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inside:

The missing oceans

Integrating adaptive responses for mountains and watersheds, focusing on the Andes and the Himalaya mountains

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Outreach is a multi-stakeholder publication on climate change and sustainable development. It is the longest continually produced stakeholder magazine in the sustainable development arena, published at various international meetings on the environment; including the UNFCCC meetings (since 1997), UNEP Governing Council, UNFCCC Conference of the Parties (COP) and World Water Week. Published as a daily edition, in both print and web form, Outreach provides a vehicle for critical analysis on key thematic topics in the sustainability arena, as well as a voice of regional and local governments, women, indigenous peoples, trade unions, industry, youth and NGOs. To fully ensure a multi-stakeholder perspective, we aim to engage a wide range of stakeholders for article contributions and project funding.

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# The missing oceans

Ronny Jumeau

Seychelles Ambassador for Climate Change and SIDS Issues

“People ask: Why should I care about the ocean? Because the ocean is the cornerstone of Earth's life support system; it shapes climate and weather.

It holds most of life on earth... We still have a really good chance to make things better than they are. They won't get better unless we take the action and inspire others to do the same thing. No one is without power.

Everybody has the capacity to do something.” - Sylvia A. Earle

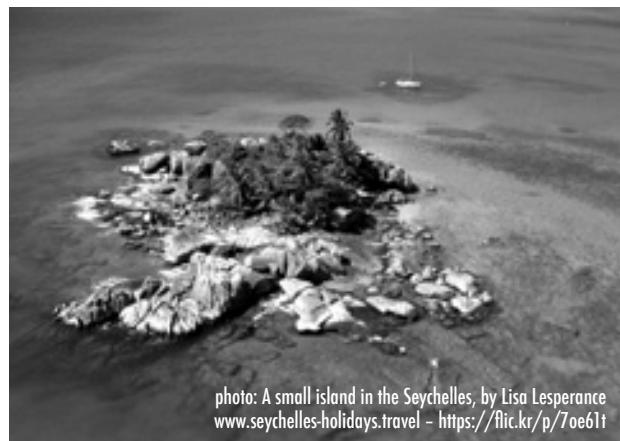
For islanders, the ocean is never an afterthought. The ocean is at the core of every part of our lives; we are shaped by it and in turn the way we behave shapes the ocean.

Oceans play a central role in protecting the planet, and their protection is indivisibly bound with climate change and the success of sustainable development efforts. As temperature levels change within the ocean, so does the habitat for every creature in the area, leading to unnatural migration, biodiversity disruption and the increase of invasive alien species. Our number one priority should be to keep the increase in global temperature as far below 1.5°C as possible. Besides, that's the only thing that can counter ocean acidification. It must be understood that ocean acidification does not occur in isolation to the associated impacts of climate change.

Characterised as “the other CO<sub>2</sub> problem”, ocean acidification is caused by increasing levels of carbon dioxide in the atmosphere and seawater, resulting in potentially deleterious effects for marine biodiversity, ecosystems and human society. According to the UN Convention on Biological Diversity's 2014 report, the acidic growth and intensity of the world's oceans could cost the global economy up to \$1 trillion by 2100, with current rates of carbon dioxide emissions. The report asserted the acidity of the oceans has increased by at least 26 per cent since pre-industrial levels, which affects the health of coral reefs and ultimately, their ability to provide goods and services to the global economy.

Our oceans are being neglected at COP20. The most recent report of the Intergovernmental Panel on Climate Change (IPCC) notes that ocean warming dominates the global energy change inventory. Warming of the ocean accounts for about 93 per cent of the increase in the Earth's energy inventory between 1971 and 2010, and global average sea level has risen by 0.19m over the period 1901–2010. So why is this not being talked about?

Although there has been an increase in political awareness for the oceans, discussions mainly take place between



scientific or technical experts. In February 2014, the Small Island Developing States (SIDS) proposed a stand-alone sustainable development goal for oceans, including “the development of marine protected areas and assessment of ocean acidification; restored fish stocks for economic growth and food security to eliminate the deleterious effects of overfishing; and financial assistance”.

The successes of the recent Third International Conference on SIDS in Samoa need to be highlighted in the new agreement currently being drafted in Lima. While SIDS prioritised the enhancement of “local, national, regional, and global cooperation to address the causes of ocean acidification and to further study and minimise its impacts” in Samoa, increasing the resilience of marine ecosystems to the impacts of ocean acidification must remain high on SIDS development agendas.

Island states refuse to be victims. The rhetoric of SIDS used in the climate change and sustainable development negotiations changes to that of Large Ocean States when we talk about the oceans and seas. We make visionary commitments to protect our habitat.

Seychelles, for example, is currently negotiating a multi-million-dollar debt-for-adaptation swap with the Paris Club – including France, the host of the COP21 climate change conference in 2015 – to exchange public debt to raise funds to turn 30 per cent of its exclusive economic zone (EEZ) of 1.4 million square kilometres into Marine Protected Areas. Such a swap would provide debt relief and release foreign exchange for sustainable development of the islands' Blue Economy, as well as tackle climate change through ecosystem-based adaptation, increase marine conservation and strengthen sustainable fisheries.

There must be a transformation socially, economically and politically in order to create an environment that promotes and expands sustainable investments and protects our planet. It is essential that we launch a new mechanism in Paris which addresses the incorporation of ocean acidification into adaptation and mitigation ambitions, and SIDS should be assisted in strengthening the resilience of the oceans and seas under their stewardship ■

# Integrating adaptive responses for mountains and watersheds, focusing on the Andes and the Himalaya mountains

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Ice and water are defining aspects of the earth and global hydrological systems, and play a crucial role in supporting biodiversity and life. Snow and ice contribute to the water supplies of millions located in the mountains, valleys and nearby coasts, and play a significant role in ensuring water security and climatic stability.

Mountains are among the ecosystems most sensitive to climate change. Glaciers within the Andes, Pamir, Tian Shun, Hindu Kush-Himalayas, and in Europe and the Americas, are experiencing rapid ice mass declines, which will have consequences on the large and often vulnerable mountain populations and their livelihoods, as well as river watershed, flows and biodiversity. Inter-relationships between mountains and watersheds are explored for the Andes and the Himalaya mountains.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) policy brief launched last week at COP20 – ‘Our Global Water Towers: Ensuring Ecosystems Services from Mountains under Climate Change’ – discusses the role of mountains in the global hydrological system. The UNESCO brief provides decision makers with informational support and policies to adapt to climate change in mountain regions. The brief resulted from regional workshops, and highlights best practises for community adaptation and the role of mountains in global hydrological systems.

Mountain catchments provide more than half of humanity’s water for drinking, irrigation, industry, food and energy, with 23 per cent of their mountains being essential to downstream water supply, and another 30 per cent providing support for this supply. Mountains occupy 24 per cent of the Earth, with 1.2 billion people living within and adjacent to them. They are centres of biodiversity, and function as gene pools. They contain a high proportion of the world’s cultural and ethno-linguistic diversity, which is of value for knowledge and tourism. Healthy functioning mountain ecosystems regulate climate, air quality and water flow, and protect against natural hazards and extreme events.

Mountains are especially vulnerable to climate change, with glaciers and ecosystems providing early indications of change. Ecosystem-based adaptation is a vital tool to

decrease vulnerability—which has significant consequences for mountain communities and the billions of people depending on mountains for water and other ecosystem services. One adaptation approach involves payment for ecosystem services to mountain communities, thus supporting ecosystems that provide long term services and benefits.

International scientific cooperation is vital to address the challenges of climate change. Strengthened regional cooperation, collaboration with local organisations and institutions, and enhanced knowledge sharing dialogue among policy makers, scientists and local stakeholders is needed to safeguard mountain ecosystems, their water services, and the resilience of dependent communities.

The International Centre for Integrated Mountain Development (ICIMOD) is a regional learning and knowledge centre with a focus on mountains, watersheds and people. It supports mountainous and downstream communities in Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. Some of the foci of ICIMOD are glaciers, glacial lakes, snow, climate change, and implications for mountainous and downstream communities and ecosystems, which are all relevant for acquiring the information and knowledge and building cooperation for adaptation.

The 2014 World Bank report, ‘On Thin Ice: How Cutting Pollution Can Slow Warming and Save Lives’, discusses how climate change, combined with black carbon, is affecting glaciers and ice in mountains. The report lays out 14 specific measures that could be taken by 2030 to reduce short-lived climate pollutants and slow the melting of ice and snow, in order to slow the increase in ocean and global temperatures.

The Himalayan mountain ranges are the largest freshwater source outside the poles, supplying water to 1.5 billion people. Though warming is occurring unevenly across the Himalayas, ice and snow melt is causing floods in some downstream areas and droughts in others.

Within the Andes, declining glaciers support Andean watersheds, fertile inter-Andean valleys and mountain and valley communities, and the arid Pacific coasts where large communities, such as Lima, are situated. The tropical Andes ecosystems contained in these inter-Andean valleys are globally significant regions for biodiversity and rich genetic reservoirs for future adaptation and sustainable development. The Peruvian hosting of COP20 provides a vital opportunity to highlight the importance of ice and snow in the Andean mountains, and the role of mountain, valley and coastal communities in adaptive ecosystem efforts ■

# Protecting our liquid assets

Peter McCornick

International Water Management Institute

Negotiators at COP20 need to take a serious look at water. The more extreme temperatures we will now face are likely to alter the amounts and distribution of rainfall, river flows, groundwater availability, and snow melt. Both now and in the future, economic development and food security will depend on more effective management of this water variability.

The challenges are already becoming apparent. We may need to adapt to more flooding, for instance, planning our investments to better control and productively use the surplus water.

And we will need to store more water. That doesn't mean simply building more big dams and reservoirs – although this will be necessary in some regions. A mixed approach that combines major infrastructure with groundwater, wetlands and local ponds is likely to be more flexible and resilient.

Agriculture accounts for 70–80 per cent of global fresh water use. So making sure that enough water is available to grow food will be a fundamental task. Over the next 40 years, farmers will have to find ways to produce up to 70 per cent more to feed the burgeoning global population, while facing growing competition for resources from other sectors. At the same time, we need to reduce the impact of farming on already stressed ecosystems. This means making each unit of water produce more.

In many areas this is already happening. In the Mekong Delta, for example, farmers who have traditionally relied solely on monsoon flows have been gradually intensifying production in the drier seasons. By using groundwater or enhanced management of surface water, they have been able to produce more frequent and diverse harvests without expanding to new lands. Similar approaches show promise in parts of Africa as well. However, careful management, such as techniques to help re-charge aquifers, is often needed to ensure that this water use is sustainable.

With the impacts of climate change, availability of water is likely to be less predictable. Farmers have always lived with the vagaries of climate, such as rains coming earlier or later than usual, but uncertainties are increasing. Already we are witnessing changes in cropping patterns. For instance, following several years of low rainfall, farmers in Southwest India shifted from thirsty sugarcane to the water-frugal soybean – an adaptation to water scarcity that also gives them a better return.

Managing irrigation in these new conditions will be challenging, but there is equal concern about rainfed cropland, which produces 60 per cent of the world's food.



photo: Use of groundwater for irrigation in Kandal Province, Cambodia.  
By Neil Palmer (IWMI) – <https://fic.kr/p/nirxta>

Here, a mixed approach is needed. Supplemental irrigation – applied only at the critical stages of crop growth – combined with better management of soil, nutrients and crops – can more than double water productivity and yields. Major increases in production can be achieved by this technique. New technologies such as simple pumps powered by fossil fuels, electricity, the sun, people or animals, and micro-irrigation techniques, ranging from clay pots to drippers, have catalysed this growth.

While farmers can be helped to adapt to climate variability and change at local level, the authority to plan and approve basin-wide projects will require high-level political engagement. Diverting water to facilitate the recharge of ground water, or reallocating water from canal irrigation to environmental flows, for instance, will require detailed analysis to help decision-makers understand the necessary trade-offs. International cooperation will be critical to manage water in river basins that cross multiple borders.

Part of the answer to smarter water management will be improving our collection of data. This underpins the comprehensive models that can advise policy makers and COP negotiators on how systems can be adapted without wrecking the natural systems which support agriculture. Yet decisions will also need to be made in data scarce environments, especially in the developing world.

We already have many of the technologies and techniques we need to make our water go further, and to protect ourselves from increasing variability. The challenge is to make this work in poor rural environments. This is not just a question of better water management, but of addressing some of the fundamental causes of poverty. Promoting broad-based sustainable agricultural development to lift rural communities out of poverty is, in itself, an effective climate adaptation strategy in rural areas. Water will underpin this growth. We need to use it wisely ■

## MORE INFO

Download 'Tackling Change: Future-proofing water, agriculture and food security in an era of climate uncertainty' at [www.iwmi.org](http://www.iwmi.org)

# Mountaineers, sustainable development and climate change: Connecting the dots towards a common interest

Carolina Adler

Mountain Protection Commission of the International Mountaineering and Climbing Federation, UIAA

Representing organisations and associations with over three million people worldwide, the International Climbing and Mountaineering Federation (UIAA) plays an important role in supporting recreation and tourism in mountains. The UIAA also promotes responsible access to mountains, authenticity of mountain-adapted ways of life and culture, and advocates for environmental protection. In this context, today we have two good reasons to pause and reflect on how we may continue to work in support of our mountains.

First, this year's International Mountain Day theme on mountain farming is a crucial reminder of this predominant and vital livelihood activity in mountains. Mountains support 720 million people of which the majority engages in farming activities. Mountain dwellers are also increasingly diversifying their incomes, for example through tourism. Increasing visitor numbers in protected areas, such as mountains, can be effective for both conservation and development. However, with tourism expected to grow by 3.3 per cent annually through 2030, with a large proportion of this growth expected in mountain regions, promoting visitation requires concerted efforts to uphold mountain agriculture and tourism in a sustainable manner and in partnership with local communities.

Second, climate change is the central topic at COP20 negotiations in Lima, yet it can be difficult to relate with negotiations that aim at a new international climate action agreement. However, there are key issues discussed at COP20 that have a significant bearing on our lives and on mountain regions, such as adapting to climate change.

We already experience losses due to extreme weather events, such as droughts and floods, and as the Intergovernmental Panel on Climate Change (IPCC) confirms, these events have increased since the 1950s, with climate change worsening their severity and frequency. In mountain regions, we observe with great concern the extent to which glaciers are melting, threatening human-environment systems. The new climate agreement should help build resilience to these impacts and support adaptation efforts.



Here is where the role of communities, such as those that we represent at the UIAA, matter a great deal. The involvement of civil society in the preparation of the 2015 climate agreement will largely determine the legitimacy and successful implementation of any action. "Voices for Climate", a space at COP20 showcasing proposals and initiatives by communities, is one such activity that highlights mountains as a key focus. Like this initiative, we want to see processes for genuine dialogue that integrate the knowledge from those at the frontline. At the UIAA we are not only committed to the public understanding of climate change, but also seek to contribute with historical observations of how shrinking glaciers and snowfields affect mountains and their people.

The UIAA supports and encourages initiatives that address both sustainable development and impacts of climate change in mountains. We also recognise that, on their own, there is no single organisation, or stakeholder group, or government action that can protect mountains. For this, we need to connect many dots. Impacts on mountains are increasing as visitation and use grow over time; all this exacerbated by climate change. Adapting and innovating with new approaches will be critical going forward, as is monitoring the effectiveness of these efforts. We therefore extend an invitation to all interested stakeholders to team up with the UIAA and its millions of mountaineers to appraise progress and secure a sustainable future ■

## ABOUT THE AUTHOR

Carolina Adler is a Geographer at the Swiss Federal Institute of Technology, Zurich, researching climate change adaptation in mountain regions. She is also a member of the International Climbing and Mountaineering Federation's (UIAA) Mountain Protection Committee, assisting with the development of their flagship project, the UIAA Mountain Protection Award – [www.theuiaa.org](http://www.theuiaa.org).



# Montañistas, desarrollo sostenible y cambio climático: Conectando los puntos hacia un interés común

Carolina Adler

Comisión de Protección de la Montaña, Unión Internacional de Asociaciones de Alpinismo, UIAA

Representando organizaciones y asociaciones que integran más de tres millones de personas en todo el mundo, la Unión Internacional de Asociaciones de Alpinismo (UIAA) desempeña un importante papel apoyando la recreación y el turismo en las montañas. La UIAA también promueve el acceso responsable a las montañas, la valoración de culturas adaptadas a la vida en montañas, y aboga por la protección del medio ambiente. En este contexto, hoy tenemos dos buenas razones para hacer una pausa y reflexionar sobre cómo podemos seguir trabajando en apoyar nuestras montañas.

Primero, el tema del Día Internacional de las Montañas, la agricultura de montaña, es un recordatorio del sustento predominante y vital que tiene esta actividad en las montañas. Más de 720 millones de personas viven en las montañas, de las cuales la mayoría se dedica a actividades agrícolas. Ellos también están diversificando sus ingresos, por ejemplo a través del turismo. Aumentar el número de visitantes en áreas protegidas, como en las montañas, puede ser eficaz tanto para la conservación como para el desarrollo. Sin embargo, ya que se estima un aumento en el turismo de 3,3 por ciento anual hasta 2030, con una gran proporción de este crecimiento en regiones montañosas, la promoción de turistas requiere esfuerzos concertados para defender la agricultura de montaña y un turismo sostenibles, en colaboración con las comunidades locales.

Segundo, el cambio climático es el tema central en COP20 en Lima, y puede ser difícil de relacionar con las negociaciones que se efectúan con un fin de apuntar a un nuevo acuerdo de acción internacional sobre el clima. No obstante, hay temas clave discutidos en COP20 que tienen una incidencia importante en nuestras vidas y en las montañas, como la adaptación al cambio climático.

Ya experimentamos pérdidas debido a fenómenos meteorológicos extremos, como sequías e inundaciones. Como confirma el Grupo Intergubernamental de Expertos sobre Cambio Climático (IPCC), estos eventos han aumentado desde la década de 1950, con el cambio climático empeorando su gravedad y frecuencia. En las montañas observamos con gran preocupación el grado en que los glaciares se derriten, amenazando sistemas humano-ambientales. El próximo acuerdo de acción sobre el clima debería ayudar a construir resiliencia a estos impactos y apoyar los esfuerzos de adaptación a nivel local.

Aquí es donde el papel de las comunidades, como las que representamos en la UIAA, importa muchísimo. La participación de la sociedad civil en los acuerdos climáticos determinará en gran parte la legitimidad y la implementación exitosa de cualquier plan de acción. "Voces para el Clima", un espacio en la COP20 que presenta propuestas e iniciativas de comunidades, es una de las actividades que pone de relieve las montañas como un elemento clave. Como esta, queremos ver más procesos de diálogo genuinos que integren los conocimientos de los que están en primera fila viviendo y observando estos impactos. En la UIAA no sólo estamos comprometidos a apoyar la participación pública sobre el cambio climático, sino también buscamos contribuir con observaciones de cómo el retroceso de los glaciares y campos de nieve ya afectan a las montañas y sus pueblos.

La UIAA apoya y fomenta iniciativas que abordan tanto el desarrollo sostenible como los impactos del cambio climático en las montañas. También reconocemos que no hay una sola organización o grupo de interés, o acción de gobierno que pueda proteger a las montañas. Para ello, tenemos que conectar todos estos puntos. Los impactos en las montañas están aumentando como resultado del incremento en el uso y las visitas; todo ello agravado por el cambio climático. Demostrar capacidad de adaptación e innovación será fundamental en el futuro, así como monitorear la eficacia de estos esfuerzos. Por lo tanto extendemos una invitación a todos los interesados en sumarse a los esfuerzos de la UIAA y sus millones de montañistas para evaluar este progreso y asegurar un futuro sostenible ■



photo: Cordillera Blanca, Peru.  
By twiga269 FEMEN - <https://flic.kr/p/dhfgBC>

## SOBRE LA AUTORA

Carolina Adler es geógrafa en el Instituto Federal de Tecnología de Suiza, en Zurich, donde investiga la adaptación al cambio climático en regiones montañosas. También pertenece al Comité de Protección de la Montaña de la UIAA, donde participa en el desarrollo de su proyecto emblemático, el premio 'UIAA Protección de la Montaña' – [www.theuiaa.org](http://www.theuiaa.org).

# UNFCCC is a death sentence for coral reefs and low islands: The down to earth solution to reverse climate change

Thomas J. Goreau  
Global Coral Reef Alliance

The 2°C degree “acceptable” level of warming is a death sentence for coral reefs, low-lying islands and coasts, violating the UN Framework Convention on Climate Change’s (UNFCCC) goal to protect the world’s natural life support systems.

Every coral reef has already suffered severe high temperature mortality. They can’t take any more warming. 100 countries’ major marine economic resources – fisheries, tourism, shore protection, sand supply and biodiversity – will be lost. Coral reef destruction causes 60 per cent of all global ecosystem service losses, largely borne by islanders. The next El Niño, expected in 2015, will cause ocean temperatures increases that will kill most remaining corals.

Low-lying island inhabitants are being driven out by global sea level rise. The Guna Indians of Panama are abandoning nearly a quarter of their islands. Whole nations will follow, along with billions of people in coastal areas. They can’t take any more sea level rise. We can easily grow coral reefs at record rates to rapidly restore fisheries and eroding beaches – as covered in my book ‘Innovative Methods of Marine Ecosystem Restoration’ – but the technology is not being used on a large scale.



photo: A young Guna boy on Guna Yala island, Panama.  
By Mónica Mora – <https://flic.kr/p/bEgFDB>

The Intergovernmental Panel on Climate Change (IPCC) models seriously underestimate impacts because they cover a few per cent of responses continuing thousands of years. Nearly one million years of climate data show long-term equilibrium temperature and sea level for 400 ppm of CO<sub>2</sub> are +17 and +23 metres, many times higher than IPCC forecasts. Our descendants are committed to these increases, even if we stop all fossil fuel use today, though it won’t happen in the lifetime of those who caused the problem. We can use this data to determine the safe level of CO<sub>2</sub> – 260 ppm – way below UNFCCC targets.

No emissions reductions can reduce CO<sub>2</sub> to safe levels; and carbon capture and storage (CCS) is not feasible, affordable, nor capable of reducing existing excesses. Both emissions reductions and CCS could only slightly slow the rate of increases. The only possible solution is restoring natural ecosystems and soil capacity to absorb carbon. Soil has six times more carbon than the atmosphere, and only a 10 per cent increase could absorb the excess carbon in our atmosphere. But soil is not listed as a UNFCCC carbon sink, countries don’t account for soil carbon, and there is no serious funding for farmers to increase it.

Soil carbon storage technologies are mature and successfully applied in every continent except Antarctica. My new book, ‘Geotherapy: Innovative Methods of Soil Fertility Restoration, Carbon Sequestration, and Reversing CO<sub>2</sub> Increase’, shows how to remove the dangerous excess as fast as possible.

Photosynthesis, along with carbon storage using ancient Indigenous Amazonian Indian biochar technology, could absorb the excess in a few decades, greatly increasing soil fertility, retaining nutrients, minerals, and water. Increased soil carbon greatly increases food production, forestry, and groundwater recharge, reduces temperature, and produces carbon-negative biomass energy while reducing CO<sub>2</sub>.

Large scale restoration of ecosystems and soils is the only way we can remove the carbon from where it is doing the most damage, and put it back in the ground where it does the most good – just in time to save coral reefs, islands, and low lying coasts from extinction. But, incredibly, it is not even being discussed at COP20, despite the fact that 2015 is the UN Food and Agriculture Organization’s (FAO) Year of the Soil.

UNFCCC cannot serve as a scientifically-sound climate management tool until it includes complete accounting of all greenhouse gas sources and sinks, and mandates saving our most critical climate-sensitive ecosystems. As Senior Scientific Affairs Officer for Global Climate Change and Biodiversity at the UN Centre for Science and Technology for Development in 1989, I included these in the first UNFCCC draft, which was gutted by Member States choosing to monitor selected sources and sinks while condemning coral reefs to death. Incomplete accounting must be rectified for the UNFCCC to be scientifically-sound and effective. Governments must deal with real causes rather than symptoms, and stop ignoring the only solutions that can solve the crisis in time to avert the worst damages.

Emissions reductions are essential but insufficient, only restoration of soil carbon can make them work. The solutions are available but are being ignored: we cannot afford any further delay in action implementing them without sacrificing reefs and low coasts ■



# Water needs to be put on the global climate finance agenda

Maika Müller

Global Water Partnership (GWP)

Water is the common medium through which a changing climate impacts us, but it is also the bloodstream of our universal wellbeing. The impacts of climate change through water are revealed in extreme weather events expressed by more floods, more droughts, and more storms. Notably, the world's most vulnerable people, including women, children, and Indigenous populations are worst hit by such climate events.

Water is a big player to create a more climate resilient world. It is widely demonstrated that countries with robust water management systems, institutions, and water infrastructure are better prepared to cope with climate change impacts.

Sufficient financial resources and innovative approaches to financing are required to support developing countries in undertaking adaptation activities to effectively adapt to climate change. This means to assist countries to investigate water infrastructure options in advance, in strengthening 'no/low regret' investments, and in developing institutional capacity.

The Green Climate Fund (GCF), which is expected to be operationalised by 2015, will take on an important role in handling billions of dollars in climate finance in the coming years. With its paradigm shift towards a low-emission and climate-resilient development pathway, the GCF plans to channel a greater share of new multilateral funding for adaptation projects, which are currently underfunded in the evolving global climate finance landscape.

Global Water Partnership (GWP) welcomes the GCF's emphasis on allocating a '50:50 balance' for adaptation and mitigation activities, and the increased pledges to the Fund. We propose that the GCF should create a "water window" to close the financial gap for adaptation activities implemented by countries towards holistic and solid water resources management.

When United States President, Barack Obama, announced a \$3 billion pledge to the GCF, he stressed that this "gives us the opportunity to help vulnerable communities with an early warning system, with stronger defences against storm surge, climate resilient infrastructure, to help farmers plant more durable crops." Now the question is raised: how can these ambitions be achieved?

GWP is responding to the emerging challenge of climate finance through ongoing projects and activities under

the Global Water, Climate and Development Programme (WACDEP), which supports countries in climate finance readiness. A portfolio of projects and programmes aim to support countries worldwide to integrate water security and climate resilience in development planning and decision-making processes. From 2011 to 2016, WACDEP has operated in, and targeted, 60 countries from Africa, Asia, Caribbean, Europe, and Latin America.

To support countries in leveraging efficient financing for climate resilient adaptation projects in water resources management, we must, among other actions:

- Enhance knowledge and capacities of partnerships, institutions and stakeholders to integrate water security and climate resilience in development planning and decision-making processes;
- Support countries in preparing climate resilient, bankable and tangible projects to leverage investments for water resources management;
- Develop the capacity of planners and decision-makers to identify, develop and appraise 'no/low regrets' investment plans – such as early warning systems and more resilient crops – to improve the resilience of natural resources in a sustainable way under future climate scenarios;
- Support countries and enable governments to unlock financial sources from new and emerging climate funds and other sources, such as development banks;
- Contribute to the development of national adaptation plans (NAPs) and the formulation of projects and programmes to support water security and climate resilient development; and
- Strengthen the design of national drought and flood management policies through improved knowledge and access to scientific understanding of drought and floods, risk assessment, monitoring, prediction and early warning ■



photo: Rehabilitating small-scale irrigation schemes in Masvingo Province, Zimbabwe, ensures that rural communities in dry areas of Masvingo Province enjoy enhanced food security by 2020. By David Brazier/IWMI – <https://flic.kr/p/e71cvA>



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# Climate change adaptation, resilience and human mobility: Voices from the climate frontlines

SIDE EVENT – COP 20, Lima

Thursday 11 December 2014 at 13:15-14:45, in Room Paracas

Co-organized by UNHCR, UN-WOMEN, UNU-EHS and IOM

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Few issues have such far-reaching global implications as climate change. This side event will put a human face to climate change impacts by giving the spotlight to the voices from the frontlines of climate change to testify on the impacts of a changing climate including displacement and its gender dimensions. The event will also feature how some forms of human mobility can serve to adapt to the effects of climate change and avoid forced displacement.

**CHAIR: MARY ROBINSON**, PRESIDENT, MARY ROBINSON FOUNDATION CLIMATE JUSTICE

**PANELISTS:**

1. **Ms. Zakia Naznin** Bangladesh Centre for Advanced Studies (BCAS)  
*Climate change adaptation strategies to be targeted to women and employment opportunities in the face of climate induced migration.*
2. **Ms. Cristina Tirado** International Union of Nutritional Sciences (IUNS)  
*Health and nutrition implications of climate-induced mobility, from a gender perspective.*
3. **Mr. Roberto Guzman Ice-Catie Costa** Rica Government  
*Human mobility autochthone case, adaptation actions to reduce the risks.*
4. **Ms. Mafalda Duarte** Climate Investment Funds  
*Migration as an adaptation strategy- Facilitating labor mobility, migration, and remittances.*
5. **Mr. Emad Adly** Arab Network for Environment and Development (RAED)  
*Climate-induced planned relocation, case studies in Egypt and Sudan.*

**Q&A: INFORMAL DISCUSSION WITH PARTICIPANTS AND ATTENDEES INCLUDING UN AGENCIES.**

In partnership with FAO, IFAD, ILO, OCHA, UNDP, UNEP, UNICEF, WFP

# Side events calendar

DATE	TIME	VENUE	TITLE	ORGANISERS
THURSDAY 11th DECEMBER	11:30–13:00	Caral	Linkage among climate policies in the 2015 Paris agreement	Arizona State University (ASU), International Emissions Trading Association (IETA)
	11:30–13:00	Paracas	Why people-centred climate actions in the SDGs are essential for avoiding dangerous climate change	Christian Aid (CA), Cooperation internationale pour le développement et la solidarité (CIDSE), Pan African Climate Justice Alliance (PACJA)
	11:30–13:00	Machu-Picchu	Advancing Accountability for Climate Damages	Climate Justice Program (ACJP), Center for International Environmental Law (CIEL), Heinrich Böll Foundation (HBF)
	11:30–13:00	Sipan	Integrated Climate Risk Management for a resilient world	Netherlands, ZOI Environment Network (ZOI), Delta Electronics Foundation (DEF), Mountain and Glacier Protection Organization (MGPO)
	13:15–14:45	Caral	How to anchor adaptation and the Warsaw International Mechanism in the Paris agreement	ACT Alliance - Action by Churches Together, Bread for the World (BfdW)
	13:15–14:45	Maranga	Trade and Climate Change: Exploring a New Agenda	Honduras, International Centre for Trade and Sustainable Development (ICTSD)
	13:15–14:45	Sipan	Mountains and water - from understanding to action	Bhutan, Guinea, Kyrgyzstan, The Mountain Institute, Inc.
	13:15–14:45	Paracas	Climate Change Adaptation, Resilience and Human Mobility: Voices from the Climate Frontlines	United Nations (UN)
	13:15–14:45	Wari	Momentum for Change: ICT Solutions	Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)
	15:00–16:30	Maranga	International Insight on China & Supporting Chinese Subnational Governments Achieve Carbon Targets	Global Environmental Institute (GEI), Center for Climate Strategies, Inc. (CCS), Climate Strategies
	15:00–16:30	Caral	Climate Change in the Andes and Global Cryosphere: Guiding 2015 Commitments	Climate Policy Center (CPC), International Cryosphere Climate Initiative (ICCI)
	15:00–16:30	Sipan	Enabling conditions at subnational level for financing CCA: Experiences from Peru, India, China	Helvetas Swiss Intercooperation, German Development Institute (DIE - Bonn)
	15:00–16:30	Machu-Picchu	GCF Outlook – Prospects for the Green Climate Fund in 2015	Green Climate Fund secretariat (GCF)
	16:45–18:15	Caral	Realization of blueprint for low carbon societies in Malaysia and throughout Asia	National Institute for Environmental Studies (NIES), University of Technology Malaysia (UTM)
	16:45–18:15	Paracas	Can Latin America achieve convergence between domestic and international climate efforts post 2020?	Natural Resources Defense Council (NRDC), Brown University - Watson Institute
	16:45–18:15	Wari	Momentum for Change: Financing for Climate Friendly Investment	Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)
	18:30–20:00	Maranga	Electrical cities Agroecological and Ecoproductive Parks to combat CC. A bioeconomical approach	COBASE, Cooperativa Tecnico Scientifica di Base, Gherush92 Committee for Human Rights
	18:30–20:00	Machu-Picchu	Adapting to Climate Change: A Human Mobility Perspective. Nansen Initiative and para 14(f) of CAF	Norway, Norwegian Refugee Council (NRC)
	18:30–20:00	Sipan	Climate resilient development in the Amazon: promising at-scale strategies for territorial governance	Fundación Avina (AVINA), Center of Life Institute (ICV)
18:30–20:00	Caral	The role of Climate Finance towards Intended Nationally Determined Contributions	Liechtenstein, University of Freiburg, Institute of Forest and Environmental Policy (IFP)	



# Reflections from COP20, Day 9

Soscha de la Fuente

Dutch Youth Representative on Sustainable Development to the UN

One of the big surprises for youth at this COP has been the Ministerial Declaration on Education and Awareness-raising, put forward by Peru and Poland. COP19 President Mr. Korolec stated in his opening speech that education is the most important tool one can use to change the world, and experience and scientific research show he is right. However, since the 1992 Rio Earth Summit, which resulted in Article 6 of Agenda 21 on “Education, Training and Public Awareness”, there has been little coverage of this issue internationally through the UN Framework Convention on Climate Change (UNFCCC). This year, Poland and Peru have brought education back to the centre stage of negotiations. Alongside this renewed political momentum, many side events have emphasised that education can lead to the systemic change that we are all trying to achieve. The ability to fight climate change – the ultimate goal of these negotiations – requires education.

It therefore seems obvious that we need to reassess the ways in which the UNFCCC and governments can contribute to improving and financing education on climate change and sustainable development. With this mind, many young people are seeking to influence the negotiations. Their aim has been to change the very outcomes of the climate talks on education. Here at COP20, we have continued the work of the YOUNGO Working Group on Education, with the aim of sharing the knowledge of youth with our governments, to help them carry out national and international education programmes.

Last week we sat down with the Polish delegation to share our thoughts, and found that other countries had proposed amendments that echoed our own. It seemed as though many countries had the same intention as us: like youth, they wanted to make the Declaration more concrete, helpful and successful in the long run.

So what do we, as youth, see as useful statements to include? An explicit acknowledgment of the success of informal and non-formal education, is one clear example. Education is not restricted to the classroom. A large amount of climate change education can, and is, primarily performed by civil society, and our governments should support these initiatives. But more importantly, we need to recognise that sustainable development is only possible when we share universal values, and are respectful towards those values which are context- and culture-specific. This is the most important thing that our education could possibly reflect ■

Serena Boccardo and Camilla Forti

Youth Press Agency

Yesterday was a special day outside COP20. On the 56th anniversary of Human Rights Day – as established by the UN – Indigenous Peoples, campesinos (farmers), women, students and trade unions movements, coming from every part of the world, took to the streets of Lima for a shared protest in defence of their rights to water, healthcare and climate justice – all of which are being discussed in the negotiations this week.



Addressing climate change in a fair, sustainable and equitable way is indeed deeply interrelated with the respect for human rights.

While ultimate decisions are being made inside the secret rooms of the Pentagonito – the Peruvian nickname for the COP20 venue – the streets of Lima have been coloured by the People's Climate March, with the motto: “Change the system, not the climate”.

Inequalities in terms of access to food, natural resources, education, healthcare and energy supplies are indeed exacerbated by a lack of long-term perspective on addressing the climate change issue. In the eyes of the people marching, COP20 is a massive bureaucratic machine, which works by depending on private interests, and reflecting and following the dictates of a neoliberal economic model.

But why do people feel so distant from UN institutions? And why are these bodies considered so distant from being able to fulfil people's needs? Why would an institution whose mission is to guarantee a peaceful world and universal human rights, seem not to be able to interact with those citizens it is supposed to protect? Clearly, there is a lack of representation and democracy. Just to mention one example, in the negotiations on REDD+ - whose ultimate aim should be to provide sustainable forestry management – indigenous communities feel their views are not sufficiently represented. It is undeniable that pricing land, water and air by applying markets mechanisms currently under discussion in COP20, does not entail the enormous costs in terms of social, cultural and environmental externalities that ultimately fall on the shoulders of all of us ■

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