INTERNATIONAL MIRE CONSERVATION GROUP

NEWSLETTER

issue 2006/2, July 2006

The International Mire Conservation Group (IMCG) is an international network of specialists having a particular interest in mire and peatland conservation. The network encompasses a wide spectrum of expertise and interests, from research scientists to consultants, government agency specialists to peatland site managers. It operates largely through e-mail and newsletters, and holds regular workshops and symposia. For more information: consult the IMCG Website: http://www.imcg.net

IMCG has a Main Board of 15 people from various parts of the world that has to take decisions between congresses. Of these 15 an elected 5 constitute the IMCG Executive Committee that handles day-to-day affairs. The Executive Committee consists of a Chairman (Jennie Whinam), a Secretary General (Hans Joosten), a Treasurer (Philippe Julve), and 2 additional members (Tatiana Minaeva, Piet-Louis Grundling).

Viktor Masing (†), Hugo Sjörs, and Richard Lindsay have been awarded honorary membership of IMCG.

Editorial

This Newsletter can be truly called an IMCG Biennial Event Special.

You will find the most important reports and papers for the 2006 IMCG General Assembly in Finland on July 27, including the draft Action Plan 2007 - 2010. Read it attentively and send in your amendments! Read also who will constitute the new Main Board 2006 - 2008, because most of its members are already known!

Please send your proposals and amendments to the General Assembly documents to the IMCG secretariat before 26 July, to guarantee that they are taken into consideration by the IMCG General Assembly on 27 July.

Furthermore, we include the latest information on the IMCG Field Symposium to make the participants well-prepared and the non-participants somewhat jealous ;-)

Piet-Louis Grundling (with help of Sekhonyana Lerotholi) reports on regional developments in Southern Africa as follow-ups of "2004". Most spectacular is the recent formation of an IMCG arm in South Africa!

This time we do not include our standard columns "regional news" and "publications", because we don't want to distract you from the important task of studying and commenting on the General Assembly documents. Those items we keep for a next, somewhat more normal Newsletter.

For information or other things, contact us at the IMCG Secretariat. Address updates should be sent to Jan Sliva: sliva@wzw.tum.de.

And don't forget to regularly check the IMCG web-site, also for additional General Assembly contributions: http://www.imcg.net

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ISSN 1682-1653

IMCG General Assembly

The final agenda of the IMCG General Assembly Thursday 27 July 2006 in Finland is as follows:

1. Opening and Welcome
2. Minutes of the General Assembly of 26 September 2004 in Paarl
3. Balance sheet and the statement of profit and loss
4. Biennial report on the state of affairs in the IMCG and on its policy, including an evaluation of the Action Plan 2002 - 2006
5. IMCG Action Plan 2006 - 2010
6. Membership fee
7. Election of the Main Board
8. Conference resolutions
9. Information on next venue 2008 in Georgia; agreement on venue 2010
10. Any Other Business

Background papers available:

- The minutes of the General Assembly 2002 (Agenda point 2) can be found in IMCG Newsletter 2004/4.
- A Progress Report of the IMCG Action Plan (Agenda point 4) can be found in this IMCG Newsletter; feedback is welcome
- A draft Action Plan for 2006-2010 (Agenda point 5) can be found in this IMCG Newsletter
- With respect to the Main Board election (Agenda point 7), see this IMCG Newsletter.
- A resolution (Agenda point 8) for Ireland is presented in this IMCG Newsletter.

IMCG Biennial Report January 2004 – December 2005

This is the third Biennial Report of the International Mire Conservation Group. According to the IMCG constitution, adopted at the IMCG General Assembly in Quebec 2000, the IMCG Main Board shall present a biennial report on the state of affairs in the Society and on its policy at the biennual General Assembly. As – according tot the IMCG constitution – the IMCG financial year is the calendar year, also the Biennual Report will cover two full calendar years.
This report concentrates on IMCG internal organisational issues. A detailed progress report with respect to the Action Plan 2002 – 2006 is presented separately.

1. General Assembly
The IMCG General Assembly 2004 was held in Paarl (South Africa, 26 September 2004). The draft minutes were published in IMCG Newsletter 2004-4. The eight resolutions adopted during this General Assembly were sent to the relevant governments and institutions.

2 Main Board
A Main Board (MB) consisting of Olivia Bragg, Stuart Brooks, Piet-Louis Grundling, Rodolfo Iturraspe, Hans Joosten, Philippe Julve, Elena Lapshina, Tatiana Minaeva, Jan Sliva, Jennie Whinam, Lesław Wołejko, and Meng Xianmin was installed at the 2004 General Assembly. As there were only 12 candidates for 15 Main Board positions, and in accordance with article 9.1 of the constitution, no voting was necessary and all candidates were included in the new Main Board.
The Main Board decided to co-opt three additional members: Tapio Lindholm, Asbjørn Moen, and Line Rochefort.

> IMCG Constitution 10.3.a. "The Main Board will meet biennially."

The MB members present in South Africa had their first personal meeting there, discussing the General Assembly, the possible candidates for the Executive Committee, and the cooptation of three additional MB members. A second Main Board meeting took place in November 2005 in Ushuaia (Argentina), discussing running IMCG business.

3 Executive Committee
The election of the IMCG Executive Committee (EC) by the Main Board took place directly after the instalment of the Main Board. Jennie Whinam was elected chair, Hans Joosten secretary, Philippe Julve treasurer, and Tatiana Minaeva and Piet-Louis Grundling additional EC members.

> IMCG Constitution 10.3.a. "The Executive Committee should meet together at least twice annually."

In the reporting period the EC held no separate meetings. Regular personal exchange was guaranteed

via the meetings of EC members in the CCGAP (October 2004, April 2005, November 2005), and the Main Board meeting (November/December 2005). Regular contact was further maintained via internet.

4 Membership
An overview of the development of membership in the period 2002 – 2006 is given IMCG Action Plan (2002 - 2006) Progress Report.
On 30 Juni 2006 IMCG had **xxx** registered members, including **xxx** supporters, from **xxx** countries of the World. Their distribution over various continents is as follows:

Africa	**xxx**
Asia	**xxx**
Australia	**xxx**
Europe (incl. total Russia)	**xxx**
North America	**xxx**
South America	**xxx**

(Figures not available at deadline for this Newsletter.)
The data show, that IMCG has succeeded to increasingly attract members from outside "Western Europe", but a European bias is still obvious.

IMCG Action Plan 2002-2006 Progress Report

At the 2002 general assembly in Besançon (France), IMCG adopted its Strategy and its first Action Plan. Below is the biennial second evaluation of the IMCG Action Plan (2002-2006).

With respect to *Objective A* "To identify the global diversity of mire features, functions, and values" most planned actions were fully or partly completed (see table). The following issues require further attention:
- The full publication of the IMCG Global Peatland Database on the IMCG website (at present only Africa and Asia are available). Furthermore the Database requires regular updating
- The unified and integral overview of the mire types of the World and their global distribution
- The finalization and publication of the book "Mires and peatlands of Europe"
- The book "Mires and peatlands of Southern Africa"
- The completion of the Russia chapter for the book "Mires and peatlands of Europe" as a step towards the overview of mire and peatland diversity and conservation status of Russia. It is foreseen to produce separate overviews for West and Central Siberia and for Yakutia and the Far East (2007?).
- The book "Peatlands of Tierra del Fuego"
- The mire fauna data base (what should it contain?)

For *Objective B* "To reduce the most significant threats to mires" the same points of attention are important. Not (fully) completed actions with respect to this action point include:
- The IMCG expertise database including the facility for rapid expertise exchange by internet
- The instalment of a special fund to cover expertise provision for hot spots

With respect to *Objective C* "To explore mechanisms that further our aims and sustain our achievements" important progress can be reported.
The observation from 2002 that IMCG should play a more active role in the Ramsar Convention was successfully put into action through the participation in STRP (since April 2003) and CCGAP (since November 2003).Contacts with SWS and IUCN were not continued because of lack of response and perspectives. Unsettled issues include:
- The recognition by the Convention on BioDiversity of mire types and patterns as paradigms of ecosystem diversity
- The inclusion of wise use in national licensing
- The promotion of "debts for nature" swaps for mire conservation

In Addition to the planned actions, a free, internet based peer reviewed international scientific journal on peat and peatlands (www.mires-and-peat.net) was started in collaboration with IPS, and a variety of outreach materials was produced.

For further information see the table below. More details on most issues can be found in the IMCG Newsletters 2002 – 2006.

Action completed (with year of delivery)
Action in need of attention and rapid completion (with year of planned delivery)
Action not completed and in need of urgent attention (with year of planned delivery)
Action could not be delivered because of reasons outside of IMCG

Objective A: To identify the global diversity of mire features, functions, and values

Targets	Actions	Output	Champion(s)	Remarks	Delivery
A.1. Assessment of the global distribution and condition of mires and peatlands	Preparation of an overview and gap analysis for all countries of the world on the basis of literature research and expert consultation	Web-based IMCG Global Peatland Database	Hans Joosten	Draft data used for Wise Use Book	2002
				Full database prepared	2004
				Partly published under www.imcg.net/gpd/gpd.htm.	2006
A.2. Development of a globally valid system of mire types and an overview of their distribution	The preparation and publication of a typology and corresponding maps through continuation of the annual IMCG workshops	Report/book "The mire types of the World and their global distribution" also including an overview of global peatland classification	Michael Steiner Jan Sliva	Michael Steiner produced major book "From Siberia to Tierra del Fuego" compilating contributions from many countries of the world	2005
				Unified and integral overview is still missing; see also action C.1.4.	2007
A.3. Development of a globally unified consistent mire terminology	Development of a Universal Mire Lexicon (UML) in workshops and internet discussions	Draft Mire Lexicon	Ron Hofstetter	An older draft was available under http://fig.cox.miami.edu/~rhofstet/bil538/hygrogaia-1.html (not anymore...)	2002
		Chapter on the UML in the European Mires Book (A.4.3.)	Ron Hofstetter	Draft has been submitted September 2002. See also A.4.	2002
			Hans Joosten	Ramsar CCGAP has proposed to follow the terminology of the IMCG/IPS Wise Use Book	2005
A.4. Stimulation of regional mire and peatland inventories on the basis of an integral and coordinated approach	A.4.1. The instalment and facilitation of regional working groups, workshops and publications	The working groups are installed, the coordinators appointed, and the working plans agreed	Hans Joosten (Europe)	Authors for all country inventories have been appointed and inventory content is agreed	2002
			Jan Sliva (Africa)	Working group Southern Africa operational; further expansion to tropical Africa is underway. (A.4.4.)	2002-2003
			Tanja Minaeva (Russia)	See A 4.5.	2004
			T. Minaeva, V. Smagin, A. Sirin (Mongolia)	Information collection, expeditions and several publications have been accomplished	2003-2004
			Xxx (S-America)	See A.4.6.	2005
	A.4.2. Assistance with project development and fundraising for the activities listed below	All activities listed below are included in the GPI proposal portfolio	Tanja Minaeva	Because of failing strategy and budget of GPI since 2002, project proposals are not yet all included in portfolio	2002

	A.4.3. The production of an overview of mire and peatland diversity and conservation status in Europe	Book "Mires and peatlands of Europe"	Hans Joosten & Asbjørn Moen	Draft text submitted to GPI	2002
				Finances for publication secured	2003
				Finalization and publication: Final texts are not yet available for some countries and some general chapters	2006
	A.4.4. The production of an overview of mire and peatland diversity and conservation status in Southern Africa	Book "Mires and peatlands of Southern Africa"	Jan Sliva	Much material produced for IMCG Field Symposium 2004. Rehana Dada is considering preparing a booklet.	2007
		Outreach materials Southern Africa	Rehana Dada	A flyer and poster "Peatlands of Southern Africa" were produced for and distributed at Ramsar Kampala	2005
	A.4.5. The production of an overview of mire and peatland diversity and conservation status of Russia	Book "Mires and peatlands of Russia"	Tanja Minaeva	T. Minaeva & A. Sirin produced major article "Use and conservation of mires in Russia". in: Steiner 2005.	2005
				T. Minaeva & A. Sirin (eds.) to finalize Russia chapter for European Mires Book	2006
	A.4.6. Starting the identification of the mire and peatland diversity and conservation status of South America	Book "Mires and peatlands of South America"		GPI supported reports on paramos and Patagonian peatlands	2004
				GPI supported book Los Turbales de la Patagonia	2005
			Rodolfo Iturraspe	Book "Peatlands of Tierra del Fuego"	2006
A.5. Identification of the main functions and values of mires and peatlands on a global scale	A.5.1. The collection of qualitative and quantitative information on the basis of literature research and expert consultation	Publication of a major chapter on functions and values in the IPS/IMCG Wise Use book	Hans Joosten	IPS/IMCG book "The Wise Use of Mires and Peatlands – Background and Principles" published	2002
	A.5.2. The ongoing synthesis of global databases on mire flora, vegetation, and mire plant ecology	Databases made available via the IMCG web site	Philippe Julve	How is progress and how to involve more members?	2002
	A.5.3. To start a mire fauna data base	Databases made available via the IMCG web site	Not yet identified	What should be the content of that database?	2006
				André Desrochers and Gert-Jan van Duinen published a list of preferential peatland fauna	2006
A.6. Formulation of Ramsar Guidelines for peatland sites	Active participation in the work of the STRP Peatland Group in the preparation of such Guidelines	Revised Guidelines are endorsed by the Ramsar Standing Committee and COP8	Richard Lindsay, Andreas Grünig	Guidelines were endorsed by Ramsar COP8 in Valencia	2002

Objective B: To reduce the most significant threats to mires

Targets	Actions	Output	Champion(s)	Remarks	Delivery
B.1. Identification of the main threats and of mechanisms to avoid them	B.1.1. The inventory of regional threats and their effects	Creation of a dynamic internet database on regional threats	Michael Trepel	A website for threatened peatlands was installed but gets little response	2003
		The inclusion of these analyses in the regional overviews (see above)	Hans Joosten &Asbjørn Moen	Europe, see A.4.3.	2006
			Jan Sliva	Southern Africa, see A.4.4.	2007
			Tanja Minaeva	Russia, see A.4.5.	2006
			Rodolfo Iturraspe	South America, see A.4.6.	2007
	B.1.2. The development of an infrastructure for membership expertise exchange	The database on IMCG expertise is developed and maintained	Jan Sliva Michael Trepel	The new member registration form includes consent with publication of expertise data.	2003
				A questionnaire to existing members was distributed but response was limited due to its complexity	2003
				The database will be made available to all members	2006
		The mechanism for rapid expertise exchange by internet is provided	Jan Sliva Michael Trepel		2006
B.2. Promotion of the conservation of mires in hot spots	B.2.1. The development and operation of a hot line for mire threats incl. a mechanism for feedback	The IMCG Web-site contains a “hot-line” for mires under threat	Tanja Minaeva, Michael Trepel	A site “threatened mires” has been added to the IMCG website.	2003
	B.2.2. The acquisition of funds for the provision of free expertise for hot spots	The IMCG has a special fund to cover expertise provision for hot spots	Tanja Minaeva, Stuart Brooks	No fund was established yet	2006
	B.2.3. The adoption of IMCG resolutions (and statements) addressing urgent mire conservation issues	Resolutions and statements	General Assembly / IMCG Secretariat	10 resolutions were adopted in France	2002
				8 resolutions were adopted in South Africa	2004
			Ushuaia Conference	Ushuaia Statement	2005

Objective C: To explore mechanisms that further our aims and sustain our achievements

Targets	Actions	Output	Champion(s)	Remarks	Delivery
C.1. Permanent IMCG involvement in international mire conservation policy	C.1.1. Cooperation with partner organizations (IPS, WI, SWS, IUCN, …), both bilateral and in umbrella organizations (EHF, CoCo…)	Information exchange by web links, information bulletins, and attendance of meetings	Michael Trepel,	Web links	2002-2006
			Margrit von Euw/Angeline Bedolla	Sending of IMCG Newsletters	2002-2005
			Exec. Committee	Meetings with IPS took place 20-12-2002, 02-11-2003, 28-07-2006	2002-2006
		Comprehensive mire conservation actions are undertaken in partnership	Hans Joosten	Wise Use project with IPS	2002-2003
			Tatjana Minaeva	Global peatland Inititative (with IPS, WI, IUCN)	2002-2003
			Hans Joosten	UNEP-GEF-project (with GEC, WI, IPS)	2003-2006
		Active involvement in the European Habitat Forum	Richard Lindsay	Adequate IMCG representation in EHF was re-installed and maintained	2003-2006
	C.1.2. Continued active participation in relevant Ramsar bodies	Active contribution in the Ramsar Scientific and Technical Research Panel (STRP)	Andreas Grünig Stuart Brooks	Olivia Bragg and Andrej Sirin represented IMCG in STRP WG 3 meeting July 2004 and provided input on "environmental flows" and "development of groundwater management guidelines"	2002-2006
		Active contribution in the Peatland Coordinating Committee (CCGAPP)	IMCG CCGAP members	CCGAPP was installed November 2003 with a strong direct and indirect representation of IMCG members. CCGAP meetings took place 11-2003, 06-2004, 10-2004, 04-2005, 07-2006,	2003-2006
			Jan Sliva	Organisation of CCGAP side-event and peatland excursion Kampala	2005
		Endorsement of the IMCG web-site by Ramsar as official reference site for inventory data	Hans Joosten	CCGAPP decided to use the IMCG Global Peatland Database as a base of inventory data	2005
				IMCG Global Peatland Database is partly installed on the IMCG-web.	2004
	C.1.3. Pro-active participation in the Steering Group of the Global Peatland Initiative	The IMCG position is clearly reflected in all GPI policy.	Tanja Minaeva	GPI has supported several actions from the IMCG Action Plan	2003
		Submission of ample projects by IMCG and IMCG members	Tanja Minaeva	Due to lack of resources no new GPI projects have been started since 2003	2004

	C.1.4. Stimulation of mire/peatland related aspects in the Convention on Biodiversity	Recognition of mire types and patterns as paradigms of ecosystem diversity	Hans Joosten	CBD follows Ramsar typology → C.1.2.	2006
			Hans Joosten	The report of the Ad Hoc Technical Expert Group on Biological Diversity and Climate Change includes a substantial part about peatlands	2003-2004
	C.1.5. Stimulation of mire/peatland related aspects in the UN Framework Convention on Climate Change and the Kyoto process	Recognition of the importance of peatlands and mires as carbon stores and sinks	IMCG CCGAP members	The Ramsar Convention pleas for minimizing degradation and for promoting restoration wetlands that store or may sequester carbon	2002
				The report of the Ad Hoc Group (see C.1.4.) was offered to the UNFCCC	2003
			UNEP-GEF project	CBD adopted Decision VII/15 "on biodiversity and climate change", recognising the importance of peatlands as carbon stores and sinks.	2004
				Ramsar and CBD have asked the IPCC for a paper on the relationship between wetlands and climate change	2002/2004
			Tatjana Minaeva, Andrej Sirin	IPCC prepares guidelines for land use change related to peatlands	2004-2006
			Faizal Parish	Via UNEP-GEF project active lobbying to UNFCCC	2004-2006
	C.1.6. The development of an IMCG long-term mire conservation strategy	A long-term IMCG strategy	Hans Joosten	A well-visited IMCG/IPS workshop the Future of Peatlands was organized during the IPS 2004 Congress	2004
			Hans Joosten, Jennie Whinam	A draft action plan 2006 – 2010 (to be adopted in Finland 2006) is prepared	2006
C.2. An effective global network of mire conservationists, linking to regional networks, by expanding IMCG presence to all regions and countries	C.2.1. The production and distribution of a regular Newsletter with global coverage	Informative IMCG Newsletter	John Couwenberg, Hans Joosten (editing)	2002: 4 Newsletters with 130 pages	2002
				2003: 4 Newsletters with 142 pages	2003
				2004: 5 Newsletters with 138 pages	2004
				2005 4 Newsletters with 122 pages	2005
				2006: 2 Newsletters with 64 pages	2006
			Michael Trepel	Internet distribution	2002-2006
			Jan Sliva, Margrit von Euw/ Angeline Bedolla	Postal distribution to members without internet acces, governmental agencies, Ramsar focal points, and major NGOs	2002-2006

			Alexandra Barthelmes	Provision as html on the IMCG web-site (again since 2004)	2004-2006
	C.2.2. The maintenance of a Website with global coverage	The IMCG web-site is up-to-date and easily accessible and contains conservation relevant information	Michael Trepel	The website was effectively maintained and expanded. In 2002 the was accessed 9,001times, in 2003 13,422, in 2004 37,412, in 2005 69,016, and in 2006 (until 30.06) 50,316 times	2002-2006
	C.2.3. The wide distribution of IMCG information material and membership registration forms, including to appropriate societies and journals.	An annual growth of the IMCG membership by 10%, representing 5 additional countries	Jan Sliva	Per 31.12.2002 IMCG had 265 members (= + **xx** % compared to 31.12.2001) and **xxx** supporters (= + **xx** %) in **xxx** countries (= + **xx** %)	2002
				Per 31.12.2003 IMCG had **xxx** members (= + **xx** % compared to 31.12.2002) and **xxx** supporters (= + **xx** %) in **xxx** countries (= + **xx** %)	2003
				Per 31.12.2004 IMCG had **xxx** members (= + **xx** % compared to 31.12.2003) and **xxx** supporters (= + **xx** %) in **xxx** countries (= + **xx** %)	2004
				Per 31.12.2005 IMCG had **xxx** members (= + **xx** % compared to 31.12.2004) and **xxx** supporters (= + **xx** %) in **xxx** countries (= + **xx** %)	2005
				Per 30.06.2006 IMCG had **xxx** members (= + **xx** % compared to 31.12.2005) and **xxx** supporters (= + **xx** %) in **xxx** countries (= + **xx** %)	2006
	C.2.4. The expansion of IMCG membership in Southern Africa	IMCG members / contacts in most countries in Southern Africa	Jan Sliva, Piet-Louis Grundling	Per 31.12.2001 IMCG had **xx** members in Botswana, Mozambique, Namibia, South Africa, and Zimbabwe	2002
				On 30.06.2006 IMCG had **xx** members in Southern Africa, also in **xxx**	2003
	C.2.5. The preparation of the 2004 IMCG Congress in South Africa	The 2004 IMCG Congress in South Africa	Piet-Louis Grundling	The Congress in South Africa was held from 12.-26. September 2004	2004
	C.2.6. The expansion of IMCG membership in South America	IMCG members / contacts in most South American countries		Per 31.12.2001 IMCG had **xxx** members in Argentina and Colombia.	2002

				On 30.06.2006 IMCG had **xx** members in South America, also in **xxx**	2006
	C.2.7. The preparation of an IMCG Symposium in South America 2005/2006	An IMCG Symposium in South America 2005/2006	Rodolpho Iturraspe	A field symposium in Tierra del Fuego was held in November 2005.	2005
	C.2.8. The support of national and local initiatives in mire conservation by providing expertise and assistance in fundraising and awareness campaigns	The IMCG members have easy access to any needed expertise to carry out mire conservation activities in their countries	???	See also B.2.1.: dynamic database of threats.	2003
			Martin Schumann / Hans Joosten	An IMCG web-based draft manual for peatland restoration was produced	2006
C.3. Provision of free exchange of information	C.3.1. The organization of meetings, symposia, and workshops.	Biannual IMCG symposium	Piet-Louis Grundling	South-Africa , see also C.2.5.	2004
			Tapio Lindholm	Finland, 2006 Field symposium, Conference, and General Assembly	2006
			Izolda Machutadze	2008 Field symposium, Conference, and General Assembly in Georgia	2008
		Regular workshops devoted to regions or issues.	Greifswald IMCG members	Co-organization of 5th European Conference on Ecological Restoration with strong focus on peatland restoration	2006
	C.3.2. The preparation and distribution of publications	IMCG Publications	Hans Joosten J. Couwenberg	2002: Weber Augstumal book	2002
			Hans Joosten	2002: Wise Use book. See also C.2.1.	2002
				See also C.5.2. Outreach materials	2003-2006
		Publications of others	Michael Trepel	IMCG website provides free distribution of several relevant publications	2002-2006
	C.3.3. The publication of a scientific journal on peat and peatlands	A peer reviewed International Journal www.mires-and-peat.net	Olivia Bragg Michael Trepel	The free, internet based journal has started on 01-01-2006. Official launch planned for Finland 2006	2006
	C.3.4. The provision of technical guidance on conservation and restoration management of peatlands	An interactive and dynamic web-based “restopedia” manual for global peatland restoration	Martin Schumann /Michael Trepel	Text based draft manual was produced, restopedia format will be worked out during 2006.	2006
C.4. Development and implementation of a policy on economic incentives for mire conservation	C.4.1. Development of a policy on certification and ecolabelling	Policy document adopted by IMCG MB / General Ass.	Hans Joosten	As no consensus exists within the peat industry, the issue will be pursued by IPS Commission II and IMCG is kept informed.	2004
	C.4.2. The stimulation of the development and the use of peat alternatives	Information on the IMCG Web-site on peat alternatives	Michael Trepel	A website was started in 2004	2004

	C.4.3. The promotion of adequate labeling, certification, and licensing of peatland related products and activities	Adequate "ecolabels" for peat (products)	Hans Joosten	Discussions on EU ecolabels were critically followed (2004-2006) resulting in no inclusion	2006
		Certification concepts for peat industries		No interventions as no initiatives were taken by peat industry (cf. C.4.1.)	2006
		The inclusion of Wise Use concepts in national licensing		.	2006
	C.4.4. The promotion of "debts for nature swaps" for mire conservation	"Debts for nature swaps" for mire conservation			2006
C.5. Awareness campaign	C.5.1. Identification of the motives for mire use. Identification of the stakeholders on the international level. Formulation and dissemination of a Wise Use approach.	Publication and wide dissemination of the Wise Use background document and declarations	Stuart Brooks	The Wise Use book and the WU Statement flyers were published and are being widely disseminated. All versions of flyer are not yet available on the IMCG website (C.2.2.)	2002/2003
			Exec. Committee	The Wise Use Book and flyers were presented and distributed at CoP 8	2002
			Hans Joosten	The IPS associated peat industry prepared a DVD on peatland wise use	2004
			Hans Joosten	The Wise Use book is made available on the internet	2006
			???	The publication of the booklet "Wise use for children and ministers"	2006
		Presentation of Wise Use approach on the IPS Congress 2004	Michael Trepel	Wise Use was the motto of the 2004 IPS Congress. No concerted input from IMCG.	2004
	C.5.2. The production and distribution of outreach materials	IMCG Posters	Michael Trepel	3 Posters: "Peat is not renewable", "The future of peatlands is in conservation" and "South-east Asian peatlands are burning away"	2004
			Rehana Dada	Poster "Peatlands in Southern Africa"	2005
		IMCG flyers	Tatjana Minaeva Hans Joosten	General IMCG information flyers were produced twice	2003 and 2005
			Rehana Dada	Flyer "Peatlands in Southern Africa"	2005
		IMCG Postcards	Michael Trepel	6 postcards with motives of "burning" global mire conservation issues were produced and widely distributed	2005/2006
		Brochures	CCGAP	Brochure "Peatlands, do you care?"	2005

DRAFT
IMCG Action Plan 2007 -2010

Introduction
The IMCG Action Plan 2002 – 2006 covering the period 1st January 2002 to 31st December 2006 formulated the following key medium term objectives (4-6 years):

a. To identify the global diversity of mire features, functions, and values;
b. To reduce the most urgent and significant threats to mires;
c. To explore mechanisms that further our objectives and sustain our achievements.

We tried to reach these objectives by
– Facilitating worldwide exchange of information and expertise;
– Assisting coordination of efforts and resources;
– Promoting positive action;
– Increasing understanding and awareness.

The IMCG network has made huge progress in both its conservation output and its organisational capacity within the last years. Instrumental to this has been the prioritisation of its work around the Action Plan, its wide strategic partnerships, its active networking, and - above all - the dedicated, tireless efforts of its members which constitute the network.

However the IMCG is nowhere near reaching its potential. As an organisation the IMCG stands on the brink of becoming a significant force within the international policy arena where opportunities and necessity demand its attention. On the other hand IMCG lacks the ability to fulfil this role being limited by its capacity as a purely voluntarily led organisation. IMCG considerably ''punches above its weight' and has a good (and improving) profile and membership. With some investment in the organisational structure of the network its output could be considerably increased.

To take us further, we need to pay attention to the following:

1. Our strategic ambition. The new IMCG Action Plan 2007 – 2010 should not only be an updated list of activities but must in its sum and consistency reflect what we want to achieve, what we cán achieve, and what we múst achieve.
2. Our profile and membership. Currently the IMCG membership is still geographically biased with the majority of members in (Western) Europe, a severe under-representation in "established" peatland regions such as North-America and SE.-Asia, and its absence in most countries of the world.
3. Our over reliance on a few active volunteers and its risks to the organisation. The organisation must use the capacity of its network, its members, and its partnerships more effectively to minimise these risks.
4. Our financial strategy and management. The organisation needs to generate unrestricted funds to sustain and expand the network, to enable its members to take proactive steps, to raise its profile, and to meet the targets in the Action Plan.

This Action Plan presents the tasks of IMCG for the period 2007 – 2010 (2012). Firstly it addresses the generally low esteem that mires and peatlands have in society (the *Cinderella Syndrome*) as a root cause for mire destruction. Secondly it discusses the most urgent topical threats to mires worldwide.
The analyses presented in this paper are a basis for discussion within the network that will culminate in the commitment of specific IMCG members to concrete actions, deliverables, and times of delivery.

> The analysis below constitutes a background for planning of concrete actions of IMCG, its members and its partners. Please find your "niche" here. Check how *you* and *your* activity can contribute to the main goals of international mire conservation!

Fighting the Cinderella Syndrome
Fourteen years after Richard Lindsay introduced the Cinderella Syndrome concept (1992) to describe the general attitude towards mires and peatlands, the situation has substantially improved, also thanks to IMCG. But "Cinderella is still in the kitchen". Peatlands are still largely considered "wastelands" - areas with no value and consequently low prices and taxes, providing large areas of unoccupied space. Substantial peatlands are located in coastal areas and along rivers, where over 50% of the world's human population lives. Their location near to coastlines makes it tempting to convert them to provide infrastructure for towns and harbours. Also, nearby peatlands often serve as urban waste deposits.
Still most mires are destroyed by ignorance, short-sightedness, and stupidity. Still the root cause of mire destruction is *lack*: lack of knowledge, lack of awareness, lack of appreciation, lack of planning, lack of regulation…
Next to addressing urgent and topical threats, a mire conservation network will have to systematically address these issues, to prevent that we keep mopping with the tap open.

The Cinderella Syndrome

When the Ramsar Convention was in its early stages of development, wetlands in general were still widely seen as rather useless places, crying out to be drained and turned into productive land. Ramsar has done great things with all wetlands in the last 25 years, but the imbalanced site-list suggests that perhaps it has done rather better with some wetland types than with others - to paraphrase George Orwell - "All wetlands are equal in the sight of Ramsar, but some are more equal than others." Perhaps it is not surprising that peatlands appear to have lagged behind the rest of the field. If wetlands in general were unpopular in those days, peatlands, or mires, languished at the very bottom of the popularity stakes. Unfortunately, in many parts of the World it seems that they still do.

Why is this? It's almost certainly largely because a cultural antipathy which is centuries old has shrouded the World's peatlands in such obscurity that now we have a cultural blind spot about the habitat. At its worst, it has hidden their existence entirely from our consciousness, but it hides them from our thinking in many more subtle ways. To most people, peatlands are still wastelands. They are still dangerous. They should be drained, now that we have the technology to do so and finally turn them into something economic.

We do not even have a vocabulary available from common usage to describe the habitat. There was confusion in the Workshop because there are not adequate terms in different languages to describe certain basic types. There are times when one must envy our grassland and woodland colleagues. How can you conserve something when you do not even have a word for it?

From: Richard Lindsay (1996): Themes for the Future: Peatlands – a key role for Ramsar.

Wise use of peatlands

One of our major instruments is the Wise Use Approach, developed in long-term collaboration between IMCG and the International Peat Society (IPS). IPS and IMCG define 'wise use' as "those uses of mires and peatlands for which reasonable people now and in the future will not attribute blame". The wisdom of a decision or act is judged by balancing the pros and cons of all (direct and indirect) effects on (all present and future) human beings.

Wise Use builds on the strong interrelation of different peatland functions and values that requires an integrative approach to prevent that a partial solution of one partial problem creates a cascade of new problems.

Temperate fen peatlands in East-Central Europe

In the last years East-Central Europe has experienced a massive abandonment of agricultural peatlands through a combination of peat soil degradation, increased costs of drainage through subsidence, and changed economic conditions. This abandonment has resulted in

- a continuation and increase of environmental problems (emissions of CO_2 to the atmosphere and nitrates to the water, fire)
- a loss of economic carriers and rural employment / livelihood
- a loss of biodiversity.

This problem complex concerns millions of ha in East Germany, Poland, the Baltic States, Czechia, Slovakia, Belarus, Ukraine, and Russia.

An **integrative approach** would include:

- Rewetting to stop environmental degradation and emission, restore natural water purification functions, and increase evapotranspiration to cool the landscape
- Development of new land use options/economic carriers including "paludicultures" (agriculture / forestry under wet conditions), wilderness (natural areas with low management costs and attractiveness for ecotourism) and biodiversity (continued traditional – and expensive – exploitation on the "best" spots).

The book "The Wise Use of Mires and Peatlands" (2002) has laid a sound but global fundament for further work. Given the regionality of peatland types and problems there is a need for developing more concrete guidelines and action plans for different regions and sectors, e.g. in cooperation with the International Peat Society and other stakeholder groups. Considering the many threats to mires from energy generation (see below), the options for cooperation with that sector have to be explored.

The paradigm of "wise use" requires peatland users to take environmental and social aspects into account, whereas conservationists need to internalise economic and social issues.

Some progress in putting Wise Use into practice has been made by parts of the peat industry, e.g. by focussing peat extraction on less valuable peatlands, by restoration of exploited peatlands, and by financial support to the science and conservation community.

Wise Use is, however, still far from internalised and the concept is often corrupted to mean that the use of peatlands – for whatever purpose, in whatever way – is always "wise".

Worldwide many local "wise use" initiatives and actions have been undertaken, often by IMCG members, amongst others projects in over 40 countries financed by the IMCG supported Global Peatland Initiative.

With respect to wise use, **tasks for IMCG** for the period 2007 – 2010 include:

- The further development and dissemination of the IMCG/IPS Wise Use approach especially with and among the peat(land) and energy sector
- The development and implementation of more concrete guidelines for different regions and sectors
- The maintenance and expansion of effective networks and partnerships
- The development of regional strategies for the conservation and wise use of peatlands
- The development of local and community-based peatland wise use initiatives and actions
- The integration of the wise use approach into national legislation
- The initiation and support of social, economic and technical studies on local and national land use practices and policy incentives especially in regions with traditional land use
- The identification and stimulation of synergies between international conventions (e.g. Biodiversity-CBD, Ramsar, Climate-UNFCCC, Desertification-UNCCCD)

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Research, expertise, and institutional capacity

Knowledge and understanding are prime issues in the Wise Use approach. Its implementation requires institutional capacity that has to be created and enhanced by information and training.
The IMCG network, with members from research, administration and management, offers ideal opportunities for exchange of experience and expertise. Important roles in this respect are played by the IMCG website and newsletter. The open access Internet scientific journal "Mires and Peat" will improve the exchange on a more scientific level.

Typical for the IMCG network are its personal bonds brought about by the field symposia and joint projects. In southern Africa a regional network of peatland experts was established by IMCG**,** including experts from South Africa, Mozambique, Zimbabwe, Botswana and Namibia. A similar network has been initiated in Patagonia on the occasion of the IMCG 2005 Field Symposium in Tierra del Fuego.

With respect to research, expertise, and institutional capacity, **tasks for IMCG** for the period 2007 – 2010 include:

- The international exchange of information and expertise, including the continuation of the IMCG website, Newsletter, Field Symposia, and Workshops, and the further development of the "Mires and Peat" journal
- The stimulation of research and research networks to share and to improve knowledge of the ecological character, values, and functions of the world's peatlands
- The stimulation of research into the role of peatlands in mitigating the impacts of global change
- The improved understanding of the economic values of peatland ecosystem services s
- The creation of Regional Centres of Expertise in the wise use and management of peatlands to facilitate training and the transfer of knowledge
- The stimulation of integrated multi-disciplinary peatland research
- The stimulation of peatland inventory and monitoring

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Inventory and monitoring

"What you know, you can value; what can not be justified, will not be protected"

From the IMCG Restoration Manual Draft 2006

Several IMCG activities of the last years have contributed significantly to identifying global mire diversity, its functions and values.
A comprehensive overview of peatland functions and values was published in the IMCG/ IPS book "The wise use of mires and peatlands" (2002).
With respect to the worldwide harmonisation of peatlands terminology, the Ramsar CCGAP has proposed to use a basic list of terms and concepts presented in the IMCG/IPS wise use book. For scientific purposes IMCG has develop its Universal Mire Lexicon. Further standardising of terminology is taking place in the framework of the European Mires Book.

Two global data sources of peatland distribution have been developed:

- The ISRIC – IMCG "peatland map of the world" (2002) presenting the worldwide distribution of peatlands/histosols, based on the FAO/UNESCO soil map of the world (1:5,000,000) (see www.wetlands.org/projects/GPI/worlda4.jpg). First estimates of peatland occurrence in all countries of the world were published in the IPS-IMCG wise use book.
- The "IMCG Global Peatland Database" (2004) with information on distribution, extent, status and threat, and ecological characteristics of peatlands for all countries of the world, accessible under www.imcg.net/gpd/gpd.htm The Ramsar CC-GAP has proposed to use this IMCG overview as the "global peatland database" asked for in Ramsar Resolution VII.17. This requires a regular up-dating of the database to strengthen and maintain its importance as a global standard.

Since 2002, new inventories – often by or with substantial help of IMCG (members) - have contributed to a better knowledge on the distribution of peatlands in southern Africa, the Andean region, Patagonia, Russia, Mongolia, Georgia, central Europe and Indonesia. The IMCG European Mires Book is compiling up-to-date information of all countries of Europe (incl. Georgia, Armenia, and Azerbaijan).

Dear IMCG member! Here is room for adding your findings and achievements!

General conclusions from the available inventories are:

- Peatlands occur in almost all countries of the world; the total area of peatlands on earth is approximately 4 million km^2.
- The general inventory status is (very) insufficient and largely outdated; for some regions almost nothing is known, e.g. for large parts of Africa and South America and for the mountain areas of central Asia.
- Eighty per cent of the global peatland area is still pristine, i.e. not severely modified by human activities. Sixty per cent of the area still actively accumulates peat. This pristine area is concentrated in the (sub) arctic and boreal zones.
- The global pristine peatland (mire) surface decreases by 0.1% (5,000 km^2) per year, the global peat volume by 0.05% per year. The area of mires is hence decreasing with a rate ten times faster than the expansion of mires during the Holocene. The proportionally largest losses have occurred, and still occur, in the temperate and tropical zones. Fifty per cent of the losses are attributable to agriculture, 30% to forestry, 10 % to peat extraction, and 10 % to urbanisation and infrastructure development (incl. flooding for water reservoirs).
- The peatland character of various ecosystem types is massively overlooked. This especially applies to mangroves, salt marshes, paddies/rice fields, boreal paludified forests, cloud forests, elfin woodlands, highland sedge fens (pastures), spring mires, páramos, dambos, and cryosols. Peatlands may occur in almost 20 wetland categories in the Ramsar Classification System, in over 40 habitat types of the EU Habitat Directive, and in over 60 types of Endangered Natural Habitats of the Bern Convention.
- Inventory data area largely limited to "peatlands" in general. An overview and inventory of mire types is failing on a worldwide scale. This severely hampers the identification and effective conservation of mire ecosystem diversity.
- Changes and trends in the quantity and quality of the peatland resource are not sufficiently detected.

Dear IMCG member! Here is room for adding your findings and achievements!

With respect to inventory and monitoring, **tasks for IMCG** for the period 2007 – 2010 include:

- The regular updating of the IMCG Global Peatland Database
- The stimulation of peatland inventories in Africa, South America, and Central Asia
- The finalization and publication of the book "Mires and peatlands of Europe"
- The preparation and publication of the book "Mires and peatlands of Southern Africa"
- The preparation and publication of the book "Mires and peatlands of Russia".
- The preparation and publication of the book "Mires of Tierra del Fuego"
- The development and publication of a unified and integral overview of global mire types and their global distribution
- The propagation of mire ecosystem diversity in the Convention on Biological Diversity, the Ramsar Convention and regional and national inventories and conservation plans.

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Education and public awareness

The regional and global awareness on peatlands and peatland issues has substantially increased in recent years as manifested in the attention in global media. Global, regional, national and local networks and activities have significantly contributed to enhanced awareness of policy and decision makers. The number of scientific and popular publications on peatlands has grown considerably.

Websites, including that of IMCG (www.imcg.net) and a large variety of excellent national and local websites, e.g. in Russia, France, Ireland, Canada and the UK, have increased access to information on peatlands worldwide.

Peatlands are increasingly incorporated as an environmental theme in educational programmes. Teaching, learning and training resources on peatlands have been developed and promoted especially in areas where peatlands form a significant component of the landscape and culture. Good examples include Ireland (Irish Peatland Conservation Council), the UK, Canada (Burns Bog Conservation Society), Russia (PRP) and Georgia (Tchaobi).

Programmes for peatland planners and managers have been performed in central and eastern Europe (UK Darwin Initiative, Birdlife Belarus and Wetlands International), in SE Asia, Russia and China (UNEP-GEF Peatlands, Biodiversity and Climate Change project). The latter project also stimulated the preparation of a "Global Restoration Manual" to provide practical guidance and information exchange for peatland restoration worldwide. The IMCG field symposia specifically aim at exchange of management and policy experience between participants. In South Africa the "Working for Wetlands" programme pays much attention to training for peatland restoration.

In order to ensure that the importance of peatlands as a global wetland biodiversity resource is fully understood, it is important to develop and implement environmental education, training and public awareness programmes focusing on peatlands.

With respect to education and awareness, **tasks for IMCG** for the period 2007 – 2010 include:

- The advance of awareness on the benefits of peatlands at all levels of decision making
- The development, promotion, and dissemination of teaching, learning and training resources on peatlands
- The stimulation of incorporating mire and peatland issues in all forms of environmental education
- The training of planners and managers with respect to peatland functions, values, and management
- The support of individual members in developing and disseminating information and background knowledge on mires to a wide range of public – from children to ministers

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Policy and legislation

Under democratic conditions, the goals of society are pursued by "mutual coercion set by mutual agreement": guidelines, conventions, and laws, in which people – in an open debate based on all the information and reasoning available – have agreed freely to restrictions on the realisation of individual preferences. Such agreements are made from the perspective of citizens who take a moral interest in public affairs while the coercion itself (norms, laws) restricts the behaviour of private persons and interest groups who try to satisfy their preferences and economic interests.

IMCG tries to participate in this process of finding and implementing regulation on all levels. The European mires book project reviews the national policies with respect to peatlands in all European countries. The IMCG congresses seek to identify strongholds and weaknesses in national policies. Our work in international bodies and conventions is aimed at reviewing laws and regulations to promote the conservation and wise use of mires and peatlands.

With respect to policy and legislation, **tasks for IMCG** for the period 2007 – 2010 include:

- The stimulation of peatland conservation, wise use and management issues in the discussions and resolutions of the Ramsar Convention, the CBD, the UNFCCC, and the UNCCCD including stimulation of joint action plans with respect to peatlands
- The continuation and expansion of the Ramsar Coordinating Committee for Global Action on Peatlands to a multi-conventional coordination body
- The review whether appropriate legal and institutional frameworks for effective conservation and wise use of peatlands are in place worldwide, e.g. water management and land use planning mechanisms and legislation
- The study whether the particular importance and requirements of peatlands are fully incorporated into national policies, laws, planning instruments, and incentive programmes, incl. in wetland and biodiversity strategies and plans
- The stimulation of reviews of national networks of peatland protected areas. In case of an incomplete network, the number of peatland protected areas should be increased
- The conservation of nationally, regionally and globally important and representative peatland types through the expansion of the global network of Ramsar and UNESCO sites

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peatlands and biodiversity

Species living in mires have to be adapted to the special and extreme site conditions that prevail. As a result, mires are in general poor in species as compared to mineral soils in the same biographic region. Many peatland species are, however, strongly specialised and not found in other habitats. IMCG maintains a large database on the distribution and ecology of mire plant species in the world. A similar database on mire fauna has to be developed.

Mire organisms are typically adapted to

- The high water level and the consequent scarcity of oxygen and presence of toxic ions (Fe2+, Mn2+, S2-) in the root layer
- The continuous up-growing "peat" and rising water levels suffocating perennial plants
- The spongy soil, that makes trees easily fall over or drown under their own weight
- The scarcity of nutrients and ions as a result of peat accumulation, limited supply or chemical precipitation
- The generally cooler and rougher climate than the surrounding mineral soils
- The acidity caused by organic acids and cation exchange
- The presence of toxic organic substances produced during decomposition and humification
- The humus rich water, complicating orientation and recognition in aquatic animals.

The most important reason for loss of mire species diversity is the loss of habitats by direct human impact (especially drainage). Very little information is available on biodiversity losses and/or changes provoked by climate change but it is sure that these developments are aggravated by human induced habitat losses.

The diversity of mire types is a paradigm example of ecosystem biodiversity that surpasses species biodiversity. Because of their strong climate dependence, climate change may lead to the local, regional or even global loss of mire types. Most sensitive are peatlands in cold (palsa, polygon mires etc.) and oceanic climates (rainfed blanket and percolation bogs, highland mires). For their conservation under changing climatic conditions, it is essential to minimize further anthropogenic stress on these vulnerable peatlands.

Urgent attention has to be paid to the conservation of tropical peatlands. In tropical peatlands, drainage for subsistence agriculture and destructive harvesting of tropical peatland timbers have a large impact on biodiversity.

Undamaged mires are generally resilient against invasive species, but invasion may increase as a result of of anthropogenic impact or climate change (cf. the expansion of the American *Sarracenia* in European mires), threatening the original flora and fauna.

With respect to bio-diversity, **tasks for IMCG** for the period 2007 – 2010 include:

- The prevention of further reclamation and over-exploitation of remaining tropical peat swamp forests
- The documentation and highlighting of the importance of peatlands as reservoirs of unique biodiversity
- The inventory and mapping of rare and unique mire types all over the world
- The identification and protection of hot spots for peatland-dependent species
- The identification and protection of hot spots for peatland ecosystem biodiversity (peatland types)
- The promotion of national and international research into mire species composition, biology and ecology to define facultative and obligatory mire species and their resistance to climate change and other impacts
- The identification of peatlands as important biodiversity refuges, especially in the context of human impacts and climate change
- The designation of additional Ramsar sites to include the full range of peatland types and biodiversity in the List of Wetlands of International Importance
- The designation of UNESCO World Heritage Sites to include the full range of peatland types and their natural and cultural biodiversity
- The development of a Global Red List of Endangered Mire Species and Mire Types
- The propagation of mire ecosystem diversity in the Convention on Biological Diversity, the Ramsar Convention and regional and national inventories and conservation plans
- The monitoring and highlighting of problems caused by invasive species in peatland ecosystems

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peatlands and greenhouse gases
Mires absorb carbon dioxide (CO_2) and store it for a very long time as peat. Therefore peatlands are ecosystems with much more organic Carbon per ha than other terrestrial ecosystem types. The CO_2 sequestration of the world's mires (approximately 1% of the CO_2-emissions from global fossil fuel consumption) gives them a modest but positive role in decreasing atmospheric greenhouse gas (GHG) concentrations and in cooling the climate. Because of the short lifetime of methane (CH_4), the ongoing methane emissions from peatlands on the other hand do not increase atmospheric GHG concentrations and therefore do not contribute to climate change.
Direct human activities such as drainage, land-clearing, and fires (combined with climate change) are turning peatlands from key carbon and nitrogen stores to important sources of CO_2 and nitrous oxide (N_2O). Currently the contribution of degraded peatlands to the total global anthropogenic GHG emission budget (possibly as large as 30 %!!) is fully unnoticed in international climate policy. Emission trading instruments of the UNFCCC Kyoto Protocol are not yet functioning with respect to peatlands, although the Protocol does enable this. Restoration of degraded peatlands is therefore insufficiently implemented as an important strategy in fulfilling Kyoto GHG reduction goals and as an instrument in climate change mitigation.

Kyoto Protocol Article 6. 1. For the purpose of meeting its commitments under Article 3, any Party included in Annex I may transfer to, or acquire from, any other such Party emission reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy…

UNFCCC Decision 13/CP.9 on "good practice guidance for land use, land-use change and forestry in the preparation of national greenhouse gas inventories under the Convention" covers also peatlands – albeit without mentioning them specifically – as part of "wetlands" that can function as carbon sinks and sources (details cf. www.unfccc.int). This includes not only active mires, but also exploited peatlands, flooded peatlands, and artificial wetlands on peat soils.

Starting April 2005, Contracting Parties should implement this guidance. According to Decision 19/CP.9, sources and sinks related to land use change will be included in the reporting form on Articles 3.3, 3.4 and 6 of the Kyoto Protocol

The Kyoto Protocol currently does not support the "non-use" of peatland as carbon stores. A change of the policy in this respect cannot be expected, as this would contradict the basic logic of the UNFCCC. Therefore, voluntary mechanisms for carbon conservation in peatlands have to be developed (cf. www.bio-rights.org). These could also support the conservation of peatland biodiversity and the reduction of poverty that lies at the basis of much peatland degradation and fires in the tropics.
The peat fires in SE Asia, a global hot spot of peatland GHG emissions, have a huge impact on the local economy, destroying resources for forestry, agriculture and biodiversity. Moreover, the resulting smog affects the health of hundred thousands of people.

With respect to greenhouse gases, **tasks for IMCG** for the period 2007 – 2010 include:
- The promotion of the importance of peatland as carbon stores of global importance within UNFCCC and other relevant international conventions
- The exposition of degraded peatlands as substantial sources of GHG emissions
- The assessment of the contribution of degraded peatlands to the global anthropogenic GHG emissions
- The improvement of IPCC Guidelines for National GHG Inventories with respect to peatlands
- The stimulation of systematic incorporation of peatlands in the national inventories of GHG sources and sinks under the UNFCCC
- The improvement of peatland carbon inventory data
- The revelation of the cost-effectiveness of GHG emission avoidance through peatland restoration
- The development and implementation of new financial mechanisms for peatland conservation for carbon storage
- The incorporation of peatlands in national adaptation action plans
- The support of carbon conservation in peatlands parallel to the wise and sustainable utilization of peatlands
- The reduction of peatland fires

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Burning issues
The most urgent and significant threats to mires can be summarized as follows:
- climate change and politics
- global energy politics
- peat extraction for plant cultivation
- water stress
- tropical peatland agriculture and forestry in the tropics
- poverty.

In the following we analyse recent developments of these largely interrelated issues.

Dear IMCG member! Here you can list the most urgent threats for peatlands and mires from your perspective and experience!

Peatlands and climate change

The distribution of mires and mire types over the globe clearly reflects their dependence on climate. As mires concentrate in humid or cool regions, a changing climate can be expected to seriously affect their character, their carbon balance and their radiative forcing.

The diversity of mire types is a paradigm example of ecosystem biodiversity that surpasses species biodiversity. Climate change may lead to the local, regional or even global loss of mire types. Most sensitive are peatlands in (sub)arctic (palsa, polygon mires etc.) and oceanic climates (rain-fed blanket and percolation bogs) where the largest changes in climate are expected to take place. For their conservation under changing climatic conditions, it is essential to minimize further anthropogenic stress on these vulnerable peatlands. Especially threatened are high mountain peatlands, where the interference of overexploitation and climate change lead to rapid erosion and desertification.

On the other hand, peatlands also influence the regional and local climate through evapotranspiration and associated alteration of heat and moisture conditions. The palaeoecological record shows that several mire types and their communities in the boreal and temperate zones (e.g. raised bogs, percolation fens) are highly resilient against climate change. As their local climate is often considerably cooler than that of their immediate surroundings, they may play an important role in mitigating climate change by providing refugia and migration routes for species that are threatened by global climate change. This mechanism is illustrated by the occurrence of arctic "relict" species in mires in the temperate zone and by their function as wet biogeographical enclaves within regions with a (semi)arid climate.

Furthermore restoration of large complexes of drained degraded peatlands, such as in Central Europe, may substantially influence the regional climate through evaporation cooling.

With respect to climate change, **tasks for IMCG** for the period 2007 – 2010 include:

- The identification of the effects of climate change on peatlands in the various peatland zones of the world
- The identification of the adaptation and mitigation capacities of mire species with respect to climate change
- The stimulation of the attention of the Arctic Council (incl. CAFF) to the effects of climate change on (sub)arctic peatlands
- The stimulation of the attention of the UN Convention to Combat Desertification to the effects of climate change on high mountain peatlands
- The elucidation of the role of pristine or restored peatland in regional meso-climate regulation
- The assessment of the role of the wet and cool peatlands as refugia and migration corridors/stepping stones in a drying and warming world

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peatlands and energy

In many countries peatlands have played an important role in energy politics for along time. On the other hand energy politics increasingly influence peatlands.

Peat is an important energy source in Finland, Ireland, Sweden, Estonia, Latvia, Lithuania, Belarus and Russia and is used in smaller volumes in many other countries, including China, Indonesia and Burundi. In recent years, technical developments have led to lower, more competitive peat prices, higher energy efficiency, lower emissions and multi fuel capabilities in energy generation. Peat is increasingly used to facilitate biomass and forestry trash combustion. The further development of gasification technology will lead to even more efficient peat use for energy. On the other hand, the deregulation of the electricity market has lowered the demand and created an over-capacity of peat energy in the European Union.

The volumes of peat necessary for energy generation are substantial. It is estimated that by 2020, peat energy plants will have exhausted all peat resources of formerly peat-rich Ireland. As peat emits more CO_2 per unit energy and is (still…) generally more expensive than other fossil fuels, peat as an energy source is primarily interesting for regional or domestic socio-economic reasons. In Finland and Ireland employment in the rural area is the most important socio-economic driving force for peat extraction for fuel.

These honest reasons for using peat for energy are corrupted by false argumentation by the peat industry (incl. IPS) of peat being a renewable resource (see box). In Sweden and Finland, peat is being promoted as a (slowly) renewable fuel and has been awarded advantages over other fossil fuels, a position confirmed by the European Commission as compatible with EU competition and environmental protection regulations.

Peat is not renewable…

Claims of renewability of peat lack a scientific foundation and are based on suggestive use of terms and false arguments. Indeed is peat renewable: it is still being formed at present, like it has been formed since hundreds of millions of years. But this does not distinguish peat from other fossil fuels, as also lignite and coal deposits are still formed today.

Not the renewability (i.e. the fact that they can renew) is relevant from a climate point of view but the rate of renewal (i.e. the time period required for their formation). Burning coal means releasing carbon that has not been part of the atmo- and biosphere for millions of years. Similarly, peat burned for fuel is thousands of years old. For both coal and peat the rate of renewal is so small that their renewability is irrelevant for society. Renewable with respect to the greenhouse effect means the use of energy sources that replenish as quickly as they are used up (= short rotation). Furthermore, the fact that a type of fuel is renewable does not mean that it is actually renewed. If the fuel is not given opportunity to renew, the use of a "renewable" fuel contributes as much to the greenhouse effect as any non-renewable fuel.

Erroneously it is often claimed that after a peatland has been exploited, peat accumulation will re-start and greenhouse gases will be stored again. Even when this is indeed the case the rates involved are only a fraction of those emitted by burning thick layers of peat.

The most common argument used to defend the renewability of peat fuel is that less peat is extracted than is annually accumulating. This argument is false for a range of reasons:

- In almost all countries of Europe, in the whole of Europe, and over the whole Earth peat is disappearing faster than it is being formed. Next to the actual extraction of peat, enormous losses occur in agricultural, forested, and cutover peatlands. In claiming renewability of fuel peat, all of the gains (all peat accumulation in a country or a region) are falsely balanced with only part of the losses (only from peat extraction).
- Much peat accumulating "elsewhere" is not available for exploitation, because of technical or conservational reasons. Peat that is not available is no "resource" and may not be used for balancing losses through peat combustion.
- Peat extraction is not only consuming peat but also destroying the peat accumulating ecosystems. Unless peat is actively regenerating on the cutover sites, the resource will eventually be depleted. And that is the current situation on Earth. The area of cutover bogs that has been restored to peat accumulating ecosystems is negligible and stands in no proportion to the area degraded by peat extraction.
- The peatlands whose CO_2 sequestration is claimed for balancing CO_2 emissions from peat combustion were already part of the greenhouse balance long before the anthropogenic rise of atmospheric CO_2-levels. They were and are part of the natural sink system that compensates natural sources. These natural sources include the methane (CH_4) emissions from natural peatlands.
- Peat extraction and combustion creates an extra source of greenhouse gases. To be greenhouse neutral, additional sources require additional sinks. Peat extraction is mobilising new carbon sources without creating such new sinks. Also in this respect, burning peat does not differ from burning coal.
- Peat combustion is not a climate neutral activity. There may be honest reasons to locally – and with due observation of the many other values of peatlands – use peat for fuel, but these reasons do not include renewability.

From the IMCG Resolution for the European Union, the United Nations,and the Global Environmental Facility, adopted in Paarl, S-Africa, 2004.

Similar to the 1973 global oil crisis, which triggered a renewed focus on fuel peat in Sweden, Finland, the USA and created the interest in peat for fuel in Rwanda, Burundi, Senegal, Jamaica and many other states, global energy politics and prices are again affecting the use of peat as an energy source.

In east-central European countries, the pursued independence from Russian oil and gas are currently the driving forces for (re-)converting oil-fuelled energy facilities to the use of peat. The recent National Energy Strategy of the Russian Federation promotes the replacement of oil and gas by biomass fuel and includes peat in its biomass concept. Russia receives substantial Worldbank support for its renewable energy program that includes peat. It intends to enlarge its domestic use of fuel peat in order to export more gas and oil to the West.

The Swedish peat industry has in recent years more than doubled peat extraction volumes to currently 11 to 12 million m^3 a year. Sweden furthermore imports substantial volumes of peat briquettes from Belarus.

To replace its nuclear power plants, Ontario (Canada) is considering large-scale peat extraction as an energy source with less environmental impact than sulphur-rich – and more expensive - local coals.

A further increasing focus on peatlands as sources of energy and of alternative raw materials for petrochemical products can be expected with the decreasing availability of global oil/gas reserves

("after oil"…) and the increasing energy demand of developing countries (China!).
This will not only result in increased peat extraction, but also in an increased use of peatlands for forestry and the cultivation of energy crops such as is already happening in Germany (maize) and SE Asia (oil palm). It will be important to stop perverse incentives for energy crop production on drained peatlands and to direct biomass production to already degraded peatland sites and combine it with rewetting.
Global energy politics also affect peatlands in an indirect way. Increasing demands for renewable energy lead to the destruction of mires through flooding for hydropower. In Canada 20,000 km^2 of water reservoirs have flooded 7,500 km^2 of wetlands and peatlands. In Finland, approximately 900 km^2 of peatland are covered by water reservoirs. In Russia, most fens of the Volga valley were destroyed when a cascade of reservoirs was built for hydroelectricity production. Large hydroelectric projects are currently being planned or developed in Iceland, Malaysia, Cameroon and Brazil, largely for aluminium production. Similar developments in other countries, e.g. in South Africa (Braamhoek mire), Lesotho, and Uganda do not cover such large areas but may substantially affect mire biodiversity.
Rapid expanding facilities for wind energy generation threaten and destroy peatlands in oceanic and mountainous regions (Ireland, Scotland [Lewis Island], Northern Spain), and may create new environmental disasters (cf. recent landslides in Irish blanket bogs).
Vast areas of peatlands in Russia (W.-Siberia), Alaska (Prudhoe Bay), and Nigeria (Niger delta) have been destroyed by expanding infrastructure for oil and gas exploration, exploitation, and transport or are threatened (cf. Arctic National Wildlife Refuge, USA). Road and pipeline constructions not only change the hydrology, but also cause GHG exchange misbalances over large areas. In Georgia (Transcaucasia) facilities to carry Caspian oil to the Black Sea are being constructed in the Ramsar protected Kolkheti National Park. The planned pipeline between Siberia and China will affect peatlands along 150 km. Also opencast coal and lignite mining leads to important losses of mires in several countries.

To counteract unnecessary peatland destruction through energy politics, **tasks for IMCG** for the period 2007 – 2010 include:
- The combat against the perverse argument of peat being a (slowly) renewable resource
- The combat against perverse incentives for cultivating energy crops on drained peatlands
- The prevention of destruction of valuable peatland sites by energy infrastructure
- The study of the incentives of energy policy
- The development of mechanisms to guarantee mire-friendly planning and decision making
- The focussing of peat extraction for energy on the least valuable peatlands
- The inclusion of the carbon (incl. methane) losses from peat in the GHG balances of "renewable" energies
- The promotion of peatland restoration by combining environmental objectives (reducing peat oxidation, increasing biodiversity) with production and sustainable exploitation of biomass

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peat and plant cultivation
Next to energy peat, the most common current use of peat is for horticulture. The modern production of greenhouse and container crops involves the integrated management of water, fertilisers, pesticides, and growing media. Important requirements are uniformity, consistency, and predictability of the final product. Growing uniform, high quality plants at very high productivity levels demands growing media with the best possible features. *Sphagnum* peat has emerged as the foremost constituent of growing media. Currently 30 million m^3 of slightly humified *Sphagnum* peat are used globally per year for producing high-quality growing media.
This slightly humified peat is restricted to raised bogs, which only occur in the (boreo-) nemoral and southern boreal zones. Consequently peat extraction for growing media concentrates on a small belt across the globe. Within the EU, this peatland type has become near to extinct and is consequently a priority habitat in the EU Habitats Directive (92/43/EEG).
In most countries of western and central Europe the stocks of slightly humified S*phagnum* peat (white peat) are nearly depleted after centuries of agricultural use and peat extraction. To cover the demands, white peat is imported from northern and east-central Europe and Canada in increasing volumes. As demands are rising, stocks are decreasing, and good alternatives in professional horticulture are not (yet) available, the threats of pristine bogs being opened for extraction are growing.
On the other hand pressure from environmental groups is increasing, including requests for environmental certification of peat products by the retailers. Since the end of the 1980s anti peat campaigns in Europe, especially in the UK and Ireland, have tried to persuade the public and the horticultural trade to decrease the use of *Sphagnum* peat. Consequently the British government decided in

February 2002 to have 90% of the peat replaced by alternatives by 2010. The peat industry is developing and supplying these alternatives.

Growing media are materials, other than soils in-situ, in which plants are grown. They provide a physical structure in which plants can root. In addition they facilitate the water-gas system in the root environment (including the uptake of nutrients and trace elements). Growing media are used in the professional and the hobby market.

In the professional market, growing media are applied on a large scale in greenhouse and container cultures for soil-less food production (mainly greenhouse tomato, cucumber, sweet pepper, and strawberry) and the production of cut flowers and pot plants. In comparison to in-soil cropping, growing media have substantial benefits: no need for soil decontamination, better utilization of nutrients, lower energy consumption, and higher yields. These benefits contribute to an ongoing increase in soil-less horticulture.

In the hobby market, growing media are better known as potting soil, used in- and outdoors to grow pot plants.

The total volume of growing media consumed in the EU (hobby and professional) is estimated to be some 45 million m^3 (or 15 million tons) annually. Hobby applications are estimated to account for approximately 60% of this volume.

Large variations exist between countries in the consumption of growing media per capita because of differences in the size and structure of professional horticulture and by differences in consumer behaviour.

Worldwide, peat based growing media cover some 85 - 90% of the market. Other materials applied are composts, synthetics, and a wide range of natural organic products and minerals, including stonewool, perlite, and coir (coconut shell fibres).

The continuing growth of population, urbanisation, and welfare will increase the demand for high performance growing media and soil improvers worldwide. Growing demands are especially observed in Europe, North-Africa, North America, Japan, China and the Near-East. It is important to direct this demand as far as possible to renewable alternatives and to prevent that it leads to the crude destruction of valuable peatlands. In Patagonia and China, for example, the current rapid expansion of peat extraction for horticulture leads to an unnecessary waste of peat and peatlands. In Georgia plans are even made (a.o. by a major Danish company) to extract peat from the globally unique Imnati mire in the Kolkheti Ramsar site and National Park.

Next to the Canadian Sphagnum Peat Moss Association (**CSPMA**), that took the lead in offensively propagating the use of peat, the new European Peat and Growing Media Association (**EPAGMA**, founded 2004) is currently developing a strong political lobby in favour of peat that includes the use of biased, dubious and unfair arguments. The latter is illustrated in the European Union Ecolabel discussion where EPAGMA criticized the “prominent role of IMCG statements” but refused to discuss factual argumentation.

For low quality use, such as for amateur potplants and gardening, alternatives are available from composts from bio-/green waste and sewage sludge. In practise, however, high-quality peats are still being squandered for low-quality applications in increasing amounts. IPS and its member industries still uncritically support and stimulate this unwise use in spite of their incessant verbal propagation of the “wise use of peat” concept.

Sewage sludge is a by-product from sewage plants treating domestic or urban waste waters, septic tanks etc.. The progressive implementation of the Urban Waste Water Treatment Directive 91/271/EEC in the EU has increased the quantities of sewage sludge from 5.5 million tons of dry matter in 1992 to nearly 9 million tons by the end of 2005. Around 45% is currently recycled to agricultural land, 18% is landfilled, and 17% is incinerated. Uncertainties over possible risks for human health and for the environment still hamper the expansion of sludge recycling.

Bio- and green waste is increasingly separately collected and composted. The total annual amount of bio- and green waste in the EU is nearly 60 million tons, with a potential of approximately 30 million tons of compost production. Most composts are currently applied in low price segments such as agriculture. Relatively low volumes find as yet applications in the production of high quality topsoils or as constituent in growing media.

Stocks in short supply, insufficient qualities and non-competitive prices have until now prevented a substantial use of alternatives for peat in high-quality applications. Experiences from years with low peat supply have, however, shown that professional consumers can rapidly and readily adapt to alternatives whenever necessary. A promising future alternative for peat could be fresh Sphagnum biomass which has the same qualities as white peat and which could be cultivated on peatlands degraded by peat extraction, agriculture or forestry. In Germany, the peat industry and research institutes collaborate to develop such renewable raw material for high quality horticultural media from fresh Sphagnum. In Canada,

the professorial chair for peatland management at Laval University (Quebec) has adopted Sphagnum farming as one of its focal research objects.
Peat was used as a soil improver and organic fertiliser in great quantities in agriculture in the years 1950-1980, especially in the Soviet Union. This use has collapsed with the general collapse of the Russian economy since 1991. As the Russian agricultural practise of bad humus economy (involving burning instead of ploughing under harvest remains) has not substantially improved, the reviving economy may lead to a renewed demand of peat for this extremely low-quality purpose.

To diminish threats to peatlands from horticulture, **tasks for IMCG** for the period 2007 – 2010 include:
- The prevention of peat extraction in pristine mires and valuable peatlands
- The combat against the perverse argument of peat being a (slowly) renewable resource
- The prevention of using high-quality peats for low-quality applications
- The stimulation of the development and use of sustainable alternatives for peat, e.g. from bio-/green waste and sewage sludge
- The stimulation of the development of high-quality alternatives for peat in professional horticulture
- The continuation of the discussion on the wise use of peat that must include both origin ànd application

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peatlands and water
Peatlands play significant hydrological roles as water sources, buffers, stores and purifiers.
Population growth and climate change will put an increasing pressure on water resources (fig.1). This will lead to conflicting situations between human livelihood and peatland conservation (cf. Maputaland, S.-Africa) and increasing desertification, but also enable new partnerships where reliable and sustainable water resources are provided by mires.

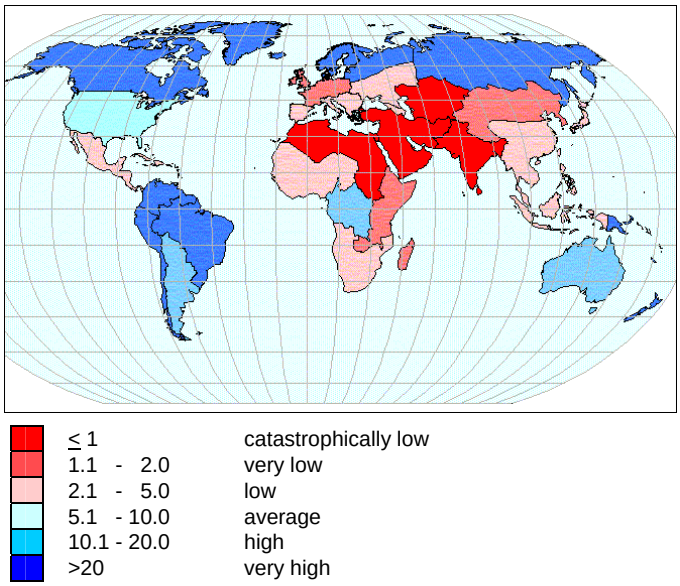

Fig. 1. Expected water availability (in 1000 m^3 per year per capita) of the world in 2020 as a function of population growth and climate change.

With respect to water, **tasks for IMCG** for the period 2007 – 2010 include:
- The increase of knowledge on the role of peatlands in catchment water balance
- The identification and protection of peatlands (and peatland types) that are critical for water storage, water control and water supply
- The stimulation of including the role of peatlands in watershed management, river basin planning and flood control schemes and in integrated water resources management
- The stimulation of recognizing the role of peatlands in protecting water and land resources in areas vulnerable to desertification and land degradation
- The identification of hot-spots for immediate action to prevent or stop desertification through peatland overexploitation
- The integration of peatlands into the work of the UN Convention to Combat Desertification (UNCCD)

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peatlands and agriculture

Drainage for agriculture has historically been the main global impact on mires. In particular most of the fen mires in the temperate zone of North America, Europe, and eastern Asia (China, Japan) are now used for agriculture. Peatland drainage and agriculture leads, specifically in the long term, to many problems associated with soil degradation, subsidence, and peat oxidation. Large-scale drainage of pristine mires for agriculture in the temperate zone has therefore ended and agriculture is retreating from peatlands to mineral soils. Increased productivity on mineral soils and global economic developments (EU expansion, WTO agreements) are reinforcing this tendency. Abandonment may lead to a loss of biodiversity where the peatland were still in low-intensity use (Poland, Belarus). Abandonment furthermore leads to problems of social cohesion and regional economies.

In central Europe, vast areas of degraded agricultural peatlands are currently being rewetted because maintenance of their drainage and agricultural use are no longer profitable. New functions established for these restored wetlands include carbon storage, flood control, water purification and the re-establishment of biodiversity and wilderness conditions to stimulate eco-tourism (good examples in eastern Germany, Poland and Belarus). Promising is the development of new wet production functions (reed, alder wood, biomass fuel) to create new and sustainable economic carriers for rural livelihoods.

Pristine mires are currently still being reclaimed in the tropics. Drainage for subsistence agriculture affects only small areas, but impacts substantially on peatland biodiversity and environmental functions where peatlands are rare (e.g. in Southern and East-Africa). Failures to reclaim tropical peatlands on a large scale are well known including the former mega rice project in Kalimantan (Indonesia). Industrial conversion of virgin peat forests for palm oil production is ongoing on a large scale in Sarawak and other parts of SE Asia.

Peatlands are also important as pasture for domestic livestock in many areas of the world, e.g. cattle on the Argentinean pampas, sheep and deer on the Scottish blanket bogs, yaks and horses in central Asian mountains, and water buffaloes in the humid (sub)tropics.

Overgrazing of mountain peatlands leads to severe erosion in many areas of the world, including Lesotho, Kyrgyzstan, the Tibetan Plateau (China), and Mongolia.

In the near future, water scarcity will increase conflicts between agriculture and peatland conservation, especially in Africa, the Near East and central Asia, the Far East, western and central Europe, and Central America. In this respect, natural peatlands have an important function in limiting rapid water losses.

Agriculture has until recently as a rule involved peatland drainage. Where peatlands have to be used for agricultural production, the focus must be on the development and implementation of "wet" agricultural production techniques that combine harvest of useful products with the maintenance of the environmental services of undrained peatlands.

With respect to agriculture, **tasks for IMCG** for the period 2007 – 2010 include:

- The prevention of further reclamation and over-exploitation of remaining tropical peat swamp forests
- The re-establishment of adequate management techniques for highly biodiverse peatlands in low-intensity use
- The development and implementation of agricultural production techniques that maintain or restore the environmental functions of undrained peatlands and that play a supporting role in regional economy

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peatlands and forestry

The largest boom in peatland drainage for forestry took place in the 1970s, when huge areas were drained in Finland, Russia and Sweden. Currently, no further peatland areas are drained, recognizing that drained peat soils are marginal compared to mineral soils available for forestry. Timber exploitation of peatland forests is however largely continued in already drained forests and will require additional drainage efforts after the first cut. In Russia, where drainage ditches are often no longer maintained, a large part of the formerly drained peatland forests are re-paludifying, a natural process enhanced by damming activities of beavers. In North America, harvesting of black spruce (*Picea mariana*) and lodgepole pine (*Pinus contorta*) from non drained mires is of economic importance. In SE Asia, tropical swamp forests yield some of the most valuable tropical timbers, e.g. ramin (*Gonystylus bancanus*), agathis (*Agathis dammara*), and meranti (*Shorea* spp.). Many of them being harvested in an unsustainable way.

Peatland drainage for forestry in the Boreal zone may attract renewed attention for climate change mitigation because after drainage carbon sequestration in increasing biomass may initially prevail over carbon losses by peat oxidation. Furthermore also the increased use of biomass to avoid carbon emissions from fossil fuels may in future stimulate forest exploitation. It will be critically important to investigate such plans on their climate effectiveness and to balance possible climate advantages with other environmental disadvantages (water, biodiversity, long term C-store, etc.)

With respect to forestry, **tasks for IMCG** for the period 2007 – 2010 include:
- The prevention of further reclamation and over-exploitation of remaining tropical peat swamp forests
- The assessment of the effects of drained peatland forestry on carbon storage, carbon sequestration, water regulation and biodiversity
- The stimulation of wet forestry on rewetted degraded peatlands

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

Peatlands and poverty

In developing countries, poverty drives people into over-exploitation of peatlands, which in turn increases poverty. Maintaining and restoring peatlands will contribute directly to poverty reduction. In addition, developing integrated approaches to peatland wise use and poverty reduction contributes directly to peatland conservation.

The occurrence of peatlands often coincides with rural poverty, as a consequence of peatlands being some of the last remaining wilderness and natural resource areas. The linkage between poverty and peatlands is apparent in SE Asia, especially in the mega rice project area in central Kalimantan, but also in Africa and the Andes. Local communities located far from markets and trapped in systems of poverty often largely depend on the productivity of natural mires or on their conversion to subsistence agriculture. Peatland conservation in these areas implies reduction of poverty.

With respect to poverty reduction, **tasks for IMCG** for the period 2007 – 2010 include:
- The propagation of financial mechanisms to decouple poverty and the destruction of peatlands (e.g. Pro-Poor Payments for Environmental Services, PES)
- The creation of win-win options for poverty reduction and biodiversity conservation in poverty-trapped peatland areas similar to agri-environmental schemes in Europe and the USA

Dear IMCG member! Here you can include your initiatives, actions, and plans to address the structural threats to mires and peatlands!

IMCG Main Board

At our General Assembly (Congress) in Finland we would have had to elect a new Main Board. In order to guarantee an effective democratic election process involving all members, nominations had to be submitted to the Secretariat before July 1st 2006, so that ballots and other General Assembly Documents could have been sent out in/with this Newsletter and would reach everybody in time.
As there were only 13 candidates for 15 Main Board positions, and in accordance with article 9.1 of the constitution, no voting is necessary and all candidates are included in the new Main Board.

The Main Board 2006 – 2008 therefore consists of Olivia Bragg, Piet-Louis Grundling, Rodolfo Iturraspe, Hans Joosten, Philippe Julve, Tapio Lindholm, Tatiana Minaeva, Asbjørn Moen, Line Rochefort, Jan Sliva, Jennie Whinam, Lesław Wołejko, and Meng Xianmin.

Congratulations to the new IMCG Main Board!

The main board may co-opt additional members to fill vacancies (article 9.4) up to a total of 15 members. The main board will discuss this in view of the goals set out in the Action Plan 2007-2010.

IMCG Resolutions

The IMCG General Assembly in Finland 2006 will again discuss and adopt resolutions. To streamline the procedure, IMCG members were requested to submit their draft resolution timely to the IMCG secretariat. Below a resolution for Ireland.

DRAFT
IMCG Resolution to Ireland

The International Mire Conservation Group (IMCG) is a worldwide organisation of mire (peatland) specialists who have a particular interest in the conservation of peatland habitats. IMCG recognises the peatlands of Ireland as being among the most important wetland sites remaining in North–West Europe. The IMCG held its 12th biennial General Assembly in Eerikkilä, Finland in July 2006. At that Assembly the following resolution for Ireland was adopted.

The IMCG acknowledges that the Irish Government has progressed in their conservation of peatlands since our last resolution in 1990. This includes the completion of a national blanket bog survey and evaluation, a national survey of raised bog Natural Heritage Areas (NHAs), the provision of legal protection for the Irish raised and blanket bog NHAs and the adoption of approximately 223 peatland sites as part of the Natura 2000 Network.

However, despite this progress, there are a number of issues that the IMCG feel require the urgent attention of the Irish Government.

1. Fens (alkaline mires) in Ireland are highly threatened ecosystems and are being damaged by drainage and infilling for either agricultural or development purposes. The IMCG urges the Government of the Republic of Ireland and particularly the Department of the Environment, Heritage and Local Government to urgently make an inventory of un-drained, actively peat-sequestering fens in the Republic of Ireland. The objectives of this survey should include:
- to identify the distribution of fen habitats throughout the Republic of Ireland and to assess the conservation significance of each site, including the 67 sites that were identified by the IPCC in the Irish Fen Inventory (2000)
- to identify habitat sites for species threatened in the European Union
- to immediately and effectively protect these peatlands (including their hydrological catchment areas) as Natural Heritage Areas
- to select a representative sample of these peatlands as Special Areas of Conservation in a European context.

2. Ireland has the most significant area of raised and blanket bog habitat in North-west Europe. Sites of conservation importance have been designated as Special Areas of Conservation (SACs) and Natural Heritage Areas (NHAs). Current Government and EU Policy permit the practice of turf cutting (turbary rights) on designated sites, which is affecting the hydrological integrity of each mire system. The IMCG calls on the Government of the Republic of Ireland and the European Union to immediately ban the practice of peat extraction on all peatland sites of conservation importance.
The IMCG furthermore urges the Irish Government to draft and implement restoration plans for all peatland sites of conservation importance.

3. The Renewable Energy Policy of the Irish Government threatens upland blanket mires by regarding wind farm construction as sustainable development within these sensitive habitats. The IMCG urges the Government of the Republic of Ireland and particularly the Department of the Environment, Heritage and Local Government to encourage the construction of wind farms away from sensitive upland blanket bog areas.

INTERNATIONAL MIRE
CONSERVATION GROUP

12th Biennial IMCG Field Symposium and General Assembly, Finland 2006

by Tapio Lindholm and Raimo Heikkilä

Programme of the event
The themes of the event are as follows: Mire conservation, utilization and restoration. Mire development history, vegetation, flora and ecohydrology. Aapamires, land uplift phenomena, IMCG past and future, Ramsar. Assessment of mire conservation situation in Finland.

The excursion is shortly presented below. More information about the excursion sites will be available in the guidebook Heikkilä, R., Lindholm, T. & Tahvanainen, T. (eds.) 2006: Finnish Mires – Daughters of the Baltic Sea. – The Finnish Environment 28/2006: 1-166 (in print) and more general information about Finnish mires, their natural background, utilization and conservation in Lindholm, T. & Heikkilä, R. (eds.) 2006: Finland – Land of Mires. – The Finnish Environment 23/2006: 1-270 (in print). The guidebook is hopefully available during the field symposium, although it seems that the background material textbook will be printed and delivered only after the IMCG tour. During the bus tour we will have some print proof copies of the book available for reading and discussions. Later both publications will be available also as .pdf files.

1. day, arrival 13.7. Thursday
Registration and welcome address in nature centre Kellokas, Äkäslompolo
- Metsähallitus Natural Heritage Services (later: MH, NHS): Mr.Yrjö Norokorpi, Area manager, Mrs. Pauliina Kulmala, Senior advisor
- Ministry of the environment: Mr. Seppo Vuolanto, Counsellor
- Northern Ostrobothnia Regional Environment Centre, Mr. Eero Kaakinen, Head of nature conservation

Guides during the excursion and conference
- Mr. Tapio Lindholm, Dr., Leading expert (Finnish Environment Institute, later: FEI) Leading of the excursion, mire ecology
- Mr. Raimo Heikkilä, Dr, Research manager (Friendship Park Research Centre) Leading of the excursion, mire plants and vegetation
- Mrs. Aulikki Laine, Senior advisor (Northern Ostrobothnia Regional Environment Centre) Palaeoecology, practical arrangements
- Mr. Tapani Sallantaus, Senior scientist (Pirkanmaa Regional Environment Centre) Mire hydrology, bryophytes
- Mr. Seppo Vuolanto, Counsellor (Ministry of the environment) Ramsar, mire birds, Natura 2000 (only the excursion)
- Mr. Pekka Salminen, Nature Conservation Counsellor (Ministry of the environment) Mire conservation in Finland (starting from Oulu)

Practical arrangements during the excursion: Mr. Matti Komulainen and Mr. Mauri Heikkinen, Friendship Park Research Centre

Overnight in hotel Seita, Äkäslompolo

2. day 14.7. Friday
Teuravuoma mire (Ramsar) 9-16
Long walk along wooden boardwalk from Teurajärvi to Kurtakko (14 km)
- Structures and vegetation of an aapamire, mire tourism, development history, cultural history
- MH, NHS: Mr. Yrjö Norokorpi, Area manager (cultural heritage), tourism, Mrs. Päivi Paalamo, Senior advisor (plants), Mrs: Pauliina Kulmala, Senior advisor (restoration, management), Mrs. Elisa Pääkkö, Senior advisor (Management plan, habitat inventories), Mr. Tuomo Ollila, Senior advisor (birds and large carnivores)
- Emeritus state geologist Eino Lappalainen (development of the mire, history)

Tornionjoki river valley (240 km drive, about 4 hrs)
- Sceneries, nature, river valley political and cultural history

Overnight in hotel Wanha Pappila, Simo

3. day 15.7. Saturday
Karhakkamaanjänkä mire 9-12
Aapamire, wet rich fens, *Cratoneuron* spring, flora, restoration
- MH, NHS: Mr. Yrjö Norokorpi, Area manager (history), Mrs. Päivi Paalamo, Senior advisor (plants), Mrs. Pauliina Kulmala, Senior advisor (restoration and management)
- Joensuu University: Mrs. Hanna Kondelin, Researcher (rich fen vegetation)

Martimoaapa mire klo (Ramsar) 14-17
Aapamire, bogs, poor fens, birds
- MH, NHS: Mr. Yrjö Norokorpi, Area manager (history), Mrs. Päivi Paalamo, Senior advisor (plants), Mrs. Pauliina Kulmala, Senior advisor (restoration and management), Mr. Esa Härkönen, Senior advisor, Mr. Ari Rajasärkkä, Conservation biologist (birds)
- Mr. Pentti Rauhala, Ornitologist (birds)
- Joensuu University: Mrs. Hanna Kondelin, Researcher (vegetation)
- Finnish Nature Conservation Association (later: FNCA), Mr. Heikki Susiluoma, Chairman (conservation, relations of man and mire)

Overnight hotel Wanha Pappila, Simo

4. day 16. 7. Sunday
Ryöskäri mires 8-12
Land uplift, rich fens, aapamire development in moraine area, ecohydrology, conservation problems in private land, which is not included in conservation programmes
- MH, NHS: Mr. Sakari Rehell; Planning officer (vegetation, ecohydrology)
- Joensuu University: Mrs. Hanna Kondelin, Researcher (vegetation)
- FNCA: Mrs. Merja Ylönen and Mr. Mauri Huhtala (conservation issues)

Ihanalampi mire 14-17
Land uplift, rich fens, aapamire development in moraine area, ecohydrology, conservation problems in private land, which is not included in conservation programmes
- MH, NHS: Mr. Sakari Rehell; Planning officer (vegetation, ecohydrology)
- Joensuu University: Mrs. Hanna Kondelin, Researcher (vegetation)
- FNCA: Mrs. Merja Ylönen and Mrs. Mauri Huhtala (conservation issues)

Evening programme: Mrs Merja Ylönen, FNCA, mire conservationist): Conflicts of peat mining and mire conservation

Overnight hotel Wanha Pappila, Simo

5. day 17.7. Monday
Hirvisuo mire 9.30-11
Aapamire, structures, morphology, hydrology, vegetation, bird fauna
- MH, NHS: Ari Rajasärkkä, Conservation biologist (birds), Mrs. Päivi Virnes, Conservation biologist (restoration), Mr. Sakari Rehell, Planning officer (mire hydrology)
- Oulu University: Mr. Jarmo Laitinen, Researcher (mire massifs), Mr. Antti Huttunen, Researcher (Vegetation, morphology), Mr. Jari Oksanen, professor (classification of vegetation)
- Joensuu University: Mrs. Hanna Kondelin, Researcher (vegetation)
- FNCA: Mrs. Merja Ylönen and Mr. Mauri Huhtala (conservation)

Olvassuo mire (Ramsar) 13.30-17
Aapamire, restoration, ground water pumping, reindeer husbandry, World Heritage
- MH, NHS: Mr. Sakari Rehell, Planning officer (hydrology), Mr. Ari Rajasärkkä, Conservation biologist (restoration, birds), Mrs. Päivi Virnes, Conservation biologist (mire restoration)
- Oulu University: Mr. Jarmo Laitinen, Researcher, Mr. Antti Huttunen, Researcher (mire massifs, vegetation)
- Joensuu University: Mrs. Hanna Kondelin, Researcher (vegetation, restoration, conservation problems)
- FNCA: Mrs. Merja Ylönen and Mr. Mauri Huhtala (mire conservation problems)

Overnight hostel Rekihovi, Utajärvi

6. day 18.7. Tuesday
Liminganlahti Bay, Virkkula (Ramsar) 9.30-11
Land uplift, mire formation, birds, vegetation
- North Ostrobothnia Regional Environment Centre: Mr. Sami Timonen, Planning officer (birds), Mr. Eero Kaakinen, Head of nature conservation (vegetation)
- MH, NHS. Mr. Ari Rajasärkkä, Conservation biologist (birds)

Lunch and cultural programme in Raahe 12-14.30 (guided walk in the old wooden town, Raahe museum)

Hummastinvaara mires 14.45-17
Land uplift on sand soils, geomorphology, vegetation, flora, carbon balance
- MH, NHS: Mr. Sakari Rehell Planning, officer (hydrology, stratigraphy, vegetation) Mr. Ari Rajasärkkä, Conservation biologist (birds)
- North Ostrobothnia Regional Environment Centre: Mr. Eero Kaakinen, Head of nature conservation (conservation problems)
- Oulu University: Mr. Olavi Heikkinen, Professor (geomorphology)
- Finnish Forest research institute: Mr. Kari Kukko-oja, Senior researcher(mire vegetation), Mrs. Mirva Leppälä, Researcher (vegetation, carbon balance)

Photostop in **Revonneva mire**
Eccentric bogs and aapamires, land uplift phenomenon, geomorphology

Evening reception and overnight in Hotel Vihiluoto, Oulu
Presentation: Lebreht Jeschke and Richard Lindsay: IMCG from Oulanka to Tammela

7. day 19.7. Wednesday
Oulu town 9-12
- Sightseeing, shopping, free time

210 km drive to the south of Oulu, about 4 hours
Downy birch Finland, forestry drainage, destruction of mires on a province level

Overnight in modest cottages in Valkeinen camping, Lestijärvi

8. day 20.7. Thursday
Salamajärvi national park (Ramsar) 8.30-13
Aapamires (A.K.Cajander's model for aapamire in 1913), mire site type system, forest and mire mosaic, bird fauna, wild forest reindeer, hiking, 7 km walk along wooden boardwalk

– MH, NHS: Mrs. Anneli Suikki, Conservation biologist (park history and conservation)
– Oulu University: Mr. Seppo Eurola, Emeritus Professor (mire vegetation)
– Western Finland Regional Environment Centre: Mrs. Niina Pirttiniemi, Biologist (nature management)

History of agriculture in mires and flood control, sightseeing in Alajoki area in Lapua and Kauhava 15.30-17

Overnight in a hostel in Lapua

9. day 21.7. Friday
Levaneva mire (Ramsar) 9-13
Raised bog, vegetation, flora, birds, water reservoir, cultural history, poaching
– Western Finland Regional Environment Centre: Mrs. Niina Pirttiniemi, Biologist (nature management)
Lauhavuori national park 16-18.30
Land uplift history, geomorphology, ecohydrology, eccentric bogs, springs, vegetation, flora, invertebrates, trout
– MH, NHS: Mr. Pekka Vesterinen, Foreman (park management, mire restoration), Mrs. Satu Kalpio, Senior Advisor (park management, vegetation)
– FNCA: Mr. Jari Ilmonen, Mr. Jukka Salmela and Mr. Teemu Tuovinen, Researchers (invertebrates, spring ecology, trout)

Overnight in modest cottages at Nummijärvi Camping, Kauhajoki

10. day 22.7. Saturday
Kauhaneva national park (Ramsar) 8-11
Raised bog, mire massifs, vegetation, flora, invertebrates, birds, palaeoecology
– MH, NHS: Mr. Pekka Vesterinen, Foreman (park management, mire restoration), Mrs. Satu Kalpio, Senior Advisor (park management,vegetation)
– FNCA: Mr. Jari Ilmonen, Mr. Jukka Salmela and Mr. Teemu Tuovinen, Researchers (invertebrates)
Seitseminen national park 13.30-17
Restoration of mires, settlement history, old-growth forest
– MH. NHS: Mr. Pekka Vesterinen Foreman (park management, mire restoration), Mrs. Satu Kalpio, Senior Advisor (vegetation), Mr. Seppo Kallonen, Conservation biologist, Mr. Teemu Tahvanainen, researcher, Dr.(evaluation of mire restoration)
– Oulu University: Mr. Seppo Eurola, Emeritus Professor

Overnigh in Hotel Ellivuori, Karkku

11. day 23.7. Sunday
Puurijärvi national park 8.30-10.00
Wetland and its management, birds
Punassuo mire 12-13.30
Plateau bog, structure, vegetation, flora
– Joensuu University: Mr. Kimmo Tolonen, Emeritus Professor (mire development history), Mr. Teemu Tahvanainen, Dr.(mire ecohydrology)
Harpar Storträsk mire 15-17
Vegetation, flora, conservation problems on private land, succession, lake draining
– FNCA: Mr. Kalevi Keynäs, Emeritus biologist (flora and nature conservation issues)

Overnight in conference hostel, Eerikkilä Sports Institute

12. day 24.7. Monday

Conference 13-18
Banquet 19-22 Häme nature centre

13. day 25.7. Tuesday

Conference excursion
Soukonkorpi mire in Liesjärvi national park
Restoration of forested mire
– MH, NHS: Mrs. Annamari Ilola, Foreman (traditional land use and culture)
– FEI: Mrs. Kaisu Aapala, Senior researcher (vegetation ecology after restoration)
Torronsuo national park
Large raised bog
– FEI: Mr. Heikki Toivonen, Research professor (plant ecology and nature conservation)

14. day 26.7. Wednesday
Conference 9-18

15. day 27.7. Thursday
IMCG general assembly 9-12
Departure 13 o'clock

After the IMCG Field Symposium and General Assembly: South Africa and its mires

The previous IMCG Field Symposium and General Assembly was held in South Africa in 2004. Our South African friends have prepared some articles and reports on the impact of the IMCG visit and the continuing efforts for the conservation of "their" mires.

IMCG South Africa

About 5 – 8% of South Africa's land surface is covered with wetlands. Nearly 10% of those could be mires. Not much compared to the countries in the northern hemisphere – however, the South African peatlands and mires occur in a variety of landscapes contributing to a reach diversity of peatlands and mires. These vary from the interdune tropical swampforests in the east to percolation mires in the interior on the southern African plateau and the palmiet peatlands in the Cape Fold mountains – to mention only a few!

Just as varied as our peatlands and just as small in number is the wetland community of researchers, managers, conservationists and supporters. However, it is a dedicated and passionate group, and on 13 June 2006 about 25 of us met at the South African Biodiversity Institute in Pretoria to form a South African arm of the IMCG.

The objectives of the IMCG South Africa will be to:

- Expand the IMCG network in South Africa
- Create awareness around peatland and mires
- Establish a programme of activities for the next 12 months
- Cooperate with other programmes such as Working for Wetlands, the WWF project: Mondi Wetlands etc

A steering committee was established under the chairmanship of Fred Ellery of the University of KwaZulu-Natal. The other members of the committee are:

- Corrie Swanepoel - Agricultural Research Council
- Japie Buckle - Working for Wetlands (Secretary)
- Rehana Dada – Independent Environmental Journalist and
- Piet-Louis Grundling – University of Waterloo

It is hoped that this arm in South Africa will soon become an IMCG southern Africa Chapter as more people from the counties around South Africa join in!!

IMCG Newsletter now also available in HTML

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Report on the Braamhoek (Waterval Vlei) Mire

by Piet-Louis Grundling

Introduction

The Braamhoek Mire is acknowledged worldwide as a unique wetland of international importance. A recent visit by 35 international experts of the International Mire Conservation Group (Sept 2004) has confirmed that the Braamhoek wetland should be classified as a percolation mire.

The need for the Braamhoek Pumped Storage Scheme (BPSS) arose, inter alia, from the increasing demand for electricity in South Africa and the requirement to increase South Africa's peaking electricity generating capacity. "Peaking electricity generating capacity" refers to power station technology designed specifically to generate electricity during periods of very high demand for electricity. Pumped storage technology is internationally recognised as one of the best means of providing peaking electricity generation.

The proposed BPSS is situated approximately 25 km northeast of Van Reenen, straddling the escarpment of the Low Berg on the boundary of the Free State and Kwa-Zulu Natal. The proposed upper reservoir is on a tributary of the Wilge River, in the Braamhoek Mire, which flows into the Vaal River. The proposed lower reservoir is on the headwaters of the Klip River, a tributary of the Tugela River. The two reservoirs of the proposed scheme will be connected by enclosed tunnel systems, with pump turbine units with a potential generation capacity of approximately 1332 MW.

A total of more than 9 000ha of land around the mire was purchased by Eskom and has been set aside for conservation purposes (hereafter referred to as the 'BPSS land'). All farms to be included in the conservation area are owned by Eskom (Pty) Ltd. Additional farms may be included at a later date, should such an opportunity present itself.

In addition to the purchasing of the afore-mentioned land, Eskom was required, in terms of the Record of Decision, to implement the necessary measures to rehabilitate the land. Such measures include, amongst others, to relocate the labour tenants on the upper reservoir farms, remove all cattle from the farms and implement the necessary rehabilitation measures to the occurring soil erosion.

Following various discussions and workshops with key Specialists it was decided that:

- The BPSS land will be proclaimed a Protected Area (Nature Reserve, in terms of the relevant legislation),
- Eskom will pursue the integrated management of upper and lower farms as a single unit, thereby allowing the seasonal migration of fauna. The necessity to allow for such migration is a result of the altitudinal differences between the upper and lower BPSS Eskom owned farms.

Ecological and bio-diversity of theBPSS land

The BPSS land has significant conservation value as it contains various wetlands, the mire and is home to several species that are either critically endangered, near endangered or at risk. In addition to harbouring several red data species approximately 5 species are endemic to the region. The creation of the conservation area will provide the opportunity to increase the current extent of 'conserved grasslands' by approximately 81%.

Despite the conservation potential of the area, overgrazing and historically poor land management has resulted in severe erosion and a loss of biodiversity in the surrounding veld. The illustrates the need to rehabilitate Eskom owned farms as well as to ensure that the BPSS design, construction and operation takes cognizance of the sensitivities of the surrounding environment.

Scope of work

The Braamhoek Advisory Committee, Conservation (BACC) is a working group formed under the Braamhoek Partnership Steering Committee (BPSC). The BACC will give feedback at all BPSC meetings and undertake the following tasks:

- Advise on the development of the Integrated Environmental Management Plan (IEMP) for the BPSS land, including the assessment, establishment and review of all necessary conservation targets and objectives;
- Advise on the development of the monitoring program to measure the success of the IEMP.
- Advise on issues relating to the rehabilitation of the BPSS land.
- Identify any additional studies and assessments that may be required for the successful conservation of the BPSS land.
- Report all matters relating to the IEMP to the Braamhoek Partnership Steering Committee.
- Advise with any task as identified by the IEMP or Braamhoek Partnership Steering Committee.

Members

Members of the advisory group are: Eskom, Enkangala Grassland Project Trust, Ezemvelo Kwa-Zulu Natal Wildlife, Free State Department of Toursim Environment and Economic Affairs, Birdlife South Africa, Middlepunt Wetland Trust, SANBI and the IMCG.

We trust that the IMCG can, through participation in this forum, ensure the sustainable management of the remaining part of the Braamhoek Mire in this new conservation area, thereby reducing the impacts of the pumpstorage scheme.

Wetlands: the Source of Lesotho's 'white gold'

by Sekhonyana Lerotholi and Piet-Louis Grundling

Introduction

The Kingdom of Lesotho is a landlocked country located in southern Africa, within the borders of the Republic of South Africa. The country has a population of about 2 million, covers an area of about 30 375 km^2. The capital of Lesotho is Maseru and only about 14 % of the population lives in urban areas. Lesotho is also known as the mountain kingdom with rugged Alpine and sub-Alpine terrain above 2 000 m above mean sea level covering 75 % of the country. At 3482 m a.s.l., its highest peak, Thabana-Ntlenyana, is the highest mountain in Africa south of Kilimanjaro. The people of Lesotho depend on subsistence agriculture and its economy is inextricably linked to that of South Africa with about 150 000 Basotho (citizens of Lesotho) working in South Africa. Most of these are men working in South African mines (about 100 000).

Lesotho is a country well renowned for its abundant high quality freshwater resources. Water is sometimes referred to as 'white gold' owing to it being the most important natural resource in the absence of other common minerals. The sources of this 'white gold' are wetlands or 'mekhoabo' in Sesotho. These are pieces of land that are characterized by water logged soils, water loving plants and high water tables. Wetlands are able to retain rain water over the wet season and gradually release it during the dry season into streams and rivers. This sustains river flows even during prolonged droughts. Rivers such as Senqu supply other countries in the region with water because of the existence of wetlands.

A wetland in the highlands of Lesotho

Wetlands are important for livestock grazing, biodiversity, recreation, fishing, groundwater recharge, and providing materials for houses and handicrafts. However, these important land features are under increasing pressure from anthropogenic effects such as overgrazing, fire, cultivation and road construction among others. Unless drastic steps are taken to address these conditions, the 'white gold' of Lesotho will diminish so that both rural and urban population will face serious water supply shortages.

The government established the Wetlands Unit housed in the Department of Water Affairs in 2003 to address the wise use of wetlands. The unit is also tasked with taking the lead in the protection of wetlands in the country. The Department of Water Affairs has developed a National Wetlands Management Programme which identifies all the problem areas and how they could be addressed. To date a national wetlands committee that represents government, parastatals and NGO's has since been established to create a forum where stakeholders can take decisions with regards to wetland management. The Wetlands unit also monitors the state of wetlands, identifies impacts, rehabilitates them and draws and implements management plans. In addition there has also been rehabilitation of degraded wetlands in Motete by way of construction of gabions.

Even with efforts in place a lot still needs to be done to conserve Lesotho's gold. If not what will become of Lesotho without its gold?

Fens and bogs

It has been widely acknowledged by various authors that the wetlands of the mountains of Lesotho are unique (Van Zinderen Bakker, 1965; Bakéus 1988, Marneweck, 1996 and Marneweck and Grundling 1999). Marneweck and Grundling (1999) identified a number of habitat types in the high altitude (2750 m - 3250 m) wetlands in the catchment areas of the Bokong, Motete, Motsoku and Maliba-Matšo Rivers. An interesting observation from both this and the Mohale study (Marneweck, 1996) was that none of the investigated mires (39 field sampled wetlands from the two areas in Lesotho) could really be classified as bogs. This is in contrast to the many literature reports of the occurrence of bogs in Lesotho (Van Zineren Bakker, 1955; Jacot Guillarmod, 1962 & 1963; Schwabe, 1995). There also does not seem to be any indication of a relationship between aspect and mire type as reported by Schwabe (1995).

Alluvial fans and associated mires

The interbedded gravel in the peat appears to be closely related to the alluvial fans which result from erosion of the Maluti mountain landscape, particularly on the steeper slopes. These fans deposit the eroded gravels onto the wetland surface and with time these gravels become incorporated into the peat layer as part of the peat accumulation process.

Young mountain areas such as the Maluti are dominated by weathering and erosion processes and are dynamic landscapes in a state of constant change. In contrast, the peatlands that occur in these areas are sensitive features in the landscape that prefer stable and low energy environments. Evidence of this comes from mires that were dated as more than 8 000

years old (Van Zinderen Bakker and Wergner, 1974 and Zawada, pers.comm, 1998). Considering the conditions required for mires to develop, these ages tend to indicate that there must have been a stable energy regime over a long period of time.

The small alluvial fans of gravel therefore tend to represent localised higher energy pulses that may play an important role in the hydrological processes of the fens. This can be explained as follows: All of the fens sampled contained layers of fine to medium fine-grained peat. These layers of peat are excellent in storing water but act much like clay in terms of not releasing the water. In contrast, the gravel layers and more fibrous peat layers tend to act more like conduits allowing the water to be released more easily. In combination then, the gravels and fibrous peat allow water to be transported down stream, while the finer grained peat and clay layers retain the water for longer periods. These two factors would appear to be key in the retention, storage and slow release of water from the catchments and would be key in terms of the maintenance of baseflows in the streams.

The loss of the peat and degradation of the fen structure due to various impacts may therefore have serious consequences for flow in the streams. It is also important to consider that peat accumulation rates are slow at 0.25 mm / year (Van Zinderen Bakker and Wergner, 1974) in the Maluti mountains. However it would appear that the Lesotho mires are thus far the only peatlands that have been shown to be associated with alluvial fans. The role of the peat and gravel layers in the hydrological regime of these wetlands is important for regulating the quality and quantity of water entering the feeder rivers of Katse Dam.

Impacts

Many of the wetlands have been degraded by anthropogenic impacts, ranging from agricultural practices (mainly livestock) to infrastructure development and diamond mining. The loss in wetland function still needs to be determined in full but key benefits such as storage, filtering, erosion control, carbon storage, base flow maintenance etc. have been limited severely at most study sites. The prospects for the successful halting of further degradation of many of these systems will depend on the development and implementation of a long-term rehabilitation strategy and a key component will be the involvement on-site management and restoration. It is strongly recommended that urgent attention is given to direct on-site measures for curbing further deterioration of the wetlands, especially by stormwater drainage from roads and overgrazing by livestock.

The following quote from the Maloti Drakensberg Transfrontier Park Quarterly Newsletter, September 2005 summarizes the degradation of wetlands in the region as follows:

Erosion poses a serious threat to the mires of Lesotho

"Without a rapid response, the water trapping ability of the region will be irreparably damaged with dire consequences for the people of southern Africa."

The Lesotho Highland Water Project flooded fertile valleys and thereby reduced grazing lands and increased pressure on alpine areas. The grazing impact on mires increased particularly in alpine areas that are part of communal land. Species such as Isolepis fluitans are heavily grazed and while they have a high resilience to grazing, the main problem is the secondary impact of trampling by grazing animals. Peat is more resilient to this form of erosion than the mineral soils originating from the underlying basalt. Gully erosion occurring upstream of mires in mineral soils is especially significant in causing erosion in the more resilient mires as well.

Some rehabilitation works were noticed infield. However, these are in desperate need for maintenance. It was found in general that the structures were nor well designed and/or not constructed to design.

Conclusion

The mires of Lesotho are unique and quite unlike any other southern African mires in terms of the association of peat and gravel beds in alluvial fans. Further studies on these relatively small but interesting mires are urgently required and it is quite clear that the desiccation and erosion of these wetlands, and particularly the fens, in the study area, has impacted dramatically on the storage capability of these wetlands. It is likely that many of the other high altitude mires are also showing a trend of degradation. Since all these wetlands occur at the head of the major feeder rivers into Katse Dam, there is cause for concern relating to the long-term supply of good quality water to the reservoir.

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UPCOMING EVENTS

See for additional and up-to-date information: http://www.imcg.net/imcgdia.htm

IMCG Field Symposium and General assembly in Finland
13-26 July 2006, Finland
for more information see elsewhere in this Newsletter.

IMCG IPS meeting,
28 July 2006, Meripuisto, Espoo, Finland
for more information contact the IMCG Secretariat info@imcg.net

Ramsar CoCo-GAP Meeting
29 July 2006, Meripuisto, Espoo, Finland
for more information contact the IMCG Secretariat info@imcg.net

5th European Conference on Ecological Restoration
22–25 August 2006, Greifswald, Germany
for more information visit:
www.uni-greifswald.de/SER2006
See IMCG Newsletter 2005/3, 2005/4 and 2006/1

HydroEco2006
11-14 September 2006, Karlovy Vary (Carlsbad), Czech Republic
International Multidisciplinary Conference on Hydrology and Ecology. For more information visit http://web.natur.cuni.cz/hydroeco2006/

International Symposium on Nature and Land Management of Tropical Peat land in South East Asia
20-21 September 2006, Bogor, Indonesia
for more information download first circular:
http://www.imcg.net/DOCUM/bogor0601.pdf

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