/?id=12295
XI/17	Para 8	The Conference of the Parties	*Reaffirms* the need to facilitate the participation of developing countries [...] in targeted marine scientific research [...] including in oceanographic cruises;	cop/default.shtml?id=13178

XI/17	Para 9	The Conference of the Parties	*Affirms* that **scientific description of areas meeting scientific criteria for EBSAs and other relevant criteria is an open and evolving process that should be continued** to allow ongoing improvement and updating as improved scientific and technical information becomes available in each region;	cop/default.shtml?id=13178
XI/17	Para 25	The Conference of the Parties	*Notes* that socially and culturally significant marine areas may require enhanced conservation and management measures, and that **criteria for the identification of areas relevant to the conservation and sustainable use of biodiversity** in need of such enhanced measures due to their social, cultural and other significance may **need to be developed, with appropriate scientific and technical rationales**;	cop/default.shtml?id=13178
XII/23	Para 3	The Conference of the Parties	*Encourages* [...] relevant stakeholders, to take appropriate measures such as: f) Mitigating and managing anthropogenic underwater noise through the use of spatio-temporal management of activities, **relying on sufficiently detailed temporal and spatial knowledge of species or population distribution patterns** combined with the ability to avoid generating noise in the area at those times; g) Conducting impact assessments, where appropriate, for activities that may **have significant adverse impacts on noise-sensitive species, and carrying out monitoring**; i) Considering **thresholds as a tool to protect sound-sensitive species**, taking into account their locations during critical life cycle stages as well as relevant results of research and additional information; j) **Standardizing metrics and sound measurements** so that there are similar measures and approaches for all sounds and in all places;	doc/?meeting=cop-12
XII/23	Para 8	The Conference of the Parties	*Urges* Parties and *invites* [...] **relevant scientific groups [...] to further enhance their international collaboration to improve the monitoring of ocean acidification**, closely linked to other global ocean observing systems, noting that **a well-integrated global monitoring network for ocean acidification is crucial to improve understanding of current variability and to develop models that provide projections of future conditions**;	doc/?meeting=cop-12
XIII/10	Annex, Para 6		The considerable **gaps in knowledge of the sources, distribution and quantity of marine debris items, and their impacts on marine**	decisions/cop/?m=cop-13

			and coastal biodiversity and habitats, is limiting the ability to address the problem effectively. There is a lack of information on the amount of debris entering the marine environment and degradation or fragmentation rates for debris under a range of conditions. There is limited information available for the physical and chemical consequences of debris on marine species through ingestion/uptake.	
XIII/11	Annex I, Para 14		Global monitoring of ocean acidification is increasing, while there is a need for further development of predictive models. A well-integrated global monitoring network for ocean acidification is crucial to improve knowledge of current variability and to develop models that provide projections of future conditions..... There is a need for greater cross-sectoral partnership between government, industry and academia to facilitate establishing globally integrated monitoring system.	decisions/cop/?m=cop-13
XIII/11	Annex I, Para 14		Seawater pH shows substantial natural temporal and spatial variability. The acidity of seawater varies naturally on a diurnal and seasonal basis, on local and regional scales, and as a function of water depth and temperature. Only by quantifying these changes is it possible to understand the conditions to which marine ecosystems are subjected currently. This will, in turn, increase understanding of how marine ecosystems will change in a future climate.	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Thematic Work Programme on Mountain Biodiversity

The world's mountains encompass some of the most spectacular landscapes, a great diversity of species and habitat types, and distinctive human communities (http://www.cbd.int/mountain/default.shtml). Mountains occur on all continents, in all latitude zones, and within all the world's principal biome types. Mountains provide freshwater for more than half of humanity, and are, in effect, the water towers of the world.

The cited Decisions that express research needs are VII/27 (where the work programme is annexed), VIII/3 and X/30.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/27	Annex I Programme Element 2 Goal 2.1 Action 2.1.4	Goal 2.1:To enhance the legal, policy, institutional, and economic framework.	**Improve the science/policy linkages by undertaking national and subnational scientific assessments of the causes of biodiversity loss**, including making policy recommendations, in order to reduce the rate of loss of mountain biological diversity by 2010.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme Element 2 Goal 2.3 Action 2.3.2	Goal 2.3: To establish regional and transboundary collaboration and the establishment of cooperative agreements.	Promote and **strengthen regional and transboundary cooperation for research**, adaptive management, fair and appropriate allocation of water to ecosystems, **and exchange of expertise** to improve the conservation and management of mountain biodiversity (e.g., Global Mountain Biodiversity Assessment (GMBA) and International Centre for Integrated Mountain Development (ICIMOD)).	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme Element 3 Goal 3.4 Action 3.4.1	Goal 3.4: To improve research, technical and scientific cooperation, and other forms of	**Conduct long-term research on species adaptability to changing environmental conditions under climatic or human-induced global change**, in relation to mountain biological diversity.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme		**Conduct key research on the role and importance of mountain biological diversity and ecosystem functioning**, considering	

	Element 3 Goal 3.4 Action 3.4.2	capacity-building related to mountain biological diversity.	ecosystem components, structure, function, processes and services.	
VII/27	Annex I Programme Element 3 Goal 3.4 Action 3.4.3		**Develop and support research to assess the role of soil biological diversity and the diversity of protective vegetation cover** for the stability and safety of mountain areas and watershed protection, e.g., avoidance of human-induced erosion, landslides and avalanches.	
VII/27	Annex I Programme Element 3 Goal3. 4 Action 3.4.4		Initiate mechanisms and **develop collaborative research/scientific programmes of mutual interest among countries with mountains**, especially those having common problems and comparable socio-cultural conditions.	
VII/27	Annex I Programme Element 3 Goal 3.4 Action 3.4.6		**Conduct interdisciplinary, key research programmes on mountain biological diversity, and its relationship to ecosystem structure and functions**, including communities-based management, with special reference to transitional zones linking upland-lowland ecosystems such as ecotones, hotspots, buffer areas and corridors.	
VII/27	Annex I Programme Element 3 Goal 3.4 Action 3.4.7		**Develop capacity and enhance opportunities for community-based research and monitoring** to conserve mountain biodiversity and provide greater benefits to mountain communities.	
VII/27	Annex I Programme Element 3 Goal 3.4 Action 3.4.8		**Develop scientific and technical coordination mechanisms at national level for identification of research priorities and for optimising the efficient utilization of research results**.	
X/30	Para 17	The Conference of the Parties	*Urges* Parties and e*ncourages* other Governments and relevant organizations, with the collaboration of **the scientific community**, relevant intergovernmental organizations and mountain communities, **to study the effects of climate change as well as the effects of adaptation and mitigation measures on mountain environments and biological diversity, in order to elaborate sustainable adaptation and mitigation strategies**;	cop/?id=12296

X/30	Para 18	The Conference of the Parties	*Invites* Parties, other Governments and relevant organizations to **develop research programmes for the implementation of all three objectives of the Convention on Biological Diversity in mountain ecosystems** in a balanced manner	cop/?id=12296

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/27	Annex I Programme Element 1 Goal 1.1 Action 1.1.2	Goal 1.1: To prevent and mitigate the negative impacts of key threats to mountain biological diversity.	**Develop mechanisms** and implement measures **to reduce human-induced slope instability, adverse effects of natural geological hazards, and to maintain and/or enhance soil stability and ecosystem integrity** by way of a diverse and natural vegetation cover that will also promote soil `biodiversity function.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme Element 1 Goal 1.1 Action 1.1.4		**Develop strategies** specific to mountains ecosystems **to prevent the introduction of invasive alien species and**, when they have been introduced, **control and eradicate their negative impacts** on mountain biological diversity.	
VII/27	Annex I Programme Element 1 Goal 1.1 Action 1.1.5		**Monitor** and exchange information on **the impacts of global climate change** on mountain biological diversity**, and identify** and implement **ways and means to reduce the negative impacts**.	
VII/27	Annex I Programme Element 1 Goal 1.1 Action 1.1.7		**Identify factors responsible for and possible measures to prevent the retreat of glaciers in some mountain systems** and implement measures to minimize the impact of this process on biodiversity.	
VII/27	Annex I Programme Element 1 Goal 1.1 Action 1.1.8		**Identify local and long-range pollution (air, water and soil), which threaten mountain biodiversity at all levels** and take appropriate measures to prevent and mitigate the impacts.	
VII/27	Annex I Programme	Goal 1.2: To protect, recover,	**Develop** and implement **programmes to restore degraded mountain ecosystems and protect natural dynamic processes** and maintain	cop-07.shtml?m=COP-07&id=7764

	Element 1 Goal 1.2 Action 1.2.1	and restore mountain biological diversity.	biological diversity in order to enhance the capacity of mountain ecosystems to resist and adapt to climate change, or recover from its negative impacts including, *inter alia,* by establishing corridors and taking appropriate measures to maintain ecological functions of natural corridors, where appropriate, to enable vertical migration of species, ensuring minimal viable population sizes to enable genetic adaptation to changing environmental conditions. These programmes should include socio-economic considerations, especially in relation to indigenous and local communities.	
VII/27	Annex I Programme Element 1 Goal 1.2 Action 1.2.3		**Identify** and protect **unique, fragile mountain ecosystems**, other **biological diversity hotspots and their associated species**, especially threatened species, giving priority consideration to measures aimed at strict *in situ* protection and/or developing *ex situ* mechanisms whenever feasible.	
VII/27	Annex I Programme Element 1 Goal 1.2 Action 1.2.4		**Develop strategies for land-use and water-resource planning at landscape level** using the ecosystem approach, taking into account elements of ecological connectivity and traditional uses of indigenous and local communities, and to prevent and mitigate losses of mountain biological diversity due to fragmentation and land-use conversion.	
VII/27	Annex I Programme Element 1 Goal 1.2 Action 1.2.7		**Identify suitable practices for enhancing ecosystem sustainability with particular emphasis on degraded slopes**.	
VII/27	Annex I Programme Element 1 Goal 1.2 Action 1.2.9		**Review protected area systems** within mountain regions and , as appropriate, take measures to ensure that these are developed and maintained to be comprehensive, adequate and representative, in line with decision VII/28 of the Conference of Parties on programme of work on protected areas.	
VII/27	Annex I Programme Element 1 Goal 1.2 Action 1.2.10		**Develop** and implement **measures to rehabilitate freshwater networks for migratory species,** taking into account the physical barriers.	

VII/27	Annex I Programme Element 1 Goal 1.4 Action 1.4.2	Goal 1.4: To promote access to, and sharing of benefits arising from the utilization of genetic resources related to mountain biological diversity in accordance with national legislation where it exists.	**Develop methods to assess and conserve genetic resources of high economic value** for promoting fair and equitable sharing of benefits, respecting national legislation on access to genetic resources.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme Element 1 Goal 1.5 Action 1.5.1	Goal 1.5: To maintain genetic diversity in mountain ecosystems in particular through the preservation and maintenance of traditional knowledge and practices.	Assess and **develop strategies aimed at minimizing the threat of genetic erosion on domesticated biodiversity** (crops, animals) and wild relatives, paying particular attention to the centres of origin of the genetic resources.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme Element 1 Goal 1.5 Action 1.5.3		**Develop, validate and implement sustainable use practices for plants, animals and microorganisms at the genetic, species, population, community and ecosystem levels**.	
VII/27	Annex I Programme Element 2 Goal 2.1 Action 2.1.2	Goal 2.1: To enhance the legal, policy, institutional, and economic framework.	**Develop** and introduce **appropriate incentives, market and compensation mechanisms,** in accordance with national and international law where appropriate, specific for the maintenance of mountain ecosystems and the goods and services delivered by the mountain ecosystems.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme		**Develop performance indicators** and report on the integration of conservation and sustainable use of mountain biological diversity into	

	Element 2 Goal 2.1 Action 2.1.5		institutional programmes, including sectoral policies, legal and economic frameworks.	
VII/27	Annex I Programme Element 3 Goal 3.1 Action 3.1.1	Goal 3.1: To develop work on identification, monitoring and assessment of mountain biological diversity.	**Promote the monitoring of susceptible areas subject to climate change**.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme Element 3 Goal 3.1 Action 3.1.2		**Conduct mountain surveys in priority areas, for conservation and sustainable use** of mountain biological diversity. These surveys should **consider inventories at genetic, species and ecosystem levels**.	
VII/27	Annex I Programme Element 3 Goal 3.2 Action 3.2.1	Goal 3.2: To improve knowledge on and methods for the assessment and monitoring of the status and trends of mountain biological diversity based on available information.	**Develop key abiotic, biotic and socio-economic indicators of status and change of mountain ecosystems**.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I Programme Element 3 Goal 3.2 Action 3.2.2		**Develop and select international, regional and national criteria and**, where appropriate, **quantifiable indicators** for mountain biological diversity, taking into account the work of the Convention on monitoring and indicators and the knowledge held by indigenous and local communities, together with other experience of sustainable mountain management.	
VII/27	Annex I Programme Element 3 Goal 3.2 Action 3.2.3		**Develop methodologies for assigning value to the ecological services provided by land management systems in order to develop economic-incentive mechanisms for compensating the poor and vulnerable mountain communities**.	
VII/27	Annex I Programme Element 3 Goal 3.2 Action 3.2.4		**Assess and address the changing status of both local and long-range pollution and global climate change issues** with special relevance to mountain ecosystems.	
VII/27	Annex I		**Assess and address fragmentation and impacts on biodiversity, by**	

	Programme Element 3 Goal 3.2 Action 3.2.5		**changing land-use management practices, e.g., land abandonment, mining**.	
VII/27	Annex I Programme Element 3 Goal 3.2 Action 3.2.6		**Assess and address the positive and the negative impacts of tourism and outdoor activities** in mountain ecosystems**.**	
VII/27	Annex I Programme Element 3 Goal 3.2 Action 3.2.7		**Assess and address natural dynamic processes** in mountain ecosystems **and the need to preserve areas for natural dynamic processes**.	
VII/27	Annex I Programme Element 3 Goal 3.2 Action 3.2.8		**Develop monitoring systems based on key national and subnational indicators of changes in mountain ecosystem structure and function** taking into account existing monitoring expert knowledge and systems as well as relevant work and processes on indicators.	
VII/27	Annex I Programme Element 3 Goal 3.3 Action 3.3.3	Gal 3.3: To improve the infrastructure for data and information management for accurate assessment and monitoring of mountain biological diversity and develop associated databases.	**Encourage mapping and inventory of biodiversity and of land-use changes**, using analogue and digital databases (remote-sensing, geographic information system) for scientific purposes and for supporting decision-making.	cop-07.shtml?m=COP-07&id=7764
VII/27	Annex I	Goal 3.4: To	**Foster exchange of experiences and knowledge of sustainable**	cop-07.shtml?m=COP-

	Programme Element 3 Goal 3.4 Action 3.4.5	improve research, technical and scientific cooperation, and other forms of capacity-building related to mountain biological diversity	**development and ecosystem vulnerability** among countries with mountains, taking into account the vulnerability of social-cultural systems and communities.	07&id=7764
VIII/3	Annex I Para 3	Additional Planned Activities.	An **increased knowledge of the species composition of mountains** through national taxonomic studies and inventories; ***Working lists of organisms*** - assembling working lists of organisms occurring in montane areas including their vernacular names, with reference to altitude and relief; ***Working identification keys*** – producing identification keys in printed and electronic form useful for the conservation, monitoring and sustainable use of organisms in montane areas;	cop-08.shtml?m=COP-08&id=11015
X/30	Para 2	The Conference of the Parties	*Invites* Parties, other Governments, **relevant organizations** and indigenous and local communities to **collect and update information** periodically **on**: Mountain biological diversity including on sites of biological, ecological and socio-economic importance, in particular the mountain biosphere reserves, on **ecosystem services, on endangered and endemic species, and on genetic resources, including, in particular, genetic resources for food and agriculture**; **Direct and indirect drivers of change** in mountain biological diversity, including, in particular, climate change and land-use change as well as tourism and sporting activities; **Trends in use**, including the intensity of harvesting of high-value species, in particular native and endemic ones, **and consequent changes in populations, habitats and ecosystem properties**;	cop/?id=12296
X/30	Para 5	The Conference of the Parties	*Encourages* Parties, other Governments, relevant organizations and indigenous and local communities, to address climate-change and	cop/?id=12296

			adaptation and mitigation issues for mountain biological diversity by: Supporting and coordinating **research and monitoring networks on the impacts of global change in mountain regions, through observation of natural processes, ecosystem services and biological diversity**;	

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: 2010 Target and Aichi Biodiversity Targets 2011-2020

In April 2002, the Parties to the Convention committed themselves (http://www.cbd.int/2010-target/default.shtml) 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. COP 10 in October 2010 reviewed to which extend the 2010-target was met and agreed on the Aichi Biodiversity Targets to be met in the period from 2011 until 2020 (Decision X/2).

Cited Decisions that express research needs are VI/26, VIII/15, X/2, XI/2, XI/3, XI/4, XI/16, XII/1 XIII/3, XIII/29, XIII/30 and XIII/31, also checked was Decision VII/30.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VIII/15	Para 17	The Conference of the Parties	*Emphasizes* the **need for taxonomic studies** in the implementation of the programme of **work on the biological diversity of dry and sub-humid lands**, taking into account the relevant activities in the programme of work for the Global Taxonomy Initiative.	cop-08.shtml?m=COP-08&id=11029
VIII/15	Para 22	The Conference of the Parties	*Emphasizes* the **need for taxonomic studies in forest biodiversity**, taking into account the relevant activities in the programme of work for the Global Taxonomy Initiative.	
X/2	Annex, 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.	cop/?id=12268
X/2	Annex, Para 25		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. **Ongoing research on biodiversity and ecosystem function and services** and their relationship to human well-being.	cop/?id=12268
XI/3	Section A, Para 12	The Conference of the Parties	*Requests* the Executive Secretary [...] to: b) Further **develop the global indicators** identified in the annex to this decision with a view to ensuring that each Aichi Biodiversity Target can be monitored by at least one global indicator by 2014, taking into	cop/default.shtml?id=13164

			account indicators that are already in use by, or relevant to, other conventions, regional agreements and processes; c) **Propose a limited number of simple, easily applicable and cost-effective indicators** that can potentially be used by Parties, as appropriate and taking into account their particular conditions and priorities;	
XI/3	Section A, Para 13	The Conference of the Parties	*Invites* the Group on Earth Observation Biodiversity Observation Network (GEO–BON) to continue its work on the **identification of essential biodiversity variables and the development of associated data sets**	cop/default.shtml?id=13164
XI/3	Section A, Para 15	The Conference of the Parties	*Invites* relevant organizations, including funding bodies, to **encourage and support long-term monitoring and the further development of indicators** and reporting progress in the implementation of the Strategic Plan for Biodiversity 2011-2020 **as well as the development of baselines for indicators** where these do not yet exist;	cop/default.shtml?id=13164
XI/4	Para 7	The Conference of the Parties	*resolves* to achieve the following preliminary targets, which are to be considered mutually supportive but independent: d) Endeavour for 100 per cent, but at least 75 per cent, of Parties provided with adequate financial resources to have prepared national financial plans for biodiversity by 2015, and that 30 per cent of those Parties have **assessed and/or evaluated the intrinsic, ecological, genetic, socioeconomic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components;**	cop/default.shtml?id=13165
XI/16	Para 1	The Conference of the Parties	*Urges* Parties and *encourages* other Governments and relevant organizations to make concerted efforts to achieve Aichi Biodiversity Targets 14 and 15 and targets 4 and 8 of the Global Strategy for Plant Conservation, and to contribute to the achievement of all the other Aichi Biodiversity Targets through **ecosystem restoration** through a range of activities depending on national circumstances, including: b) **Identifying, analysing and addressing both underlying and direct causes of ecosystem degradation or fragmentation** and using the knowledge gained to prevent or reduce activities which cause further degradation, deterioration or destruction; c) **Identifying degraded ecosystems that have the potential for**	cop/default.shtml?id=13177

			ecosystem restoration h) Identifying opportunities to **link poverty eradication and ecosystem restoration**, *inter alia* through the rehabilitation or restoration of ecosystems that provide services upon which women, indigenous and local communities, and the poor and vulnerable are directly dependent, and the development of restoration projects that provide employment and skills improvement;	
XII/1	Para 14	The Conference of the Parties	*Take notes* of the key scientific and technical needs related to the implementation of the Strategic Plan for Biodiversity 2011-2020, as identified by the Subsidiary Body on Scientific, Technical and Technological Advice at its seventeenth meeting and contained in annex I to the present decision, for use in future considerations on the implementation of the Strategic Plan for Biodiversity 2011-2020 and achievement of the Aichi Biodiversity Targets, and *invites* Parties to take action to address the identified gaps;	doc/?meeting=cop-12
XII/1	Annex I		a) *Social science* - The need for better ways to draw on social sciences to motivate choices consistent with the objectives of the Strategic Plan for Biodiversity 2011-2020 and to develop new approaches through, *inter alia,* better understanding of behavioural change, production and consumption patterns, policy development, and the use of non-market tools. The need for more effective communication, education and public awareness to be spread more widely through school systems and other channels and to devise communication and awareness strategies on biodiversity, complementing communication, education and public awareness efforts with other perspectives including research on intercultural and intracultural communication experiences; b) *Data and information* – The need for more accessible, affordable, comprehensive, reliable and comparable data and information streams through, *inter alia,* facilitated access to remote sensing, better collection and use of *in situ* observations, proxies, citizen science, modelling, biodiversity monitoring networks, better application of data standards and interoperability related to data acquisition and management to produce policy-relevant products, including indicators and scenarios to inform decision-making; c) *Evaluation and assessment* – The need for improving and promoting	doc/?meeting=cop-12

			methodologies for assessing the status and trends of species and ecosystems, hotspots and conservation gaps as well as ecosystem functions, ecosystem services and human well-being, at the national, regional and global levels; d) *Planning and mainstreaming* – The need for improvement and better use of appropriate planning tools, and approaches for mainstreaming, in implementing the Strategic Plan for Biodiversity 2011-2020 through, *inter alia*: biodiversity safeguards, tools and methods for spatial planning, including integrated land use and coastal and marine planning, valuation of biodiversity, ecosystem functions and ecosystem services; and mainstreaming biodiversity into sustainable development and other relevant policy sectors; e) *Linking science and policy* – The need for better integration of science and policymaking and for improved science-policy interfaces, particularly at the local and national levels and through the use of IPBES, and the improved and wider use of tools to promote policy coherence and policy evaluation and to produce scenarios and options relevant to policymakers; f) *Maintenance, conservation and restoration of ecosystems* – The need for better understanding of ecosystem processes and functions and their implications for ecosystem conservation and restoration, ecological limits, tipping points, socio-ecological resilience and ecosystem services; and improved methodologies and indicators for monitoring ecosystem resilience and recovery, in particular for vulnerable ecosystems; g) *Economic instruments* – The need for better understanding of the performance of economic instruments and their wider use in achieving the objectives of the Strategic Plan for Biodiversity 2011-2020, as well as poverty eradication strategies, taking into account national socioeconomic conditions, and the need for improved guidance and tools to develop positive incentives and for the identification, elimination, phasing out or reform of harmful incentives, consistent and in harmony with the Convention and other relevant international obligations, as well as the integration of biodiversity in national accounting, as appropriate, and reporting systems;	

			h) *Traditional knowledge* – The need for better ways to include relevant indigenous and traditional knowledge systems and the collective actions of indigenous and local communities to complement scientific knowledge in support of the effective implementation of the Strategic Plan for Biodiversity 2011-2020, with the approval and involvement of the holders of such knowledge, innovations and practices; i) *Scientific and technical cooperation* – The need to foster improved scientific and technical cooperation among Parties, scientific networks and relevant organizations, in order to match capabilities, avoid duplication, identify gaps and achieve efficiencies. The need to enhance the clearing-house mechanism of the Convention to make scientific and technical cooperation more effective; j) *Different approaches* – The need to strengthen non–monetary valuation tools and methodologies for the maintenance of ecosystem functions,	
XIII/3	Para 99	The Conference of the Parties	*Invites* the broader scientific community to strengthen efforts to communicate its research results, tools and information to policy-makers, and to fill the knowledge gaps identified at the Forum in close partnership with decision makers and other stakeholders, jointly with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;	decisions/cop/?m=cop-13
XIII/29	Para 6	The Conference of the Parties	*Encourages...*the scientific community...to further develop and use scenarios and models to support decision-making and the evaluation of policies,....	decisions/cop/?m=cop-13
XIII/29	Para 9	The Conference of the Parties	*Invites* the scientific community: a) To address key gaps in methods for modelling the impacts of drivers and policy interventions on biodiversity and ecosystem services that have been identified in the methodological assessment of scenarios and models of biodiversity and ecosystem services; b) To develop practical and effective approaches to evaluating and communicating levels of uncertainty associated with scenarios and models, as well as tools for applying those approaches to assessments and decision-making;	decisions/cop/?m=cop-13
XIII/30	Para 1	The Conference of	*Requests* the Executive Secretary to prepare.....updated scientific assessments of progress towards Aichi Biodiversity Targets, focusing in	decisions/cop/?m=cop-13

		the Parties	particular on those targets on which the least progress has been made...	
XIII/30	Para 2	The Conference of the Parties	*Also requests* the Executive Secretary to develop options to accelerate progress towards the achievement of those targets which have been identified as the least advanced.	decisions/cop/?m=cop-13

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/26	Annex I Para 11 Goal 2 Objective 5	Strategic Plan for the CBD.	**Technical and scientific cooperation is making a significant contribution to building capacity**.	cop-06.shtml?m=COP-06&id=7200
VI/26	Annex I Appendix Para 3	Obstacles to the implementation of the CBD.	**Lack of accessible knowledge/information:** **Loss of biodiversity and the corresponding goods and services it provides not properly understood and documented**.	
VIII/15	Annex II	The Conference of the Parties *Notes* that the framework for monitoring implementation of the Convention and achievement of the 2010 target is comprised of:	A limited number of indicators to measure progress in the implementation of the Strategic Plan, to be developed on the basis of the proposed indicators: **Trends** in extent **of selected biomes, ecosystems and habitats**; **Trends** in abundance and distribution **of selected species**; **Change in status of threatened species**; **Trends in genetic diversity** of domesticated animals, cultivated plants, and fish species of major socio-economic importance; **Marine trophic index**; **Nitrogen deposition**; **Water quality** in aquatic ecosystems; **Trends in invasive alien species**; **Connectivity/fragmentation** of ecosystems; **Status and trends of linguistic diversity** and numbers of speakers of indigenous languages.	cop-08.shtml?m=COP-08&id=11029
X/2	Para 2	The Conference of the Parties	*Urges* Parties and other Governments to **Monitor** and **review the implementation of their national biodiversity strategies and action plans** in accordance with the Strategic Plan and their national targets **making use of the set of**	cop/?id=12268

			indicators developed for the Strategic Plan;	
X/2	Annex, Para 6		**Insufficient scientific information** for policy and decision-making **is a further obstacle** for the implementation of the Convention.	cop/?id=12268
X/2	Annex, Target 6		By 2020 […] **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**;	cop/?id=12268
X/2	Annex, Target 8		By 2020, **pollution**, including from excess nutrients, has been brought to **levels that are not detrimental to ecosystem function and biodiversity**.	cop/?id=12268
X/2	Annex, Target 9		By 2020, **invasive alien species and pathways are identified** and prioritized…..	cop/?id=12268
XI/2	Section E, Para 27	The Conference of the Parties	*Requests* the Executive Secretary to undertake, subject to the availability of resources, a **review of the impact of disasters and conflicts on biodiversity** and of ways and means to take action to implement the Strategic Plan for Biodiversity 2011–2020 and achieve the Aichi Biodiversity Targets under such conditions	cop/default.shtml?id=13163
XI/3	Section A, Para 10	The Conference of the Parties	*Recognizes* the need to strengthen technical and institutional capacities and to mobilize adequate financial resources for the development and application of indicators and monitoring systems ,	cop/default.shtml?id=13164
XI/3	Section A, Para 12	The Conference of the Parties	*Requests* the Executive Secretary [...] to: h) Develop an explanatory practical toolkit on each of the Aichi Biodiversity Targets, including possible steps for measuring progress towards these targets, taking into national conditions and priorities;	cop/default.shtml?id=13164
XI/4	Para 3	The Conference of the Parties	*Highlights* the need for further consideration to be given to **evaluating resources mobilized in terms of the biodiversity outcomes achieved**;	cop/default.shtml?id=13165
XIII/3	Para 17	The Conference of the Parties	*Encourages* Parties and *invites* other Governments g) To enhance monitoring of the use of natural resources, such as land, soil and water in all sectors, including agriculture, forests, fisheries and aquaculture, and tourism, among others, and to improve data collection, management and public access to monitoring data;	decisions/cop/?m=cop-13
XIII/31	Para 4	The Conference of the Parties	*Invites* Parties and relevant organizations to further promote open access to biodiversity-related data and transparency in the development of derived metrics and, to this end, to consider, as appropriate, the	decisions/cop/?m=cop-13

			voluntary guidance annexed to the present decision;	
XIII/31	Para 5	The Conference of the Parties	*Requests* the Executive Secretary c) To collaborate with relevant organizations for compiling information on tools to support the implementation of the Strategic Plan for Biodiversity 2011-2020, including those areas in which gaps have been identified, in particular methods to assess motives for and barriers to behavioural change, social marketing strategies, engagement techniques and participatory processes and mechanisms to promote the development of social, moral and economic incentives, taking into account cultural and socioeconomic differences among countries and regions, for people to sustainably manage biodiversity and ecosystem functions and services	decisions/cop/?m=cop-13
XIII/31	Para 6	The Conference of the Parties	*Encourages* Parties a) To further work to identify their biodiversity monitoring, assessment, project implementation, and research needs at the national level; g) To support the development, with the assistance, as appropriate, of the international barcode of life network, of DNA sequence-based technology (DNA barcoding) and associated DNA barcode reference libraries for priority taxonomic groups of organisms, to promote the application of these techniques for the conservation and sustainable use of biodiversity;	decisions/cop/?m=cop-13
XIII/31	Annex Para 1	Voluntary Guidance	**Promote open data access through policy incentives**	decisions/cop/?m=cop-13
XIII/31	Annex Para 2	Voluntary Guidance	**Promote the use of common data standards**	decisions/cop/?m=cop-13
XIII/31	Annex Para 3	Voluntary Guidance	**Invest in the digitization of natural history collections.**	decisions/cop/?m=cop-13
XIII/31	Annex Para 4	Voluntary Guidance	**Establish national biodiversity information facilities**	decisions/cop/?m=cop-13
XIII/31	Annex Para 5	Voluntary Guidance	**Enhance national capacity in biodiversity informatics**	decisions/cop/?m=cop-13
XIII/31	Annex Para 6	Voluntary Guidance	**Engage the public in biodiversity observation through citizen science networks**	decisions/cop/?m=cop-13
XIII/31	Annex Para 7	Voluntary Guidance	**Encourage data sharing from the private sector.**	decisions/cop/?m=cop-13
XIII/31	Annex Para	Voluntary	**Develop national platforms for data discovery, visualization and**	decisions/cop/?m=cop-13

	8	Guidance	**use**	
XIII/31	Annex Para 9	Voluntary Guidance	**Analyse data and information gaps to prioritize new data mobilization**	decisions/cop/?m=cop-13
XIII/31	Annex Para 10	Voluntary Guidance	**Engage with and support regional and global networks for data mobilization and access**	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Biodiversity for Development

Biodiversity is crucial to the reduction of poverty, due to the basic goods and ecosystem services it provides. They include the provision of food, fiber and medicine, soil formation, air quality and climate regulation, the regulation of water supply and quality and the cultural and aesthetic value of certain plants and species (http://www.cbd.int/development/default.shtml).

The cited Decision that expresses research needs is XII/5, also checked were X/6, XI/22 and XII/4.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
XII/5	Annex,Section 1, Para 1		a) Identify linkages between biodiversity and poverty eradication for sustainable development, as well as drivers of biodiversity loss and poverty, inter alia, by using specific voluntary tools such as mapping of social and environmental vulnerability, regional poverty-environment profiling, and distributional studies assessing country- and region-specific links between biodiversity and poverty, and ensuring that the selected tools are gender sensitive and consider the diversity of views from indigenous and local communities, women, the poor, marginalized and vulnerable;	doc/?meeting=cop-12

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Access to Genetic Resources and Benefit-sharing

The Convention on Biological Diversity recognises the sovereign rights of States over their natural resources in areas within their jurisdiction. Parties to the Convention therefore have the authority to determine physical access to genetic resources in areas within their jurisdiction. Parties also have the obligation to take appropriate measures with the aim of sharing the benefits derived from their use. This is one of the three fundamental objectives of the Convention (http://www.cbd.int/abs/default.shtml). COP 10 agreed in Decision X/1 on the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

Cited Decisions that express research needs are III/15, V/26, VI/24, VII/19 and X/1, also checked were Decisions II/11, II/12, IV/8, VIII/4, IX/12, XII/13 and XIII/18. The respective paras of VII/19 were retired at COP 11 (2012) and are no longer shown.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
V/26	Para 12	The Conference of the Parties	Notes that information is a critical aspect of providing the necessary parity of bargaining power for stakeholders in access and benefit-sharing arrangements, and that, in this respect, **there is a particular need for more information regarding: (a) User institutions; (b) The market for genetic resources; (c) Non-monetary benefits; (d) New and emerging mechanisms for benefit-sharing; (e) Incentive measures; (f) Clarification of definitions; (g) Sui generis systems; and (h) "Intermediaries".**	cop-05.shtml?m=COP-05&id=7168

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
III/15	Para 4	The Conference of the Parties	Invites Governments, regional economic integration organizations and competent international, regional and national organizations to **conduct analyses of ongoing experiences of legislative, administrative and policy measures and guidelines on access**, including regional efforts and initiatives, and to disseminate these widely to assist Parties and stakeholders involved in developing and implementing measures and guidelines on access.	cop-03.shtml?m=COP-03&id=7111
VI/24	Annex I	Bonn	The steps involved in the process of obtaining access to genetic	cop-06.shtml?m=COP-

	Para 23	Guidelines on ABS.	resources and sharing of benefits may include activities prior to access, **research and development conducted on the genetic resources, as well as their commercialization and other uses, including benefit-sharing**.	06&id=7198
X/1	Annex	Non-monetary benefits may include, but not be limited to	**Research directed towards priority needs, such as health and food security,** taking into account domestic uses of genetic resources in the Party providing genetic resources	cop/?id=12267

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Traditional Knowledge, Innovations and Practices

There is today a growing appreciation of the value of traditional knowledge. This knowledge is valuable not only to those who depend on it in their daily lives, but to modern industry and agriculture as well. Many widely used products, such as plant-based medicines, health products and cosmetics, are derived from traditional knowledge (http://www.cbd.int/traditional/intro.shtml).

Cited Decisions that express research needs are V/16, VI/10, VII/16, VIII/5, X/41 and X/43, also checked were Decisions III/14, IV/9, IX/13, XII/12 and XIII/18.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/16	Annex I Para C 11	Elements of a plan of action for the retention of traditional knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.	**Examples of codes of ethics and conduct governing research as used by such bodies as research institutions, business and indigenous and local communities, should be gathered** with a view to assisting in future possible development of codes of ethics or conduct, and to guide further research on the retention and use of traditional knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity.	cop-07.shtml?m=COP-07&id=7753
VII/16	Annex I Para D 13		**Research should be undertaken on existing and new threats to the retention and use of traditional knowledge, innovations and practices**.	
VII/16	Annex I Para D 14		**Mechanisms to promote cooperation** in order to address the cause of decline **should be identified** in cooperation with the Permanent Forum on Indigenous Issues of the United Nations and other relevant initiatives and organizations.	
VIII/5	Para 6	The Conference of the Parties	*Notes with concern* the specific vulnerabilities of indigenous and local communities, *inter alia*, of the Arctic, small island States and high altitudes, concerning the impacts of climate change and accelerated threats, such as pollution, drought and desertification, to traditional	cop-08.shtml?m=COP-08&id=11017

			knowledge, innovations and practices, **and *requests* further research be conducted**, subject to the availability of resources, **into highly vulnerable indigenous and local communities, with a focus on causes and solutions**, with the outcomes of the research to be made available to the Working Group on Article 8(j) and Related Provisions for attention at its fifth meeting;	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
V/16	Para 12 f	The Conference of the Parties Urges Parties and Governments and, as appropriate, international organizations, and organizations representing indigenous and local communities, to facilitate the full and effective participation of indigenous and local communities in the implementation of the Convention	**Provide case-studies on methods and approaches that contribute to the preservation of traditional knowledge, innovations and practices**, including through their recording where appropriate, and that support control and decision-making by indigenous and local communities over the sharing of such knowledge, innovation and practices.	cop-05.shtml?m=COP-05&id=7158

		and, to this end:		
V/16	Para 17	The Conference of the Parties	Requests Parties to support the **development of registers of traditional knowledge, innovations and practices** of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity through participatory programmes and consultations with indigenous and local communities, taking into account strengthening legislation, customary practices and traditional systems of resource management, such as the protection of traditional knowledge against unauthorized use.	cop-05.shtml?m=COP-05&id=7158
V/16	Annex I Element 5 Task 16	Programme of work on the implementation of Article 8 (j) and related provisions of the CBD.	The Executive Secretary **to identify, compile and analyse**, with the participation of indigenous and local communities, existing and customary **codes of ethical conduct** to guide the development of models for codes of ethical conduct for research, access to, use, exchange and management of information concerning traditional knowledge, innovations and practices for the conservation and sustainable use of biological diversity.	cop-05.shtml?m=COP-05&id=7158
VI/8	Annex I Part II Planned Activity 16	Support in implementation of Article 8(j).	**Traditional knowledge systems include taxonomic information**, which if used in combination with Linnaean taxonomies could support the GTI. **Comparison of indigenous taxonomies and Linnaean taxonomies** in different regions could be made to provide general principles to assist in the conservation and sustainable use of elements of biodiversity in different ecosystems.	cop-06.shtml?m=COP-06&id=7182
VI/10	Para 2	The Conference of the Parties emphasizes to Parties the need for further action on:	With regard to forest biological diversity, **the development of methodologies to advance the integration of traditional forest-related knowledge into sustainable forest management,** promotion of activities to assemble management experiences and scientific, indigenous and local information at the national and local levels, and dissemination of research results and syntheses of reports on relevant scientific and traditional knowledge on key forest biological issues;	cop-06.shtml?m=COP-06&id=7184
VI/10	Para 34	The Conference of the Parties	*Requests* the the Ad Hoc Open-ended Inter-Sessional Working Group on Article 8(j) and Related Provisions of the Convention on Biological Diversity to address the issue of sui generis systems for the protection of traditional knowledge, focusing in particular on the following issues: **Compiling and assessing existing indigenous, local, national and regional sui generis systems**;	cop-07.shtml?m=COP-07&id=7753

			Studying existing systems for handling and managing innovations at the local level and their relation to existing national and international systems of intellectual property rights, with a view to ensure their complementarity;	
VI/10	Para 40		Also encourages Parties and Governments, with the assistance of international development agencies and other relevant organizations, as appropriate, and with the participation, involvement and consent of the concerned indigenous and local communities, to **undertake pilot projects in order to evaluate the effectiveness of existing intellectual property rights regimes, contractual methods and new systems being developed as a means of protection of traditional knowledge**;	
VII/16	Annex I Para B 8	Elements of a plan of action …..	**Indicators on the state of retention of traditional knowledge, innovations and practices should be established** with the active involvement of indigenous and local communities, in consultation with relevant organizations, in connection with the ongoing work on indicators under the Convention.	cop-07.shtml?m=COP-07&id=7753
VII/16	Annex I Para B 9		**Indicators to assess the success or failure of measures to promote or preserve traditional knowledge, innovations and practices should be established**, with the active involvement of indigenous and local communities, in connection with the ongoing work on indicators under the Convention.	
VII/16	Annex II Para 36	Akwé:Kon voluntary guidelines.	The **direct impacts** of the development proposal on local biodiversity at the ecosystem, species and genetic levels **should be assessed**, and particularly in terms of those components of biological diversity that the affected indigenous or local community and its members rely upon for their livelihood, well-being, and other needs. **Indirect impacts should be carefully assessed and monitored** over the long term. **The development proposal should be rigorously assessed** with respect to the introduction of invasive species.	cop-07.shtml?m=COP-07&id=7753
VII/16	Annex II Para 37	Baseline studies should collect information with respect to:	**Species inventories** (including identification of particular species important to the affected indigenous or local community as food, medicine, fuel, fodder, construction, artefact production, clothing, and for religious and ceremonial purposes, etc); **Identification of endangered species, species at risk**, etc (possibly	cop-07.shtml?m=COP-07&id=7753

			referenced to the World Conservation Union (IUCN) Red Data Book, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and national inventories); **Identification of particularly significant habitat** (as breeding/spawning grounds, remnant native vegetation, wild-life refuge areas including buffer zones and corridors, habitats and routes for migratory species) and crucial breeding seasons for endangered and critical species; **Identification of areas of particular economic significance** (as hunting areas and trapping sites, fishing grounds, gathering areas, grazing lands, timber harvesting sites and other harvesting areas); **Identification of particularly significant physical features and other natural factors which provide for biodiversity and ecosystems** (e.g. watercourses, springs, lakes, mines/quarries that supply local needs); and **Identification of sites of religious, spiritual, ceremonial and sacred significance** (such as sacred groves and totemic sites).	
VII/16	Annex II Para 44	In the conduct of baseline studies, the following areas should, *inter alia,* be addressed:	**Demographic factors** (number and age structure of population, ethnic grouping, population distribution and movement - including seasonal movements); **Housing and human settlements**, including involuntary resettlement, expulsion of indigenous peoples from lands and involuntary sedentarization of mobile peoples; **Health status of the community** (particular health problems/issues - availability of clean water - infectious and endemic diseases, nutritional deficiencies, life expectancy, use of traditional medicine, etc; **Levels of employment, areas of employment, skills** (particularly traditional skills), **education levels** (including levels attained through informal and formal education processes), **training, capacity-building requirements**; **Level of infrastructure and services** (medical services, transport, waste disposal, water supply, social amenities (or lack of) for recreation, etc); **Level and distribution of income** (including traditional systems of distribution of goods and services based on reciprocity, barter and exchange);	cop-07.shtml?m=COP-07&id=7753

			Asset distribution (e.g. land tenure arrangements, natural resource rights, ownership of other assets in terms of who has rights to income and other benefits); **Traditional systems of production** (food, medicine, artefacts), including gender roles in such systems; and **Views of indigenous and local communities regarding their future** and ways to bring about future aspirations	
VII/16	Annex II Para 45	In particular, in relation to subsistence-based indigenous and local communities, the following additional social factors should also be taken into consideration, including impacts thereon:	**Traditional non-monetary systems** of exchange such as hunting, barter and other forms of trade, including labour exchange; **Related economic and social relations**; **Importance of gender roles and relations**; **Traditional responsibilities and concepts of equity and equality** in society; and **Traditional systems of sharing natural resources**, including resources that have been hunted, collected or harvested.	cop-07.shtml?m=COP-07&id=7753
X/41	Para 7	The Conference of the Parties	*Invites* Parties, indigenous and local communities and other relevant organizations to **provide views through case-studies on how statutory laws and customary laws interact with regard to the protection of traditional knowledge, innovations and practices**;	cop/?id=12307
X/43	Para 14	The Conference of the Parties	*Adopts* the following proposed **indicators**: (a) **Status and trends in land-use change and land tenure** in the traditional territories of indigenous and local communities; (b) **Status and trends in the practice of traditional occupations**; to complement the already adopted indicator on the **status and trends of linguistic diversity and numbers of speakers of indigenous languages** in order to assess progress towards the Strategic Plan for	cop/?id=12309

			Biodiversity 2011-2020 and the Aichi Biodiversity Targets;	

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Biological Diversity and Tourism

Tourism is one of the world's fastest growing industries as well as the major source of foreign exchange earning and employment for many developing countries, and it is increasingly focusing on natural environments. However, tourism is a double-edged activity. It has the potential to contribute in a positive manner to socio-economic achievements but, at the same time, its fast and sometimes uncontrolled growth can be the major cause of degradation of the environment and loss of local identity and traditional cultures. Biological and physical resources are in fact the assets that attract tourists (http://www.cbd.int/tourism/intro.shtml).

Cited Decisions that express research needs are VII/14, XII/11 and XIII/3.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/14	Annex I Para 14	Guidelines on biodiversity and tourism development.	Baseline information should take into consideration all sources of knowledge. The adequacy of the baseline information available will need to be reviewed, and where necessary, **further research and information-gathering can be undertaken to fill gaps** that may be identified.	cop-07.shtml?m=COP-07&id=7751
VII/14	Annex I Para 69		**Indicators to cover aspects of management of biodiversity and sustainable tourism, including socio-economic and cultural aspects, should be identified and monitored** at global, national, and local levels,	
XII/11	Para 3	The Conference of the Parties	*Invites* relevant research bodies to **undertake studies of the cumulative impact of tourism on sensitive ecosystems and of the consequences for biodiversity of sustainable livelihood initiatives** including tourism, in collaboration with appropriate national agencies, and to disseminate their results as a further means to build the capacity of Parties;	doc/?meeting=cop-12

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/14	Annex I Para 13	For tourism and biodiversity, the	**Current economic, social and environmental conditions** at national and local level, including current and planned tourism development and	cop-07.shtml?m=COP-07&id=7751

		baseline information should include information, as appropriate, on:	activities and their overall positive and negative impacts, as well as development and activities in other sectors; **Structure and trends within the tourism sector, tourism policy and tourism markets** and trends, at national, regional and international level, including information **based on market research** as necessary; **Environmental and biodiversity resources and processes**, including any special features and sites of particular importance and protected areas, and identifying those resources that may be off bounds to development due to their particular fragility and those resources identified by existing analysis of threats; **Culturally sensitive areas**; Benefits from, and costs of, tourism to indigenous and local communities; Information on damage done to the environment in the past.	
VII/14	Annex I Para 18	Guidelines on biodiversity and tourism development.	**Baseline information should include maps, geographical information systems and other visual tools, including already identified zoning schemes.**	cop-07.shtml?m=COP-07&id=7751
VII/14	Annex I Para 20 b	To enable impact assessment and decision making, the basic information required includes:	*Ecological aspects*: **Detailed indication of the protected and biodiversity significant areas**; **Specifications on the ecosystems, habitats, species**; Quantitative and qualitative **information on the loss of habitats and species** (main reasons, trends); **Indexing of species**; **Identified threats**; Existing zones, ecological zones and existing tourism zones within the ecological zones; **Ecologically sensitive zones and zones where ecological disasters have or will most likely take place**.	
VII/14	Annex I Para 78	Guidelines on biodiversity and tourism development.	In addition, **adaptive management learning portfolios should be developed between different sites** so that comparison can be made and lessons learned.	
VII/14	Annex I	Information to	**Any flora, fauna and ecosystems that could be affected by the**	

	Para 84	be provided as part of the notification could include:	**tourism development or activities, including keystone, rare, endangered or endemic species**; **Ecological aspects of the site and its surroundings**, including indication of any protected areas; specifications on the ecosystems, habitats, and species; quantitative and qualitative information on the loss of habitats and species (main reasons, trends), and indexing of species; **Likelihood of impacts** beyond the immediate area of the tourism development or activities, including transboundary impacts and effects on migratory species.	
XII/11	Para 1	The Conference of the Parties	*Invites* Parties and other Governments, with the support of relevant organizations b) To identify areas where there is both significant biodiversity and significant pressure or potential pressure from tourism, and to develop and support projects in these “tourism and conservation hotspots”, including at regional level, with the objective of demonstrating how to reduce negative impacts and increase positive impacts from tourism; c) To monitor and review recreation, visitation and other tourism activities in protected areas, as well as impacts and relevant management processes in ecologically sensitive areas;	doc/?meeting=cop-12
XIII/3	Para 81	The Conference of the Parties	*Invites* Parties and other Governments b) To generate, integrate and use information on the positive and negative impacts on biodiversity of tourism for decision-making on the planning, operation and management of the sector, including with respect to investments, development of infrastructure, job creation, and in considering mechanisms for the reinvestment of parts of tourism revenues on biodiversity conservation and ecosystem restoration at the local or community level;	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Health and Biodiversity

All human health ultimately depends on ecosystem services that are made possible by biodiversity and the products derived from them. While the inter-linkages between biodiversity, ecosystem services and human health are inherently complex, inter-disciplinary research is aiming to develop a more thorough understanding of these essential relationships (http://www.cbd.int/en/health).

The cited Decisions that express research needs are XII/21 and XIII/6, also checked were VI/5, VI/9, VI/10, VI/15, VI/23, VI/24, VII/4, VII/12, VII/13, VII/14, VII/16, VII/30, VII/31, VII/32, VIII/1, VIII/15, VIII/22, VIII/23, VIII/25, VIII/28, VIII/30, IX/1, IX/4, IX/13, IX/27, IX/31, X/1, X/2, X/17, X/20, X/22, X/28, X/32 and XI/6.

Direct research needs

Decision	**Paragraph**	**Chapeau / Heading**	**Text**	**Source** http://www.cbd.int/decisions/
XII/21	Para 9	COP requests the Executive Secretary	g) In cooperation with relevant international scientific programmes, to promote **further research on the relationship between biodiversity and disease outbreak**;	doc/?meeting=cop-12
XIII/6	Para 4	The Conference of the Parties	*Invites* Parties, other Governments and relevant organizations e) to address, monitor and evaluate any unintended and undesirable negative impacts of biodiversity interventions on health and of health interventions on biodiversity; g) to develop interdisciplinary education, training, capacity-building and research programmes on health-biodiversity linkages, using integrative approaches, at various levels and different spatial and temporal scales, and communities of practice on biodiversity and health;	decisions/cop/?m=cop-13
XIII/6	Para 5	The Conference of the Parties	*Encourages* Parties, other Governments and relevant organizations a) To develop integrated metrics, indicators and tools to facilitate the analysis, evaluation, monitoring and integration of biodiversity into health strategies, plans and programmes and vice-versa;	decisions/cop/?m=cop-13
XIII/6	Para 6	The Conference of the Parties	*Also encourages* Parties, other Governments, relevant organizations and funding agencies to promote and support further research on health-biodiversity linkages and related socioeconomic considerations, including, inter alia, on the following issues: a) The relationships between biodiversity, ecosystem degradation and infectious disease emergence, including the effects of ecological	decisions/cop/?m=cop-13

			community structure and composition, habitat disturbance and human-wildlife contact, and the implications for land use and ecosystem management; b) The interlinkages between dietary diversity, health and diversity of crops, livestock and other components of biodiversity in agricultural ecosystems, as well as marine and inland water ecosystems; c) The linkages between the composition and diversity of the human microbiome, and biodiversity in the environment, and implications for the planning, design, development and management of human settlements; d) The significance for health of marine biodiversity, including for food security, and the consequences of multiple stressors on marine ecosystems (including pathogens, chemicals, climate change and habitat degradation); e) The contribution of biodiversity and the natural environment, including protected areas, in promoting mental and physical health, particularly in urban areas; f) The significance of soil biodiversity for health; g) Linkages between migratory species and their corridors and human health; h) Linkages between invasive alien species and human health;	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Climate Change and Biological Diversity

Climate change is defined as a variation either in the mean state of the climate or in its variability, persisting for an extended period, typically decades or longer. It encompasses temperature increases, sea-level rises, changes in precipitation patterns, and increases in the frequency of extreme weather events. Biodiversity and climate change are closely linked, and each impacts upon the other: biodiversity is threatened by human-induced climate change, but biodiversity resources can reduce the impacts of climate change on population and ecosystems (http://www.cbd.int/climate/default.shtml).

Cited Decisions that express research needs are VII/15, VIII/30, IX/16, X/33, XI/20, XI/21, XIII/4 and XIII/14 also checked were Decisions V/3, V/4 and XII/20. The respective paras of VII/15 were retired at COP 11 (2012) and therefore are no longer shown.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VIII/30	Para 2	The Conference of the Parties	*Encourages* Parties, other Governments, relevant organizations and research institutions to **develop rapid assessment tools for the design and implementation of biodiversity conservation and sustainable use activities which contribute to adaptation to climate change**, particularly in vulnerable countries and regions, including small island developing States.	cop-08.shtml?m=COP-08&id=11044
VIII 30	Para 5	The Conference of the Parties	*Invites* Parties, other Governments, relevant organizations and research institutions, to **address**, as appropriate, **the research gaps outlined in the report of the Ad Hoc Technical Expert Group on Biodiversity and Adaptation to Climate Change** and summarized in paragraph 3 of recommendation XI/14 of the Subsidiary Body on Scientific, Technical and Technological Advice and to **promote research on climate change response activities related to biodiversity**, in the context of the ecosystem approach and sustainable use, and **in order to further facilitate the incorporation of biodiversity considerations into the design, implementation and monitoring of activities aimed at the mitigation and adaptation of the impacts of climate change**, including on indigenous peoples and local communities.	cop-08.shtml?m=COP-08&id=11044
VIII 30	Para 6		*Invites* Parties, other Governments, relevant organizations and research institutions to develop, support, and review, as appropriate, pilot and/or	

			ongoing projects involving joint actions within the objectives of the three Rio conventions, the Ramsar Convention on Wetlands, the World Heritage Convention, the Convention on Migratory Species, and other relevant multilateral environmental agreements in order to promote better understanding and functioning of synergy among these.	
IX/16	Para 4	The Conference of the Parties	***Urges* Parties** to enhance the integration of climate-change considerations related to biodiversity in their implementation of the Convention with the full and effective involvement of relevant stakeholders and considering changing consumption and production models, including: **Enhancing scientific tools, methodologies, knowledge and approaches to respond to the impacts of climate change**, **and both the positive and negative impacts of climate change mitigation and adaptation activities on biodiversity,** including socio-economic and cultural impacts; **Enhancing the methodology and the knowledge needed to integrate biodiversity considerations within climate change response activities, such as baseline information, scenarios, potential impacts on and risks to biodiversity, and resilience and resistance of ecosystems and selected species populations and communities/assemblages;**	cop/?id=11659
IX/16	Annex II, Para 20		Conduct, as appropriate, national and local assessments of climate-change impacts on biodiversity and desertification/land degradation;	cop/?id=11659
IX/16	Annex II, Para 23		Encourage additional **research on the impacts of climate change on oceans and marine biodiversity;**	cop/?id=11659
IX/16	Annex II, Para 24		Encourage additional **research and monitoring on the impacts of increased frequency and intensity of extreme weather events** on biodiversity and associated resources;	cop/?id=11659
IX/16	Annex II, Para 26		**Identify the impacts of climate change on ecosystem services**;	cop/?id=11659
IX/16	Annex II, Para 27		**Harmonize temporal and spatial scales in data collection** and analysis considering climate change and biodiversity status and trends;	cop/?id=11659
X/33	Para 11	The Conference of the Parties	*Invites* Parties and other Governments and relevant organizations to **develop down-scaled climate change models that combine temperature and precipitation information with multi-stressor**	cop/?id=12299

			biological models in order **to better predict the impacts of drought and increased climate variability on biodiversity**	
XI/20	Paras 7 and 9	The Conference of the Parties	*Notes* [Para 7] that there **remain significant gaps in the understanding of the impacts of climate-related geoengineering on biodiversity**, including: a) **How biodiversity and ecosystem services are** likely to be **affected by and respond to geoengineering** activities at different geographic scales; b) The intended and unintended **effects of different possible geoengineering techniques on biodiversity**; c) The socio-economic, cultural and ethical **issues associated with possible geoengineering techniques**, including the unequal spatial and temporal distribution of impacts; *Invites* [Para 9] Parties to **address the gaps identified** in paragraph 7	cop/default.shtml?id=13181
XI/21	Para 6	The Conference of the Parties	*Encourages* Parties and other Governments to: e) Support the strengthening of **inventorying and monitoring of biodiversity and ecosystem services at appropriate scales** in order **to evaluate the threats and likely impacts** of climate change and both positive and negative impacts of climate-change mitigation and adaptation **on biodiversity and ecosystem services**;	cop/default.shtml?id=13182
XIII/4	Chapeau	The Conference of the Parties	*Recognizes* the need for improved scientific information concerning the climate change adaptation of the protected areas networks, their functionality and connectivity,	decisions/cop/?m=cop-13
XIII/14	Para 5	The Conference of the Parties	*Notes* that **more transdisciplinary research** and sharing of knowledge among appropriate institutions **is needed in order to better understand the impacts of climate-related geoengineering on biodiversity and ecosystem functions and services, socio-economic, cultural and ethical issues and regulatory options**;	decisions/cop/?m=cop-13

Indirect research needs

Decision	**Paragraph**	**Chapeau / Heading**	**Text**	**Source** http://www.cbd.int/decisions/
IX/16	Para 4	The Conference of the Parties	***Urges* Parties** to enhance the integration of climate-change considerations related to biodiversity in their implementation of the Convention with the full and effective involvement of relevant	cop/?id=11659

			stakeholders and considering changing consumption and production models, including **Identifying**, within their own countries, **vulnerable regions, subregions and, where possible, ecosystem types, including vulnerable components of biodiversity** within these areas **Assessing the threats and likely impacts of climate change and both the positive and negative impacts of climate change mitigation and adaptation activities on biodiversity** Identifying and **adopting**, within their own countries, **monitoring and modelling programmes for regions, subregions and ecosystems affected by climate change** and promote international cooperation in this area;	
IX/16	Part D, Para 4	The Conference of the Parties	*Requests* the Executive Secretary, in collaboration with the Secretariat of the Ramsar Convention, and subject to available resources, to **conduct an analysis of the potential of incentive measures and funding mechanisms under climate-change adaptation and mitigation in supporting biodiversity conservation and sustainable use in wetlands,**	cop/?id=11659
X/33	Para 8	The Conference of the Parties	*Invites* Parties and other Governments to **Identify,** monitor and address **the impacts of climate change and ocean acidification on biodiversity and ecosystem services**, and assess the future risks for biodiversity and the provision of ecosystem services using the latest available vulnerability and impact assessment frameworks and guidelines; **Assess the impacts of climate change on biodiversity and biodiversity-based livelihoods**, particularly with regard to livelihoods within those ecosystems that have been identified as being particularly vulnerable to the negative impacts of climate change with a view to identifying adaptation priorities; **Assess,** implement and monitor a range of **sustainable activities in the agricultural sector that may result in the maintenance and potential increase of current carbon stocks** and, at the same time, the conservation and sustainable use of biodiversity; **Develop** [ing] **ecosystem and species vulnerability assessments**;	cop/?id=12299

X/33	Para 9	The Conference of the Parties	*Requests* the Executive Secretary to Collaborate with relevant international organizations to **collect scientific knowledge** and case-studies **and identify knowledge gaps on the links between biodiversity conservation and sustainable use and organic carbon stock conservation and restoration**; Collaborate with relevant international organizations to **expand and refine analyses identifying areas of high potential for the conservation and restoration of carbon stocks**;	cop/?id=12299
XI/21	Para 5	The Conference of the Parties	*Encourages* Parties, other Governments and relevant organizations to further mobilize resources [...] in order to **fill biodiversity and ecosystem services data gaps in the context of climate change, and to undertake research studies at spatial scales from local scales to larger landscapes**;	cop/default.shtml?id=13182
XIII/4	Para 8g	The Conference of the Parties	*Encourages* relevant organizations to **develop and implement ecosystem-based approaches to climate change adaptation, mitigation and disaster risk reduction that are based on available science** and take into account the traditional knowledge and practices of indigenous peoples and local communities;	decisions/cop/?m=cop-13
XIII/4	Para 8i	The Conference of the Parties	*Encourages* relevant organizations to **systematically assemble and analyse evidence** to assess the effectiveness of ecosystem-based approaches to climate change adaptation and mitigation, and disaster risk reduction, including **through development of improved monitoring and evaluation methods,** noting that such methods are best developed and applied early in the planning phase;	decisions/cop/?m=cop-13
XIII/14	Para 6	The Conference of the Parties	*Recognizes* **the importance of taking into account sciences for life** and the knowledge, experience and perspectives of indigenous peoples and local communities when addressing climate-related geoengineering and protecting biodiversity.	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Economics, Trade and Incentive Measures

Many biodiversity goods and services are not traded on markets, and their value is not properly reflected in market prices. The economic work under the Convention (http://www.cbd.int/incentives/default.shtml) seeks to promote the valuation of these goods and services, and to introduce measures that correct the incentives of individuals, governments and companies towards more effective conservation and sustainable use of biodiversity, including by promoting the trade of biodiversity-based goods that are produced in a sustainable manner. It also seeks to ensure the mutual supportiveness of international trade rules and the objectives of the Convention.

Cited Decisions that express research needs are VI/15, VII/18, VIII/25, VIII/26, IX/6, IX/11, X/44 and XII/10, also checked was Decision V/15.
Comment: The Annex to Decision VII 18 is bracketed completely. Therefore, the citations taken from this annex are also in square brackets.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/15	Annex I Para 4	Proposals for the design and implementation of incentive measures.	The **identification of the proximate and underlying causes and the importance of threats to biodiversity and its components** are a prerequisite for the selection of the appropriate measure to stop or reverse degradation. Policies that create incentives without removing the underlying causes of biodiversity loss (including perverse incentives) are unlikely to succeed. Therefore, prior to embarking on an exercise to develop incentive measures for conservation or sustainable use, **it is important to undertake a thorough study to identify and evaluate the respective and mutually reinforced impacts of any underlying pressures**.	cop-06.shtml?m=COP-06&id=7189
VI/15	Annex II Para 19	Recommendations for further cooperation on incentive measures.	There is **a need to launch pilot projects to strengthen the understanding and capacity to design, implement and assess incentive measures**. Pilot projects could **focus on a number of activities including awareness-raising, valuation studies, assessment of existing incentives, development of new incentive schemes and removal of barriers to incentives**. Such pilot projects should have built-in linkages to existing initiatives under way in UNEP and other relevant organizations.	
VII/18	Annex I Para 5	[Proposals for the application of	[**A thorough study, critical review and evaluation of policies** and practices potentially contributing to biodiversity loss, including the	cop-07.shtml?m=COP-07&id=7755

		ways and means to remove or mitigate perverse incentives.]	assessment of their impact on biodiversity as well as their effectiveness and efficiency, **is therefore essential to identify properly and comprehensively any specific policies or practices and their interaction that are responsible for such decline**. Indicator systems are an important means to inform such an analysis. Parties and Governments should engage in the further development of such systems.] **Text in brackets. See comment at top of this table**.	
VII/18	Annex I Para 7		[*Identification of perverse practices.* Special analytical care is needed if practices are to be held accountable for any adverse impacts on biological diversity. Such practices are difficult to change as they are rooted in cultural traditions or customary law, which may have wider social values. Furthermore, perverse incentives may be often be explained by an economically rational response to ill-adapted policies. The **analysis should determine whether the promotion of cultural adaptation is appropriate or whether the reform of policies, or a combination of both, provides better opportunities for an effective policy intervention**.] **Text in brackets. See comment at top of this table**.	
VIII/25	Para 6	The Conference of the Parties	*Invites* national, regional and international funding institutions to **identify gaps and needs to support the building or enhancement of national capacity as well as research and training, including through pilot projects**, in accordance with the needs and priorities identified by Parties, for undertaking valuation of biodiversity resources and functions and associated ecosystem services;	cop-08.shtml?m=COP-08&id=11039
VIII/25	Para 7		***Encourages*** relevant national, regional and international **research institutions to strengthen research activities including research cooperation and exchange at national, regional and international levels** including through South-South cooperation and/or the establishment of regional research consortia as appropriate, in order to promote a common understanding of valuation techniques among governments and stakeholders, on, *inter alia*: **Integration of the values of biodiversity resources and functions and associated ecosystem services into national accounting and decision-making**, taking into account the conceptual framework of the Millennium Ecosystem Assessment;	

			Conducting a limited number of pilot valuation studies in developing countries, in particular the least developed and small island developing States among them, in countries with economies in transition and in countries that are centres of origin of biodiversity, with a view to enable Parties to develop, based on such experience, appropriate valuation tools; **Capturing the calculated values through the careful analysis and design of markets for ecosystem services** where appropriate, taking into account the three objectives of the Convention;	
VIII/25	Annex I Para 20	Options for the application of tools for valuation of biodiversity and biodiversity resources and functions.	*International research cooperation.* Considerable progress has been made in the last decades in developing reliable tools, as well as the protocols for their application, for the valuation of biodiversity resources and functions and associated ecosystem services. However, **important opportunities for further research and development remain. Research initiatives that address these opportunities and seek to establish regional or international cooperation and exchange should be supported**.	cop-08.shtml?m=COP-08&id=11039
VIII/25	Annex I Para 21		*Biodiversity valuation and national accounting.* **Further research directed at the development of a biodiversity adjustment for national accounting seems to be an important means to have biodiversity losses more reflected in macro-economic policy-making**.	
VIII/25	Annex I Para 22		*Valuation tools.* **Further research on the conditions for validity and robustness of valuation techniques, in particular of stated-preference techniques, may contribute to further the reliability of valuation information of non-marketed ecosystem services, in particular with regard to non-use values**.	
VIII/25	Annex I Para 23		*Benefits transfer.* **Further research on the conditions for validity and robustness of benefits transfer may further advance the use of valuation information under tight time and resource constraints, which prevent extensive primary research**.	
VIII/25	Annex I Para 24		*Links between biodiversity, biodiversity functions, and associated ecosystem services.* Despite recent progress made in **understanding the links between biological diversity, biodiversity functions, and the associated ecosystem services, many questions remain**	

			unresolved. **Further research in addressing these important questions is therefore warranted** and may also lead to the development of innovative tools and methodologies for the valuation of biodiversity and biodiversity resources and functions.	
VIII/26	Para 5	The Conference of the Parties	*Encourages* relevant national, regional and international organizations and initiatives to **strengthen mechanisms that build capacity and extend research and training on the design, implementation and review of positive incentive measures for the conservation and sustainable use of biodiversity**, in accordance with domestic needs and priorities, taking into account the need to understand the risks of perverse effects on livelihoods, sustainable development or the biodiversity of third parties;	cop-08.shtml?m=COP-08&id=11040
VIII/26	Para 6		*Encourages* relevant national, regional and international institutions and organizations, such as IUCN and the Organisation for Economic Co-operation and Development, as well as representatives of indigenous and local communities and relevant stakeholders, to **strengthen research activities**, including research cooperation and exchange at national, regional and international levels, **on**, as appropriate: **Further assessment of positive incentive measures** and their application at the national, regional and global levels, taking into account the context in which they were implemented, the conditions necessary for their success, as well as the ecosystem approach; **Comparative analyses of the effectiveness and cost-efficiency of individual positive incentive measures**, including their impact on the livelihood and biodiversity of third parties; The **development of innovative positive incentive measures**; The **development of mechanisms, including policy, legal and institutional measures** in full consultation with representatives of indigenous and local communities **that ensure the fair and equitable sharing of benefits arising from positive incentive measures**; The **analysis and evaluation of the relevant economic, social and cultural impacts** of individual positive incentive measures at different levels and scales;	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/15	Para 5	The Conference of the Parties	Encourages Parties and relevant organizations to **submit case-studies, lessons learned and other relevant information on incentive measures**, especially on positive and perverse incentives, to the Executive Secretary.	
VI/15	Annex I Para 13	Proposals for the design and implementation of incentive measures.	The **carrying capacity of the different ecosystems has to be fully considered** in the design of incentive measures, as the use of resources may be limited by carrying capacity.	cop-06.shtml?m=COP-06&id=7189
VI/15	Annex II Para 7	Particular emphasis could be placed on the following elements:	**Building a network of experts** on biodiversity incentives who can provide guidance and information related to specific requests from Governments, civil society and the private sector.	
VI/15	Annex II Para 12	Recommendations for further cooperation on incentive measures.	The **methodologies for undertaking valuations should be developed further**, as they play a strategic role in the development of incentives for biodiversity conservation and sustainable use. Further cooperative work might include: **Continued exploration of methodologies for valuation of biodiversity and biodiversity resources**; **Developing and refining non-market methods of valuation**; Disseminating information on existing techniques for valuation.	cop-06.shtml?m=COP-06&id=7189
VI/15	Annex II Para 15		It is important to **explore the linkages with international organizations/agreements focused on economic policies**, in particular trade policies under the World Trade Organization and other policies such as labour (the International Labour Organization) and health (the World Health Organization). In addition, **linkages to regional and sectoral economic organizations/agreements should be explored** to determine their incentive compatibility with the objectives of the Convention.	
IX/6	Para 4	The Conference of the Parties	Decides to put more emphasis on Studies on approaches to develop markets and payment schemes for	cop/?id=11649

			ecosystem services at local, national and international levels, their advantages as well as potential limitations and risks, and their potential implications for biodiversity and indigenous and local communities; Analysis of the effects of different incentive measures and the impact on biodiversity across different groups in different geographical areas and over time;	
IX/6	Para	The Conference of the Parties	*requests* the Executive Secretary to encourage, **further studies on payments for ecosystem services and other positive incentive measures** at local, national, regional and international levels, their advantages as well as their potential limitations and risks, their cost-effectiveness, potential implications for biodiversity and indigenous and local communities, and their consistency with other international obligations;	cop/?id=11649
IX/11	Para 1	The Conference of the Parties	*Encourages* the Parties and relevant organizations to improve the existing financial information through enhancing accuracy, consistency and delivery of existing data on biodiversity financing and improved reporting on funding needs and shortfalls for the Convention's three objectives, and, in this context;	cop/?id=11654
IX/11	Para 2	The Conference of the Parties	*Encourages* the Parties and relevant organizations to **intensify efforts to assess,** as appropriate**, the economic costs of the loss of biodiversity and its associated ecosystem services** and of the failure to take measures to fulfil the three objectives of the Convention, **as well as the benefits of early action to reduce loss of biological diversity and its associated ecosystem services**, in order to inform decision-making and awareness-raising;	cop/?id=11654
X/44	Para 6	The Conference of the Parties	*invites* Parties and other Governments, […], **building on the work of the TEEB initiative**, the UNDP regional initiative on the importance of biodiversity and ecosystems for sustained growth and equity in Latin America and the Caribbean, and other relevant initiatives, and to also **consider undertaking**, as appropriate, **similar studies at the national level;**	cop/?id=12310
X/44	Para 9	The Conference of the Parties	*urges* Parties and other Governments to **prioritize and significantly increase their efforts** in actively identifying, eliminating, phasing out, or reforming, with a view to minimizing or avoiding negative impacts from, existing harmful incentives for sectors that can potentially affect	cop/?id=12310

			biodiversity, taking into account target 3 of the Strategic Plan for Biodiversity 2011-2020, while **acknowledging that doing so requires then the conduct of careful analyses of available data**;	
XII/10	Para 2	The Conference of the Parties	*Encourages* businesses: a) To analyse the impacts of business decisions and operations on biodiversity and ecosystem functions and services;	doc/?meeting=cop-12

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Ecosystem Approach

The ecosystem approach (http://www.cbd.int/ecosystem/default.shtml) is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. It is based on the application of appropriate scientific methodologies focused on levels of biological organization which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems.

Cited Decisions that express research needs are V/6 and VII/11, also checked were Decisions IV/1, VI/12 and IX/7.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/11	Annex I Para 16	Refinement and elaboration of the ecosystem approach, based on assessment of experience of Parties in the implementation.	**Research** and development **is needed to target strategic gaps in knowledge** that are important for addressing the exercise at hand.	cop-07.shtml?m=COP-07&id=7748
VII/11	Annex I Principle 5 Para 5.4		**Expand knowledge of the responses of ecosystems**, in terms of changes in composition, structure and function, **to** both internally and externally induced **stresses** caused by, *inter alia*, human use, disturbance, pollution, fire, alien species, disease abnormal climatic variations (drought, flood) etc.	
VII/11	Annex I Principle 6 Para 6.1		**Identify practices that are not sustainable and develop appropriate mechanisms for improvement** involving all stakeholders.	
VII/11	Annex I Principle 6 Para 6.4		**Develop understanding of the limits of ecosystem functioning** and the effects of various human use on the delivery of ecosystem goods and services.	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
V/6	Annex I Part C Para 8	Operational Guidance for application of the ecosystem	A much **better knowledge** of ecosystem functions and structure, and the roles of the components of biological diversity in ecosystems, **is required**, especially **to understand: (i) ecosystem resilience and the effects of biodiversity loss (species and genetic levels) and habitat**	cop-05.shtml?m=COP-05&id=7148

		approach.	**fragmentation; (ii) underlying causes of biodiversity loss; and (iii) determinants of local biological diversity in management decisions**.	
VII/11	Annex I Principle 1 Para 1.12	Refinement and elaboration of the ecosystem approach, based on assessment of experience of Parties in the implementation.	**Undertake assessment** at the national **level to analyse effects of ecosystem management practices** on society, with a view to find ways and means to mitigate possible constraints between stakeholders in the implementation phase.	cop-07.shtml?m=COP-07&id=7748
VII/11	Annex I Principle 3 Para 3.3		**Environmental impact assessment (EIAs), including strategic environmental assessments (SEAs) should be carried out for developments that may have substantial environmental impacts** taking into account all the components of biological diversity. These assessments should adequately **consider the potential offsite impacts**.	
VII/11	Annex I Principle 4 Para 4.6		**Evaluate the direct as well as indirect economic benefits associated with good ecosystem management** including biodiversity conservation and environmental quality.	
VII/11	Annex I Principle 5 Para 5.1		**Improve understanding of the interrelationship among ecosystem composition, structure and function** with respect to (i) human interaction, needs and values (including cultural aspects), (ii) conservation management of biodiversity, and (iii) environmental quality, integrity and vitality.	
VII/11	Annex I Principle 5 Para 5.3		**Assess the extent to which ecosystem composition, structure can function contribute to the delivery of goods and services** to meet the desired balance of conservation, social and economic outcomes.	
VII/11	Annex I Principle 5 Para 5.9		**Monitoring** population sizes of vulnerable and important species **should be linked to a management plan** that identifies appropriate response measures and actions.	
VII/11	Annex I Principle 7 Para 7.1		Enhanced capacity is required to **analyse and understand the temporal and spatial scales at which ecosystem processes operate**, and the effect of management actions on these processes and the delivery of ecosystem goods and services**. Identification of spatial patterns and gaps in connectivity should be included** in this analysis.	
VII/11	Annex I Principle 8		**The capacity to monitor and detect long-term, low frequency changes in ecosystem structure and functioning should be**	

	Para 8.5		**strengthened**.	
VII/11	Annex I Principle 11 Para 11.4		**The implications for ecosystem management of different "world views" based on different knowledge systems should be evaluated**.	
VII/11	Annex II Para 12	Consideration of the relationship between sustainable forest management and ecosystem approach.	While existing efforts in SFM/criteria and indicators are currently focused on the national level and the forest-management unit level, some recent efforts (such as work undertaken by IUCN) are focusing at the landscape level. The **development of criteria and indicators for the landscape level should be further pursued**.	cop-07.shtml?m=COP-07&id=7748
VII/11	Annex II Para 19		Developing and implementing biodiversity indicators would also help strengthen the contribution of SFM to biodiversity conservation. The **development of criteria and indicators as well as certification programmes within SFM at the landscape level should also be pursued**.	

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Gender and Biodiversity

The importance of biodiversity to individuals varies according to gender (http://www.cbd.int/gender/). Based upon the social roles of and power relations between men and women, gender is shaped by culture, social relations, and natural environments. For this reason, gender dimensions need to be incorporated into the understanding of biodiversity and its conservation, sustainable use and the sharing of benefits. CBD developed a Gender Plan of Action in 2008.

The cited Decision that expresses research needs is XII/7, also checked was X/19.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
XII/7	Para 3	The Conference of the Parties	***Recognizes*** that important steps in gender monitoring, evaluation and indicators relevant to the Convention have already been taken by Parties and relevant organizations but **that additional work is required, including with regard to collecting and using gender disaggregated data and**, therefore, *encourages* Parties and relevant organizations to undertake further work in this respect;	doc/?meeting=cop-12
XII/7	Annex, Section IA, Para 1.1	Possible actions for Parties	Request that **gender experts review draft national biodiversity strategies** and action plans in order to assess gender sensitivity and provide guidance on improvements;	doc/?meeting=cop-12
XII/7	Annex, Section IA, Para 1.7	Possible actions for Parties	Identify the importance of traditional knowledge and customary practice held by men and women in the protection of biodiversity....	doc/?meeting=cop-12
XII/7	Annex, Section IA, Para 2.1	Possible actions for Parties	Review relevant policies to identify gender differences, including in policies related to tenure and use rights, literacy, employment, education, health, local governance and decision-making and access to financial resources, and consider steps to address these;	doc/?meeting=cop-12

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Global Strategy for Plant Conservation

Plants are universally recognized as a vital part of the world's biological diversity and an essential resource for the planet (http://www.cbd.int/gspc/default.shtml). In addition to the small number of crop plants used for basic food and fibres, many thousands of wild plants have great economic and cultural importance and potential, providing food, medicine, fuel, clothing and shelter for vast numbers of people throughout the world.

The cited Decisions that express research needs are VI/9 and X/17, also checked were Decisions V/10, VII/10, IX/3 and XII/15.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/9	Annex I Para 5	Within the ultimate and long-term objective, a number of sub-objectives can be identified as follows:	**Document the plant diversity of the world**, including its use and its distribution in the wild, in protected areas and in *ex situ* collections; **Monitor the status and trends in global plant diversity** and its conservation, and threats to plant diversity, and **identify plant species, plant communities, and associated habitats and ecosystems, at risk**, including consideration of "red lists"; **Promote research on the genetic diversity, systematics, taxonomy, ecology and conservation biology of plants and plant communities, and associated habitats and ecosystems**, and on social, cultural and economic factors that impact biodiversity, so that plant diversity, both in the wild and in the context of human activities, can be well understood and utilized to support conservation action.	cop-06.shtml?m=COP-06&id=7183
VI/9	Annex I Appendix Target 2	Global Strategy for Plant Conservation.	There are currently about 270,000 known species. Of those still to be evaluated, **sufficient information for a full assessment is only available for a proportion**. Thus, only a preliminary assessment will have been carried out on the remaining, "data-deficient" species. Subsequently, **further fieldwork will be essential to enable more comprehensive assessments** to be undertaken.	cop-06.shtml?m=COP-06&id=7183
VI/9	Annex I Appendix Target 3		Key areas where **the development of models with protocols is required** include: the **integration of in situ and *ex situ* conservation; maintenance of threatened plants** within ecosystems; applying the ecosystem approach; balancing sustainable use with conservation; and	

			methodologies for setting conservation priorities; and methodologies for monitoring conservation and sustainable use activities.	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/9	Annex I Para 9	Global Strategy for Plant Conservation.	The Strategy addresses the Plant Kingdom with focus on higher plants, and other well-described groups such as Bryophytes and Pteridophytes. Parties may choose on a national basis **to include lower taxa**.	
VI/9	Annex I Para 12	The global targets for the year 2010 are as follows:	A widely accessible **working list of known plant species, as a step towards a complete world flora**; A preliminary **assessment of the conservation status of all known plant species**, at national, regional and international levels; Development of **models with protocols for plant conservation and sustainable use**, **based on research** and practical experience.	
VI/9	Annex I Appendix Target 1	Global Strategy for Plant Conservation.	A **working list of known plant species** is considered to be a fundamental requirement for plant conservation. In effect the target will require the **compilation and synthesis of existing knowledge, focusing on names and synonyms, and geographical distribution**. Further **work on national and regional floras is necessary** to lay the basis **for the longer term aim of developing a complete world flora**, including local and vernacular names.	cop-06.shtml?m=COP-06&id=7183
VI/9	Annex I Appendix Target 5		The **most important areas for plant diversity** would be **identified according to the criteria including endemism, species richness, and/or uniqueness of habitats, including relict ecosystems**, also taking into account the provision of ecosystem services.	
X/17	Annex	Targets for 2011 - 2020	An online **flora of all known plants**. An **assessment of the conservation status of all known plant species**, as far as possible, to guide conservation action. 70 per cent of the **genetic diversity of crops** including their wild relatives and other socio-economically valuable plant species **conserved**.	cop/?id=12283

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Global Taxonomy Initiative

Effective conservation and management of biodiversity depends in large part on our understanding of taxonomy (http://www.cbd.int/gti/default.shtml). Unfortunately, inadequate taxonomic information and infrastructure, coupled with declining taxonomic expertise, hinders our ability to make informed decisions about conservation, sustainable use and sharing of the benefits derived from genetic resources. Governments, through the Convention on Biological Diversity, have acknowledged the existence of a "taxonomic impediment" to the sound management of biodiversity, and have developed the Global Taxonomic Initiative to remove or reduce the impediment.

The cited Decisions that express research needs are VI/8, VIII/3, IX/22, X/39 and XI/29.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/8	Annex I Part I Para 3	The GTI has been established […] to underpin decision-making […] by addressing:	**The lack of taxonomic information on the identity of components of biological diversity in many parts of the world**.	cop-06.shtml?m=COP-06&id=7182
VI/8	Annex I Part II Planned Activity 8	Forest biological diversity	**Taxonomic studies and inventories at the national level, which provide for a basic assessment of forest biological diversity**.	
VI/8	Annex I Part II Planned Activity 9	Marine and coastal biological diversity.	Two major elements of **taxonomic work within marine and coastal ecosystems can be considered as high priority** for achieving the Convention's objectives in marine and coastal systems, namely **ballast water organisms, and key organisms for monitoring the health of mangrove systems through their invertebrate fauna**. The ballast water organisms sub-element will require, *inter alia*, a **focus on pelagic juvenile stages of benthic organisms**. The second element focuses on mangroves, which are among the world's most rapidly changing systems. Within the marine and coastal biodiversity programme of work there is a need to **develop taxonomic support for baseline**	cop-06.shtml?m=COP-06&id=7182

			monitoring of invertebrate fauna in mangrove systems.	
VI/8	Annex I Part II Planned Activity 10	Dry and subhumid lands biodiversity.	The **knowledge base on the organisms that maintain the crucial soil crust should be developed** at national and regional levels, as well as **the need for greater knowledge of the micro-organisms in nutrient cycling, and increased taxonomic information of pests and diseases**. In many parts of the world, there is a **need to increase taxonomic capacity to identify the lichens**, and to then develop identification tools. Taxonomic work will need to develop easy-to-use **identikits for key soil lichens, algae, soil invertebrates, pest insects and other herbivores, and other taxa** that will be the harbingers of change.	
VI/8	Annex I Part II Planned Activity 12	Agricultural biological diversity.	Within the programme of work on agricultural biological diversity, several areas require taxonomic capacity in order to deliver fully on their objectives. The **need for taxonomy ranges from classical taxonomy of the species living in agricultural ecosystems, to the taxonomy of wild relatives of agriculturally important species, to access to existing taxonomic information including basic knowledge on the functional relationships between organisms** often recorded by taxonomists. Within the agricultural biodiversity work programme specific taxonomy-related activities are envisaged in the following subject areas: **pollinators; soil and other below-ground biodiversity, to support agricultural production systems, especially in nutrient cycling; and natural enemies of pests and diseases**.	
VIII/3	Annex I Para 22	Additional Planned Activities.	Stimulate and undertake efforts to **carry out All-Taxon Biodiversity Inventories (ATBIs) in existing or planned protected areas**. **Gap analyses of representative taxa found in protected areas**, in the context of the distribution and presence of those taxa at other sites nationally and regionally, demonstrating the development and use of such analyses in protected area selection and management. Mobilization **of primary occurrence data of species** in a protected area, provision of these data to country of origin, and **analysis of distributions using a niche modelling system**.	cop-08.shtml?m=COP-08&id=11015
IX/22	Annex	Output 4.8.1	**Establish an inventory of species with economic and ecological**	cop/?id=11665

			values for forest biological diversity, their conservation status, ecology, and distribution, including potential indicators of below-ground biodiversity, and appropriate sampling systems, by 2015;	
IX/22	Annex	Output 4.9.2	**Produce a guide to the major groups of marine algae by 2012;**	cop/?id=11665
IX/22	Annex	Output 4.10.1	**Establish an inventory of species with economic and ecological values for dry and sub-humid lands biodiversity**, their conservation status, ecology, and distribution, including potential indicators of below-ground biodiversity, and appropriate sampling systems, by 2015;	cop/?id=11665
IX/22	Annex	Output 4.12.2	**Produce keys to all genera of bees of the world by 2012;**	cop/?id=11665
IX/22	Annex	Output 4.13.2	**Identify risks from climate change for existing protected areas in mountain regions** and provide information to reduce impact of climate change on small protected areas by 2010;	cop/?id=11665
X/39	Para 6	The Conference of the Parties	*urges* Parties and *invites* other Governments and organizations to **increase the knowledge base on ecological range and the condition of the species** in order to better meet the user-needs **in respect of bioindication of ecological health**;	cop/?id=12305

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/8	Annex I Part II Para 12	Programme of work for the GTI.	**Address the problems of insufficient knowledge of all components of biological diversity** (including their classification, description, value and function) and lack of taxonomic capacity, to overcome what has been termed "the taxonomic impediment".	cop-06.shtml?m=COP-06&id=7182
VI/8	Annex I Part II Planned Activity 1	Country-based taxonomic needs assessment.	Undertake as a priority activity, **assessments of national taxonomic capacity to identify and, where possible, quantify national and regional-level taxonomic impediments and needs**.	
VI/8	Annex I Part II Planned Activity 2	Regional taxonomic needs assessment.	Existing **activities need to be broadened to include all taxa**, as well as input from the full range of biodiversity stakeholders needing taxonomic information.	
VI/8	Annex I Part II Planned	Global taxonomic needs	It is widely recognized that generally **there is very little data available on global diversity and distribution patterns**, and where it does exist it is usually in non-standardized formats that may restrict its usefulness.	

	Activity 3	assessment.		
VI/8	Annex I Part II Planned Activity 8	Forest biological diversity.	In decision IV/7, the Conference of the Parties agreed that countries would review specific indicators of forest biological diversity derived by the major international processes related to sustainable forest management. **Depending on the selection of the criteria and indicators chosen, additional taxonomic studies and inventories will then be required**. While there is a need to continue **developing knowledge** in many components of forest ecosystems, the least known, and **highest priority**, is the **below-ground biological diversity**.	cop-06.shtml?m=COP-06&id=7182
VI/8	Annex I Part II Planned Activity 11	Inland waters biological diversity.	For the purposes of the GTI targeted activities in rapidly increasing worldwide **knowledge of freshwater fish and invertebrates are proposed as high priority**.	
VI/8	Annex I Part II Planned Activity 12	Agricultural biological diversity.	Outputs would include: easy-to-use **keys to families, genera and species of pollinators; automated identification systems for pollinators; development of standard methods for identification of soil biodiversity to different taxonomic levels; increased knowledge of soil biodiversity to aid in the identification of indicators of the "health" of below-ground biological diversity**.	
VI/8	Annex I Part II Planned Activity 16	Support in implementation of Article 8(j).	**Traditional knowledge systems include taxonomic information**, which if used in combination with Linnaean taxonomies could support the GTI. **Comparison of indigenous taxonomies and Linnaean taxonomies** in different regions could be made to provide general principles to assist in the conservation and sustainable use of elements of biodiversity in different ecosystems.	
VIII/3	Para 4	The Conference of the Parties	***Notes* that the taxonomic impediment is particularly serious in countries with mega-diversity**;	cop-08.shtml?m=COP-08&id=11015
VIII/3	Para 5		***Emphasizes* the need to build and retain capacity to address the taxonomic impediment**.	
VIII/3	Para 9		*Urges* Parties and other Governments that have not done so to: **Undertake or complete or update**, as a matter of priority, **national taxonomic needs assessments**, including related technical, technological and capacity needs.	
VIII/3	Annex I	Additional	An **increased knowledge of the species composition of mountains**	cop-08.shtml?m=COP-

	Para 3	Planned Activities.	through national taxonomic studies and inventories; ***Working lists of organisms*** - assembling working lists of organisms occurring in montane areas including their vernacular names, with reference to altitude and relief; ***Working identification keys*** – producing identification keys in printed and electronic form useful for the conservation, monitoring and sustainable use of organisms in montane areas; ***Hot spots and protected areas*** – providing relevant taxonomic information, infrastructure and human resources to identify hot spots of mountain biodiversity and to establish and monitor protected areas.	08&id=11015
VIII/3	Annex I Para 10		**Databases of invasive alien species and occurrences of invasions**, developed and/or expanded, and made widely available; **Working identification keys for known invasive alien species** associated with key invasion pathways produced and disseminated; **Working lists of organisms** in areas that are exposed or susceptible to key invasion pathways produced and utilized by local monitoring authorities.	
VIII/3	Annex I Para 17		Improved and augmented **biodiversity inventories of protected areas of all kinds**, also to be expanded into monitoring efforts to record changes of species and populations over time. **Taxonomic guides for key invertebrate organisms, lower plants and microorganisms, economically important and threatened species**. Information on **current distribution and occurrence of important species in protected areas**, including **population trends**. **Identification of habitats and priority setting for establishing new protected areas**, through **plotting distributions of species** at local, national and regional levels. Mobilization and augmentation of specimen and observational-level data pertaining to species to allow modelling of current distributions and distributions under different models of climate change and of other biotic and a biotic changes (e.g. land-use change, invasive species).	
X/39	Para 2	The Conference of the Parties	*urges* Parties and other Governments to **conduct taxonomic-needs assessments**, where applicable, with particular regard to the full range of end-users and their need for taxonomic support in the implementation of all relevant articles and work programmes of the Convention;	cop/?id=12305

X/39	Para 3	The Conference of the Parties	*encourages* Parties, other Governments and relevant organizations to determine priority taxonomic needs in the […] thematic areas and cross-cutting issues of the Convention;	cop/?id=12305
XI/29	Para 7	The Conference of the Parties	*Recognizes* the importance of **increasing the scientific standing of taxonomic research**, strengthening taxonomic expertise, in particular on lesser studied or known groups	cop/default.shtml?id=13190
XI/29	Para 14	The Conference of the Parties	*Recognizing* the need for financial resources for capacity-building, including the consolidated guidance to the financial mechanism, *urges* Parties and *invites* other Governments, organizations and donors to provide adequate financial and technical support for Parties to **carry out taxonomic projects and activities that prioritize the implementation of the Strategic Plan for Biodiversity 2011–2020**;	cop/default.shtml?id=13190
XI/29	Annex	Parties, other Governments and relevant organizations and stakeholders shall consider the following actions:	Action 4: By 2015, produce and continue to share taxonomic tools (e.g., field guides, online tools such as virtual herbaria, genetic and DNA sequence-based identification tools such as barcoding) and risk-analysis tools in the context of invasive alien species and biosafety, taking into account the identified needs of users; and facilitate the use of those tools to identify and analyse: (i) threatened species; (ii) invasive alien species; (iii) species and traits that are useful to agriculture and aquaculture; (iv) species subject to illegal trafficking; and (v) socio-economically important species, including microbial diversity. Action 9: Facilitation of all-taxa inventories in targeted national, regional and subregional priority areas such as biodiversity hot spots, key biodiversity areas, protected areas, community–conserved areas, sustainable biodiversity management zones, and socio-ecological production landscapes considered under the *Satoyama* Initiative and other programmes in which biodiversity inventories are a priority for decision-making.	cop/default.shtml?id=13190

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Impact Assessment

Impact assessment is the process of identifying the future consequences of a current or proposed action (http://www.cbd.int/impact/default.shtml). It is used to ensure that projects, programmes and policies are economically viable, socially equitable and environmentally sustainable. Work under the Convention seeks to support efforts to adequately reflect biodiversity considerations in impact assessments. Guidance developed under the Convention helps to decide which aspects of biodiversity may need to be monitored and how to carry this out in a cost-effective way.

Cited Decisions that express research needs are V/18, VI/7 and VIII/28, also checked were Decisions VI/10 and VII/17.
Comment: Decision VIII/28 derives text directly from Decision VI/7. In order to avoid duplication only the more recent Decision VIII/28 is cited where the text is taken from Decision VI/7.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VIII/28 (based on VI/7	Annex I Para 8 Annex I Para 16)	Voluntary guidelines on biodiversity-inclusive environmental impact assessment.	**Fundamental questions** which need to be answered in an EIA study include: **Would the** intended **activity affect the physical environment in such a manner or cause such biological losses that it influences the chance of extinction of cultivars, varieties, populations of species, or the chance of loss of habitats or ecosystems**? **Would the** intended **activity surpass the maximum sustainable yield, the carrying capacity of a habitat/ecosystem or the maximum allowable disturbance level of a resource, population, or ecosystem**, taking into account the full spectrum of values of that resource, population or ecosystem? **Would the** intended **activity result in changes to the access to and/or rights over biological resources**?	cop-08.shtml?m=COP-08&id=11042
VI/7	Annex I Para 24	Guidelines for incorporating biodiversity related issues into environmental impact	**There is a need to develop or compile biodiversity criteria for impact evaluation and to have measurable standards or objectives against which the significance of individual impacts can be evaluated**.	cop-06.shtml?m=COP-06&id=7181
VI/7	Annex I Para 45		**Communication between practitioners of environmental impact assessment and scientists working in the biodiversity domain is in urgent need of improvement and should be enhanced through**	

		assessment.	**workshops and case-study assessments**.	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
V/18	Para 1	The Conference of the Parties invites Parties, Governments and other relevant organizations	To ensure the **involvement of interested and affected stakeholders** in a participatory approach to all stages of the assessment process, **including** governmental bodies, the private sector, **research and scientific institutions**, indigenous and local communities and non-governmental organizations, including by using appropriate mechanisms, such as the establishment of committees, at the appropriate level; To organize expert meetings, workshops and seminars, as well as training, educational and public awareness programmes and exchange programmes, and **carry out pilot environmental impact assessment projects**, in order to promote the development of local expertise in methodologies, techniques and procedures	cop-05.shtml?m=COP-05&id=7160
VI/7	Annex I Para 21	Guidelines for incorporating biodiversity-related issues into environmental impact assessment.	The expected **impacts** of the proposed activity, including identified alternatives, **should be compared with the selected reference situation and with the autonomous development** (what will happen with biodiversity over time if the project is not implemented).	cop-06.shtml?m=COP-06&id=7181
VI/7	Annex I Para 32		Predicted **impacts on biodiversity should be monitored**, as should the **effectiveness of mitigation** measures proposed in the environmental impact assessment. Proper environmental management should ensure that anticipated impacts are maintained within predicted levels, and unanticipated impacts are managed before they become a problem and the expected benefits (or positive developments) are achieved as the project proceeds.	
VIII/28 (based on VI/7	Annex 1 Para 25 Annex I Para 20)	Voluntary guidelines on biodiversity-inclusive environmental impact assessment.	The following **sequence of questions** provides an example of the kind of information that should be requested in the terms of reference of an impact study if the project screening suggests that the proposed activity is likely to have adverse impacts on biodiversity. It should be noted that this list of steps represents an iterative process. Scoping and impact study are two formal rounds of iteration; during the study further iterative rounds may be needed, for example when alternatives to the proposed	cop-08.shtml?m=COP-08&id=11042

			project design have to be defined and assessed. **Describe** the type of project, its nature, **magnitude, location, timing, duration and frequency**; **Define possible alternatives**, including “no net biodiversity loss” or “biodiversity restoration” alternatives (such alternatives may not be readily identifiable at the outset of impact study, and one would need to go through the impact study to determine such alternatives). Alternatives include location alternatives, scale alternatives, siting or layout alternatives, and/or technology alternatives; **Describe expected biophysical changes (in soil, water, air, flora, fauna)** resulting from proposed activities or induced by any socio-economic changes caused by the activity **Determine the spatial and temporal scale of influence** of each biophysical change identifying effects on connectivity between ecosystems, and potential cumulative effects; **Describe ecosystems and land-use types** lying within the range of influence of biophysical changes; **Determine, for each of these ecosystems or land-use types, if biophysical changes are likely to have adverse impacts on biodiversity in terms of composition, structure (spatial and temporal), and key processes**. Give indication of the level certainty of predictions, and take into account mitigation measures**. Highlight any irreversible impacts and any irreplaceable loss**; For the affected areas, **collect available information on baseline conditions** and any anticipated trends in biodiversity in the absence of the proposal; **Identify**, in consultation with stakeholders, the current and potential ecosystem **services** provided by the affected ecosystems or land-use types and determine the values these functions represent for society. Give an indication of the main beneficiaries and those adversely affected from an ecosystem services perspective, focusing on vulnerable stakeholders; **Determine which of these services will be significantly affected by the proposed project**, giving confidence levels in predictions, and taking into account mitigation measures. **Highlight any irreversible**	

			impacts and any irreplaceable loss; **Define possible measures to avoid, minimize or compensate for significant damage to, or loss of, biodiversity and/or ecosystem services; define possibilities to enhance biodiversity**. Make reference to any legal requirements; **Evaluate the significance of residual impacts**, i.e. in consultation with stakeholders define the importance of expected impacts for the alternatives considered. **Relate the importance of expected impacts to a reference situation, which may be the existing situation, a historical situation, a probable future situation (e.g. the 'without project' or 'autonomous development' situation)**, or an external reference situation. When determining importance (weight), consider geographic importance of each residual impact (e.g. impact of local/regional/national/continental/global importance) and indicate its temporal dimension. **Identify necessary surveys** to gather information required to support decision making. Identify important gaps in knowledge;	
VIII/28	Annex I Para 27		**Field surveys, quantitative data, meaningful analyses**, and a broad, long-term perspective enabling cause-effect chains to be tracked in time and space are important elements when assessing biodiversity impacts. **Potential indirect and cumulative impacts should be better assessed**;	
VIII/28 (based on VI/7	Annex I Para 34 Annex I Para 27)		Biodiversity specialists should be called upon for the **review and information on official standards and/or standards for good practice to be compiled and disseminated**.	
VIII/28	Annex I Appendix 1	The need for, or the level of environmental impact assessment is to be determined for:	**Activities resulting in emissions, effluents and/or other chemical, thermal, radiation or noise emissions** in areas providing other relevant ecosystem services (areas to be defined); **Activities leading to changes in ecosystem composition, ecosystem structure, or ecosystem functions** responsible for the maintenance of ecosystems and ecosystem services in areas providing other relevant ecosystem services (areas to be defined); Extractive activities, **activities leading to a change of land-use or a**	cop-08.shtml?m=COP-08&id=11042

			change of use of inland water ecosystems or a change of use of marine and coastal ecosystems, and creation of linear infrastructure below the Category A threshold, in areas providing key and other relevant ecosystem services (areas to be defined).	

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issues: Identification, Monitoring, Indicators and Assessments

Our knowledge of biodiversity is still limited. Only one out of five to ten of all species is known to science. And even among the most well-known taxonomic groups - mammals, birds, amphibians, reptiles and vascular plants - we do not know the population size, distribution or threat status for many. We still have many questions about the inherent dynamics of ecosystems and their functioning and cannot predict when gradual impact on an ecosystem reaches a threshold at which the state of the ecosystem changes dramatically and irreversibly. To address these questions the Convention calls upon countries to identify components of biological diversity important for its conservation and sustainable use (http://www.cbd.int/indicators/default.shtml).

Cited Decisions that express research needs are III/10, VIII/9, VIII/15, IX/15, X/7 and XIII/28, also checked were Decisions V/7, VI/7, VII/6, VII/8, VII/30, VIII/7 and VIII/14.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VIII/9	Para 19	The Conference of the Parties	*Aware also* of the need to improve knowledge of trends in biodiversity, and understanding of its value, including its role in the provision of ecosystem services, as a means of improving decision-making at global, regional, national and local levels, and also recognizing cross-scale interactions in ecosystems, ***urges*** Parties, other Governments and relevant organizations, including **scientific bodies**, to increase support for and coordinate research, *inter alia*, **to improve: basic knowledge and understanding of biodiversity and its components; monitoring systems; measures of biodiversity; biodiversity valuation; models of change in biodiversity, ecosystem functioning and ecosystem services; and understanding of thresholds**;	cop-08.shtml?m=COP-08&id=11023
X/7	Para 2	The Conference of the Parties	*Recognizes* the **need to continue strengthening the ability to monitor biodiversity at all levels** including through, *inter alia* Inviting scientific networks, including national academies of science, to **contribute to the development and refinement of indicators suitable for monitoring biodiversity at the global, regional, national and local levels** and encouraging science funding bodies to support such endeavours;	cop/?id=12273
X/7	Para 3	The Conference	*Agrees* to **develop** measures (or **specific indicators**), in cooperation	cop/?id=12273

		of the Parties	with the scientific community, **that could complement or substitute the existing indicators**;	
XIII/28	Para 14	The Conference of the Parties	*Notes* the need to urgently identify or develop indicators for those Aichi Biodiversity Targets which currently do not have identified indicators.	decisions/cop/?m=cop-13

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
III/10	Para 1	The Conference of the Parties	**Urges Parties to identify indicators of biological diversity**.	cop-03.shtml?m=COP-03&id=7106
VIII/15	Annex II	The Conference of the Parties *Notes* that the framework for monitoring implementation of the Convention and achievement of the 2010 target is comprised of:	A limited number of indicators to measure progress in the implementation of the Strategic Plan, to be developed on the basis of the proposed indicators: **Trends** in extent **of selected biomes, ecosystems and habitats**; **Trends** in abundance and distribution **of selected species**; **Change in status of threatened species**; **Trends in genetic diversity** of domesticated animals, cultivated plants, and fish species of major socio-economic importance; **Marine trophic index** ; **Nitrogen deposition** ; **Water quality** in aquatic ecosystems; **Trends in invasive alien species**; **Connectivity/fragmentation** of ecosystems; **Status and trends of linguistic diversity** and numbers of speakers of indigenous languages.	cop-08.shtml?m=COP-08&id=11029
IX/15	Para 1	The Conference of the Parties	*Invites* Parties, other Governments and relevant organizations to, where appropriate, **promote and support**, through various mechanisms, **integrated national, regional and subglobal ecosystem assessments** including, where appropriate, response scenarios that build on the framework and experiences of relevant biodiversity assessments, such as the Millennium Ecosystem Assessment;	cop/?id=11658
XIII/28	Para 15	The Conference of the Parties	*Notes* that many indicators rely on a small number of essential biodiversity variables and that further efforts are required to improve the monitoring of these variables.	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Invasive Alien Species

Alien species that become invasive are considered to be a main direct driver of biodiversity loss across the globe. In addition, alien species have been estimated to cost our economies hundreds of billions of dollars each year (http://www.cbd.int/invasive/default.shtml).

Cited Decisions that express research needs are V/8, VI/23, VIII/3, VIII/27, IX/4, XII/16, XII/17 and XIII/13, also checked were Decisions VII/13 and X/38.
Comment: Decision VI/23 derives text directly from Decision V/8 (Guiding principles). In order to avoid duplication only the more recent Decision VI/23 is cited where the text is taken from Decision V/8.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/23	Para 24	The Conference of the Parties	Urges Parties, Governments and relevant organizations, at the appropriate level, with the support of relevant international organizations to **promote and carry out**, as appropriate**, research and assessments on**: **The characteristics of invasive species and the vulnerability of ecosystems and habitats to invasion by alien species, and the impact of climate change on these parameters**; **The impact of alien species on biological diversity**; Analysis of the **importance of various pathways** for the introduction of invasive alien species; **The socio-economic implications of invasive alien species** particularly the implications for indigenous and local communities; **The development of environmentally benign methods to control and eradicate invasive alien species**, including measures for use in quarantine and to control fouling of ship hulls; **The costs and benefits of the use of biocontrol agents** to control and eradicate invasive alien species; **Means to enhance the capacity of ecosystems to resist or recover** from alien species invasions; **Priorities for taxonomic work** through, *inter alia*, the Global Taxonomy Initiative;	cop-06.shtml?m=COP-06&id=7197

			Criteria for assessing risks from introduction of alien species to biological diversity at the genetic, species and ecosystem levels; **The use of the traditional knowledge** of indigenous and local communities in the development and implementation of measures to address invasive alien species, in accordance with Article 8(j) of the Convention;	
VI/23	Annex I Guiding Principle 5	Guiding principles for the prevention, introduction and mitigation of impacts of alien species.	In order to **develop an adequate knowledge base** to address the problem, it is important that States **undertake research on and monitoring of invasive alien species**, as appropriate. These efforts should attempt to include a baseline taxonomic study of biodiversity. In addition to these data, monitoring is the key to early detection of new invasive alien species. Monitoring should include both **targeted and general surveys**, and benefit from the involvement of other sectors, including local communities. **Research on an invasive alien species should include a thorough identification of the invasive species and should document: (a) the history and ecology of invasion (origin, pathways and time-period); (b) the biological characteristics of the invasive alien species; and (c) the associated impacts at the ecosystem, species and genetic level and also social and economic impacts, and how they change over time**.	cop-06.shtml?m=COP-06&id=7197
VIII/27	Para 46	The Conference of the Parties	***Encourages*** **relevant international and regional organizations**, including the Future Harvest (CGIAR) centres, Botanic Gardens Conservation International and the International Union of Forestry Research Organizations, as well as professional societies, **to develop codes of practice for preventing and minimizing the risk of introduction and spread of invasive alien species associated with scientific-research activities, and to carry out risk assessments as appropriate on proposed species introductions associated with such scientific-research activities**, recognizing the need to avoid duplication of efforts, and *encourages* the Global Invasive Species Programme to review and make available existing information in this regard.	cop-08.shtml?m=COP-08&id=11041
IX/4	Para 24	The Conference of the Parties	*Invites* Parties, other Governments, and **relevant research organizations to study the impact of other drivers, in particular, land use change, climate change adaptation and mitigation**	cop/?id=11647

			activities, on the introduction, establishment and spread of invasive alien species, and their related socio-economic, health and environmental impacts;	
XII/16	Para 4	The Conference of the Parties	*Requests* the Executive Secretary, in collaboration with [...] relevant organizations, to explore ways and means to address the risks associated with trade in wildlife introduced as pets, aquarium and terrarium species, and as live bait and live food;	doc/?meeting=cop-12
XIII/13	Para 4	The Conference of the Parties	*Encourages* Parties, other Governments and relevant organizations, including research organizations, to explore, develop and apply ways and means to promote changes in the behaviour of individuals, in particular, consumers and businesses engaged in the wildlife trade, so as to reduce the risks to biodiversity associated with legal trade, and prevent instances of illegal trade, in wildlife, including through engagement with the social sciences and the use of social media in targeted awareness campaigns, and through cooperation with wildlife trade organizations;	decisions/cop/?m=cop-13

Indirect research needs

Decision	**Paragraph**	**Chapeau / Heading**	**Text**	**Source** http://www.cbd.int/decisions/
V/8	Part 1.3	Case-studies should include the following sections:	**Description of the problem (a) Location of the case-study (b) History (origin, pathway and dates, including time-period between initial entry/first detection of alien species and development of impacts) of introduction(s) (c) Description of the alien species concerned: biology of the alien species (the scientific name of species should be indicated if possible) and ecology of the invasion(s) (type of and potential or actual impacts on biological diversity and ecosystem(s) invaded or threatened, and stakeholders involved) (d) Vector(s) of invasion(s) (e.g. of deliberate importation, contamination of imported goods, ballast water, hull-fouling and spread from adjacent area. It should be specified, if known, whether entry was deliberate and legal, deliberate and illegal, accidental, or natural.) (e) Assessment and monitoring activities conducted and methods applied, including difficulties encountered (e.g. uncertainties due to missing**	cop-05.shtml?m=COP-05&id=7150

			taxonomic knowledge) **Options considered to address the problem** **(a) Description of the decision-making process (stakeholders involved, consultation processes used, etc.) (b) Type of measures (research and monitoring; training of specialists; prevention, early detection, eradication, control/containment measures, habitat and/or natural community restoration; legal provisions; public education and awareness) (c) Options selected, time-frame and reasons for selecting the options (d) Institutions responsible for decisions and actions.** **Implementation of measures, including assessment of effectiveness (a) Ways and means set in place for implementation (b) Achievements (specify whether the action was fully successful, partially successful, or unsuccessful), including any adverse effects of the actions taken on the conservation and sustainable use of biodiversity (c) Costs of action** **Lessons learned from the operation and other conclusions** **Further measures needed, including transboundary, regional and multilateral cooperation (b) Replicability for other regions, ecosystems or groups of organisms (c) Information compilation and dissemination needed.**	
VI/23	Annex I Guiding Principle 4	Guiding principles for the prevention, introduction and mitigation of impacts of alien species.	To help States minimize the spread and impact of invasive alien species, States **should identify, as far as possible, species that could become invasive** and make such information available to other States.	cop-06.shtml?m=COP-06&id=7197
VI/23	Annex I Guiding Principle11		Common **pathways leading to unintentional introductions need to be identified** and appropriate provisions to minimize such introductions should be in place. **Sectoral activities, such as fisheries, agriculture, forestry, horticulture, shipping (including the discharge of ballast waters), ground and air transportation, construction projects, landscaping, aquaculture including ornamental aquaculture, tourism, the pet industry and game-farming, are often pathways for unintentional introductions**.	

VIII/3	Annex I Para 10	Additional planned activities.	**Databases of invasive alien species and occurrences of invasions**, developed and/or expanded, and made widely available; **Working identification keys for known invasive alien species** associated with key invasion pathways produced and disseminated; **Working lists of organisms** in areas that are exposed or susceptible to key invasion pathways produced and utilized by local monitoring authorities.	cop-08.shtml?m=COP-08&id=11015
VIII/27	Para 19	The Conference of the Parties	***Invites* relevant bodies and institutions**, such as the Global Invasive Species Programme, the Working Group on Ballast and Other Shipping Vectors of the International Council for the Exploration of the Sea, and the Working Group on Non-Indigenous Species of the North Pacific Marine Science Organization, **to further study conveyance pathways for introduction and spread of invasive alien species, and to conduct risk assessments for potential future introductions**.	cop-08.shtml?m=COP-08&id=11041
VIII/27	Para 48		*Emphasizes* the **need for taxonomic studies to deal with invasive alien species**	
VIII/27	Para 55		*Urges* Parties, other Governments and relevant organizations to **evaluate and take appropriate measures** (e.g., develop guidance or codes of practice regarding the trade and use of biocontrol agents) at national, regional and global levels **to address the potential risks of biocontrol agents as invasive alien species;**	

XII/16	Annex, Para 11		When planning to import or transport pets, aquarium and terrarium species, live bait and live food to a country, or distinct biogeographical area within a country, where they are non-native, States, relevant organizations or the industry, should **undertake a risk assessment**. The risk assessment may draw on previously conducted assessments and other available information. The **risk assessment should consider**, *inter alia:* a) The probability of escape of organisms, at any stage of their life cycle, from confined conditions (including through accidental or careless release); b) probability of establishment and spread of the species; c) The impacts of establishment and spread of the species on biodiversity, including hybridization with native species leading to loss of genetic diversity, and related impacts on productive activities and human health and the significance of these impacts; d) The risk regarding spread of pathogens and parasites;	doc/?meeting=cop-12
XII/17	Para 6	The Conference of the Parties	*Calls upon* Parties and *invites* other Governments to consider: e) Identifying and prioritizing pathways of introduction of invasive alien species, taking into account, *inter alia*, information on the taxa, the frequency of introduction, and the magnitude of impacts, as well as climate change scenarios; i) Taking appropriate actions by making use of the full range of measures for early detection, control and/or eradication, including biocontrol, with appropriate risk analysis, and of decision-support tools and guidance; j) Prioritizing actions at all levels, including national, subnational and local levels, to address invasive alien species in particularly vulnerable ecosystems;	doc/?meeting=cop-12
XII/17	Para 9	The Conference of the Parties	*Requests* the Executive Secretary: c) To develop in collaboration with relevant organizations [...] decision-support tools for assessing and evaluating the social, economic and ecological consequences of invasive alien species; cost-benefit analyses for eradication, management and control measures; and for examining the impacts of climate change and land-use change on biological invasions;	doc/?meeting=cop-12

XIII/13	Para 7b	The Conference of the Parties	*Invites* other Governments, relevant international organizations... to review the risk of biological invasions, and associated sanitary and phytosanitary risks, posed by some forms of distance selling and, as appropriate, endeavour to develop suitable measures and guidance to minimize the risks of introduction of invasive alien species, consistent with international obligations;	decisions/cop/?m=cop-13
XIII/13	Para 11c	The Conference of the Parties	*Invites* Parties and other Governments to collect information, as appropriate, on the movement of invasive alien species attached to sea containers, in addition to those with the cargo transported within the sea containers, as well as on bio-fouling and ballast water....	decisions/cop/?m=cop-13
XIII/13	Para 18	The Conference of the Parties	*Invites* Parties and other Governments to consider the balance between the environmental, social and economic costs and benefits related to invasive alien species and remedial actions, in decision making on introduction, eradication, containment, mitigation or control of invasive alien species, making use, as appropriate, of the Methodological assessment of scenarios and models of biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services;	decisions/cop/?m=cop-13
XIII/13	Para 25	The Conference of the Parties	*Invites ....*the scientific community ...to continue developing strategies and take actions to achieve Aichi Biodiversity Target 9	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Liability and Redress – Article 14(2)

The issue of liability and redress in the Convention's context raises many questions, inter alia: is a liability and redress regime under the Convention appropriate at all? What is damage to biological diversity? How do you calculate adequate monetary compensation if the damage is irreversible and reinstatement impossible? What would restoration look like? Should there be a focus on state responsibility or state liability or both? The Convention's work on liability and redress is continuously progressing and Parties are collectively advancing in their examination of the issue (http://www.cbd.int/liability/default.shtml).

The cited Decision that expresses research needs is VIII/29, also checked were Decisions VI/11, VII/17, IX/23 and XII/14.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VIII/29	Para 2	The Conference of the Parties	*Invites* Parties and other Governments to **submit** to the Executive Secretary **examples of national/domestic legislation and case-studies relating to liability and redress for damage to biological diversity, including approaches to valuation and restoration**, and *requests* the Executive Secretary to compile this information and disseminate it through the clearing-house mechanism;	cop-08.shtml?m=COP-08&id=11043

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Protected Areas

Protected areas are a vital contribution to the conservation of the world's natural and cultural resources. Their values range from the protection of natural habitats and associated flora and fauna, to the maintenance of environmental stability of surrounding regions. Protected areas can provide opportunities for rural development and rational use of marginal lands, generating income and creating jobs, for research and monitoring, for conservation education, and for recreation and tourism (http://www.cbd.int/protected/intro.shtml).

The cited Decisions that express research needs are VII/28 (where the work programme is annexed), VIII/3, VIII/24, IX/18, X/31 and XIII/2, also checked were Decisions II/7, III/9, IV/15, VI/22 and VI/30.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/28	Annex I Programme Element 3 Goal 3.1 Suggested Activity 3.1.5	Goal 3.1: To provide an enabling policy, institutional and socio-economic environment for protected areas.	**Identify** and remove **perverse incentives and inconsistencies** in sectoral policies that increase pressure on protected areas, or take action to mitigate their perverse effects. Whenever feasible, redirect these to positive incentives for conservation.	cop-07.shtml?m=COP-07&id=7765
VII/28	Annex I Programme Element 3 Goal 3.1 Suggested Activity 3.1.6		**Identify** and establish **positive incentives that support the integrity and maintenance of protected areas** and the involvement of indigenous and local communities and stakeholders in conservation.	
VII/28	Annex I Programme Element 3 Goal 3.1 Suggested Activity 3.1.9		**Identify** and foster **economic opportunities and markets at local, national and international levels for goods and services produced by protected areas** and/or reliant on the ecosystem services that protected areas provide, consistent with protected area objectives and promote the equitable sharing of the benefits.	
VII/28	Annex I Programme Element 4	Goal 4.4: To ensure that scientific	**Improve research, scientific and technical cooperation related to protected areas** at national, regional and international levels.	cop-07.shtml?m=COP-07&id=7765

	Goal 4.4 Suggested Activity 4.4.1	knowledge contributes to the establishment and effectiveness of protected areas..		
VII/28	Annex I Programme Element 4 Goal 4.4 Suggested Activity 4.4.2		**Promote interdisciplinary research, to improve understanding of the ecological social and economic aspects of protected areas**, including methods and techniques for valuation of goods and services from protected areas.	
VII/28	Annex I Programme Element 4 Goal 4.4 Suggested Activity 4.4.3		Encourage **studies to improve the knowledge of the distribution, status and trends of biological diversity**.	
VII/28	Annex I Programme Element 4 Goal 4.4 Suggested Activity 4.4.4		Encourage **collaborative research between scientists and indigenous and local communities** in accordance with Article 8(j) in connection with the establishment and the effective management of protected areas.	
VIII/24	Para 45	Options for cooperation for the establishment of marine protected areas in marine areas beyond the limits of national jurisdiction.	The COP Urges Parties and other Governments to **undertake and actively promote scientific research** and information exchange,	COP-08&id=11038
VIII/24	Annex II Para 1	Terms of reference for expert workshop on	**Refine and develop a consolidated set of scientific criteria for identifying ecologically or biologically significant marine areas** in need of protection, in open ocean waters and deep sea habitats, building upon existing sets of criteria used nationally, regionally and	COP-08&id=11038

		ecological criteria and biogeographic classification systems.	globally;	
VIII/24	Annex II Para 2		**Compile biogeographical and ecological classification systems** for delineating ocean regions and ecosystems, building on existing broad classification systems, and including more detailed subregional classification systems where they exist in a nested approach, **and initiate future development by making recommendations for further work to fill gaps**;	
VIII/24	Annex II Para 3		**Compile a consolidated set of scientific criteria for representative networks of marine protected areas**, including in open ocean waters and deep sea habitats.	
IX/18	Para 23	The Conference of the Parties	*Encourages* Parties and invites relevant organizations to **enhance research and awareness of the role that protected areas and the connectivity of networks of protected areas play in addressing climate change;**	cop/?id=11661
X/31	Para 2	The Conference of the Parties	*Invites* Parties, other Governments and relevant organizations to **develop and implement research and monitoring programmes for conservation and**, in accordance with their management objectives, **sustainable use within protected areas** at any relevant scale as well as assess the efficiency and effectiveness of various kinds and categories of protected areas complying with the three objectives of the Convention;	cop/?id=12297

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/28	Para 17	The Conference of the Parties	***Recognizes* that the inadequacy of knowledge and awareness of the threat to, and the role and value, of biodiversity**, insufficient financial sustainability and support, poor governance, ineffective management and insufficient participation, pose fundamental barriers to achieving the protected areas objectives of the Convention on Biological Diversity **and stresses the need for Parties to adequately address these issues**;	cop-07.shtml?m=COP-07&id=7765
VII/28	Annex I Programme Element 1	Goal 1.2: To integrate protected areas	**Evaluate** by 2006 national and sub-national experiences and lessons learned on **specific efforts to integrate protected areas into broader land- and seascapes** and sectoral plans and strategies such as poverty	cop-07.shtml?m=COP-07&id=7765

	Goal 1.2 Suggested Activity 1.2.1	into broader land- and seascapes and sector so as to maintain structure and function.	reduction strategies.	
VII/28	Annex I Programme Element 1 Goal 1.2 Suggested Activity 1.2.2		**Identify** and implement, by 2008, **practical steps for improving the integration of protected areas into broader land- and seascapes**, including policy, legal, planning and other measures.	
VII/28	Annex I Programme Element 1 Goal 1.2 Suggested Activity 1.2.4		**Develop tools of ecological connectivity, such as ecological corridors**, linking together protected areas where necessary or beneficial as determined by national priorities for the conservation of biodiversity.	
VII/28	Annex I Programme Element 1 Goal 1.5 Suggested Activity 1.5.5	Goal 1.5: To prevent and mitigate the negative impacts of key threats to protected areas.	**Assess key threats to protected areas and develop and implement strategies to prevent and/or mitigate such threats.**	cop-07.shtml?m=COP-07&id=7765
VII/28	Annex I Programme Element 2 Goal 2.1 Suggested Activity 2.1.1	Goal 2.1: To promote equity and benefit-sharing.	**Assess the economic and socio-cultural costs, benefits and impacts arising from the establishment and maintenance of protected areas**, particularly for indigenous and local communities, and adjust policies to avoid and mitigate negative impacts, and where appropriate compensate costs and equitably share benefits in accordance with the national legislation.	cop-07.shtml?m=COP-07&id=7765
VII/28	Annex I Programme Element 2 Goal 2.2 Suggested Activity 2.2.1	Goal 2.2: To enhance and secure involvement of indigenous and local	Carry out participatory national **reviews of the status, needs and context-specific mechanisms for involving stakeholders, ensuring gender and social equity, in protected areas policy and management**, at the level of national policy, protected area systems and individual sites.	cop-07.shtml?m=COP-07&id=7765

		communities and relevant stakeholders.		
VII/28	Annex I Programme Element 3 Goal 3.1 Suggested Activity 3.1.1	Goal 3.1: To provide an enabling policy, institutional and socio-economic environment for protected areas.	By 2006, **identify legislative and institutional gaps and barriers that impede the effective establishment and management of protected areas**, and by 2009, effectively address these gaps and barriers.	
VII/28	Annex I Programme Element 3 Goal 3.1 Suggested Activity 3.1.2		**Conduct national-level assessments of the contributions of protected areas**, considering as appropriate environmental services, to the country's economy and culture, and to the achievement of the Millennium Development Goals at the national level; and integrate the use of economic valuation and natural resource accounting tools into national planning processes **in order to identify the hidden and non-hidden economic benefits provided by protected areas** and who appropriates these benefits.	cop-07.shtml?m=COP-07&id=7765
VII/28	Annex I Programme Element 3 Goal 3.3 Suggested Activity 3.3.2	Goal 3.3: To develop, apply and transfer appropriate technologies for protected areas.	**Assess needs for relevant technologies for protected area management** involving indigenous and local communities and stakeholders such as the research institutions, non-Governmental organizations and the private sector.	cop-07.shtml?m=COP-07&id=7765
VII/28	Annex I Programme Element 4 Goal 4.1 Suggested Activity 4.1.2	Goal 4.1: To develop and adopt minimum standards and best practices for national and regional protected area systems.	**Develop** and implement an efficient, **long-term monitoring system of the outcomes being achieved through protected area systems** in relation to the goals and targets of this work programme.	cop-07.shtml?m=COP-07&id=7765
VIII/3	Annex I Para 17	Additional Planned	Improved and augmented **biodiversity inventories of protected areas of all kinds**, also to be expanded into monitoring efforts to record	cop-08.shtml?m=COP-08&id=11015

		Activities.	changes of species and populations over time. **Taxonomic guides for key invertebrate organisms, lower plants and microorganisms, economically important and threatened species**. Information on **current distribution and occurrence of important species in protected areas**, including **population trends**. **Identification of habitats and priority setting for establishing new protected areas**, through **plotting distributions of species** at local, national and regional levels. Mobilization and augmentation of specimen and observational-level data pertaining to species to allow modelling of current distributions and distributions under different models of climate change and of other biotic and a biotic changes (e.g. land-use change, invasive species).	
X/31	Para 14	The Conference of the Parties	*Invites* Parties to **Enhance scientific knowledge** and the use of the ecosystem approach as well as traditional and indigenous knowledge **to support the development of adaptive management plans** and to improve management effectiveness of protected areas **for addressing impacts from climate change on biodiversity;** **Identify areas that are important for both biodiversity conservation and for climate-change mitigation and/or adaptation, including carbon sequestration and maintenance of carbon stocks**, and where appropriate **protect, restore and effectively manage and/or include them in the protected areas systems** with the aim to increase co-benefits for biodiversity, for addressing climate change and human well-being, while recognizing that biodiversity conservation remains the primary objective of protected areas;	cop/?id=12297
X/31	Para 29	The Conference of the Parties	*Invites* Parties to **Increase understanding of** and communicate **the role, importance and costs and benefits of protected areas** in sustaining local livelihoods, providing ecosystems services, reducing risks from natural disasters, adapting to and mitigating climate change, health, water and other sectors, at all levels;	cop/?id=12297
XIII/2	Para 3	The Conference of the Parties	*Recognizes* the considerable gap in the conservation status assessment of most taxonomic groups, and the general lack of information on species conservation plans.	decisions/cop/?m=cop-13

XIII/2	Para 5	The Conference of the Parties	*Invites* Parties c) to endeavour to undertake more systematic assessments of management effectiveness and biodiversity outcomes of protected areas, and where possible, other effective area-based conservation measures, to improve the management effectiveness by addressing the gaps; d) to undertake or participate in, where relevant, national protected area governance assessments with a view to promoting, recognizing and improving governance diversity, efficiency and equity in protected area systems; e) to strengthen their efforts to complete the assessments of the conservation status of all taxonomic groups and habitats and develop and implement species and habitat conservation plans, in particular for threatened and endemic species.	decisions/cop/?m=cop-13
XIII/2	Para 9	The Conference of the Parties	*Invites* Parties, other Governments, relevant partners, regional agencies, bilateral and multilateral funding agencies c) to facilitate the completion of assessments of the conservation status of species, in particular threatened and endemic species, and enable their status monitoring and conservation, in accordance with established national processes;	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Ecosystem Restoration

The well-being of the world population in the coming decades will in large part depend on conservation and restoration of ecosystems to maintain and enhance biodiversity and ecosystem services, thereby contributing to sustainable development while reducing environment-related risks (http://www.cbd.int/restoration/)

The cited Decisions that express research needs are XI/16, XII/19 and XIII/5, also checked were X/4, X/9 and X/17.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
XI/16	Para 1	The Conference of the Parties	*Urges* Parties and *encourages* other Governments and relevant organizations to make concerted efforts to achieve Aichi Biodiversity Targets 14 and 15 and targets 4 and 8 of the Global Strategy for Plant Conservation, and to contribute to the achievement of all the other Aichi Biodiversity Targets through **ecosystem restoration** through a range of activities depending on national circumstances, including: b) **Identifying, analysing and addressing both underlying and direct causes of ecosystem degradation or fragmentation** and using the knowledge gained to prevent or reduce activities which cause further degradation, deterioration or destruction; c) **Identifying degraded ecosystems that have the potential for ecosystem restoration** h) Identifying opportunities to **link poverty eradication and ecosystem restoration**, *inter alia* through the rehabilitation or restoration of ecosystems that provide services upon which women, indigenous and local communities, and the poor and vulnerable are directly dependent, and the development of restoration projects that provide employment and skills improvement;	cop/default.shtml?id=13177
XIII/5	Annex Para 13		The following actions may be considered, and, as appropriate, taken: 1. **Assess the extent, type, degree and location of degraded ecosystems** at regional, national, and local scales as well as the drivers of ecosystem degradation; 2. **Identify and prioritize geographical areas** where restoration would	decisions/cop/?m=cop-13

			contribute most significantly to achieving national level targets contributing to the Aichi Biodiversity Targets (such as priority areas for the conservation of biodiversity areas that provide essential ecosystem services, and areas that would enhance the integrity of protected areas and their integration into wider land- and seascapes). 4. **Assess the potential costs and multiple benefits of ecosystem restoration at relevant scales**. 5. **Assess the relevant institutional, policy, and legal frameworks** and identify financial and technical resources, as well as gaps, for implementing ecosystem restoration. Analyse opportunities for innovative approaches to restoration, including financial ones. 6. **Identify options to reduce or eliminate the drivers of the loss of biodiversity and the degradation of ecosystems at various scales.**	
XIII/5	Annex Para 14		The following actions may be considered, and undertaken as appropriate: *7.* **Develop accounting processes** that take into account the values of natural, semi-natural, ecosystems, and of the functions and services they deliver.	decisions/cop/?m=cop-13
XIII/5	Annex Para 15		The following actions may be considered, and undertaken as appropriate: 1. **Identify the most appropriate measures for conducting ecosystem restoration;** 2. **Consider how ecosystem restoration activities can support the ecological and economic sustainability** of agriculture and other production activities, as well as climate change mitigation and adaptation, and disaster risk reduction, and enhance ecosystem services, including for urban areas. 3. **Develop ecosystem restoration plans with clear and measurable objectives and goals** for expected environmental, economic and social outcomes.	decisions/cop/?m=cop-13
XIII/5	Annex Para 16		The following actions may be considered, and undertaken as appropriate: 1. **Assess the efficacy and effects of implementing the ecosystem**	decisions/cop/?m=cop-13

			restoration plan, including the success of ecosystem restoration activities and the environmental and socioeconomic costs and benefits.	

Indirect research needs

Decision	**Paragraph**	**Chapeau / Heading**	**Text**	**Source** http://www.cbd.int/decisions/
XII/19	Para 4	The Conference of the Parties	*Invites* Parties and other Governments, intergovernmental organizations and other relevant organizations: d)... to **promote restoration activities, in particular large-scale restoration activities**, noting also the cumulative benefits of small-scale restoration activities that collectively can contribute to biodiversity conservation, climate-change adaptation and mitigation, and reducing desertification... g) to develop and strengthen monitoring of ecosystem degradation and restoration, with a view to supporting adaptive management;	doc/?meeting=cop-12

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Communication, Education and Public Awareness

What is biodiversity and why should we be concerned about it? How can we use the biological resources of the planet in a way that ensures that they are available for generations to come? What does the Convention on Biological Diversity do to preserve the web of life? How do the programmes of work of the Convention contribute to the objectives of conservation and sustainable use of biodiversity and equitable sharing of the benefits from the use of genetic resources?
The Programme of Work on Communication, Education and Public Awareness, of CEPA, aims to assist Parties, educators and civil society to provide answers to these questions for a variety of audiences (http://www.cbd.int/cepa/default.shtml).

The cited Decisions that express research needs are VI/19, VIII/6, XII/2 and XIII/23, where the Short-term Action Plan (2017-2020) is annexed, also checked were Decisions IV/10, V/17, VII/24, IX/32 and X/18.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/19	Annex I Programme Element 2 Proposed Action 3	Programme of work for CEPA.	**Research**, collect and exchange **communication, education and public awareness projects** and case-studies through the world Wide Web, workshops, CD-ROMs, and publications.	cop-06.shtml?m=COP-06&id=7193
VIII/6	Annex III Component 2 Suggested Activity 2.1	Implementation plan for the programme of Work for CEPA.	In close consultation with other relevant national institutions, non-governmental organizations, local and indigenous communities, **carry out detailed assessments to identify the priority needs of the various stakeholders** with respect to biodiversity communication and public awareness at national level.	cop-08.shtml?m=COP-08&id=11018
VIII/6	Annex III Component 2 Suggested Activity 2.6		**Carry out regular monitoring of the implementation processes to identify gaps and constraints and determine the required appropriate corrective actions** including, if deemed necessary the modification and reorientation of programme activities of CEPA components of NBSAPs.	
XII/2	Section C, Para 1	The Conference of the Parties	*Invites* Parties to promote public awareness of the values of biodiversity, including through the following actions: f) To **promote research and the development of guidance on behavioural change methodologies and approaches** to support	doc/?meeting=cop-12

			communication and awareness-raising for the achievement of the Aichi Biodiversity Targets;	

Indirect research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VI/19	Para 4	The Conference of the Parties	**Requests** the Executive Secretary, in consultation with the United Nations Educational, Scientific and Cultural Organization, the United Nations Environment Programme, the IUCN Commission for Education and Communication, and other members of the Consultative Working Group of Experts established by decision V/17, as well as **any relevant institutions, to**: **Monitor and evaluate the implementation of the Global Initiative** according to the conditions established in the annex to the present decision for its start-up phase and report regularly on its implementation to the meetings of the Conference of the Parties.	cop-06.shtml?m=COP-06&id=7193
VIII/6	Annex II Para 6	Short list of priority activities for the programme of work for CEPA.	The implementation of the priority activities in this list will be guided by **the need to undertake detailed needs assessments**, particularly at the national level in order to better identify and elaborate the interventions required to meet the expressed needs in the longer term.	cop-08.shtml?m=COP-08&id=11018
VIII/6	Annex II Priority Activity 2		**Establish a baseline understanding of the state of awareness among key audiences through a variety of research tools**. Wherever possible, use existing data and tools at the national and international level, and those created by international organizations such as IUCN, UNESCO, FAO, World Bank and OECD. Assessment tools may include *inter alia*: **Focus group research and interviews with key stakeholders**, **Survey research**, Press clipping reviews. **Assessment should address** the following elements, *inter aila*: **Awareness of Biodiversity** and its relationship to human well-being, **Awareness of the 2010 biodiversity target** and CBD processes, **Capacity of Parties** to communicate biodiversity messages.	
VIII/6	Annex II Priority		**Evaluate pilot projects** with a view to extend implementation as specified in the plan of implementation for CEPA.	

	Activity 10			
VIII/6	Annex III Component 3 Suggested Activities	Implementation plan for the programme of work for CEPA.	In close consultation with other relevant national institutions, NGOs, local and indigenous communities, **carry out detailed assessments to identify the priority needs of the various stakeholders** with respect to: Strengthening capacities to market and mainstream biodiversity into the work of other sectoral programmes and policies; Developing and strengthening professional capacities of educators and communicators; Enhancing stakeholder participation and community development through communication, education and public awareness.	cop-08.shtml?m=COP-08&id=11018
XII/2	Section B, Para 5	The Conference of the Parties	*Invites* Parties to **establish and maintain programmes for scientific and technical education and training and societal participation for the identification, survey, monitoring, conservation, restoration, sustainable use of biodiversity and its components**, and equitable sharing of the benefits arising from the use of genetic resources...;	doc/?meeting=cop-12
XIII/23	Para 6	The Conference of the Parties	*Invites* Parties, other Governments and relevant organizations to consider taking the following complementary measures to enhance the implementation of Article 12 of the Convention: b) Encourage relevant institutions to develop new or update existing courses and programmes to address specific education and training needs for the implementation of the Convention and its Protocols as well as other biodiversity-related conventions where possible, prioritizing topics that have not been adequately covered to date and considering, c) Organize targeted training courses and workshops, tailored to the needs of specific countries.... indigenous peoples and local communities, women, youth and other target groups; f) Incorporate biodiversity-related education in their broader education, professional training and capacity-building programmes;	decisions/cop/?m=cop-13
XIII/23	Annex (Short term action plan)	Activity 17	Develop a toolkit to guide the integration of biodiversity and ecosystem services into public urban infrastructure development;	decisions/cop/?m=cop-13
XIII/23	Annex (Short term action plan)	Activity 19	Develop e-learning material on ecosystem accounting	decisions/cop/?m=cop-13

XIII/23	Annex (Short term action plan)	Activity 22	Develop an e-learning tool on the full implementation of Aichi Target 3 on incentive measures and the milestones for its adoption	decisions/cop/?m=cop-13
XIII/23	Annex (Short term action plan)	Activity 25	Develop a good practice guide on identifying and assessing biodiversity and ecosystem services values for businesses	decisions/cop/?m=cop-13
XIII/23	Annex (Short term action plan)	Activity 33	Identify and make available best practices and lessons learned in the design of national restoration plans	decisions/cop/?m=cop-13
XIII/23	Annex (Short term action plan)	Activity 49	Develop, in collaboration with the Global Invasive Alien Species Information Partnership, an IAS surveillance tool to enable Parties to access and use global IAS data resources for national IAS management planning, monitoring and reporting	decisions/cop/?m=cop-13
XIII/23	Annex (Short term action plan)	Activity 59	Develop training materials and guidelines to improve the contribution of inland water biodiversity and ecosystem services to natural disaster risk reduction (DRR)	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Sustainable Use of Biodiversity

According to the United Nations Food and Agriculture Organization, 40% of the world's economy is based directly and indirectly on the use of biological resources. It is therefore not surprising that sustainable use of biological diversity is one of the three objectives set out in the Convention's first article (http://www.cbd.int/sustainable/default.shtml).

The cited Decisions that express research needs are VII/12, X/32, XI/25, XII/18 and XIII/8, also checked was Decision VI/13.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/12	Para 6	The Conference of the Parties	***Invites*** Parties and Governments, in collaboration with other relevant international organizations and agreements, indigenous and local communities and stakeholders **to undertake further research** including, through, *inter alia,* the compilation and analysis of case-studies and existing literature **on sustainable use** consistent with practical principle 6: The **impacts of sustainable use and non-sustainable use** on livelihoods, and ecosystems goods and services; The **role of indigenous and local communities, and women** in the sustainable use of components of biodiversity; The **relationship between resilience of ecosystems and the sustainable use** of biodiversity; The **terms used in the description of sustainable use**,taking into account the aspirations of present and future generations in different regions and situations; building on the consensus reached in the Addis Ababa report (UNEP/CBD/SBSTTA/9/INF/8); The **elaboration of management plans at time scales appropriate to the life history of species or populations**; The **applicability of the Addis Ababa Principles and Guidelines** on the use of components of biological diversity in a transboundary context, (e.g., a resource shared between different countries, or migratory species moving across national jurisdictions); The **functional relationships between different components of**	cop-07.shtml?m=COP-07&id=7749

			biological diversity in the context of sustainable use; The **socio-economic factors that influence pattern and intensity of use of biological resources, economic and social values of goods and services** provided by ecosystems; **Methods and mechanisms to determine sustainability of various intensities** of use and participatory **methods for determining appropriate levels** of sustainable use; **Ways of enhancing equitable distribution of benefits** derived from the sustainable use of components of biodiversity, including genetic resources.	
VII/12	Annex II Practical Principle 6	Addis Ababa Principles.	Invest in **research into techniques and technologies of management of biodiversity components** that promote sustainability in both consumptive and non-consumptive uses of biodiversity.	cop-07.shtml?m=COP-07&id=7749
VII/12	Annex II Practical Principle 11		**Identify inefficiencies and costs in current methods;** **Conduct research and development into improved methods.**	
XI/25	Annex	Para 6	*Science, traditional and indigenous knowledge and monitoring.* Management decisions should be made based on the **best available and applicable science**, the precautionary approach and the practices and traditional knowledge of indigenous and local communities. **Further research is crucial** and better information management is needed. **Appropriate monitoring systems of bushmeat harvest and trade and wildlife habitats should be developed** based on an integration of traditional, indigenous and scientific knowledge and implemented at national level, and allow for comparability of bushmeat harvest and trade at the regional level. [...] **Standardized methods to assess and monitor the status of wildlife populations should be developed** and implemented.	cop/default.shtml?id=13186

Indirect research needs

Decision	**Paragraph**	**Chapeau / Heading**	**Text**	**Source** http://www.cbd.int/decisions/
VII/12	Annex I Para 16	Extract from the note by the Executive	There is the need to **identify/further develop indicators** within the context of sustainable use in order **to describe: status of a system, change in a system, trends in a system, combinations of the above**.	cop-07.shtml?m=COP-07&id=7749

		Secretary on sustainable use prepared for SBSTTA 9.	Desirable characteristics of indicators should also be identified.	
VII/12	Annex I Para 18		For each of the components of biological diversity a **set of indicators t**o measure their decline **should be finalized**. In this biological context, **indicators should be identified** for the components of biological diversity that can be subject to use.	
VII/12	Annex I Para 20		**Economic indicators** will be also essential in indicating status, change and trends of use of biological components of biodiversity in economic terms. **Indicators identified should be used to assess sustainability** of the use.	
VII/12	Annex I Para 21		In addition, **social indicators that reflect social values** with respect to the sustainable use of biological components. The indicators identified should be suitable examples to demonstrate: The **incorporation of social values** into the use of biological resources; How **unique needs of individuals and indigenous and local communities** are considered in policy-making and management decisions; and The extent to which the allocation of resources can be considered to be fair and equitable.	
VII/12	Annex II Practical Principle 3	Addis Ababa Principles.	**Identify economic mechanisms**, including incentive systems and subsidies at international, national levels **that are having a negative impact** on the potential sustainability of uses of biological diversity.	cop-07.shtml?m=COP-07&id=7749
VII/12	Annex II Practical Principle 4		**Design monitoring system** on a temporal scale sufficient to ensure that information about the status of the resource and ecosystem is available to inform management decisions to ensure that the resource is conserved.	
X/32	Para 2	The Conference of the Parties	*Invites* Parties and other Governments to: **Develop** or further improve **criteria, indicators and other relevant monitoring schemes** and assessments on the sustainable use of biodiversity;	cop/?id=12298
X/32	Para 4	The Conference of the Parties	*Requests* the Executive Secretary to: In order to support current and future livelihood needs and **to reduce unsustainable use of bushmeat, develop […]options for small-scale food and income alternatives in tropical and sub-tropical countries** based on the sustainable use of biodiversity;	cop/?id=12298
XI/25	Para 13	The Conference	*Invites* Parties, other Governments and relevant organizations to:	cop/default.shtml?id=13186

		of the Parties	e) Develop and promote methods and systems, and build capacity and community awareness **to determine sustainable wildlife harvest levels at national and other levels**, with a particular view to monitoring and improving sustainable wildlife management and customary sustainable use, consistent with national legislation; f) **Develop** and promote sustainable **alternatives to the unsustainable use of wildlife**, depending on the local and national context, and **engage with the scientific community** and other relevant organizations working in relevant sectors **to improve the sustainable use of wildlife** and, in so doing, ensure that the proposed alternatives are not detrimental to biodiversity;	
XI/25	Annex	Para 18	*Science*: Research [on the use of bushmeat] should assure to include and integrate ecology, health, development, economics and social science to inform future policy.	cop/default.shtml?id=13186
XII/18	Para 9	The Conference of the Parties	*Encourages* Parties to develop, revise or update, as appropriate, their regulatory systems to differentiate between subsistence uses and illegal hunting, and domestic and international trade of specimens of wild species and products;	doc/?meeting=cop-12
XII/18	Para 10	The Conference of the Parties	*Encourages* Parties to assess, minimize and mitigate the impacts of illegal hunting on the subsistence hunting and livelihoods of indigenous and local communities, and on other subsistence users of wildlife resources;	doc/?meeting=cop-12
XIII/8	Chapeau	The Conference of the Parties	*Notes* the need for sound wildlife management programmes that build upon an understanding of biological and ecological factors...	decisions/cop/?m=cop-13

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: Technology Transfer and Cooperation

Both access to and transfer of technology among contracting Parties are essential elements for attaining the objectives of the Convention. Contracting Parties undertake to provide and/or facilitate access for and transfer to other Contracting Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment (http://www.cbd.int/tech-transfer/default.shtml).

The cited Decisions that express research needs are VII/29, where the work programme is annexed, and IX/14, also checked were Decisions VIII/12 and X/16.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
VII/29	Annex I Programme Element 1 Activity 1.3.1	Programme of work on technology transfer and technological and scientific cooperation.	**Collect information on technology needs assessment methodologies, analyse their applicability and adaptation needs for technologies** that are relevant to the conservation and sustainable use of biodiversity or make use of genetic resources and do not cause significant damage to the environment, and disseminate this information through the clearing-house mechanism or other means, as appropriate.	cop-07.shtml?m=COP-07&id=7766
VII/29	Annex I Programme Element 3 Activity 3.1.1		**Preparation of technical studies that further explore and analyse the role of intellectual property rights in technology transfer** in the context of the Convention on Biological Diversity and identify potential options to increase synergy and overcome barriers to technology transfer and cooperation, consistent with paragraph 44 of the Johannesburg Plan of Implementation.	
VII/29	Annex I Programme Element 3 Activity 3.2.9		**Encouragement of scientific and technical research**, including joint research programmes with associated jointly held patents or other protection of intellectual property rights as well as other mechanisms to facilitate transfer of technologies that make use of genetic resources and do not cause significant damage to the environment.	
VII/29	Annex I Programme Element 4 Activity 4.2.1		**Assessment of capacity-building needs and opportunities for the development or strengthening and effective operation of national information systems** for technology transfer and technology cooperation, including risk analysis and impact assessment.	

IX/14	Para 11	The Conference of the Parties	*invites* relevant international organizations and initiatives, research institutions at all levels, and non-governmental organizations, to **undertake further research on the role of intellectual property rights in technology transfer** in the context of the Convention, such as: More **in-depth analysis of new open-source-based modes of innovation**, as well as other additional options to intellectual property rights; More empirical studies **on the extent of use of patent data** information in research and development in different sectors; Further empirical **analysis on the scope and extent of patent clustering on technologies and other associated biological materials** that are necessary inputs to desired technology development processes and on how prospective technology users in developing countries cope with patent clustering; Further examination by relevant international organizations of **the overall trends in the application of the flexibilities provided by the Agreement on Trade-related Aspects of Intellectual Property Rights** (TRIPs);	cop/?id=11657

Indirect research needs

Decision	**Paragraph**	**Chapeau / Heading**	**Text**	**Source** http://www.cbd.int/decisions/
VII29	Para 10	The Conference of the Parties	*Urges* Parties, Governments and relevant organizations to **identify further areas in which international or regional cooperative initiatives** - such as the proposed cooperative initiative on marine alien species - **would support implementation of the Convention**.	cop-07.shtml?m=COP-07&id=7766
VII/29	Annex I Programme Element 1 Activity 1.1.1	Programme of work on technology transfer and technological and scientific cooperation.	**Preparation**, in accordance with the activities foreseen in the thematic and cross-cutting work programmes under the Convention and in line with national priorities, **of technology assessments addressing**: **Technology needs, opportunities and barriers in relevant sectors; Related needs in the building of capacity.**	
VII/29	Annex I Programme Element 1		**Preparation**, as appropriate, **of transparent impact assessments and risk analysis** of the potential benefits, risks and associated costs with the introduction of technologies, including new technologies, whose	

	Activity 1.1.2		risks and benefits are not yet determined.	
VII/29	Annex I Programme Element 2 Activity 2.1.2		**Development of proposals to enhance the clearing-house mechanism**, including its national nodes, particularly those in developing countries, as a key mechanism for exchange of information on technologies and as a core element in its role to promote and facilitate scientific and technical cooperation, for facilitating and promoting technology transfer and cooperation and for the promotion of technical and scientific cooperation relevant for the conservation and sustainable use of biodiversity or make use of genetic resources and do not cause significant damage to the environment.	
VII/29	Annex I Programme Element 2 Activity 2.1.3		**Development of advice and guidance** on the use of new information exchange formats, protocols and standards to enable interoperability among relevant existing systems of national and international information exchange, including technology and patent databases.	
VII/29	Annex I Programme Element 2 Activity 2.4.1		Initiate and **conduct consultations** among relevant organizations, indigenous and local communities and all relevant stakeholders **with a view to identifying options to further regional and international cooperation** in the development or improvement of information systems on technology transfer and technology cooperation.	
VII/29	Annex I Programme Element 3 Activity 3.2.3		As appropriate, **review**, in collaboration with indigenous and local communities and all relevant stakeholders, **existing policies and programmes and identify possible impediments to the transfer of technology** of relevance for the Convention on Biological Diversity, capacity-building needs and priority areas for policy action. The study should also identify the necessary steps, if any, to improve accordingly national biodiversity strategy and action plans, national research and technology strategies and other policy planning tools.	

Research needs expressed in the Decisions of the Conference of the Parties to the Convention on Biological Diversity: Cross-Cutting Issue: New and Emerging Issues: Synthetic Biology

The consolidated *modus operandi* of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) lists among its functions that SBSTTA should *inter alia* identify new and emerging issues relating to the conservation and sustainable use of biodiversity. One topic under discussion is synthetic biology (http://www.cbd.int/emerging/).

The cited Decisions that express research needs are XII/24 and XIII/17.

Direct research needs

Decision	Paragraph	Chapeau / Heading	Text	Source http://www.cbd.int/decisions/
XII/24	Para 3	The Conference of the Parties	*Urges* Parties and *invites* other Governments, d) To **carry out scientific assessments concerning organisms, components and products resulting from synthetic biology techniques with regard to potential effects on the conservation and sustainable use of biodiversity**, taking into account risks to human health and addressing, as appropriate, and according to national and/or regional legislation, other issues such as food security and socioeconomic considerations e) To **encourage the provision of funding for research into synthetic biology risk assessment methodologies and into the positive and negative impacts of synthetic biology on the conservation and sustainable use of biodiversity, and to promote interdisciplinary research** that includes related socioeconomic considerations;	doc/?meeting=cop-12
XIII/17	Para 9	The Conference of the Parties	*Encourages* Parties and *invites* other Governments and relevant organizations a) To conduct research on the benefits and adverse effects of organisms, components and products of synthetic biology on biodiversity, with a view to filling knowledge gaps and identifying how those effects relate to the objectives of the Convention and its Protocols;	decisions/cop/?m=cop-13

Indirect research needs

Decision	Paragraph	Chapeau /	Text	Source

		Heading		http://www.cbd.int/decisions/
XII/24	Para 3	The Conference of the Parties	*Urges* Parties and *invites* other Governments, a) To establish, or have in place, effective risk assessment and management procedures and/or regulatory systems to regulate environmental release of any organisms, components or products resulting from synthetic biology techniques;	doc/?meeting=cop-12
XIII/17	Para 6	The Conference of the Parties	*Notes* that the general principles and methodologies for risk assessment under the Cartagena Protocol and existing biosafety frameworks provide a good basis for risk assessment regarding living organisms developed through current applications of synthetic biology, or that are currently in the early stages of research and development, but such methodologies may need to be updated and adapted for current and future developments and applications of synthetic biology;	decisions/cop/?m=cop-13
XIII/17	Para 7	The Conference of the Parties	*Also notes* that it is not clear, given the current state of knowledge, whether or not some organisms of synthetic biology, which are currently in the early stages of research and development, would fall under the definition of living modified organisms under the Cartagena Protocol, and *further notes* that there are cases in which there may be no consensus on whether the result of a synthetic biology application is “living” or not;	decisions/cop/?m=cop-13