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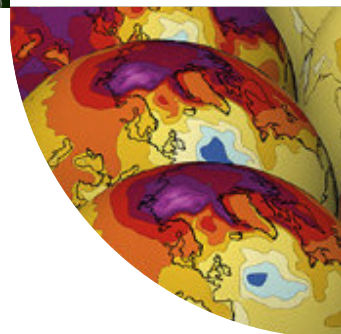
NOT ALL THAT GLITTERS IS GREEN

SUSTAINABLE FINANCIAL INSTRUMENTS ARE DESIGNED TO SLOW
CLIMATE CHANGE — BUT WHICH ONES DO WORK?



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CLICCS QUARTERLY

NEWS FROM CLIMATE RESEARCH



NOT ALL THAT GLITTERS IS GREEN

In the future, investments are to be made more sustainable. Franziska Müller, a Junior Professor of Globalization and Global Climate Policy, is currently investigating the energy transition and financial instruments designed to slow climate change.

Ms. Müller, you've said that, when it comes to green financial instruments, there's still much work that needs to be done?

Green funds are going to gain in influence and play a major role in determining what future climate protection will look like. As a political scientist, I'm exploring the underlying power structures, and how green fund governance could be designed in a beneficial way. Who decides what's green enough? What gives these criteria legitimacy? And who enforces the rules? There are often discrepancies.

The UN Climate Change Conference created the Green Climate Fund. What's your view on it?

It's the largest climate fund in the world and is intended to support the goal of using US\$100 billion per year in public and private funding for climate financing. Based on this, over 220 climate protection projects in the Global South have been planned. But by 2021, only US\$7.4 billion had actually been paid. The money needs to be made available much more quickly.

Are the decision-making processes fair?

Countries in the Global South have a fundamentally harder time getting their projects funded. It starts with the formalities; they often lack strategic capacities that could help submit an application that "satisfies" the Global North. At the same time, the climate crisis is already hitting these countries exceptionally hard. To secure policy ownership, vulnerable countries should be able to participate in decision-making on project funding.

Microinsurance can be used to protect smallholders and farmers from harvest-related risks. Is it a sensible option?

To date, roughly 100 million people have been entered microinsurance contracts. But in order for them to apply, the risk of crop failure can't happen more often than once every 15 years. But hurricanes and droughts occur much more frequently, so many risks aren't insurable. In addition, insurance individualizes risk. Many communities band together to help one another after natural catastrophes. This sense of community could

erode if, for instance, one person has insurance A, another has insurance B, and yet another has no insurance at all.

Which financial instruments do work?

I'm a big fan of energy auctions! A given country officially announces that it wants to produce a certain number of gigawatts of renewable energy, and companies from around the globe can submit tenders. Ideally, this goes hand in hand with technology transfer, skill transfer and green jobs along the value creation chain. My research has covered energy auctions in South Africa, where today more than 100 of these projects are generating five gigawatts of electricity. To ensure that foreign companies don't just fly in their own staff, projects need to demonstrate that they employ and train local personnel. Roughly 40 percent of these projects operate at a high level of communal ownership. Addressing the energy transition, one can learn quite a bit from the Global South.

WHAT CROPS SHOULD YOU PLANT WHEN THE RAINS CHANGE?

In India, farming is highly dependent on the monsoon. But climate change is now affecting precipitation patterns. Rains that come too soon can ruin the summer rice: heavy rains preceding the actual monsoon can drown the seedlings in the fall, creating a breeding ground for pathogens. In addition, there are droughts and cyclones. How has climate change been felt by farmers in the eastern Himalayas? And how are they responding to it?

A team led by Prof. Uwe Schneider and Dr. Amol Bhalerao evaluated the personal experiences of 800 farming families. The majority have witnessed extreme weather events in the past ten to fifteen years. Many have experienced water shortages and declining soil fertility. Poor harvests have reduced their income. Roughly two-thirds of those surveyed believe human beings are responsible for climate change, and that something urgently needs to be done. In response, they are now planting mixed crops or planting at different times of year.



Farmers in Mizoram, India, claim they are facing water shortages.

Nevertheless, political support is crucial to develop the agricultural sector sustainably. In this regard, e.g. training, affordable technologies and equipment, and access to credit can help. At the same time, soils need to be protected to reduce erosion and enhance fertility.

uhh.de/cliccs-sustainable-agriculture



RELIABLY PREDICTING EXTREME WEATHER EVENTS

Dr. Patrick Pieper is investigating how extreme weather events can be predicted several months in advance. His simulations show: these events can be predicted especially reliably when they are preceded by distinct anomalies in the climate system.

This became apparent when the meteorologist took a closer look at the circulation system in the tropical Pacific, between South America and Australia. Every two to seven years, the system undergoes a radical change: either it intensifies in the same direction, or it reverses course, so that the air and seawater begin flowing in the opposite direction. These events, referred to as La Niña and El Niño, can produce flooding and cold snaps – or heat waves and droughts – around the globe. For the Americas, Pieper can now reliably predict these droughts four months in advance; previously, they could only be predicted with one month's warning at most.

In times when extreme weather events pose a steadily growing risk, these simulations can help prepare for potential risks. Pieper is currently working on transferring his findings to Europe, and also hopes to provide heat-wave warnings well in advance.

uhh.de/cliccs-research-theme-a6

CLIMATE PROTECTION WITH CONTRADICTIONS

Climate protection measures need to be consistently combined. Yet individual instruments within the EU's new "Fit for 55" package are contradictory, as Prof. Michael Köhl has now shown with regard to forests.

Forests and wood products play a vital role in climate mitigation. As a renewable material, wood stores CO₂ on a long-term basis. Compared to non-renewable materials the processing of timber is associated with substantially lower emissions.

Therefore, sustainably managed forests that are harvested regularly and the use of timber make a decisive contribution to reducing emissions.

As such, several political initiatives launched by the EU now call for increased wood use. But at the same time, the EU's biodiversity strategy calls for placing 30 percent of the total area of the EU under protection – which would dramatically reduce the contribution of the forest-timber chain for achieving net zero emissions.



"Only considering the carbon balance within the forest's borders is too short-sighted," says Köhl. In addition, wood products can e.g. replace concrete or steel, the production of which involves substantial emissions. "Currently, these effects aren't sufficiently taken into account," the forest expert claims. "If climate-neutrality is our goal, we have to consider forests' full potential."

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NEWS IN BRIEF

WANTED: CLIMATE-RELEVANT DISSERTATIONS

The Cluster of Excellence CLICCS recognizes outstanding doctoral dissertations in climate and Earth system research with the "Wladimir Köppen Prize". Dissertations with a clear connection to climate research can be submitted until January 3, 2022. The prize honors talented young researchers who have completed their PhD in a German-speaking country.

uhh.de/cliccs-koepen-award

CLIMATE EXTREMES: A TIMELY PROFESSORSHIP

Jana Sillmann has taken up her position as the new professor of "Climate Statistics and Climate Extremes" – at a time when heavy rain, heat waves and forest fires have, more than ever before, raised people's awareness of the consequences of climate change. In the Cluster of Excellence CLICCS, the geo-ecologist is investigating what this means for us, and how we can deal with the risks. uhh.de/cliccs-climate-extremes

A BETTER GRASP OF CHAOTIC ATMOSPHERIC PROCESSES

Juan Pedro Mellado Gonzalez recently transferred from the Polytechnic University of Catalonia to Universität Hamburg, where he will serve as a Professor for „Small-scale Atmospheric Modelling“. At CLICCS, he is investigating radiative transfer and the microphysics of clouds in order to make climate models more reliable. uhh.de/cliccs-atmospheric-processes

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