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FURTHER DEVELOPMENT OF TOOL KITS FOR THE IDENTIFICATION, DESIGNATION, MANAGEMENT, MONITORING AND EVALUATION OF NATIONAL AND REGIONAL SYSTEMS OF PROTECTED AREAS

Note by the Executive Secretary

EXECUTIVE SUMMARY

In decision VII/28, the Conference of the Parties adopted a programme of work including activities for the identification, designation, management, monitoring and evaluation of national and regional systems of protected areas, including ecological networks, ecological corridors, and buffer zones. Identification, designation, management and monitoring and evaluation of protected areas involves complex, multi-layered tasks. A range of tools has been developed to facilitate the implementation of these activities. The present note describes 118 of these tools, as well as their sources of information and their relevance to the programme of work on protected areas.

However, there are gaps in the coverage of tool kits include, *inter alia*, methodologies for conducting gap analysis to plan future protected area networks; legal issues relating to protected area designation; application of IUCN protected area management categories; restoration of damaged ecosystems; assessment of ecological and social outcomes of protected areas, standards and protocols for assessment of management effectiveness of protected areas; integration of protected areas into wider landscape/ seascape; assessment of wider values and non-biodiversity values of protected areas. Tool kits are needed to address these gaps. Proposals for addressing these gaps and possible partners for undertaking the development of these toolkits are suggested in the note.

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SUGGESTED RECOMENDATIONS

The Open-Ended Working Group on Protected Areas may wish to:

1. *Take note* of the existing tools presented in the note and *invite* Parties and other Governments to use them as appropriate in the implementation of the programme of work;

2. *Take note* of the gaps in the coverage of tool kits used in identification, designation, management and monitoring and evaluation of protected areas;

3. *Endorse* the further development of tool kits suggested in table 4 in the present note and *invite* relevant organizations to contribute to their development;

4. *Invite* the Executive Secretary to work with the IUCN-World Commission on Protected Areas, in coordinating the further development of toolkits;

5. *Urge* Parties, other Governments, and funding organizations to provide adequate financial resources and other support for the development of tool kits;

6. *Invite* the Executive Secretary to make existing tool kits available through the clearing-house mechanism and to continually update this information as new tools are developed.

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I. INTRODUCTION

1. In paragraph 29 (c) of its decision VII/28, the Conference of the Parties suggested that one of the tasks to be undertaken by the Ad Hoc Open-Ended Working Group on Protected should be "to contribute to the further development of tool kits for the identification, designation, management, monitoring and evaluation of national and regional systems of protected areas, including ecological networks, ecological corridors, and buffer zones, with special regard to indigenous and local communities and stakeholder involvement and benefit-sharing mechanisms".

2. The programme of work on protected areas highlights the need to identify, and where necessary develop, a series of tools for protected areas. The identification, designation and management of protected areas comprise a series of complex, multi-layered tasks that involve stakeholders in virtually all sections of society. The designation of new protected areas represents a commitment by countries and by private trusts and individuals to maintain land and water systems in perpetuity to preserve their important biological, social and cultural values.

3. In addition to key areas identified in paragraph 29 (c) of decision VII/28, the programme of work specifically requested for tool kits under activities 1.1.10 (for system planning), 1.4.7 (for site planning), 2.2.7 (for stakeholder involvement), 3.1.12 (relating to incentive measures) and 3.5.7 (educational tools and materials). A number of organizations and agencies *inter alia* IUCN, WWF, Conservation International, The Nature Conservancy, Birdlife International, Ramsar Convention, World Heritage Convention etc, have developed a range of tools for protected areas. These existing toolkits may not address all the needs in the programme of work. In order to decide what needs to be further developed, it is necessary to list these existing tool kits and examine whether they address the requirements under the programme of work for identification, designation management, monitoring and evaluation of protected areas.

4. The Executive Secretary has prepared the present note to assist the Working Group in its consideration of the further development of tool kits, which is item 3.3 of the provisional agenda for the first meeting of the Group. Section II of document reviews the available tool kits in relation with the programme of work. Gaps in existing tool kits vis-à-vis the programme of work are identified in section III, which also contains proposals for addressing these gaps, including identification of possible partners for the development of new tools.

II. AVAILABLE TOOLKITS AND THEIR RELEVANCE TO THE PROGRAMME OF WORK ON PROTECTED AREAS

5. The identification of necessary tools is predicated on an understanding of what designation and management entails. There have been several attempts to identify the range of actions needed to carry out successful protected area management. In table 1 below a summary of key steps is presented.

6. For effective implementation of the programme of work on protected areas tools are required for steps outlined in table 1. These steps are not necessarily sequential, with several different actions occurring in parallel, and in many cases may need to be applied to existing protected area networks. Not all tools will be needed in all protected areas, for example approaches to restoration of ecological values are only needed when protected areas have already undergone degradation.

Table 1: Important steps and types of activities required under these steps in establishment and management of protected areas

Steps	*Types of activities*
Identification	• Identification of large scale conservation targets (species, habitats, biomes, ecosystems requiring protection as per annex 1 of the Convention) • Identification of landscape/seascape mosaic • Protected area design • Assessment of biological values of protected areas • Assessment of other values of and threats to potential/ existing protected areas • Ecosystem assessment
Designation	• Completion of legal establishment of protected areas • Negotiation and agreement with stakeholders about protected areas, buffer zones and participatory approaches • Agreement on management objectives of protected areas (on IUCN category)
Management	• Development of management plans and annual work plans • Development of business plans • Implementation of capacity building for staff • Management interventions to maintain biodiversity and ecological integrity (e.g. by establishing ecological networks, ecological corridors) • Management interventions to maintain other values including cultural values through involvement of indigenous and local communities • Sustainable management options in Category V and VI protected areas and buffer zones • Restoration initiatives as needed to increase value of protected areas • Restoration initiatives as needed to increase value of protected areas • Outreach to the public • Management of uses (e.g. recreational, scientific, and other uses) in protected areas
Monitoring and evaluation	• Monitoring and evaluation of protected areas • Adaptive management of protected areas as necessary

7. A number of organizations and agencies have developed a range of tool for protected areas. These tools *inter alia* include the best practice guidelines of IUCN World Commission on Protected

Areas, Ramsar Convention's guidelines on designation of wetlands, World Heritage Centre's guidelines on designation of world heritage sites, tools developed by international non-governmental organizations. A total of 118 tools pertaining to protected areas have been identified and listed in tables 2 and 3. For ease of reference these tools are listed as per the key areas mentioned in paragraph 29 (c) as well as taking into account the important steps in establishment and management of protected areas outlined in Table1 above.

8. These tools are briefly described with reference to the relevant activities of the programme of work and sources of information. Detailed descriptions of 50 tool kits are being made available on CD-Rom, for information purposes.

Table 2 Indicative list of available tool kits for identification, designation, management, monitoring and evaluation of protected areas

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
Identification		
1. Extinction threats: a method of site selection for the prevention of species extinctions where sites rank on 3 criteria; endangerment, irreplaceability and discreteness	Alliance for Zero Extinction Alliance for Zero Extinction (2004). Pinpointing and conserving umbrella species in danger of imminent extinctions, http://www.zeroextinction.org/	Activity 1.1.5
2. Endemic bird areas of the world: a dataset of the world's main areas of endemism for terrestrial birds, which can be used to help locate areas of high biodiversity importance	Stattersfield, A J, M J Crosby, A J Long and D C Wege (1998) *Endemic Bird Areas of the World*, Birdlife International, Cambridge	Activity 1.1.5
3. Important bird areas: method of site selection where high priority sites are those that contain significant bird populations, populations are viable, and site contributes to the goal of representation of conservation of all targets within protected areas	Evans, M. I., Ed. (1994) *Important bird areas: Priority sites for conservation.* Birdlife International, Cambridge, U.K	Activity 1.1.5
4. Biodiversity hotspots: prioritization scheme resulting in 25 areas that represent the greatest concentration of biodiversity on earth and are therefore a priority for conservation action.	Conservation International Myers, N, R A Mittermeier, C G Mittermeier, G A B da Fonseca, and J Kent (2000) Biodiversity hotspots for conservation priorities. *Nature* **403**: 853-858	Activity 1.1.5
5. High biodiversity wilderness areas: global prioritization analysis which identified 24 wilderness areas and 5 high biodiversity wilderness areas	Conservation International Mittermeier, R A et al (2003) *Wilderness and biodiversity conservation*. Proceedings of the National Academy of Sciences of the USA, 100: 10309-10313.	Activity 1.1.5
6. Important plant areas: a site selection manual for Europe and a framework for developing similar methodologies for other regions	Anderson, S (2001) *Identifying Important Plant Areas*, Plantlife, Salisbury, UK	Activity 1.1.5
7. Key biodiversity areas (KBA):	Conservation International and partners	Activity 1.1.5

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
amalgamation of several different prioritization exercises into one methodology that aims to identify KBAs around the world	Guidelines to KBAs are currently being produced and will be available from IUCN	
8. Red List of Endangered Species: uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies, regularly updated	IUCN Species Survival Commission (2004) *2004 IUCN Red List of Threatened Species*, http://www.redlist.org/	Activity 1.1.5
9. Wetlands of international importance: methodology with 7 criteria including habitat type, species rarity, umbrella species, critical lifecycle stages, plus criteria for water birds and fish	Ramsar Convention The Criteria for Identifying Wetlands of International Importance, as adopted by the 4th, 6th, and 7th Meetings of the Conference of Parties, http://ramsar.org/sitelist.pdf	Activities 1.1.3 And 1.1.5
10. Global Gap analysis of protected areas: outlining key gaps in protected area networks at global level	Conservation International Rodrigues et al. (2004) Effectiveness of the global protected area network in representing species diversity. *Nature* **428**(6983): 640-643	Activities 1.1.5 and 1.1.6
11. Index of ecoregions under threat: draft methodology for ranking ecoregions by level of threat	The Nature Conservancy Hoekstra, J M, T M Boucher, T H Ricketts and C Roberts (2005) Confronting a biome crisis: global disparities in habitat loss and protection, *Ecology Letters* **8**: 23-29	Activity 1.1.5
12. Global 200: 237 terrestrial, freshwater and marine ecoregions representing conservation priorities	WWF www.nationalgeographic.com/wildworld/profiles/g**200**_terr.html	Activity 1.1.5
13. Centres of plant diversity: identification of the major areas of plant diversity and endemism on the three tropical continents	WWF and IUCN (1994-1997) *Centres of plant diversity. A guide and strategy for their conservation*. Cambridge, UK	Activity 1.1.5
14. Gap analysis: a methodology for assessment of the protection status of biodiversity in a specified region, which looks for gaps in the representation of species or ecosystems in protected areas.	Kavanagh, K and T Iacobelli (1995) *A protected areas gap analysis*, WWF Canada, Toronto	Activities 1.1.5 and 1.1.6
15. Range-Wide Priority Setting: Conservation planning for broadly-distributed species	Wildlife Conservation Society Wildlife Conservation Society (2002) Planning to Save a Species *Conservation in Practice*	Activity 1.1.5
16. Last of the Wild: identification of areas least influenced by humans, normalized by biome and region	Wildlife Conservation Society Sanderson (2002) The Human Footprint and the Last of the Wild *BioScience* **52**:10	Activity 1.1.5

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
	Designation	
17. Environmental legislation: Guidelines on establishing legal status for protected areas, now rather out of date	Lausche, B J (1980) *Guidelines for Protected Areas Legislation*, IUCN Environmental Law Centre, Bonn	Activities 1.1.6 and 3.1.7
	Management	
	Protected area design	
18. Coral reefs: summary of workshop that developed guidelines for effective design of coral reef marine protected areas	Mascia, M (2001) *Designing Effective Coral Reef Marine Protected Areas*, IUCN Gland	Paragraphs 20,&29 (a) of decision VII/28 and activity 1.1.3
19. Mountain protected areas: set into context with more general discussion about the roles and functions of these areas	Hamilton, L and L McMillan (editors) (2004) *Guidelines for Planning and Managing Mountain Protected areas*, IUCN, Gland	Activity 1.1.3
20. Marine protected areas: detailed guidelines covering legal framework, partnerships, site selection, planning, managing, zoning, financial and monitoring and evaluation	Kelleher, G (1999) *Guidelines for Marine Protected Areas*, IUCN Gland	Paragraphs 20 and 29 (a) of decision VII/28 and activity 1.1.3
21. National system planning for protected areas: best practice guidelines	Davey, A G (1998) *National System Planning for Protected Areas*, IUCN, Gland	Activity 1.1.6
22. Systematic conservation planning: a nine-stage data-driven process for protected area site selection	New South Wales National Parks Service and CSIRO Margules, C R and R L Pressey (2001) Systematic conservation planning, *Nature* **405** (11): 243-253	Activity 1.1.5
23. Designing a geography of hope: ecoregion planning guide for large-scale conservation planning	*Designing a Geography of Hope* The Nature Conservancy, Arlington	Activity 1.1.5
24. Ecoregional assessment standards: 11 basic standards for ecoregional assessment	The Nature Conservancy (2003); *Ecoregional assessment standards*, Arlington VA	Activity 1.1.5
25. R2 Reef Resilience Toolkit: provides methodologies to help marine protected area managers to respond to threats of climate change on reef systems	The Nature Conservancy and Partners (2004) *R2- Reef resilience: building resilience into coral reef conservation; additional tools for managers*: Volume 2.0. CD ROM Toolkit, Arlington VA	Activity 1.1.5

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
26. Landscape species conservation planning: a wildlife-based strategy using landscape species (those that use large, ecologically diverse areas and have significant impacts on the structure and function of natural ecosystems) to define and identify ecologically meaningful conservation areas	Wildlife Conservation Society Sanderson, E W et al (2002) A conceptual model for conservation planning based on landscape species requirements. *Landscape and Urban Planning* **58**: 41-56	Activity 1.2.2
27. Marine protected areas: guidebook to MPAs covering arguments for protection, economic transition, size, location, networks, permanence, tourism, tropical and temperate seas,	Roberts, C M and J P Hawkins (2000) *Fully Protected Marine Reserves: A Guide*, WWF, Gland	Paragraphs 20 & 29 (a) of decision VII/28 and Activity 1.1.3
Assessment of biological resources		
28. Biodiversity assessment: analysis of different approaches to biodiversity assessment that attempt to integrate global and local values	Vermeulen, S and I Koziell (2002) *Integrating Global and Local Values: A review of biodiversity assessment*, International Institute for Environment and Development, London	Activity 4.4.3
29. High conservation value forests: a suite of methods developed to identify priority areas for forest conservation	Forest Stewardship Council; Jennings, S et al (2004) *High conservation value forests tool kit*, Proforest, Oxford, UK	Activities 1.1.2 and 1.3.1
30. Ecological integrity: methodology for assessment of ecological integrity	The Nature Conservancy, Anon (undated) Assessing the Ecological Integrity of Conservation Targets in Site Conservation Planning and Measures of Success, The Nature Conservancy, Arlington	Activity 4.1.2
31. Population viability analysis: methodology for assessing viable populations	The Nature Conservancy *A Practical Handbook for Population Viability Analysis*, The Nature Conservancy, Arlington	Activity 4.1.2
32. Rapid ecological assessment: methodology	*Nature in Focus: Rapid Ecological Assessment*, The Nature Conservancy and The Island Press, USA	Activity 4.3.1
33. A Freshwater classification approach for conservation planning: a spatially hierarchical approach to classifying freshwatert systems to act as a coarse filter in planning	The Nature Conservancy Higgins, J V, M T Bryer, M L KHoury, and T H Fitzhugh (2005); A freshwatert classification approach for biodiversity conservation planning, *Conservation Biology* **19** (2): 432-445	Activity 4.3.1
34. Ecological integrity: methodology based around answering 8 key questions related to the health of the ecosystem	Parks Canada	Activity 4.1.2

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
35. Wetland inventory: Guidelines for carrying out wetland inventories	Ramsar Convention A Framework for Wetland Inventory, Wetlands: water, life, and culture", 8th Meeting of the Conference of Parties, http://www.ramsar.org/key_guide_inventory_e.htm	Activity 4.3.1
Assessment of other values of and threats to protected areas		
36. Project analysis: a ten stage process for assessing threats that can undermine conservation projects	Salafsky, N and R Margoulis (2001) *Is Our Project Succeeding?* Biodiversity Support Program, Washington DC	Activity 1.5.5
37. Wetland risk assessment: framework for assessing risks to freshwater protected areas	Ramsar Convention Wetland Risk Assessment Framework, 7th Meeting of the Conference of Parties, http://www.ramsar.org/key_guide_risk_e.htm	Activities 1.4.3 and 1.5.5
38. Participatory threats assessment: Creating participatory processes for site based conservation	Wildlife Conservation Society Wildlife Conservation Society, New York	Activities 1.4.1 and 1.4.3
39. Assessment and monitoring of coral bleaching: details on global assessments and monitoring of coral bleaching	Oliver, J, P Marshall, N Setiasih and L Hansen (2004) *A global protocol for assessment and monitoing of coral bleaching*, World Fish Centre, Penang, Malaysia and WWF Indonesia, Jakarta	Activity 1.5.5
40. Valuing ecosystem benefits: paper and set of methodologies for valuation	Pagiola, S, K von Ritter and J Bishop (2004) *Assessing the Economic Value of Ecosystem Conservation*, The World Bank with IUCN and TNC, Washington DC	Activities 3.1.2 and 4.4.2
Agreement on management objectives of protected areas		
41. IUCN categories in Europe: guidelines for the application of the IUCN Protected Area Management Categories, in a European context	EUROPARC and IUCN (2000) *Guidelines for Protected Area Management Categories*, Europarc Federation Grafenau	Paragraph 31 of decision VII/28
42. IUCN protected area categories: system for categorising protected areas, by management objective, useful for designing conservation landscapes and ecoregions	IUCN http://www.iucn.org/themes/wcpa/	Paragraph 31 of decision VII/28
43. Guidelines for protected area management categories: detailed guidelines for when to apply different categories	IUCN, CNPPA and WCMC (1994) *Guidelines for Protected Area Management Categories*, IUCN, Gland	Activity 1.1.1
44. Protected area management principles: detailed principles used in Finland, could serve as a model for use elsewhere	Metsahallitus Forest and Parks Service Metsahallitus (2001) *The Principles of Protected Area Management in Finland*, Vantaa, Finland	Paragraph 31 of decision VII/28
45. C-Plan: conservation planning software	New South Wales National Parks and Wildlife Service. C-Plan, 2001	Activities 1.1.1 and 1.1.2
46. Conservation by design: a five	Anon, *Conservation by Design*, The Nature	Activities 4.1.1 and

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
stage, comprehensive planning process for broadscale conservation	Conservancy, Arlington	3.1.4
47. Marxan: Marine reserve design software	Ball, I and H Possingham (2000) *MARXAN: A manual*, University of Queensland	Activity 1.1.3
48. Conceptual Modeling: explicitly defines conservation threats and targets	*Conceptual Modelling for Conservation Planning and Creating Conceptual Models - a tool for thinking strategically*, Wildlife Conservation Society New York	Activities 1.4.1 and 1.4.3
49. Landscape Species Selection: a replicable method for identifying species to set priorities for site-based conservation	Wildlife Conservation Society Coppolillo,P *et al.* (2004) Selection Criteria for suites of landscape species as a basis for site-based conservation Biological Conservation **115**:419.430	Activity 1.4.2
Development of management plans for protected areas		
50. Governance principles: defines a series of five principles for sound governance of protected areas, linked to UNDP principles and provides guidance on how these might be applied	Graham, J, B Amos and T Plumptre (2003) Governance Principles for Protected Areas in the 21st Century, Institute of Governance, Parks Canada and CIDA, Ottawa	Activity 2.1.2
51. Management plans for protected areas: detailed guidance	IUCN and GTZ Amend et al (2003) *Management Plans: Concepts and Proposals*, Parques Nacionales y Conservación Ambiental	Activity 1.4.4
52. Management plans: guidelines for developing plans for protected areas	IUCN Thomas, L and J Middleton (2003) *Guidelines for Management Planning of Protected Areas*, Gland	Activity 1.4.4
Development of business plans and financial sustainability		
53. Financing guidelines: detailed guidelines of options for raising revenue for protected area management including developing business plans	IUCN Anon (2002) *Financing Protected Areas: Guidelines for Protected Area Managers*, IUCN, Gland	Activities 3.2.5 and 3.4.2
54. Economic values of protected areas: Guidelines for Protected Area Managers	IUCN Anon (1998) Economic Values of Protected Areas: Guidelines for Protected Area Managers, IUCN, Gland	Activities 3.2.5 and 3.4.2
55. Conservation Finance Guide: CD and online guide to a range of conservation financing mechanisms aimed particularly at protected areas	The Conservation Finance Initiative (2004) *Conservation Finance Guide* http://guide.conservationfinance.org/	Activities 3.2.5 and 3.4.2

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
Management interventions to maintain biodiversity		
56. Marine protected area guidelines: establishment of MPAs including basic management principles, issues of effectiveness, legal status (including particularly relevant conventions) and funds	Mehlgarten, M (2002) *Marine Protected Areas: A compact introduction*, GTZ, Eschborn, Germany	Paragraph 20, 29 (a) of decision VII/28 and activity 1.3.1
57. Guide to managing coral bleaching: including preparing a response plan, predicting bleaching events, responding to bleaching events	Marshall, P A and H Z Schuttenberg (in press) *A Reef Manager's Guide to Coral Bleaching*, Great Barrier Reef Marine Park Authority, Australia	Activity 1.3.1
58. Coral reefs: online guide to best practice in coral reef conservation including a series of case studies and 13 criteria	International Coral Reef Initiative http://www.icriforum.org	Paragraph 20, 29 (a) of decision VII/28 and activity 1.3.1
59. Invasive species guidelines: online guide to addressing problems of invasive plant and animal species	IUCN Invasive Species Specialist Group (2000) *IUCN Guidelines for the Prevention of Biodiversity Loss caused by Invasive Species*, IUCN, Gland	Activities 1.5.4 and 1.5.5
Sustainable management options in category V and VI protected areas		
60. Extractive reserves: Guidelines for the creation, establishment and management of extractive reserves (IUCN category VI) with seven case studies from Latin America	J Ruiz Murrieta and R Pinzon Rueda (1995) *Extractive Reserves*, IUCN, Gland	Activities 2.1.2 and 3.1.8
61. Category V protected areas: guidelines and case studies	Phillips, A (2002) *Management Guidelines for IUCN Category V Protected Areas Protected Landscapes / Seascapes*, IUCN, Gland	Activities 2.1.2 and 3.1.8
Restoration initiatives to increase the value of protected areas		
62. Restoration guidelines for degraded forests in the tropics: detailed guidelines and case studies	ITTO (2002) *ITTO Guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests*, International Tropical Timber Organization, Yokahama	Activities 1.2.5 and 1.5.3
63. Guidelines for the reintroduction of species:	IUCN Species Survival Commission IUCN/SSC Guidelines For Re-Introductions	Activities 1.2.5 and 1.5.3
64. Wetland restoration: guidelines and flow chart for steps to implement restoration	Ramsar Convention http://www.ramsar.org/key_guide_restoration_e.htm	Activities 1.2.5 and 1.5.3
65. Ecological restoration: 53 guidelines covering conceptual planning, preliminary tasks, installation planning, installation tasks, post-installation tasks and evaluation	Clewell, A et al (2000) *Guidelines for Developing and Managing Ecological Restoration Projects* Society for Ecological Restoration International	Activities 1.2.5 and 1.5.3

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
66. Forest Landscape Restoration: manual outlining a range of tools for restoring forests from an ecological and social perspective	Mansourian, S, D Vallauri and N Dudley [editors] (2005); *Beyond Planting Trees: Forest Restoration in Landscapes*, Springer (Forthcoming August 2005)	Activities 1.2.5 and 1.5.3
Adaptive management of protected areas		
67. Adaptive management: Manual outlining the definition, conditions for, steps towards and principles of adaptive management	Salafsky, N, R Margolouis and K Redford (2001) *Adaptive Management: A tool for conservation practitioners*, Biodiversity Support Program Washington DC	Activity 4.2.4
68. Adaptation to climate change: manual outlining the steps that governments and managers of protected areas and other land and water can take to at least partially mitigate climate change.	Hansen, L J, J L Biringer and J R Hoffman (2003) *Buying Time: A Users' Manual for Building Resistance and Resilience to Climate Change in Natural Systems*, WWF, Washington DC	Activity 1.4.5
Monitoring and evaluation		
69. Coral reef monitoring: demonstrates how monitoring can play a major role in the effective management of marine protected areas	Wilkinson, C et al (2003) *Monitoring Coral Reef Marine Protected Areas*, IUCN, TNC and the Global Coral Reef Monitoring Network	Activity 4.2.1
70. Protected area effectiveness: system for assessing management effectiveness of protected areas developed and tested in Latin America	Cifuentes, M, et al (2000) *Measuring Protected Area Effectiveness*, WWF and CATIE, Turrialba, Costa Rica	Activity 4.2.1
71. Measuring progress in sustainable forest management: FSC principles and criteria	Forest Stewardship Council http://www.fsc.org/en/	Activity 4.2.1
72. Evaluating marine protected area management effectiveness: detailed guidelines and monitoring protocols	Pomeray, R, et al (2004) *How is Your MPA Doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness*, IUCN	Activities 4.1.2 and 4.2.1
73. Management effectiveness framework: World Commission on Protected Areas framework for assessing management effectiveness of protected areas	Hockings, M et al (2000) *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas*, IUCN, Gland	Activity 4.2.1
74. Principles and criteria: for sustainable management of flagship protected areas	Anon (2003) *Pan Park Verification Manual*, Pan Parks, Budapest	Activity t 4.1.1
75. Threats to freshwater sites: questionnaire on threats to wetlands of international importance	Ramsar Convention http://www.ramsar.org	Activity 4.2.1
76. Parks in Peril: methodology for measuring conservation success within protected areas developed and tested in Latin America	Measuring Success: The Parks in Peril Consolidation Scorecard, The Nature Conservancy, Arlington, Virginia	Activity 4.2.1

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
77. World Heritage monitoring: detailed assessment system, including framework and collection of tool kits, developed for natural World Heritage sites	UNESCO Hockings, M et al (2004) The *World Heritage Management Effectiveness Workbook*: http://www.enhancingheritage.net/index.htm	Activities 4.1.2 and 4.2.1
78. Marine protected area scorecard: questionnaire to track progress in management effectiveness within marine protected areas	Staub, F and M E Hatziolos (2003) *Score Card to Assess Progress in Achieving Management Effectiveness Goals for Marine Protected Areas*, World Bank, Washington DC	Paragraph 20, 29 (a) of decision VII/28 and activity 4.2.1
79. Rapid assessment system: based mainly around workshops and questionnaires, to provide an overview of effectiveness of protected area systems	Ervin, J (2003) *WWF Rapid Assessment and Prioritisation of Protected Area Management (RAPPAM) Methodology*, WWF, Gland	Activity 4.2.1
80. Monitoring framework: method for measuring conservation impact at site and landscape level	Wildlife Conservation Society (2005) *Measuring our Effectiveness*, New York	Activities 4.1.2 and 4.2.1
81.Protected area tracking tool: simple questionnaire to track progress in management effectiveness of protected areas	Stolton, S, et al (2003) *Reporting Progress at Protected Area Sites*, WWF and the World Bank Gland / Washington DC	Activity 4.2.1
82. Open Standards for the Practice of Conservation: a basic set of standards agreed by several NGOs	Conservation Measures Partnership (2004) *Open Standards for the Practice of Conservation* http://www.conservationmeasures.org/CMP/Library/CMP_Open_Standards_v1.0.pdf	Activity 4.2.1

Table 3: Indicative list of available tool kits for establishment of ecological networks, development of ecological corridors and buffer zones, participation of indigenous and local communities, stakeholder involvement, benefit sharing and other areas.

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
Establishment of ecological networks		
1. European transboundary protected areas: guide and case studies to transboundary protected areas in Europe, identifying 9 stages in development	Europarc (2000) *Basic Standards for Transfrontier Cooperation between European Protected Areas* Europarc Federation	Activities 1.3.1,-1.3.4 and 3.1.11
2. Transboundary protected areas: guidelines for establishment	Sandwith, T et al (2001) *Transboundary Protected Areas*, IUCN, Gland	Activities 1.3.1,-1.3.4 and 3.1.11

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
3. River basin management: integration of freshwater conservation areas within river basins	Ramsar Convention Ramsar Convention (1999) Guidelines for integrating wetland conservation and wise use into river basin management, http://www.ramsar.org	Activities 1.1.3 1.2.2 and 1.3.1
4. Ecoregional assessment workbook: detailed workbook for ecoregional planning	Dinerstein, E et al (2000) *A workbook for conducting biological assessments and developing ecoregional visions*, Washington DC	Activity 1.4.2
5. Freshwater ecoregional assessment workbook: detailed workbook for ecoregional planning in freshwater ecosystems	Abell, R M et al (2002) *A sourcebook for conducting biological assessments and developing biodiversity visions for ecoregion conservation. Volume 2: Freshwater ecoregions*, Washington, DC	Activity t 1.4.2
6. Landscape approach to forest conservation: process for integrating forest protection, management and restoration at a landscape scale	Aldrich, M et al (2004) *Integrating forest protection, management and restoration at a landscape scale*, WWF, Gland	Activities 1.2.1 and 1.2.2
7. Planning in priority conservation areas: seven stage guide to implementing ecoregion conservation in priority conservation landscapes	Louks, C et al (2004) *From the Vision to the Ground: A guide to implementing ecoregion conservation in priority areas*, WWF, Washington DC	Activities 1.2.1 and 1.2.2
Development of ecological corridors		
8. Conservation corridors: manual on the usefulness, design and implementation of conservation corridors within broadscale planning, ensuring connectivity between protected areas and natural habitats	Sanderson, J et al (2003) Biodiversity *Conservation Corridors*, Conservation International, Washington DC	Activities 1.2.3 and 1.2.4
9. Sustainable landscapes: developing landscape approaches to conservation, with a particular emphasis on the use of biological corridors to maintain viability of vulnerable species and to encourage ecosystem approaches	Conservation International (2000) *Designing Sustainable Landscapes*, Centre for Applied Biodiversity Science, Washington DC	Activities 1.2.3 and 1.2.4
Development of buffer zones		
10. Certification of good forest management: principles and criteria for good forest management suitable for use in Category V and VI protected areas and also buffer zones, corridors etc	Anon (undated) *Principles and Criteria of Forest Stewardship*, Forest Stewardship Council, Bonn	Activities 1.2.3 and 1.2.4
11. Buffer zones management: Defines a series of five principles for sound governance of protected areas, linked to UNDP principles and provides guidance on how these might be applied	Ebregt, A and P de Greve (2000) *Buffer Zones and their Management*, International Agricultural Centre, Wageningen	Activity 1.2.3

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
12. Rainforest buffer zones: guidelines for management around protected areas	Sayer, J (1991) *Rainforest Buffer Zones: Guidelines for protected area managers*, IUCN Gland	Activity 1.2.3
Participation of indigenous and local communities		
13. Indigenous and traditional peoples: guidelines for approaches towards indigenous and traditional peoples with lands within or near protected areas	Beltran, J (editor) (2000) *Indigenous and Traditional Peoples and Protected Areas*, IUCN Gland,	Activities 1.1.7 2.1.1 to -2.2.5
14. Indigenous and local communities: guidelines for co-managed protected areas and community conservation areas	Borrini-Feyerabend, G and A Kothari (compilers 2004); *Indigenous and Local Communities and Protected Areas*, IUCN, Gland	Activities 1.1.7 2.1.1 to -2.2.5
15. Participation in wetlands: guidelines for establishing and strengthening local communities and indigenous people's participation in the management of wetlands	Ramsar Convention Guidelines for establishing and strengthening local communities and indigenous people's participation in the management of wetlands http://www.ramsar.org	Activities 1.1.7 2.1.1 to -2.2.5
16. Indigenous people and ecoregion conservation: guidelines covering reconnaissance, biodiversity and socio-economic assessment, strategies, planning and feedback	Oviedo, G et al (2000) *Indigenous and Traditional Peoples of the World and Ecoregion Conservation*, WWF International, Gland	Activities 1.1.7 2.1.1 to -2.2.5
Stakeholder involvement		
17. Participatory three-dimensional modelling: enhancing the capacities of marginalised, isolated, and natural resource-dependent communities to deal with spatial data and communicate on a peer to peer basis	Rambaldi, G and Callosa-Tarr, J (2002) *Participatory 3-Dimensional Modelling: Guiding Principles and Applications*, ASEAN Regional Centre for Biodiversity Conservation Philippines	Activity 1.4.1
18. Forest scenarios: introduces scenarios as a tool to plan creatively about the future, describing several types of future scenario-based methods	Wollenberg, E et al (2000) Anticipating Change: Scenarios as a Tool for Adaptive Forest Management, Center for International Forestry Research Bogor	Activity 1.4.1
19. Community toolbox: approaches for participatory assessment, monitoring and evaluation in community forestry, participatory assessment, participatory baselines, participatory monitoring, participatory evaluation, information analysis, presentation of results	Davis Case, D'Arcy (1990) *The community's toolbox: The idea, methods and tools for participatory assessment, monitoring and evaluation in community forestry*, FAO, Rome	Activity 1.4.1
20. Collaborative management of protected areas: a three stage process: preparing for partnership, developing an agreement and implementing and reviewing the agreement	Borrini-Feyerabend, G (1996) *Collaborative Management of Protected Areas: Tailoring the Approach to the Context*, IUCN Gland	Activity 1.4.1

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
21. Conflict management: principles and many short case studies addressing issues of conflict resolution in protected areas	Lewis, C (1996) *Managing Conflicts in Protected Areas*, IUCN, Gland	Activity 1.4.1
22. Participatory approaches in natural resource management: covering participation planning, individual and group methods, public events, instructions for facilitators etc	Loikkanen, T at al (1993) *Participatory Approach to Natural Resource Management*, Metsahallitus Forest and Park Service Vantaa, Finland	Activity 1.4.1
23. Participatory coastal zone decision-making: manual on approaches to participatory decision-making with respect to marine resources and conservation issues	Brown, K et al (2001) *Trade-off Analysis for Participatory Coastal Zone Decision Making*, University of East Anglia, Norwich, UK	Paragraphs 20, 29 (a) of decision VII/28 and Activity 1.4.1
24. Participatory planning in coastal areas: a detailed methodology for participatory planning in coastal marine areas	Windevoxhel, N (2001) *Guide to Participatory Planning in Coastal and Marine Protected Areas*, PROARCA Guatemala City	Paragraphs 20, 29 (a) of decision VII/28 and Activity 1.4.1
Benefit sharing		
25. Sustainable non-timber forest products: a guide for projects or communities and 6 steps to sustainability: species selection; forest inventory; yield studies; regeneration surveys; harvest assessments; and harvest; useful where NTFP collection is allowed in protected areas	Peters, C M (1994) *Sustainable harvest of non-timber plant resources in tropical moist forests: an ecological primer*, Biodiversity Support Program Washington DC	Activity 1.4.3
26. Multidisciplinary landscape assessment: gathering natural resource information that reflects the needs of local communities, based on work with communities in Indonesia and including case studies and methodologies	Sheil, D et al (2002) *Exploring biological diversity, environment and local people's perspectives in forest landscapes*, Center for International Forestry Research Bogor	Activity 2.1.6
27. European charter for sustainable tourism: commits signatories to implementing a local strategy for 'sustainable tourism' defined and compliance is independently verified, to help ensure the benefits remain with local communities	Europarc Federation, (2002) *The European Charter for Sustainable Tourism in Protected Areas*, Europarc Grafenau	Activity 3.1.9
28. Protected areas stewardship certification standards: for game lodges and ecotourism	Game Rangers Association of Africa In preparation	Target 3.1.9
29. Methodologies for assessing non-timber forest products: assessment techniques useful for monitoring whether use is sustainable or not	Wong, J, K Thornber and N Baker (2001); Resource assessment of non-wood forest products: Experience and biometric principles, FAO Rome	Activity 2.1.6

Description of tool kit	*Source and reference*	*Relevance to activities of the programme of work*
30. Public use measurement: detailed guidelines for reporting on public use of protected areas including programme development, statistics and technical guidance on continual counting systems, visitor studies and data management	K Hornback, E and P F J Eagles (1999) *Guidelines for Public Use Measurement and Reporting at Parks and Protected Areas*, IUCN, and Parks Canada Gland	Activity 3.1.9
31. Sustainable tourism: guidelines with case-studies on developing sustainable tourism within protected areas	Eagles, P F J, et al (2002) *Sustainable Tourism in Protected Areas*, IUCN, Gland	Activity 3.1.9
32. Environmental education in schools: large manual on development of an environmental education programme	Braus, J A and D Woods (1993) *Environmental Education in the Schools: Creating a Program that Works*, Peace Corps Washington DC,	Activity 3.5.5
33. Ecotourism development: guide to planning and implementing ecotourism activities	Drumm, A and A Moore (2002); *Ecotourism Development: A Manual for Conservation Planners and Managers*, The Nature Conservancy, Arlington VA	Activity 3.1.9
Access to information		
34. PALNet: protected area website dedicated to capacity building and providing rapid access to information	IUCN http://www.parksnet.org/palnet_english/presentation.htm	Paragraph 29 (c) of decision VII/28 and Activity 1.1.10
35. Earth Conservation Toolbox: website designed to summarise information on tools for implementing the ecosystem approach	www.earthtoolbox.net	Paragraph 29 (c) of decision VII/28 and Activity 1.1.10
36. World Database on Protected Areas: global database maintained by UNEP World Conservation Monitoring Centre and partners	http://sea.unep-wcmc.org/wdbpa/	Paragraph 29 (c) of decision VII/28 and Activity 1.1.10

III. GAPS AND WAYS AND MEANS TO ADDRESS THEM

A. Major gaps in the coverage of tool kits for national and regional systems of protected areas

9. Section II above indicates there are many tools that can be used for the implementation of the programme of work. The important requirement is to ensure that these are available to Governments and other organizations. Most of these tools are already in public domain and freely available on websites. There is however, a need for additional tools in some areas of the programme of work as shown below:

Identification

(a) There are a number of tools for the planning and assessment stages in establishment of protected area system. However, there are still no single or concise source of information for Governments to carry out a **gap analysis** at national level to plan future protected area networks, which is one of the targets under the programme of work to be accomplished by 2006

(b) There is among existing tools a clear **bias towards strictly protected areas** rather than landscape/seascape protected areas, extractive reserves, sacred sites and other protected areas with a strong human presence. There is for instance only very limited guidance aimed specifically at different IUCN categories of protected area other than category I, II and category V;

(c) There is a similar mismatch between the attention paid to **different biomes**, with for instance many tools applicable to forests, far less for freshwater areas and very few for deserts, arid lands, grasslands, savannahs and Mediterranean regions;

Designation

(d) IUCN guidelines on establishing legal status of protected areas are out of date. There are clear gaps in addressing the **legal issues relating to protected area designation**, including how to demarcate protected areas;

(e) There is considerable confusion still exists with respect to the **application of the IUCN protected area management categories,** the process of **zoning** in protected areas and choosing a suite of appropriate management policies in protected areas and further guidance is required;

Management

(f) Tools for assisting protected area managers in the **restoration of damaged ecosystems**, either in protected areas established in a partially degraded area or in response to damage that occurs after protection are not available;

(g) Most approaches assume that protected areas are fixed and permanent, and there is virtually nothing to help managers and management agencies to address the likely changes due to **global warming and natural disasters**;

(h) There are also important gaps in general guidance for **capacity-building** for protected area staff;

Monitoring and evaluation

(i) Although assessment of protected area management effectiveness has been studied considerably, but there is still little guidance available for assessment of either **ecological or social outcomes** of protected areas, especially for data poor countries**.**

(j) The work on assessment of management effectiveness of protected areas needs to be further developed, particularly in terms of guidance about management standards and **protocols** for assessment;

Establishment of ecological networks

(k) More generally, the ecosystem approach is poorly represented in terms of tools that can help to **integrate protected areas** into the wider landscape/seascape. Although some planning tools and transboundary protected area guidelines are available, most of the approaches still ignore the challenges and also the opportunities of working beyond boundaries of parks;

Development of ecological corridors

(l) The concept of corridors is well recognized, but clear guidance is not available to help planning and implementation of ecological corridors;

Development of buffer Zones

(m) Most tools and approaches assume that protected areas are entirely natural, yet many contain managed land or rely on cultural landscapes for buffer zones and biological corridors. Tools for addressing **cultural landscapes** are insufficiently developed;

Participation of Indigenous and local communities

(n) Although there has been considerable progress in addressing issues relating to **indigenous and local communities** in recent years, there are still gaps in terms of advice relating to co-managed protected areas or community-conserved areas;

Stakeholder involvement

(o) Establishment of private reserves is an important new approach to governance and different stakeholder groups are increasingly engaged in establishing private reserves. Most advice on stakeholder involvement is directed at Governments with respect to their own lands and waters and very little is available about participation of stakeholders in establishing **private reserves;**

Benefit sharing

(p) Tools for better methodologies for assessing the **wider values** of protected areas (environmental goods and services, recreational values, homeland for vulnerable human cultures, protection of sacred sites) are needed. Showcasing these wider values of protected areas attract support for establishment of protected areas and help to spread benefits of protected areas into wider community;

(q) Similarly, tools for **non-biodiversity values** of protected areas are poorly covered (for instance management to protect water supplies or carbon sequestration). Showcasing these non-biodiversity values of protected areas attract support for establishment of protected areas and help to spread benefits of protected areas into wider community;

Others

(r) There is little advice for managers about the implications of **international conventions**, including the Convention on Biological Diversity, for their work; and

(s) Tools are only guidelines, that inevitably need to be adapted to local conditions, so one major gap is a forum for **refining tools** and ensuring that experience is shared between protected-area agencies, non-governmental organizations and others around the world;

B. Suggested proposals for addressing the gaps

10. Filling the gaps in the tool kits identified in section III above requires a concerted effort by protected area agencies, non-governmental organizations, intergovernmental bodies and academics. Table 4 outlines a list of actions, along with possible contributors.

Table 4: Possible responses to the gaps in the tool kits

Gap	Response	Possible partner(s)
Identification		
Gaps in methodologies and biomes	Guidance on: ✓ Gap analysis methodologies ✓ Gap analysis for under-represented areas (arid lands, grasslands, savannahs, Mediterranean systems temperate forests)	The Nature Conservancy and NGO consortium
Lack of tools for IUCN categories that dealt with sustainable use	Guidance on IUCN Categories including particularly ✓ Category III ✓ Category IV ✓ Category VI	WCPA task forces on landscape protection and non-material values Association for Religion and Conservation
Designation		
Advice on legal issues including establishing protected areas	✓ Manual on setting the legal framework for protected area networks and individual protected areas	IUCN Environmental Law Centre and IUCN Environmental Law Commission
	✓ Guidelines for demarcating protected areas	
Lack of tools for application of IUCN management categories	✓ Revised advice about use of IUCN categories	An existing WCPA task force is charged with this work
Management		
Advice for management of protected areas in specialised biomes	Development of guidance for:	WCPA, agencies and NGOs:
	✓ Freshwater systems*	Ramsar
	✓ Arid lands and deserts	
	✓ Mangroves	
	✓ Polar environments	
	✓ Prairies, grasslands, and Savannahs ✓ Mediterranean systems	
Tools to address changes due to global warming	Guidance for: ✓ Management in the face of climate change ✓ Protected area selection in a time of changing climate	WCPA, agencies, NGOs IPCC

* There is a great deal of useful material from the Ramsar Convention, but no single guide at present.

Gap	Response	Possible partner(s)
Guidance and tools for restoration	Restoration guidance is needed with particular emphasis on: ✓ Fish populations ✓ Coral reef communities ✓ Mangroves ✓ Arid landscapes/dry forests ✓ Logged over forests ✓ Invasive species control	Species Survival Commission. Society for Ecological Restoration International NGOs
Monitoring and evaluation		
Monitoring ecological and social outcomes of management	Methods to track progress in maintaining ecological and social outcomes	Multiple partners
Minimum standards of management	Development of: ✓ Minimal standards for protected areas ✓ Protocols for assessment	WCPA theme on management effectiveness with governments (e.g. New South Wales, Parks Canada, Metsähallitus)
Establishment of ecological networks		
Integration of protected areas into the wider landscape and seascape	Detailed guidance on: ✓ Design of networks ✓ Integration of protected areas within wider landscapes and seascapes	WCPA, Commission on Ecosystem Management, some protected area agencies (e.g. Canada, Metsähallitus)
Development of ecological corridors		
Tools to plan and implement corridors between protected areas	Guidelines for the planning and implementation of ecological corridors including: ✓ Minimum useful scale ✓ Avoiding invasive species ✓ Establishment methods ✓ Management options	WCPA IUCN Programmes NGOs
Development of buffer zones		
Management in cultural landscapes (this is also applicable within Category V and VI protected areas)	Guidance on the integration of management and protection: ✓ Organic and traditional farming ✓ Forest management / community management ✓ Small-scale fisheries Much of the information is available but needs repackaging for protected area managers	Partners such as the International Federation of Organic Agriculture Movements, Marine Stewardship Council, Forest Stewardship Council etc
Participation of Indigenous and local communities		
Addressing needs in co-managed protected areas and community conservation areas	Developing tools for: ✓ Legislative and policy development in co-managed protected areas and community conservation areas ✓ Tools for management and tracking progress	CEESP, TILCEPA, indigenous communities and organisations

Gap	Response	Possible partner(s)
Stakeholder involvement		
Identifying ways in which stakeholders can participate in protected area planning, assessment and management	Many tools are already available but need to be made more available to the protected areas community. In addition, further development is needed on: ✓ Training on rapid assessment at a landscape scale for designing and planning protected areas	CEESP, TILCEPA, FAO, development agencies and NGOs
Benefit-sharing		
Capacity building for protected area managers and rangers	Training materials for rangers and assessment of capacity requirements	International Ranger Federation
Material for outreach and teaching	Providing a way of comparing experience with tools, possible improvements, additions etc.	The Earth Conservation Toolbox, an online database, will include user comments
Understanding and quantifying non-biodiversity values of protected areas	Development of methodologies for making preliminary and detailed assessments of, e.g., water services, coastal protection, fisheries enhancement, carbon sequestration	World Bank for water guidelines, IUCN / WWF for carbon sequestration
Managing for non-biodiversity values of protected areas	Specific guidance for the management of important cultural and, in particular, sacred sites within protected areas	WCPA task force on sacred and cultural values

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