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UNEP Concerned by Impacts of Global Climate Change in Mountain Areas

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The United Nations Environment Programme and IYM2002

UNEP WCMC

The United Nations Environment Programme (UNEP) is headquartered in Nairobi and has regional offices on every continent. UNEP's mission is "to provide leadership and encourage partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations."



FIGURE 1 Julie-Ann and Roger with the UNEP flag on the summit of Island Peak, in commemoration of Environment Day and IYM2002. (Photo courtesy of UNEP)

UNEP's Mountain Mandate

According to Klaus Toepfer, Executive Director of UNEP, the UN International Year of Mountains (IYM2002) "offers UNEP and its partners a unique opportunity to celebrate the natural environment, cultures, and peoples of the world's mountain regions. It also provides us with a tool for raising the political profile of sustainable mountain development." UNEP's IYM activities are being coordinated by a technical secretariat establi-shed in Geneva by the UNEP World Conservation Monitoring Centre (UNEP-WCMC) in Cambridge, UK, and the UNEP Regional Office for Europe (ROE). These activities led to the formation of a UNEP Mountain Programme. The technical secretariat also assisted the Government of the Kyrgyz Republic with preparations for the Bishkek Global Mountain Summit (BGMS).

UNEP's work during IYM is generously supported by the UN Food and Agriculture Organization (FAO, the lead agency for IYM), the Global Environmental Facility (GEF), the Swiss Agency for Development and Cooperation (SDC), the Aga Khan Development Network, UNU, UNESCO, UNDP, the World Bank, the Asia Development Bank, the Mountain Forum (MF) and the Governments of Kyrgyzstan, Austria, Italy, Liechtenstein, the United Kingdom, and Germany.

The Bishkek Global Mountain Summit

The BGMS in Bishkek, Kyrgyzstan (29 October 2002–1 November 2002), was the culminating global event of IYM2002. Together with an International Advisory Board, the technical secretariat for the Summit, based in UNEP ROE, assisted the Government of the Kyrgyz Republic with preparations for the Summit. It drew together the ideas and recommendations generated by previous events, from all levels and sectors of society, into proposals for concrete action.

The outcomes of the BGMS were the following:

- The Bishkek Mountain Platform was presented to the Summit by the Government of Kyrgyzstan. This Platform is based on the synthesis of the recommendations of mountain meetings since the 1992 Earth Summit and on thematic papers prepared for the Summit. To focus the issues in 2002, UNEP sponsored the production of 10 thematic papers written by prominent authors. These papers, which were subjected to extensive electronic consultations hosted by the MF, covered the main issues in sustainable mountain development.
- Further development of the International Partnership for Sustainable Development in Mountain Regions which was launched at the World Summit on Sustainable Development (WSSD) in early September.
- The Central Asian Mountain Charter, which emerged from UNEP's European Mountain Initiative (see below).
- Discussion of the proposal for a Network of Mountain Developing States submitted by the government of Kyrgyzstan during the World Summit for Sustainable Development.

The program of the BGMS and the main outcomes are available on the following web site: www.globalmountainsummit.org The same web site will serve as a forum for the Bishkek follow up process and possible preparations for a new Summit in 2005.

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UNEP's European Mountain Initiative

Countries in central and eastern Europe have seized the opportunity posed by IYM2002 to propose initiatives for the protection and sustainable management of 3 major transboundary mountain ranges in Europe and Central Asia. In response to these requests, UNEP ROE has launched the European Mountain Initiative, which comprises 3 projects aimed at assisting governments of the region in facilitating increased cooperation for the protection and sustainable management of exceptional major ecosystems in the majestic mountain ranges of the Carpathians, the Caucasus and Central Asia. The European Mountain Initiative is on the Agenda of the Ministerial Conference "Environment for Europe," to be held in Kyiv, Ukraine, in May 2003. See www.unep.ch/roe/emi.htm for further information.

The Water and Mountains Initiative

Mountain ecosystems are one of the key interfaces between economic sustainability and environmental stewardship. Although an estimated two thirds of the world's renewable fresh water comes from mountain watersheds, there is a worldwide lack of strategic maintenance of upper watersheds by downstream stakeholders.

UNEP—supported by the German agency for technical cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit, GTZ) and the GEF project entitled "Barriers and Best Practices in Integrated Management of Mountain Ecosystems"—is promoting the concept of alliances between public and private sector stakeholders to gain support for the Water and Mountains Initiative (WAMI). The project aims to explore local and regional pilot opportunities and introduce shared responsibility and accountability for sustainable products and services derived from mountain ecosystems. The project will also promote private–public partnerships as well as upstream–downstream environmental service agreements and contracts for mountain ecosystems. WAMI may be launched jointly with the World Economic Forum (WEF) during the WEF's Annual Meeting in Davos in January 2003. To support this effort, WEF, UNEP, and partners will establish a WAMI technical secretariat in Geneva, which will provide support to a special private–public task force and serve as a hub for the follow-up action programs.

From a press release announcing Mountain Watch

Mountain Watch … provides the first map-based overview of environmental change in mountains and its implications for sustainable development. (…)

The report presents new global maps illustrating 7 pressures, or causes, of environmental change in mountains: natural hazards, fire, climate change, infrastructure development, violent human conflict, land cover change, and agricultural intensification. It also offers a process to enable better and more informed decision-making.

"In order to identify the priority areas for global mountain conservation, maps of ecosystem and indicator species groups were overlaid with information about the various pressures," says Mark Collins, Director of the UNEP-WCMC team that produced the report. "The result was stunning. We could clearly see which areas suffer most due to a combination of pressures. For the first time we have a global snapshot of the threats and vulnerability of different mountain regions," he said. (…)

Mountains and conflicts

Klaus Toepfer, UNEP's Executive Director, underlines that mountains "play an important role in peace and security. We still have a long way to go in fully understanding the complex interrelations between poverty, environmental degradation, and war, but the preliminary findings from the report suggest that environmental degradation in mountain areas could have direct implications for conflict and security issues."

According to the lead author of the Mountain Watch report, Adrian Newton, one of the pressures analyzed, the impact of violent human conflict, may have a particular significance in mountain areas. "Mountain Watch shows that approximately 41% of mountain land has fallen within the radius of a high intensity human conflict between 1946 and 2001, compared with 26% of non-mountain land," says Newton.

Although acknowledging the difficulties associated with gathering reliable data, Newton says, "The risk of serious violent conflict appears to be higher in mountain regions than in non-mountain areas." Newton suggests that the fact that mountain areas are less suitable for agriculture than non-mountain areas, combined with marginalization of mountain communities and the impact of environmental degradation, may increase the risk of human conflict. According to the report, "The reduction in ecosystem services due to environmental change increases competition for resources, thereby raising the likelihood of conflict." (…)

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An International Partnership

The International Partnership for Sustainable Mountain Development was launched by FAO, UNEP, and the Government of Switzerland on behalf of the 15 member countries of the IYM Focus Group at the Johannesburg Summit. It was further developed at the BGMS through the formation of multi-stakeholder partnerships. See www.mountains2002.org/archive/news/news19.html and www.globalmountainsummit.org/intl_partnership.html for further information.

New mountain assessments and data

One of UNEP's major outputs for IYM2002 was Mountain Watch, which will be followed by a World Atlas of Mountains, building on UNEP-WCMC's global expertise in data collection and processing.

Mountain Watch is the process through which a methodology to assess the ecological condition of mountains worldwide will be devised and implemented in developing regions through a GEF project. Mountain Watch will result in a highly visual, map-based overview of:

- The ecological and social values of mountain ecosystems and the services they provide.
- Current and potential pressures faced by mountain people and their environments, and the implications of these pressures for sustainable development in mountain areas.

Mountain Watch will lead to a set of methodologies to help decision makers assess the condition of, and pressures on mountain ecosystems, as well as the services that these ecosystems provide to people living both within and outside them (see Box). The Mountain Watch report was launched at the BGMS.

A World Atlas of Mountains will be produced starting from the existing World Map of Mountains and Mountain Forests, with contributions from the Mountain Watch overview. The Atlas will provide an integrated overview of mountain environments, as well as guidelines to best practices in the integrated management of these environments.

UNEP.net portal

All materials emanating from the Mountain Watch and Mountain Atlas processes will be integrated into a Mountain Portal on the UNEP.net Internet site. For further information, please consult: mountains.unep.net and www.unep-wcmc.org

Capacity building for monitoring and assessment

There is a need to enhance capacity in many countries to implement the strategies and plans arising from IYM2002. UNEP-WCMC, in collaboration with the UK Darwin Initiative and the King Mahendra Trust, is assisting with capacity building in the Annapurna Conservation Area, the largest protected area in Nepal. This will become a pilot site for developing tools, training staff on assessment of ecological and cultural values of mountain commons, and monitoring the impacts of tourism.

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This article is reprinted from Teen Planet *No 5, September/October 2002, the UNEP outreach magazine for young people and those interested in youth development. It illustrates UNEP's concern with global climate change and its impact on mountains, and the urgent need to monitor them. Ed.*

Everest Meltdown

Mountaineering is a sport for people who enjoy the challenge and freedom of climbing and who care about the environment. This commitment to protecting the mountain environment is why the United Nations Environment Programme (UNEP) and the International Mountaineering and Climbing Federation (UIAA) joined forces for World Environment Day 2002 and dispatched an expedition to the Himalayas to chronicle the environmental health of one of the world's most famous mountain ranges.

The aim for the expedition of 7 members was to record observations

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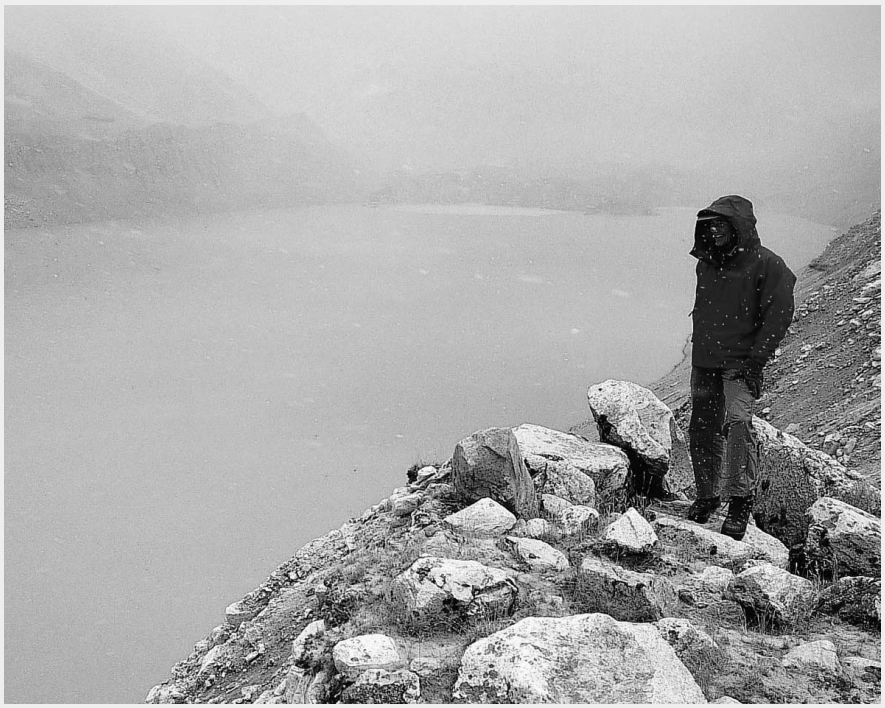


FIGURE 2 Island Peak (6189 m) was named by the first ascent team in 1953 because it was "an island in a sea of ice." Today the peak is surrounded by rubble and a 2-km-long glacial lake. (Photo courtesy of UNEP)

of environmental change and climb Island Peak, which is 6189 meters above sea level and a neighbor of Everest in the Khumbu Region of Nepal (Figure 1). The expedition gathered startling evidence of the impacts of climate change. The glacier from where Sir Edmund Hillary and Sherpa Tenzing Norgay set out to make the first ascent of Everest nearly 50 years ago has retreated by around 5 km up the mountain. Other evidence of climate change included huge scars gouged in the landscape by sudden glacial floods from the lakes swollen by melting glaciers.

However, perhaps the biggest indicator of climate change was the glacial lake at the foot of Island Peak (Figure 2). Thirty years ago there was a rubble-strewn glacier, but as the climate has become warmer the glacier has melted and been replaced by a lake over 100 m deep, 500 m wide and 2 km long. What is very worrying is that the wall of rubble that contains this lake could fail and cause a life-threatening flood to the villages downstream. This lake is just one of 20 glacial lakes in Nepal identified by experts as being in danger of bursting its banks.

On the trek to the mountain the expedition visited the Thyangboche monastery, home to 60 Buddhist monks. Here they met the Lama Rinpoche, who has lived there for over 30 years and witnessed two big floods from glacial lakes. The Lama said that in recent years the climate had grown noticeably warmer and floods were now more common. The expedition experienced very poor weather in what was described as the wettest spring season in Nepal for at least a decade.

The warmer and wetter weather, the shrinking glaciers, and the growing glacial lakes can only lead to the conclusion that global warming is emerging as the biggest threat to mountain environments. We may think of mountains as being permanent and unchanging, but they are as vulnerable to climate change as forests and oceans.

The expedition reached the summit of Island Peak on 27 May and made a film of the journey. But mountains are not just for sport, they are the world's vital water towers, and floods and landslides alternating with droughts cause chaos downstream. In the extreme environment of high mountains the evidence of climate change is clear to see. But the solution to global warming is not to be found in the mountains; so we must all think about how we can act to protect the mountains and the flow of clean water essential to our everyday lives.

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