



A SUMMARY REPORT OF THE FIRST AFRICAN MOUNTAINS REGIONAL FORUM: 22-24 OCTOBER 2014



Cultural dance group welcoming the guests

The First African Mountains Regional Forum themed ‘Towards a Shared Mountain Agenda for Africa,’ took place at the Ngurdoto Mountain Lodge, Arusha, Tanzania, from 22-24 October 2014. The meeting was organized by the Albertine Rift Conservation Society (ARCOS) and the Africa Mountain Partnership Champions Committee, in partnership with the East African Community, the UN Environment Programme, the Austrian Development Cooperation, and the Swiss Agency for Development and Cooperation

During the meeting, participants: identified strategic actions to address major emerging issues; addressed the promotion of linkages and collaboration between different stakeholders for a regional framework on sustainable mountain development in Africa; and shared lessons learned and experiences in meeting the conservation and development challenges including biodiversity, water, energy, food security and climate change in African Mountain regions.

The meeting brought together over 100 participants representing, *inter alia*, government, academia, research institutions, intergovernmental organizations and civil society. The key outcome of the meeting was the adoption of the Arusha Outcomes, which many participants hoped would help raise the profile of the African sustainable mountain development agenda.

BRIEF HISTORY OF SUSTAINABLE MOUNTAIN DEVELOPMENT INITIATIVES AND MEETINGS

Nearly half the world’s countries have significant mountainous regions. These regions are home to about 850 million people, and provide more than half of the world’s population with water for domestic use, agriculture, industry and power generation, among other uses. Additionally, mountains are home to half of the world’s biodiversity hotspots and many threatened and endangered species, which attract tourism and create recreation opportunities.

Yet many mountain regions suffer from dire poverty, widespread land degradation, inequitable land rights, and are already enduring severe negative impacts from climate change. Mountain regions are among the most sensitive to climate change, and receding glaciers are one of the most visible indicators of global change. If current trends continue, many

glaciers are expected to disappear completely by the end of this century, potentially leading to catastrophic changes in water availability for large parts of the world.

The first major international decision to address the issue of mountains and mountainous regions was at the UN Conference on Environment and Development (UNCED), also known as the Earth Summit, held from 3-14 June 1992 in Rio de Janeiro, Brazil. One of the principal outputs of UNCED was Agenda 21, a 40-chapter programme of action. On mountains, Chapter 13 of Agenda 21 recognizes the important ecological, economic and social functions of, and services provided by, mountainous regions. It makes a number of recommendations to governments on mountains, including: promoting erosion control; promoting alternative livelihoods; developing early-

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warning systems and disaster-response teams for hazardous areas; and creating information centers on mountain ecosystems to build expertise on sustainable agriculture and conservation areas. In its capacity as the lead agency on mountains within the UN system, the FAO was made the Task Manager of Chapter 13 in 2003.

MOUNTAIN PARTNERSHIP: The Mountain Partnership (MP) was founded by the Governments of Italy and Switzerland, FAO and UNEP and launched at the World Summit for Sustainable Development (WSSD) in Johannesburg, South Africa, in 2002. Subsequently, four meetings of the MP have been held.

The first Global Meeting of the MP was held in Merano, Italy from 5-6 October 2003. It provided a unique forum in which to identify common needs, priorities and concerns and to explore key issues related to the structure, membership and governance of the Partnership.

The second meeting was held in Cusco, Peru from 28-29 October 2004. The two-day meeting provided Partnership members the opportunity to exchange experiences, review progress and chart the future course of the MP and its dynamic core, the "Partnership Initiatives." The Cusco Conference endorsed the governance of the Partnership set out in the Organization Membership and Governance document and adopted the Cusco Framework for Action. Participants also affirmed their collective commitment to the goals of SMD through the Declaration of the Andes.

The third Global Meeting took place in Rio de Janeiro, Brazil, on Tuesday, 19 June 2012, on the sidelines of the Rio+20 summit. The event was aimed at, *inter alia*: sharing lessons and best practices from joint action over the past ten years; identifying appropriate strategic objectives for effectively promoting SMD; and building the future cooperative efforts of the MP on a synergistic, inclusive and committed foundation. Three paragraphs (210, 211 and 212) on mountains were included in the Rio+20 Outcome document, 'The Future We Want.'

The fourth meeting took place in Erzurum, Turkey from 17-19 September 2013. During the meeting, participants addressed: the new MP Strategy and Governance; mountains in Rio+20 and the post-2015 SDGs; the Mountain Forum knowledge platform for SMD; regional coordination mechanisms; and the selection of the Steering Committee. Thematic working groups considered how to put the MP into practice.

IISD RS coverage of the Fourth Global Meeting of the MP can be found at: <http://www.iisd.ca/mountain/gmmp4/>

REGIONAL MEETING ON SUSTAINABLE DEVELOPMENT IN AFRICAN MOUNTAIN REGIONS:

This meeting was held in Mbale, Uganda, from 16-18 November 2011. Participants discussed the increasing challenges and opportunities involved in the sustainable development of mountain regions as part of the 'Strategic Initiative for Climate Change Impacts, Adaptation and Development in Mountain Regions.'

SUMMIT FOR SUSTAINABILITY IN AFRICA: This meeting took place from 24-25 May 2012 in Gaborone, Botswana, and resulted in the Gaborone Declaration for Sustainability in Africa, where countries recommitted to implementing all conventions and declarations that promote sustainable development. The overall objective of the Declaration is "To ensure that the contributions of natural capital to sustainable economic growth, maintenance and

improvement of social capital and human well-being are quantified and integrated into development and business practice."

ENHANCING THE MP IN AFRICA FOR SUSTAINABLE DEVELOPMENT IN AFRICAN WATER TOWERS: This meeting took place on 20 February 2013 in Kigali, Rwanda and launched a special initiative on mountains as African Water Towers. The Water Towers Initiative focuses on conducting research and generating knowledge on mountain ecosystem issues, carrying out stakeholder and institutional analysis to understand the actors involved in mountain ecosystems, and creating awareness of the need for payment for ecosystem services.

WORLD MOUNTAIN FORUM: The World Mountain Forum (WMF) took place from 22-24 May 2014 in Cusco, Peru, and was a collaborative effort of eight partners: the Swiss Agency for Development and Cooperation (SDC); Consortium for the Sustainable Development of the Andean Ecoregion; ARCOS; International Centre for Integrated Mountain Development; University of Central Asia; Foundation for the Sustainable Development of Mountain Regions; Centre for Development and Environment, University of Berne; and the University of Zurich. The Forum provided a platform to promote SMD, and included sessions on four topics: climate change; family farming; mountain communities; and mountain cities. These sessions included a particular focus on water and food security, sustainable investment, and climate change adaptation. WMF 2014 showcased and discussed available local, regional and global experience in mountain development, and identified opportunities and challenges for global SMD.

Link to IISD coverage: <http://www.iisd.ca/mountain/wmf/2014/html/crsvol194num4e.html>

REPORT OF THE MEETING

The African Mountains Regional Forum (AMRF) consisted of five themed plenary sessions with panel discussions. The thematic sessions on biodiversity and ecosystem services;

and water, energy and food security challenges in African mountains took place on Wednesday, 24 October. The themes of African mountains and climate change, and mountain communities were considered on Thursday, 25 October. On Friday, 26 October, participants addressed the theme of international and regional policy.

OPENING STATEMENTS: On Wednesday, Sam Kanyamibwa, Executive Director, ARCOS welcomed participants to the first AMRF, underscoring its importance for shaping the mountains agenda across Africa. Highlighting the meeting theme: Towards a Shared Agenda for Africa, he said the Forum reflects the multidisciplinary nature of SMD.

Olivier Chave, Ambassador of Switzerland to Tanzania, described mountain environments as "marginality by excellence," explaining that mountain populations are marginalized culturally, socially and politically. He



Sam Kanyamibwa, Albertine Rift Conservation Society, giving his welcome address



Jesca Eriyo, East African Community, welcoming participants

said the Swiss Government aims to bring people together to share knowledge and stimulate understanding to serve policy-making.

Elisabeth Soetz, Austria Development Cooperation (ADC) stressed mountain regions share similarities and the mountain community can profit by exchanging experiences. While acknowledging that regional cooperation is not easy, she said it is worth the effort.

Robert Wabunoha, United Nations Environment Programme (UNEP) underscored the importance of African mountains in providing water to a region dominated by arid areas. He pointed out that African small island states have their own challenges with SMD and urged their inclusion in the African mountain development agenda.

Jesca Eriyo, East African Community (EAC), described how the multiple trans-boundary and national mountainous areas in East Africa are home to wildlife 'hotspots' that support the livelihoods of mountain populations. She listed the challenges of mountain resource management including: low capacity, inadequate policy, natural disasters, and climate change.

Welcoming delegates, Nyerembe Deus Munasa, Arumeru District Commissioner, Tanzania, highlighted the need for good data infrastructure to enable management of resources, adding that science and technology provide insights into management. He called for formulation of mountains policy in Tanzania and expressed Tanzania's interest in joining the Mountain Partnership. Concluding the introductory session, Munasa stressed the need for "vision, inspiration and momentum" for SMD.



Nyelembé D. Munasa, Arumeru District Commissioner, Tanzania, concluding the introductory session to the Forum

BIODIVERSITY AND ECOSYSTEMS SERVICES

Godwin Kowero, Africa Forest Forum, chaired the session noting the sessions aimed to: promote better understanding of key issues; share lessons learned; and identify knowledge gaps.

Philip Taru Chinhoyi, University of Technology, Zimbabwe, delivered a keynote address on African mountains biodiversity and ecosystems services. He discussed the ecological

functions of mountain ecosystems, highlighting continent-wide examples. On conservation challenges, Taru observed that mountains in Africa are understudied and not prioritized for research, data is fragmented, and human and financial resources are limited. He called on African governments to develop and implement mountain-specific policies and support research on the needs of mountain communities, as well as develop the communication infrastructure for mountain biodiversity data and ecosystem services.

During the ensuing discussion, questions were raised on alien invasive species in mountain ecosystems, and whether benefits from mountain resources are being passed onto local communities. On benefit sharing, Taru responded that the issue is complicated due to intellectual property rights, asserted by those who develop products from forest resources. On invasive species, he noted that in the context of the Maluti mountain range in South Africa, the park management had tried to remove the invasive Acacia but this resulted in conflict with the local community.

Mohammed Sghir Taleb, Mohammed V-agdal University, Morocco, discussed the interactions between local populations and natural resources. He noted that Morocco is the second most diverse forest country after Turkey and mountain populations are generally poor and dependent on mountain natural resources. He highlighted his country's strategy for the preservation of biodiversity including a database comprising more than 120,000 specimens, as well as a network of protected areas and four national reserves

Rosemary Tonjock, University of Bamenda, Cameroon, discussed the conservation of macro-fungi in the Mount Cameroon region. She noted the fungi perform numerous functions, including the decomposition of dead organic matter, provision of non-timber forest products, such as medicine and food. She observed that a study had identified 177 species of macro-fungi and produced the first checklist of macro fungi in the Mount Cameroon region. Tonjock said the study proposed *in situ* and *ex situ* conservation, and a red list of endangered species among conservation strategies.

Responding to a question on the effects of climate change on the fungi, she noted that gene banks are being created for rare species and stressed that due to the pace of climate change it is important to document these species, adding that during the study they had identified new endemic species.

PKT Munishi, Sokoine University, Tanzania, presented on managing the Eastern Arc Mountains for carbon and water ecosystem services. Describing his analysis of carbon stocks, water flow, hydrology and forest loss, he explained mountains have potential for both payment for watershed services and payment for carbon environmental services. He underscored the need to take an integrated approach to management to adequately realize the benefits of payment for ecosystem services. In the ensuing discussion, one participant stressed the need to identify stakeholders willing to work on building such an integrated approach.

Willy Kakuru, Makerere University and ARCOS, Uganda, presented on Total Economic Value (TEV) of Albertine Rift Landscapes as a basis for payment for ecosystem services in the mountains, explaining that TEV attaches monetary value to natural resources and can be used to demonstrate the importance of biodiversity and ecosystems services to planners and policy makers, aiding policy-making, setting priorities,

and producing budgets. He recommended that TEV be used for detailed development, implementation and analysis of conservation tools.

Panel discussion: Sue Taylor, University of Pretoria, South Africa, moderated the panel discussion on biodiversity and ecosystem services.

Vincent Obewa, African Forest Forum (AFF), questioned how TEV could best be translated into business plans and packaged to respond to emerging issues to influence policy-makers. He underscored the importance of generating toolkits to assist policy-makers and the need to address communication pathways for community engagement in mountain biodiversity conservation and management.

Further emphasizing the importance of community engagement, Festus Bagoora, National Environment Management Authority, Uganda, urged disaggregating ‘mountain area countries’ from ‘mountain communities’ to ensure these communities receive a share of resources being provided to mountain area countries. He stressed the importance of the Forum agreeing a position on implementing pilots for payment for forest ecosystem services.

Hanta Rabetaliana, Association of the Mountain Populations of the World, Madagascar, provided Madagascan examples of how the economic valuation of biodiversity and ecosystems can benefit local communities, such as sale of fish in gourmet restaurants and community-based ecotourism. She cautioned against waiting for sufficient data and policy documents, underscoring the need to identify good examples of work involving states, communities, and private sector.

Willem Ferguson, University of Pretoria, South Africa, cautioned against taking a protectionist view of natural resources. He explained that maintaining natural resources is not about keeping humans away but managing the resources in a sustainable way. He added that access to biodiversity concerns many different people, not only the local communities directly connected to mountain resources.

Summarizing the session, Taylor stressed the need to protect mountains at all costs. She reflected panelists’ calls for more data, explaining that policies are “hollow documents” if they are based on opinions rather than data. She said research findings need to be packaged to address the needs of many audiences, from politicians, to local communities.

Chave concluded the panel session by emphasizing the importance of making research completely understandable to reach the “emotional framework” of policy-makers. Explaining we are dealing with a multifaceted reality, he said the task is to find a way to calibrate and bundle messages to make an impact sector-by-sector.

WATER, ENERGY AND FOOD SECURITY CHALLENGES IN AFRICAN MOUNTAINS

Elizabeth Soetz chaired this session, and Boniface Kiteme, Centre for Training and Integrated Research in Arid and Semi Arid and Land Development, delivered the keynote address. He elaborated



Elizabeth Soetz, Austrian Development Cooperation, facilitating the the session on Water, Energy and Food Security Challenges in African Mountains

on a challenged and constrained world due to a growing population and accelerated global unequal development. He noted that global food production had doubled in the last six decades but this growth has seen dramatically changing consumption patterns, diets and resource use. He explained that an emerging middle class in developing countries and huge shifts in agricultural production from cereals to meat and high value crops has triggered this. He described increasing energy prices and scarcity of water and land, stating that more than two billion people in approximately 40 countries are affected by water shortages. Noting that most African mountains and highlands are in a delicate transitional stage, he said they are characterized by agricultural systems that have opened up to a market economy, but remain largely depended on biomass energy.

Kiteme said most policy interventions and implementation aimed at sustainability have conventionally been siloed, underscoring the need to address trade offs and build synergies across sectors, which he characterized as the nexus approach. He added that the nexus approach provides an enhanced practical framework for addressing challenges of water, energy, and food security and is about balancing different resource sectors and interests.

Shadrack Mwakalila, University of Dar es Salaam, Tanzania, discussed adaptive water management for energy and crop production across the Kilimanjaro transect in Tanzania. He observed that water scarcity due to climate change threatens food security and energy production and traditional irrigation schemes are the most common adaptive measure for crop production. He said traditional irrigation schemes are associated with low efficiency due to water wastage. He provided an example of the Pangani Basin in Tanzania, which provides 60% of the inflow to the Nyumba ya Mungu dam used for Hydropower production. He noted that water demands in the Pangani Basin upstream of the dam have intensified with increasing of economic activities requiring water such as: irrigated agriculture, hydropower generation, livestock keeping, domestic fisheries, wildlife and environmental activities. He called for enhancing and implementing integrated water resource management (IWRM) to ensure sustainable use and management of water resources for sustaining energy and agricultural production, and food security.

Beatrice Kabihogo, Uplift the Rural Poor (URP), Uganda, discussed water as a source of poverty around Mount Muhabura, Uganda. She said URP has implemented community-based planning through village profiling in parishes bordering Mgahinga, Bwindi and Murora sub-county in collaboration with the district-planning unit. She said safe water access had been ranked the greatest challenge with people spending between five to ten hours per day searching for water. She attributed poor performance among school children as mainly due to lack of water.

Moses Duku, Institute of Industrial Research, Ghana, discussed sustainable energy production from agricultural crop residues in Ghana. He outlined his Institute’s aim to use fast pyrolysis (rapid heating) to produce bio-oil from agricultural crop residuals as an alternative energy source to fossil fuels. He predicted the next generation biofuel technologies would be based on non-food feedstock, have large-scale potential, and improved environmental impacts.

Hedi Feibel, Consultant, Ethiopia, discussed drivers, barriers and entry points for a stronger nexus orientation in relation to food security in Ethiopia. She said a nexus should increase

the resource efficiency to create more with less, increase productivity of resources available, and decouple economic development from resource use through innovations and recycling.

Panel Discussion: Salome Alweny, ARCOS moderated the panel discussion. Margaret Afoma Chukwu, Environment and Tourism Support (EATS) Nigeria, expressed particular interest in the water component of the nexus, pointing to rain harvesting as very important for local communities.

Appreciating that population growth can lead to small cultivation areas and land degradation, John Mussa, Ministry of Agriculture, Malawi, called for the promotion of both agricultural technologies that increase and sustain productivity of the land, and looking toward effective strategies and policies to control population growth. He added that with current population growth, efforts should be focused on developing mechanisms for utilizing the existing labor as a resource for economic development.

Patrick Shawa, Wildlife and Environmental Conservation Society, Zambia, listed some interventions to be considered during the Forum: nutrition; facilitating market access; gender; building coping strategies; creating off-farm opportunities; formulating and implementing policies; and looking at how best to use tools and strategies to manage land and water properly.

In the question and answer session that followed, panelists and participants discussed, *inter alia*: what makes mountains different when discussing the nexus; the need for inter-sectoral policies for applying the nexus at local levels; and incorporating the private sector in decision-making to create added value for value chains specific to mountain regions.

Soetz underscored the critical need to understand the impact of limited usable land in mountain regions on irrigation, water and crop production.

AFRICAN MOUNTAINS AND CLIMATE CHANGE

This session was chaired by Matthias Jurek, UNEP, and Brian Otiende, EAC, delivered a keynote presentation. He noted that mountains play an important role in climate regulation because they are linked to forests, adding 28% of forests are found in mountainous regions. Highlighting the role of mountains as early warning indicators of climate change, he noted threats to fragile mountainous areas had severe regional implications, including impacts on mountain gorillas in the Volcanoes National Park, Rwanda, saltwater intrusion, glacial retreat on Mount Kilimanjaro, and the recession of the Lewis glacier on Mount Kenya.

Otiende observed that in the next forty years, regional climatic projections would result in increased: rainfall variability, temperature, frequency, and intensity of extreme events. He emphasized the need for coping strategies and adaptive capabilities, calling for enabling policy frameworks on transboundary ecosystem management, investments in an ecosystem-based approach and disaster risk reduction through public-private partnerships. He said climate change and sustainable development should be mainstreamed in all key sectors, including water, agriculture and food security, renewable energy, and energy efficiency.

On mitigation and adaptation in the region, Otiende explained that the EAC climate change policy was adopted in 2011 and that the EAC is trying to become accredited as a regional implementing entity in order to access climate funds.

Fredy Kilima, Sokoine University, Tanzania, presented perceptions and attitudes of ecosystem users on climate change in Mount Kilimanjaro. He noted that the capacity of the Mount Kilimanjaro ecosystem to provide critical services is deteriorating due to over exploitation and climate change. He highlighted the findings of a time series analysis indicating that many ecosystem services users are aware of climate change and perceive it to be a serious problem, believing that rainfall is decreasing over time. However, he noted that the findings indicated no statistically significant difference between short and long rains before and after 1985, and that users should be more concerned about variability than climate change. He added that mountains communities should be informed about what has changed and how to mitigate the impacts.

One participant noted that an analysis conducted in the Mount Kenya, Mwingi, and Makueni regions in Kenya yielded similar results. Another questioned whether timing of rainfall had been analyzed, and Kilima responded that this would be analyzed in a subsequent study.

Itumeleng Bulane, Lesotho Meteorological Services, Lesotho, outlined the removal of invasive species in her country. She described the four ecological regions of Lesotho, noting that mountains dominate these ecosystems. Describing climate change vulnerability zones and their invasion by shrub species, Bulane said a shrub removal programme had seen increased grazing capacity and reduced bare areas. Despite successes, she pointed to challenges including a lack of policies and regional frameworks. She concluded that this intervention has produced positive results on rangeland recruitment but work is still needed on policy integration and the provision of information. Bulane responded to a question on how effective the shrub removal is by explaining that while it seems to be working well, it needs to be coupled with proper management to ensure the shrubs do not reappear.

Rob Marchant, University of York, UK, spoke about the impact of climate change on East African mountain ecosystem dynamics. He described his work using historical records to understand ecosystem dynamics and charting how ecosystems have changed and fragmented. Marchant explained how modeling future climate, socioeconomic and ecological scenarios can be used to build appropriate tools for understanding the future. He said stakeholder consultation and dialogue has also contributed to land use mapping. On going forward, Marchant described proposed work on understanding the dynamics of interaction between people, climate, and protected area management.

In the ensuing discussion, Marchant responded to a comment that the research was Rift Valley focused by explaining they had experienced some data bias toward collecting plant samples along the road network in East Africa, and acknowledging this leaves some more remote areas under-sampled. He outlined ongoing work to fill gaps through data rescue and digitization, and the revisiting of old plots to assess change over time.

MOUNTAIN COMMUNITIES

Edmund Barrow, IUCN, provided a keynote presentation titled the 'Gatekeepers of the Water Towers, Community Livelihoods, and Sustainable Development in Mountain Systems.' He observed that in the colonial and post-colonial era, indigenous and local communities were alienated from their land due to the perception that areas of critical biodiversity are best managed by governments through national parks. He explained that these people were forced to become farmers but did not necessarily have the requisite skills. He advocated for community owned planning for mountain ecosystems, noting that this reduces risk and supports adaptation.

Barrow emphasized the need to pass on benefits to local communities and called for implementing existing policies on decentralization, community forest management, and community forest areas and to bring together local and traditional knowledge with formal knowledge. He said lessons could be learned from Uganda, where collaborative pilot management of national parks has been agreed through negotiated agreements between governments and communities.

During the discussion, a participant highlighted Mount Elgon, Uganda, where climate smart agriculture is being developed and high value crops are grown with input from the private sector. He noted that factoring in livelihood strategies buys support from the local communities. Barrow observed that making partnerships work is key, which means, "everyone has to get something out of it."

Willem Ferguson discussed ecosystems services in mountain areas and the consequences for sustainability. He highlighted a study in the Drakensburg region, South Africa, concerning resource use among a commercial farming community and two rural communities, the Acornhoek and Kampersus villages. The study indicated that resource use differed among the communities, with the lower income groups being much more dependent on mountain resources. He then addressed the merits and demerits of top down and bottom up governance, noting that in South Africa, the emphasis is on top down governance and that even local communities expect to be provided for by governments.

Margaret Afoma Chukw discussed empowerment in Nigerian mountain communities in the context of sustainable livelihoods. She highlighted challenges for the rural mountain community of Okigwe, Imo State, South East Nigeria, including environmental pollution through indiscriminate waste disposal and open defecation, as well as limited income generating activities. She outlined EATS income generating promotional activities in consultation with the conservation department of the federal ministry of environment and noted pit latrines have been constructed through collective community action to alleviate the problem of open defecation.

Hanta Rabetaliana discussed the commercialization of the indigenous Tapia Forest in Madagascar for the wellbeing of the mountain communities. She explained that with a view to preserving the high-altitude forest and for creating income-generating activities, valued added products like scarves using natural treatments have been manufactured from wild silkworm through collaboration with Soalandry Women's Cooperative.

Rabetaliana explained that the Cooperative produces around 250 scarves per year, with each piece selling for approximately US\$40, resulting in an annual profit of US\$7000-8000, meaning Cooperative members can earn more than three times the minimum salary in Madagascar.

Eric Nanchen presented on using low-technology innovations for mountain community development, introducing the SMD for Global Change (SMD4GC) programme which is based on two pillars: policy dialogue and knowledge communication. Nanchen highlighted his organization's activities in Rwanda, engaging students and teachers to work with local communities to develop and implement low-technology innovations. He explained these innovations included ecological latrines that produce biogas for cooking, fuel-efficient cooking stoves, and aquaponics, systems to cultivate fish and vegetables simultaneously. He acknowledged that for the programme to be successful, communities need to embrace the new technologies. Responding to a question about whether there is continuous interaction with communities, Nanchen said in Rwanda his organization works with students from mountain communities, enabling ongoing feedback and continuous evaluation of the appropriateness of technology.

Panel discussion: Reflecting on the themes of the session, Flavia Nabugere, Ministry of Water and Environment, Uganda, observed that much of the evidence shared about mountain communities indicates: poor access to clean water, hygiene and sanitation; poor communications and infrastructure; and lamentations and accusations against developed countries' contribution to climate change and against African governments insufficient support the communities. She elaborated there is also a lack of appropriate information given to communities, a lack of proper guidance, misallocation of blame, misguided expectations of where help will come from, and misguided leadership. On this last point, she cautioned against top-down policies from technocrats who initiate highly resource intensive policies based on their political needs, as opposed to those of the community. Nabugere concluded by commending the good practices presented during the Forum but underscored that participants need to highlight problems, what needs to be done, and how cheaply can it be done.

Nchunu Justice Sama, Foundation for Environment and Development, Cameroon, noted that SMD requires environmental governance that allows mountain communities to participate in decision-making and policy implementation. He cautioned that alternative livelihood projects should be moderated in a manner that avoids dependency on foreign funding.

Macpherson Nthara, Ministry of Agriculture and Food Security, Malawi, recommended that first and foremost we need to understand mountain communities, which involves going to the mountains and engaging with mountain people, not only visiting them for an hour. On payments for ecosystem services, he said there needs to be examination of different tools and methodologies for fast-tracking the rate at which communities receive benefits, lamenting that currently this takes time and can create frustration in the communities. He underscored the need to protect traditional knowledge and said that governance for sustainable livelihoods needs to accept and integrate traditional governance and local institutions, to develop policies based on values like solidarity and



Robert Wabunoha, UNEP, addressing the Forum

subsidiarity. Turning to the efforts being made in Madagascar as described by Rabetaliana, Nthara spoke about the need for mountain communities to look at branding and certification to protect the identity of their unique products.

In the ensuing discussion, panelists and participants discussed: designing interventions based on indigenous knowledge that reflects what exists in the community at the time; problems associated with insufficient information reaching communities around payment for ecosystem services; and acknowledging the risks associated with tourism as an alternative livelihood.

INTERNATIONAL AND REGIONAL POLICY

Flavia Nabugere chaired the session. Robert Wabunoha discussed African mountains and international policy, noting that there is no specific global convention on mountains. He highlighted international good practices, laws, and policies relating to mountains, including the Convention of Biological Diversity, Programme of Work on Mountain Biodiversity, and the UN Convention to Combat Desertification, which recognizes the vulnerability of developing countries with fragile mountainous ecosystems. He noted that UNEP, UN Development Programme (UNDP) and IUCN are implementing a project on ecosystem-based adaptation in mountains in Nepal, Peru and Uganda. Wabunoha called for a regulatory framework for Africa, emphasizing the need for a regional governance structure to encourage states to make and implement laws, policies, programmes and to set up institutions to establish regional goals and targets to achieve SMD. He said high-level attention to mountain issues is required, as well as, investments in mountain areas. He called for enhancing coordination and collaboration, a stronger enabling environment, and more supportive national laws, policies and institutions.

On behalf of Kamwenje Nyalugwe, Zambia, Wabunoha made a presentation on the African Perspective on Mountain Governance. He observed that regionally, no countries have mountain specific laws and policies. He noted that efforts being made continent-wide are not adequate to address current challenges with gaps in policy frameworks, which hamper efforts to protect mountains in Africa. He recommended developing and adopting clear guidelines at a regional, sub regional, and national level to achieve the continent's environmental, social and economic goals.

Wivine Ntamubano, EAC, discussed mountains in the context of the EAC highlighting transboundary challenges including weak cross border coordination, policy and legal issues, inadequate sharing of monitoring and research information and weak law enforcement. She explained that the challenges were being addressed through policy instruments such as the EAC Protocol on Environmental Natural

Resources Management and the Transboundary Ecosystem Bill that were developed in 2010, as well as the EAC Disaster Risk Reduction Management Bill. She called for adopting a long-term vision and for a holistic approach towards the conservation of mountain ecosystems, as well as poverty reduction plans and programmes for mountain areas.

Ntamubano noted that EAC through its institutions is implementing transboundary programmes aimed at advancing the integration agenda in the management of transboundary ecosystems. She proposed: establishing and strengthening institutions and the knowledge base on land and water for sustainable mountain ecosystems; promoting regional cooperation; and exchanging data and information on transboundary mountain ecosystems.

James Byamkuna, Greater Virunga Transboundary Conservation (GVTC), talked about the “unique value” of Greater Virunga Landscape (GVL), explaining it is the only habitat where mountain gorillas can be found. Describing the challenges that make conservation and management difficult in these mountain regions, Byamkuna pointed to *inter alia*: water shortages; high population density dependent on ecosystem services; and rugged forested terrain that create ideal conditions for armed insurgents and reduces patrol effort, and increases response time to wildlife crime. Noting the Virunga Massive is shared by Democratic Republic of the Congo, Rwanda, and the Republic of Congo he underscored its potential as a “breeding ground for regional cooperation” and drawing attention to GVTC’s success as an institution that conserves natural resources for peace-building and development.

Matthias Jurek presented the Regional Framework for Transboundary Mountain Ecosystems, using experience with the Carpathian Convention as a case study. He underscored this Convention not only focuses on the environment but on SMD, taking a multi-sectoral approach that covers water management; transport and infrastructure; tourism; spatial development; and climate change adaptation. He said that under the Convention there are currently three Protocols targeting biodiversity, sustainable forest management and tourism, and transport. Through its role as the Convention Secretariat, Jurek said UNEP supports both the development and implementation of policy and projects.

During the ensuing discussion, presenters and participants discussed challenges of implementing transboundary management; the potential for a regional mountain agreement for Africa; how the EAC can assist countries with no mountains laws and policies; and the need to harmonize laws and processes on mountains. One participant queried whether we are losing sight of the mountains and their people, and noting, “they cannot eat or drink these conventions” he asked how the links between global and regional conventions and national agreements provide these people with a better life.

NATIONAL POLICY: Paul Mafabi, Ministry of Environment



Olivier Chave, Swiss Ambassador to Tanzania, concluding the panel discussion on Biodiversity and Ecosystem Services

and Water, Uganda, discussed mountains in the national policy agenda, noting that his country has a robust legal and institutional framework. He explained that responsibility for mountain management resides with district environment officers and the local environment committee and that designating mountain areas as national parks is aimed at giving them higher protection. Mafabi noted that collaborative management and benefit sharing regimes had been put in place and awareness has increased on disasters. He concluded that institutional frameworks are needed at lower local levels with clearly delineated roles and responsibilities and that communities need to be engaged in defining policies.

On a query from a participant about the potential for a “mountain authority” that covers all Ugandan mountains, Mafabi expressed support for such an authority but cautioned it needs to be structured in way that works for each mountain area.

John Mussa described current initiatives in Malawi including: a Malawi-German beekeeping project; conservation of Mount Mulanje with community involvement; rehabilitation of deforested mountains; and sensitization and capacity building activities. He said Malawi cooperates regionally through Southern African Development Community and bilateral cooperation with Mozambique and Zambia. On going forward, Mussa listed mainstreaming mountain issues, collecting synthesis data on management of mountains, and taking ecosystem based approach to climate change as important.

Valérie Ramahavalisoa discussed the promotion of a national mountain agenda in Madagascar. She underscored the need to promote a green economy through: partnership with territories; development of policies; adaptation strategies; and sustainable ecology. Ramahavalisoa added that beyond policy, we need to think about the institutions for applying strategies in isolated mountains. She concluded by saying that Madagascar has a national strategy for mountain development but needs an implementation plan and capacity, and explained the Ministries of Environment and Decentralization have suggested establishing a National Council of Mountains to address this.

Laurent Ntahuga, Burundi Association for the Protection of Nature, Burundi, explained that his organization works in Kibira National Park and Bururi Forest Nature Reserve to improve livelihoods for riparian populations; boost resistance to climate change; promote participatory conservation efforts; and rehabilitate degraded forest areas. He lamented that

despite environmental issues, there are no policies or laws on mountains in Burundi but acknowledged some mountain-relevant policies have been implemented both during colonial and the post-colonial era, with current environmental policy favorable to mountain conservation. Ntahuga underscored the need to harmonize rules and use participatory processes to make laws understandable at the grassroots level and incentivize mountain conservation.

On a comment about the value of decentralization, Ntahuga said countries understand the need to involve local communities but the issue is implementation and enforcement, which depends on in-country environmental governance and whether there is political willingness to apply this decentralization.

Panel Discussion: Several issues were addressed including: the management plan and sustainable use of ecosystems in West Africa under Economic Community of West African States (ECOWAS); forest governance; identifying shared values and risks; building partnerships to enhance mountain ecosystems; operationalizing the provisions of various regional instruments; scaling up useful initiatives; implementation and enforcement; and regional and national policy assessment.

ARUSHA OUTCOMES: On Friday afternoon, Robert Wabunoha presented the draft Arusha Outcomes document and invited participants to share their views. One participant called for involving representatives from mountain communities in the process of establishing an African Mountain Forum, but questioned how this could be effectively done. Another said he would like to see the issues from the Forum reflected in the preamble. Wabunoha requested participants to submit their comments in writing. Later on Friday afternoon, participants adopted the final Arusha Outcomes.

Final Outcomes: In the Arusha Outcomes ‘Towards a Shared Mountain Agenda for Africa’ participants adopt conclusions establishing the ARMF as the main coordinating body to promote SMD in Africa. They agree to hold the ARMF every two years and request the AU with AMCEN, regional economic communities and other partners to adopt the African Regional Mountain Agenda with its governance framework for SMD.

Participants call upon African states to develop and implement mountain-specific policies, laws and programmes, mainstream SMD in their national development agenda, and call upon national and sub-regional communities to develop and implement cooperative arrangements for the management of transboundary mountain ecosystems.

Participants urge governments, the private sector, civil society and development agencies to support public-private partnerships to enhance value chains linked to mountain ecosystems and urge research and academic organizations, governments, civil society, the private sector and development partners to strengthen and support the knowledge base and information sharing.

Participants welcome the African SMD Fund initiated by the ARCOS in collaboration with the SDC to support the African mountain agenda.

Participants call upon AMCEN and other intergovernmental partners to endorse these outcomes and further express appreciation for technical and funding support from ARCOS, EAC, UNEP, ADC and SDC.



Participants during session

CONCLUSIONS AND RECOMMENDATIONS

On Friday afternoon, Sue Taylor reported on the conclusions and recommendations of the Biodiversity and Ecosystems thematic session, including the importance of good quality data analysis and information for the decision making process. She said participants observed that research findings need to be packaged for key audiences, including through impactful and emotional messages to make a case for biodiversity. The need to consider how those generating new knowledge and those who hold traditional knowledge feed into advocacy and policy-making services was also noted. She said policy gaps were identified and the importance of mainstreaming mountain issues highlighted.

Elisabeth Soetz reported on the Water, Energy and Food Security thematic session. She stressed that to satisfy the requirements of all stakeholders, integrated planning that takes into account the interlinkages between water, energy and food, to avoid trade offs and conflicts of interests, is needed. She acknowledged that other sectors like biodiversity, disaster risk reduction, gender and education are also important.

Matthias Jurek reported on the Climate Change and Mountains thematic session, noting that participants highlighted gaps, noting in particular that mountains are not sufficiently reflected in current global processes and called for improving information sharing and facilitating free access to data.

Proposals were made including: collecting and disseminating best practices, including through an inter-regional exchange mechanism; and enhancing the participation of mountain communities. He said actions identified included: reviewing existing policies and legislation; establishing a platform for information sharing; and on the global level, mainstreaming mountains in the UNFCCC process and post-2015 development agenda.

Margaret Afoma Chukwu reported on the session on Community Livelihoods and Development. She highlighted a number of strategies being used in mountain communities including: guidelines on promoting livelihoods in mountain regions; using indigenous knowledge; and creating added value to mountain products. She said necessary actions identified included: investing in infrastructure development; scaling up good practices; diversification of alternative livelihoods; and applied research to understand mountain community dynamics. She concluded by saying the main gap concerning

community livelihoods and development is the need for greater participation of mountain communities in policy formulation and implementation.

Wabunoha presented the Arusha Outcomes, explaining that they will form the bedrock for future work on African mountains. Participants then adopted the Arusha Outcomes.

LAUNCH OF THE AFRICAN MOUNTAINS ATLAS and AFRICAN RIFT BIODIVERSITY MONITORING AND INFORMATION SYSTEMS (ARBMISS) PORTAL: Charles Sebukeera, UNEP, presented the Africa Mountain Atlas noting that it encompasses current tools on integration and packaging, remote sensing and geographical information systems (GIS) data with current environment and science for decision making.

Faustin Gashakamba, ARCOS, presented the ARCOS ARBMIS Portal, saying it has been developed to support informed decision-making through access to up-to-date biodiversity data, and to develop capacity in biodiversity information management. He explained the Portal focuses on three thematic areas, Albertine Rift biodiversity, African Great Lakes freshwater ecosystems, and African mountains.

CLOSING

In closing, Sam Kanyambwa expressed thanks to Lazaro Nyalandu, Minister, Natural Resources and Tourism, Tanzania, and commended Nabugere for her commitment to a mountains agenda. He expressed hope that the mountains “family” will continue to grow, and announced the next World Mountain Forum, organized by ARCOS and hosted by Uganda will be held in two years time.

Wabunoha said the work of the Forum would move the African mountain agenda forward. He noted that UNEP would continue supporting the mountain agenda globally and through the AMCEN, and the AMCEN Tanzanian Presidency will join efforts to ensure that Arusha Outcomes are tabled at the next session of AMCEN, and of the AU. He observed that UNEP supports Africa’s participation in the post-2015 development negotiations in New York and that the outcomes of the Forum would be delivered to African negotiators in New York in two weeks to ensure that the mountain agenda is included in the post-2015 development discussions.

Eric Nanchen called on participants to act as mountain ambassadors adding that the Forum’s strength is in willingness to act, not in the rigidity of technocratic structures. Nanchen



Participant during closing session

suggested adapting the format of the Forum to offer more space for participation and discussion to increase participants' ownership.

Soetz expressed thanks to the Government of Tanzania, EAC, ARCOS and participants, observing that the Forum will create awareness on mountain issues and in the long term represents one small step towards improving exchange and cooperation amongst the scientific communities, national governments and civil society.

Ntamubano expressed gratitude to participants for their commitment that resulted to the Arusha Outcomes agreed during the Forum, which she said would be presented to the EAC Council of Ministers.

Nabugere said the Forum outcomes would be disseminated and trigger positive action for mountain ecosystems protection, emphasizing that the Arusha Outcomes would form the springboard for governments to take charge of sustainable use of mountain resources.

Closing the Forum, Lazaro Nyalandu expressed his appreciation for the science presented during the Forum underscoring that it will help decision-making throughout Africa. Reiterating his support to SMD, Nyalandu announced the recent creation of the Mount Kilimanjaro and Mount Meru Ecosystem Fund. He concluded by saying "with purpose, comes clarity" and that research and action-oriented work will lead to conviction among leaders and give direction Africa's SMD agenda. He closed the Forum at 7:16pm.

UPCOMING MEETINGS

UNFCCC COP 20 and CMP 10: The 20th session of the Conference of the Parties to the UNFCCC (COP 20) and the 10th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP 10) will take place in Lima, Peru. **dates:** 1-12 December 2014 **location:** Lima, Peru **contact:** UNFCCC Secretariat phone: +49-228-815-1000 **fax:** +49-228-815-1999 **email:** secretariat@unfccc.int **www:** <http://unfccc.int>

Climate Change Innovation and Resilience for Sustainable Livelihood: This international conference, organized by the City University of New York, Colorado State University, The Small Earth Nepal and Department of Hydrology and Meteorology of Nepal, will focus on innovative approaches from the physical and social sciences to support economic development in mountain and lowland South Asia. The conference themes are: climate change; water resources management; agriculture and livestock; and gender and livelihood. **dates:** 12-14 January 2015 **location:** Kathmandu, Nepal **contact:** Dilli Bhattarai, Conference Secretary, The Small Earth Nepal **email:** dilli@smallearth.org.np **www:** <http://climdev15.org/>

Fourth International Women of the Mountains

Conference: The Fourth International Women of the Mountains conference is being co-organized by Utah Valley University and the International University of Kyrgyzstan to promote sustainable development in mountain areas worldwide. This meeting will address the critical issues women and children living in mountainous regions face across the globe and provide a forum to discuss gender equality. The meetings themes include, among others, health, education and economic issues of women and children. **dates:** 7-9 October 2015 **location:** Orem, Utah, US **contact:** Baktybek Abdrisaev, Utah Valley University **email:** abdrisba@uvu.edu **phone:** +1-801-863-8351 **www:** <http://www.womenofthemountains.org/index.php/component/content/article/8-the-program/the-program/52-2015-conference>

World Mountain Forum 2016: The next World Mountain Forum will convene in 2016 to continue discussions on local, regional and global experience in mountain development, and strategies to further SMD. **dates:** 2016 **location:** Uganda **contact:** Mountain Forum Global Node Office **email:** mtnforum@mtforum.org **phone:** +51-1-618-9400 **www:** <http://www.mtnforum.org/>

Second African Regional Mountains Forum: The Second African Regional Mountains Forum will convene in the second half of 2016. **dates:** 2016 **location:** Uganda **contact:** ARCOS Office **email:** info@arcosnetwork.org **phone:** + 256 414 530 700 **www:** <http://www.arcosnetwork.org>

GLOSSARY

AFF	African Forest Forum
AMCEN	African Ministerial Conference on the Environment
AMRF	African Mountains Region Forum
ARBMS	African Rift Biodiversity Monitoring and Information Systems
EAC	East African Community
EATS	Environment and Tourism Support
GVTC	Greater Virunga Transboundary Conservation
IWRM	Integrated Water Resource Management
UNFCCC:	UN Framework Convention on Climate Change
Rio+20:	UN Conference on Sustainable Development
SMD:	Sustainable Mountain Development
WMF	World Mountain Forum



Family photo of participants at the African Regional Mountain Forum