



Alexander von Humboldt  
Stiftung/Foundation

## Fellows 2021/2022

International Climate Protection Fellowship



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## Stipendiatinnen und Stipendiaten 2021/2022

Internationales Klimaschutzstipendium

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## Reducing emissions by integrating shade tolerant, Non-Timber Forest Products in Ghana's forest cocoa landscape

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*Emmanuel Adu-Sarpong wants to explore the options for propagating specific shade-tolerant Non-Timber Forest Products (NTFPs), exploiting their marketing potential and their contribution to carbon stocks in the sub-Saharan cocoa forest landscape to improve farmers' livelihoods and ensure sustainable tropical forest landscapes management.*

In Ghana, as in most other sub-Saharan countries, the commodity value chain approach to drive the Reducing Emissions from Deforestation and Degradation (REDD+) programmes is becoming more and more important. Achieving it at the local, regional and global level is part of the Paris Agreement and the Sustainable Development Goals (SDGs). To sustain global investment through tropical forest landscapes management, it is crucial to assess restoration options that ensure optimum returns.

Emmanuel Adu-Sarpong's research is expected to have a positive impact on farmers' access to NTFPs, ensuring food and nutrition security, improving rural incomes as well as optimising collaborative forest tree management whilst increasing cocoa production hours.

The study will evaluate the commercial restoration potential of NTFPs for sustained forest cocoa landscape management and determine the contribution of NTFPs to carbon sequestration and carbon stocks estimation. Moreover, it will assess the potential for expanding NTFPs to maintain commercial production and evaluate their potential for trading throughout the sub-Saharan region as well as



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### Adu-Sarpong, Emmanuel

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**Degree:** Master of Science | **Field:** Basic Forest Research  
**Affiliation at the time of application:** The Forestry Commission of Ghana, Kumasi, Ghana

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**Host Institution in Germany:** Institute for Technology and Resources Management in the Tropics and Subtropics at the University of Applied Sciences in Cologne |

**Host:** Prof. Dr Sabine Schlüter

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in international markets. Emmanuel's study is supported by his host institution, the Institute for Technology and Resources Management in the Tropics and Subtropics at the University of Applied Sciences in Cologne.

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## Development and promotion of soft transport policy measures and strategies for climate mitigation and protection in Ghana

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*Jack Asare Awuku wants to promote and implement soft transport policies in Ghana and other developing countries to stop the increase in private car use.*

As one of the fastest growing economies in the world, Ghana is facing increasing CO<sub>2</sub> emissions in the transport sector caused by an exponential growth in private car use. Though climate change is a pressing issue in the West African state, public opposition and lack of political will have made the implementation of strict transport policies difficult. Owning a private car is generally considered a necessity, both for reasons of social status and comfort as well as for security. There is little awareness, education or acceptance of alternative sustainable modes in Ghanaian society to influence travel behaviour change towards sustainable modes.

Through his project work, Jack Asare Awuku wants to counter this trend: His research focuses on the development of strategies for the promotion and implementation of soft transport policy measures in Ghana and other developing countries. "The Car Free Day" is an initiative that encompasses several soft transport policy measures and presents possibilities for alternative sustainable travel modes. It aims to encourage a voluntary change in people's travel behaviour towards more sustainable means of transport. Based on interviews and questionnaires, Jack's research focuses on the characteristics and motivation that influence people's travel decisions. This data will be supplemented by interviews with stakeholders and practical experience in Ger-

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## Asare Awuku, Jack

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**Degree:** Master of Science | **Field:** Traffic and Transport in General | **Affiliation at the time of application:** Daovtech Design Group, Accra, Ghana

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**Host Institution in Germany:** "Friedrich List" Faculty of Transport and Traffic Sciences at Technische Universität Dresden | **Host:** Prof. Dr Tibor Petzold

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many to monitor soft transport policies and their impacts. Awuku's main objective is to gain greater insight into behavioural sciences and thus a better understanding of the causal mechanisms that enable voluntary changes in travel behaviour. His research is being supported by the "Friedrich List" Faculty of Transport and Traffic Sciences at Technische Universität Dresden.

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## Decarbonising the transport sector with urban cycle logistics

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*Fernando Antonio de Sant'Ana Fontes aims to build more expertise in sustainable urban logistics by studying urban bicycle logistics as a tool for decarbonising transportation in Brazil.*

Around the world, urbanisation is having a major impact on climate change. A large proportion of the greenhouse gases (GHG) responsible for this are generated by the transport sector, which is the fastest growing source of global emissions. Overall, the urban logistics sector emits around six percent of GHG. Eighty-seven percent of the Brazilian population lives in urban areas. The transport sector is the second largest, accounting for fourteen percent of Brazil's total greenhouse gas emissions. Although Brazil has a National Urban Mobility Policy that requires a federal mobility budget to be made available to municipalities that prioritise active forms of mobility like cycling through urban mobility plans, the country lacks the expertise and coordination to promote and integrate sustainable urban logistics.

Through his work on urban bicycle logistics, Fernando aims to build greater expertise in sustainable urban logistics. His main objective is to study urban bicycle logistics as a tool for decarbonising transport in Brazil to help mitigate the long-term effects of climate change as well as to promote urban development and social inclusion. This will be done, for example, by promoting the exchange of knowledge between Brazilian and European specialists as well as discussing different integration and implementation methods for Brazil. With his research project, Fernando wants to reinforce the role of bicycle logistics in Brazilian urban



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## de Sant'Ana Fontes, Fernando Antonio

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**Degree:** Master of Engineering | **Field:** Traffic and Transport Systems, Logistics | **Affiliation at the time of application:** Deutsche Gesellschaft für Internationale Zusammenarbeit, Brasília, Brazil

**Host Institution in Germany:** Center for Technology and Society at Technische Universität Berlin | **Host:** Dr Hans-Liudger Diemel

mobility plans and improve collaboration between government, professionals and civil society. He is supported by the Center for Technology and Society at Technische Universität Berlin.

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## Climate litigation: legal answers from the South for a worldwide crisis

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*Mario Alejandro Delgado Galarraga examines to what extent Rights of Nature improve the current legal mechanisms in climate litigation processes.*

The effects of climate change are obvious, as is its anthropogenic origin. Greenhouse gas emissions reached a worldwide record last year. A lack of political will is delaying the adoption of serious commitments, such as those formulated at the last Conference of the Parties held in Madrid. To act on this issue, it is therefore up to civil society and NGOs to use the legal instruments available. They enable civil society actors to seek remedies for the problems caused by climate change.

In his research project, Mario Alejandro Delgado Galarraga investigates how compliance mechanisms within climate change instruments and Multilateral Environmental Agreements containing climate-related provisions may be triggered to redress the infringement of treaty obligations. He will explore alternative ways of holding states accountable if they breach international obligations in international judicial bodies. In addition, Mario will examine human rights law as an option for bringing states or corporations to justice to seek remediation for the impairment of any human right caused by climate change. To this end, for both scenarios, Mario will analyse whether Rights of Nature can support climate-related claims regarding climate protection. Through his research, which is supported by the Ecologic Institute in Berlin, Mario Alejandro Delgado Galarraga aims to improve information and climate litigation methods to prepare claims related to climate change.

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## Delgado Galarraga, Mario Alejandro

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**Degree:** Master of Laws | **Field:** International Public Law | **Affiliation at the time of application:** Global Partners Soluciones Legales, Quito, Ecuador

**Host Institution in Germany:** Ecologic Institut, Berlin |

**Host:** Arne Riedel



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## Options and implications for rolling-out electric vehicles in South Africa

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*Bhavna Deonarain's goal is to advance the development of sustainable transportation systems in South Africa.*

The transport sector in South Africa is the second highest emitter of greenhouse gases after energy production. To reduce emissions from the transport sector, South Africa has recognized the need for a shift to electric vehicles (EVs), but the development of necessary plans, policies and strategies has stagnated. South Africa can learn lessons from the countries that have significant EV uptake, to create a comprehensive policy package to achieve its goals. This policy mix must be mindful of the current socio-economic and political landscape within South Africa.

Bhavna Deonarain's research aims to advance the development of a sustainable transport policy in South Africa by identifying elements of an integrated strategy for the accelerated roll-out of EVs in the country – based on international best practices tailored to the South African context. Bhavna will, therefore, map and classify the automotive markets where EV policy has already been implemented and draw comparisons with the assumptions made in South Africa. In a second step, she will investigate specific factors affecting EV diffusion in South Africa such as continued dependence on crude oil, diverging technologies in the form of hydrogen fuel cells and the existence of an automotive industry with many manufacturers producing specialised components for internal combustion engine vehicles. These approaches will be flanked by consultations and engagement with policy makers, transport forums and the private sector in Germany, Norway, and the Netherlands.



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## Deonarain, Bhavna

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**Degree:** Master of Arts | **Field:** Human Geography |  
**Affiliation at the time of application:** B&M Analysts,  
Durban, South Africa

**Host Institution in Germany:** German Development  
Institute, Bonn | **Host:** Dr Tilman Altenburg

Bhavna's research project is being supported by the German Development Institute.

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## Optimised land use diversification to fight food insecurity and improve resilience to climate change in Ethiopia

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*Shibire Bekele Eshetu aims to identify ecologically sound, economically viable, and socially acceptable land use options for Ethiopia in the age of climate change.*

Ethiopia is a society dependent on agriculture, and forestry plays a crucial role in Ethiopia's economic development and human well-being. As a result, Ethiopian society is particularly susceptible to the effects of climate change. Given the existing state of agriculture and diversification systems in different parts of the country, in the age of climate change, climate-intelligent agriculture is an option. Land allocation for different crops and diversification of agricultural land can play an important role in improving the livelihoods of small farmers and preparing for climate change. The Ethiopian government has pledged to restore 15 million hectare of land by 2030, though it has not investigated and identified where the restoration will take place and how much land is available for the purpose. Shibire Bekele Eshetu wants to remedy this situation. In her research project, Shibire will assess the vulnerability of those Ethiopian communities that practise monocropping agriculture and investigate how they are coping with climate variability: In which ways are climate variability resilience and specific forms of land use related? How far can the diversification of land use contribute to assuring smallholder farmers' food security? And what potential does the diversification of land use have in terms of serving as an ex-ante tool for smallholder farmers to fight climate change? With her research project, Shibire aims to identify ecologically sound, economically via-

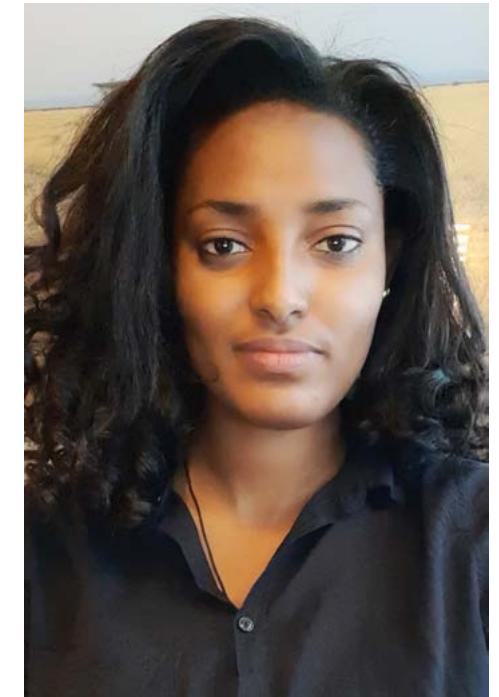
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## Eshetu, Shibire Bekele

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**Degree:** Master of Science | **Field:** Ecology of Agricultural Landscapes | **Affiliation at the time of application:**  
Deutsche Gesellschaft für Internationale Zusammenarbeit,  
Addis Ababa, Ethiopia

**Host Institution in Germany:** Leibniz Centre for Agricultural Landscape Research, Müncheberg | **Host:** PD Dr Stefan Sieber



ble and socially acceptable land use options in Ethiopia. The outcomes of this research will contribute directly to the country's national land use policy as well as to the Sustainable Development Goals. Shibire's research project is being supported by the Leibniz Centre for Agricultural Landscape Research.

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## An approach to emissions from urban mobility in mid-sized cities in Mexico: long-term decarbonisation strategies until 2050

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*Dennis Francisco Gastelum Rivera seeks to generate relevant future scenarios of mobility demand in medium-sized Mexican cities.*

More than three quarters of the Mexican population lives in an urban environment, produces eightyone percent of gross national product and is responsible for a significant carbon footprint. So far, however, sustainable mobility programmes have only concentrated on Mexico's three largest cities.

Dennis Francisco Gastelum Rivera would like to change this situation. His studies focus on long-term decarbonisation strategies for medium-sized cities which, in Mexico, means 105 urban settlements in which over thirty percent of the Mexican population live – and the cities continue to grow. His research will try to generate relevant future scenarios of mobility demand in these cities, identifying potential commonalities in terms of size, city structure and restricted mobility patterns. Dennis will also examine the impact of the decarbonisation achieved by electrifying the urban mobility sector on the national power grid. Based on his research in Germany, Dennis wants to evaluate the experience with local decarbonisation models for medium-sized Mexican cities. His main objective is to develop consistent long-term strategies that will fit into the planning framework for medium-sized cities until 2050, examining the measures required to achieve the reduction targets in line with a 1.5-degree global warming scenario. Dennis' research project is supported by the Fraunhofer Institute for Systems and Innovation Research.



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## Gastelum Rivera, Dennis Francisco

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**Degree:** Master of Science | **Field:** National Economic Policy | **Affiliation at the time of application:** Iniciativa Climática de México, Mexico City, Mexico

**Host Institution in Germany:** Fraunhofer Institute for Systems and Innovation Research, Karlsruhe | **Host:** Jose Antonio Ordonez

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## Two faces of climate change: farmers' perception of climate change, adaptive capacity and response strategies in wetland areas of Bangladesh

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*Dr Khondokar Humayun Kabir aims to generate knowledge that will form the basis for more effective support for Bangladeshi farmers to sustain their daily lives by ensuring agricultural productivity.*

Farmers in the north-western Bangladesh Haor area are particularly vulnerable to climate change. They face two of its extreme consequences: extensive drought during the dry season and severe flash floods during the rainy season. Recognition of the threat of global climate change has led various organisations (both governmental and nongovernmental) to develop adaptive capacity amongst wetland farmers. However, the proportion of climate-vulnerable farmers adopting the various climate-intelligent technologies in the wetlands is still relatively low.

Dr Khondokar Humayun Kabir therefore focuses his research on three questions based on the theory of planned behaviour and by using a novel visualization tool named 'Q methodology': How do farmers in Bangladesh's wetlands perceive climate change? How do they assess the importance of developing their ability to adapt to climate change? And which response strategies, if any, have farmers chosen to deal with the impacts of climate change?

A detailed understanding of how farmers in a specific region understand climate change is essential to develop their adaptability and to promote acceptance of climate-intelligent technologies. With the knowledge gained, Khondokar Humayun will create the basis for more effective support to help these farmers main-

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## Kabir, Dr Khondokar Humayun

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**Degree:** PhD | **Field:** Agricultural Economics and Sociology | **Affiliation at the time of application:** Bangladesh Agricultural University Department of Agricultural Extension Education, Mymensingh, Bangladesh

**Host Institution in Germany:** Research Unit Sustainability & Global Change at the Universität Hamburg | **Host:** Prof. Dr Uwe A. Schneider

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tain their livelihoods by ensuring agricultural productivity. This, in turn, could provide crucial information for the design of policy interventions. Khondokar Humayun's research is being supported by the Research Unit Sustainability & Global Change at the Universität Hamburg.

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## Enhancing Colombian farmers' adaptive capacities to overcome climate change and variability challenges to food production

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*Fanny Adriana Martin Ramirez wants to improve understanding of the contributions, potentials, and limitations of "Agroclimatic Roundtables" in Colombia and their role within the climate services framework.*

More than ninety percent of developing countries declared agriculture a key priority in their nationally determined contributions to combat climate change. Farmers' capacity to implement innovative and transformative actions must be improved to meet national adaptation plans, as in Colombia. One of the main strategies for implementing climate adaptation measures and to strengthen climate services in Colombia are "Agroclimatic Roundtables", where governmental representatives, agricultural organisations as well as scientists come together and produce information to improve the decision-making process for agricultural policy. However, the information they develop and offer is often not utilised.

Adriana Martin intends to work on this issue. First, she will analyse the knowledge gap between action taken by agricultural producers and the theoretical climate information provided by scientific institutions in Colombia. As a next step, Adriana will identify differences and commonalities between the narratives and key messages on climate adaptation by the Colombian roundtable bulletins and global scientific reports on climate change. Additionally, she will analyse recommendations made by sectoral experts. Based on these complex analyses, Adriana will then develop a methodological framework to strengthen not only the "Agroclimatic Roundtables" processes but also the use of climate services in the agricultural sector.



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**Martin Ramirez,  
Fanny Adriana**

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**Degree:** Bachelor of Engineering | **Field:** Political Science |  
**Affiliation at the time of application:** Food and Agriculture Organization of the United Nations, Bogota, Colombia

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**Host Institution in Germany:** Climate Service Center Germany (GERICS), at the Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research | **Host:** Prof. Dr Maria Manez Costa

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The research project will thus help policy makers and farmers to make informed decisions on how to adapt to climate change. Adriana is being supported by the Climate Service Center (GERICS) at the Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research.

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## How do governance systems enhance equitable and gender sensitive adaptation to climate change?

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*Chandapiwa Molefe's mission is to develop a practical tool to support gender mainstreaming in climate change adaptation and development planning in Botswana.*

Women in Botswana often take the leading role in feeding their families, which means that women, especially in the rural areas where there are limited alternative sources of income, need to farm as a means of livelihood. Since agriculture is a sector that is highly affected by climate change, women are usually on the front line when it comes to climate change impacts. There is little to no evidence that shows that gender is considered when designing climate change policies though. If gender inequalities and their underlying causes are to be avoided, decision makers must explicitly incorporate gender considerations into planning and implementing climate change adaptation measures. In Botswana, however, progress in this field has generally been slow.

Chandapiwa Molefe's research involves a pilot study of frameworks used in national adaptation plans and strategies, e.g., the framework for gender-responsive national adaptation processes. The overall objective is to develop a practical tool to support gender mainstreaming in climate change adaptation and development planning for the Ministry of Environment, Natural Resources Conservation and Tourism, and the Ministry of Agriculture in Botswana. To achieve this goal, Chandapiwa seeks to identify how strategies from different institutions and different levels of government incorporate gendered climate change adaptation goals. She also wants to understand the extent to which stakeholders are involved in the development of various

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## Molefe, Chandapiwa

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**Degree:** Master of Philosophy | **Field:** Human Geography |  
**Affiliation at the time of application:** University of Namibia, Windhoek, Namibia

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**Host Institution in Germany:** PlanAdapt, Berlin |  
**Host:** Dr Mariana Vidal Merino

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climate change adaptation strategies and whether they have a voice. Chandapiwa's research is being supported by the independent global network-based organisation PlanAdapt in Berlin.

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## Exploring measures to enhance adaptive capacity of at-risk social groups to pressures of climate change

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*Hamza Moluh Njoya envisions working with smallholder farmers to explore the underlying processes that contribute to a shared understanding of the socio-ecological resilience of upland and floodplain farming systems.*

Climate change and variability contribute to exacerbating poverty and social tensions in poor countries. At-risk groups are particularly affected by climatic stressors due to their low socio-economic resilience. This is the case in semi-arid and arid countries in Sub-Saharan Africa, which is considered one of the world's most vulnerable regions with regard to climate variability and change. Existing linkages between ecological and social resilience are particularly evident in social systems that depend on a narrow range of natural resources. By studying resilience in the context of resource-poor dependent people in developing countries, Hamza Moluh Njoya wants to make important and novel contributions to the advancement of climate change adaptation research and teaching. The regional focus of Hamza's research project will be on the Far North Region of Cameroon. Although often considered "backward" and dependent on international aid, smallholder farmers in this semi-arid region have in many cases developed highly complex agricultural systems that are well adapted to the specific ecological conditions and natural resources on which they depend. Moreover, these populations frequently have to contend with numerous external factors that put pressure on the natural resources on which their livelihoods are based, including government resettlement programmes and land regulations.



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## Moluh Njoya, Hamza

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**Degree:** Master of Science | **Field:** Ecology of Agricultural Landscapes | **Affiliation at the time of application:** University of Dschang, Dschang, Cameroon

**Host Institution in Germany:** Leibniz Centre for Agricultural Landscape Research, Múncheberg | **Host:** PD Dr Stefan Sieber

Using participatory action research, Hamza Moluh Njoya aims to work with smallholder farmers to investigate the underlying processes that contribute to a shared understanding of the socio-ecological resilience of mountain and floodplain farming systems. He is being supported by the Leibniz Centre for Agricultural Landscape Research.

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## Reworking the Amazon's bioeconomic concept

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*Luiza Montoya Raniero employs bioeconomic concepts to drive the social and economic development of the Amazon rainforest whilst preserving its biodiversity.*

Brazil, home to nearly sixty percent of the Amazon rainforest, holds huge potential to contribute to climate change mitigation. At the same time, land use changes and forestry in the Amazon are still Brazil's largest source of greenhouse gas emissions, mainly due to illegal deforestation.

Luiza Montoya Raniero thus wants to assess and compare different political frameworks focused on the guarantees of legal certainty, transparency, public participation and stronger collaboration between policy makers and stakeholders. In this context, rural and traditional communities who live in or around the rainforest are important for conserving the forest in a way that effectively generates income, promotes local development and reduces the impact of climate change.

For her project, Luiza analyses the Brazilian political framework at national and international level with reference to climate governance. Her analysis includes creating a map that links existing community market initiatives to their main forest product chains in the Brazilian Amazon.

She also wants to investigate Germany's priorities, strategies and funding opportunities with regard to climate change. Thus, during her stay, she is conducting documentary research and establishing partnerships to identify new opportunities for dialogue and collaboration on the development of a new bioeconomic concept for the Amazon. Finally, Luiza will write a report on her results and make recommendations that she intends to

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## Montoya Raniero, Luiza

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**Degree:** Bachelor of Science | **Field:** Business Administration, Environmental Management | **Affiliation at the time of application:** BVRio, Rio de Janeiro, Brazil

**Host Institution in Germany:** Institute for Advanced Sustainability Studies e.V., Postdam | **Host:** Dr Maria Cecilia Oliveira



present to specific forums and other public participation entities. She is being supported by the Institute for Advanced Sustainability Studies.

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## Designing climate mitigation strategies for cities

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*Netra Naik is designing a strategy for green urban development in Pune, based on methods borrowed from Berlin.*

Extreme weather events caused by climate change increasingly pose a risk, especially for densely populated cities. Indian cities spend more on post-disaster restoration than on preventive measures. In Pune, India's ninth largest city, existing climate action reports fail to outline the steps that need to be taken.

Netra Naik thus wants to develop a new strategy for the city. Since Pune is similar to Berlin in terms of population density, urban land area and natural environment, Netra will analyse Berlin's green urban development methods: including green rather than paved areas, for example, reduces the threat of disasters like floods and contributes to a better climate. As part of her analysis, she wants to examine cultural and technical aspects and therefore plans to conduct a series of interviews and systematically observe the physical environment in two districts of Berlin. She is also preparing a survey to find out how Berlin's population has embraced the measures.

The outcomes of her studies will enable Netra to design a strategy for green urban development in Pune and start a pilot project in the city. She intends to present her results in journals, to the Chief Resilience Officer of Pune and at international climate conferences. Furthermore, she plans to draw up guidelines for design schools and to develop an informative overview for funding agencies. Finally, Netra hopes to create awareness for her issue within the population. Her research project is being supported by the Berlin-based think tank BHL Building Health Lab.



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## Naik, Netra

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**Degree:** Master of Architecture | **Field:** Urban Planning and Development, Landscape, Traffic, and Infrastructure Planning | **Affiliation at the time of application:** Silica Institute Pune, Pune, India

**Host Institution in Germany:** BHL Building Health Lab UG, Berlin | **Host:** Alvaro Valera Sosa

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## Utilising Kenya's potential on a transition to renewable energies

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*Rose Trizer Omugar fights Kenya's energy poverty and climate change by advancing a transition to renewable energies.*

Renewable energy is seen as the future of global energy, which is why an increasing number of countries are planning to transition to renewable resources. In developing countries, too, there are moves to transition to clean energy production by building wind and solar farms. Kenya, for example, has huge energy resources like biomass, wind, solar, geothermal and hydropower. The country has ambitious goals and is formulating visionary energy policies for a low-emission, renewable energy sector that will secure accessible, reliable and affordable energy supplies. However, as in most developing countries, only a small percentage of Kenya's resources have been harnessed and energy poverty continues to be an obstacle.

Rose Trizer Omugar thus wants to review the progress that has been made in order to identify the gaps between strategic policies and development plans and how they are implemented, and discover the reasons for the dissonance. Her approach to Kenya's successful energy transition is based on the participation of citizens living in energy sectors who are then able to involve local and marginalised communities in the transition phase. During her research period in Germany, Rose Trizer is comparing international best practice examples to find ways of achieving a successful energy transition in Kenya. Finally, she will publish her findings in energy and climate change journals and produce an information sheet for relevant Kenyan stakeholders. Rose's research project is being supported by the Wuppertal Institute, one of the leading international think tanks for sustainability research.

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## Omugar, Rose Trizer

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**Degree:** Master of Science | **Field:** Political Sciences | **Affiliation at the time of application:** Central European University, Budapest, Hungary

**Host Institution in Germany:** Wuppertal Institute, Division Energy, Transport and Climate Policy, Wuppertal | **Host:** Prof. Dr-Ing. Philipp Schepelmann

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## Making climate change a bigger issue in international policies

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*Zachariah Omweri seeks to increase international climate diplomacy to maintain global peace.*

As climate change increasingly reveals itself in the form of natural disasters and extreme weather events, resources, jobs and homes are threatened. Migration, urbanisation and poverty are just a few examples of the resulting social tensions. Developing countries like Kenya are especially vulnerable and protecting them is of global relevance: the destruction of homes and resources in developing countries leads to worldwide demonstrations, wars, migration and economic collapse.

So far, climate policy has not been sufficiently prioritised in international diplomatic relations although it is crucial to maintaining global peace.

Zachariah Omweri thus suggests a fully comprehensive political strategy, addressing both the causes and consequences of climate change, in order to mitigate its global impact and ensure world peace and future security. He emphasises the importance of finally establishing climate protection on an international diplomatic basis so that new, comprehensive solutions can be found to reduce the vulnerability of the countries and individuals affected.

For his project, Zachariah wants to build on research in the relatively new and innovative field of climate diplomacy. He will focus on the question as to how developing countries' foreign climate policies can be improved, based on a case study of Kenya. He plans to communicate his findings broadly in the political and scientific contexts in order to lay the foundations for developing the approach further. Zachariah is being supported by the Berlin-based think tank Adelphi.

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## Omweri, Zachariah

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**Degree:** Master of Science | **Field:** Foreign Policy and International Systems | **Affiliation at the time of application:** Kenyatta University, Nairobi, Kenya

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**Host Institution in Germany:** Adelphi, Berlin |  
**Host:** Dr Benjamin Pohl

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## Improving green space management in urban areas

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*Valentine Opanga intends to optimise the political ecology of green space governance in Nairobi and Berlin by comparing the two urban cities.*

Against the backdrop of climate change and rapid urbanisation, green spaces are becoming ever more important for cities, especially as they offer several benefits to urban populations: they improve the urban microclimate, air quality and erosion control as well as contributing to social aspects like recreation, quality of life, educational benefits, tourism and other cultural and aesthetic services. However, rapidly growing populations in urban cities make it more difficult to maintain park lands and gardens whilst the vegetation in green spaces suffers under climate change. To solve these problems, management processes are required, and they are structured quite differently in the cities of the global South and North.

Valentine Opanga thus wants to analyse and compare the management of green spaces in Nairobi and Berlin. Her study will generate insights into how two different capital cities – one in the global South, one in the global North – govern their green spaces, focusing on how green spaces are implemented and planned, how populations use and view them and how they are managed politically. Valentine plans to base her study on the theory of political ecology and use in-depth interviews with stakeholders as primary data and diverse literature as secondary data. Her goal is to invigorate the cities' concepts by applying lessons learnt in Nairobi to Berlin, and vice versa, and adapting their concepts to their respective context-specific interests. Valentine is being supported by the Department of Geography at the University of Bonn.

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## Opanga, Valentine

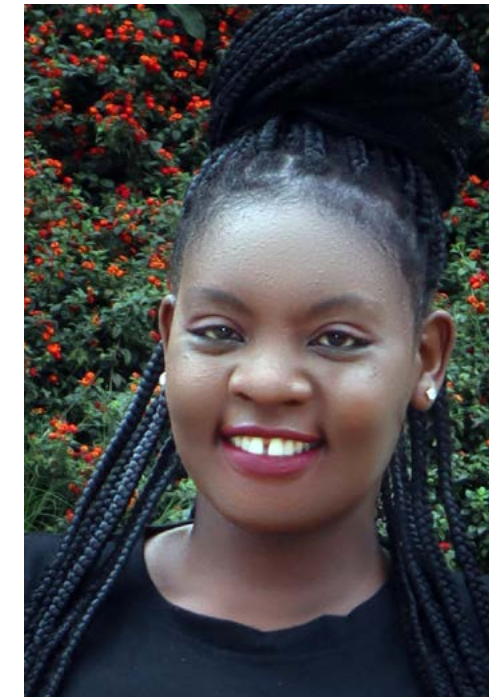
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**Degree:** Master of Arts | **Field:** Human Geography | **Affiliation at the time of application:** University of Nairobi, Nairobi, Kenya

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**Host Institution in Germany:** University of Bonn, Department of Geography, Bonn | **Host:** Prof. Dr Detlef Müller-Mahn

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## Legally defining carbon markets to facilitate climate change mitigation

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*Santiago Ramirez Niembro examines policy options on different carbon markets in order to propose legal frameworks for economically feasible climate change mitigation.*

The market value of carbon units can be used as an instrument to make climate change mitigation measures, carbon capture and innovation for green technologies more economically feasible.

To do so would require an extensive legal framework to define laws governing the trade in carbon units between nations and regions. However, legal definitions of carbon trade differ significantly at supranational, national and subnational levels. The coexistence of these multiple legal definitions is an obstacle for effective market design.

Santiago Ramirez Niembro therefore analyses the EU's regulatory arrangements in the context of its differing legal definitions in order to develop an extensive policy decision review. He plans to conduct a comparative legal analysis and interview key policy makers and legal researchers from different academic and public institutions in several EU countries. The studies will be based on legal review articles and journals as well as case reviews from legal processes in the European Court, other carbon markets and national courts. Moreover, Santiago wants to summarise all of his findings in a report on the different policy options and their consequences that need to be considered when a legal definition of carbon rights is adopted. Finally, he plans to distribute his findings to relevant members of the EU's Emissions Trading System, carbon market developers, policy makers and legal researchers in Europe and the Global South. His work is being supported by the International Carbon Action Partnership.

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## Ramirez Niembro, Santiago

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**Degree:** Bachelor of Arts | **Field:** General Public Law, Administrative Law | **Affiliation at the time of application:** EnergieA, Mexico City, Mexico

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**Host Institution in Germany:** International Carbon Action Partnership, Berlin | **Host:** Dr Constanze Haug

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## Enhancing flood resilience of Nepal's housing and urban planning

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*Rupesh Shrestha explores European flood resilience strategies to develop a concept for the construction of resilient, safe and sustainable cities in Nepal.*

In Nepal, rapidly retreating glaciers, rises in temperature and erratic rainfall caused by climate change are increasing the likelihood of floods. At the same time, urbanisation is rapidly taking place near water, where people are compelled to live and work. This development makes Nepalese communities especially vulnerable to flood devastation, like the destruction of their houses. Between 1954 and 2014, Nepal faced 41 flood events that caused 6,450 deaths and did heavy damage to infrastructures. A lack of effective urban planning and an inadequate infrastructure increase the vulnerability of Nepal's cities and communities. Rupesh Shrestha thus aims to develop strategies for flood resilient housing and urban planning in Nepal. In Germany and certain other countries, research is already being conducted to develop strategies for planning and building resilient housing, and several concepts, strategies and checklists already exist. Rupesh therefore wants to explore and juxtapose several of these strategies for modern flood adaptation and resilient housing to identify appropriate methods for Nepal. For his project, he will review Nepal's building practices and European strategies, conduct interviews and comparatively analyse existing urban planning practices. Based on his findings, he intends to develop a strategy to build resilient, safe and sustainable cities that enhance communities' life quality by generating benefits to the economy, health, ecology and

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## Shrestha, Rupesh

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**Degree:** Master of Science | **Field:** Urban Planning and Development, Landscape, Traffic, and Infrastructure Planning | **Affiliation at the time of application:** Kathmandu Valley Preservation Trust, Lalitpur, Nepal

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**Host Institution in Germany:** Technische Universität Kaiserslautern, Department of Civil Engineering, Hydraulic Engineering and Water Management, Kaiserslautern |

**Host:** Prof. Dr Robert Jüpner

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leisure. Rupesh's project is being supported by the Department of Civil Engineering at Technische Universität Kaiserslautern.

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## Exploring mechanisms for an International Emissions Trading System

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*Lonava Tahreen wants to stabilise greenhouse gas concentrations on a safe level using economic instruments based on international cooperation.*

Climate change makes it necessary to drastically reduce greenhouse gas emissions on a large scale. One way of addressing this is to adopt an economic approach through emissions trading systems (ETS) that has broader coverage. Holistic cooperation between developed and developing countries, as foreseen in Article 6 of the Paris Agreement, is therefore urgently required. However, up to now, sources of emissions reduction credits have relied exclusively on project- and programme-based approaches.

Lonava Tahreen thus suggests shifting to a holistic International Emissions Trading System utilising instruments like incentives and penalties in the form of carbon pricing, an emission cap and using ETS as providers of mitigation units. Theoretically, the efficiency of a stringent ETS with a cap would increase as external buyers would fund the reduction in emission allowances from the ETS. Lonava wants to study the potential of such a new approach and compare it to traditional project- and programme-based approaches by evaluating various components of existing ETS' around the world. She aims to devise a set of international policy recommendations and propose conditions that would make such a system feasible. Finally, her aim is to establish cooperation amongst nations. Since Lonava's project targets a broad audience, she intends to communicate her findings at conferences, workshops, and seminars as well as in vari-



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### Tahreen, Lonava

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**Degree:** Master of Science | **Field:** Economic and Social Policy | **Affiliation at the time of application:** Climate Connect Technologies, New Delhi, India

**Host Institution in Germany:** Nationally Determined Contributions Partnership Support Unit, Bonn |

**Host:** Nicolas Francis Johann Muller

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ous on- and offline media. She is being supported by the Nationally Determined Contributions Partnership Support Unit in Bonn.

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## Supporting small farmers in Peru through Participatory Guarantee Systems

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*Pablo Urbina demonstrates how the implementation of Participatory Guarantee Systems can enable the adoption of climate change mitigation practices on small farms in Peru.*

Climate change is a major challenge to small farmers in Peru since it causes variations in temperature and precipitation that can negatively affect crop yields. Agroecosystems that consider the vegetational diversity, landscape matrix as well as the soil and water management of small farmers can help them to be more resilient to climate change. However, many small farmers have difficulties or lack the incentives to do so.

Pablo Urbina therefore proposes to involve Participatory Guarantee Systems (PGS), which are based on participation by stakeholders like NGOs, farmers' associations, policy-makers, and civil society. PGS can help small farmers with capacity building, knowledge exchange, economic benefits, social cohesion and access to investment and support policies. Pablo's aim is to demonstrate how implementing PGS as social institutions can lead to the promotion and adoption of climate change mitigation practices by small farmers. He therefore wants to conduct a case study of the two PGS that already exist in Peru. His research will be based on a review of the scientific literature on the issue. Furthermore, he will analyse the steps taken by 40 small-scale farmers over time to comply with the PGS requirements.

Finally, Pablo intends to communicate his results to relevant stakeholders at conferences, in journals, in a policy brief and in an educational document. He is being supported by the Institute of International Forestry and Forest Products at Technische Universität Dresden.

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## Urbina, Pablo

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**Degree:** Bachelor of Science | **Field:** Agricultural Economics and Sociology | **Affiliation at the time of application:** Red de Agricultura Ecológica del Perú, Lima, Peru

**Host Institution in Germany:** Technische Universität Dresden, Institute of International Forestry and Forest Products, Dresden | **Host:** Prof. Dr Jürgen Pretzsch

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## Environmental governance in Kazakhstan and the European Union

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*Gulzhan Yermekova proposes a vision for a more successful, European-style institutional design of environmental policy for Kazakhstan.*

Kazakhstan has a highly carbon- and energy-intensive economy and is the largest emitter of greenhouse gases in Central Asia. In line with the global movement for inclusive and sustainable growth, Kazakhstan has committed to climate change policies through participation in international agreements. At the same time, the country has adopted a number of national development programmes and strategies that include measures to mitigate climate change and protect the environment. One of the most important national strategic documents is the “Green Economy Concept”, which sets ambitious goals for reducing greenhouse gas emissions and improving the efficiency of natural resource use. However, despite the Kazakh government’s best efforts to achieve a sustainable and low-carbon economy, many commitments set out in national programmes and international agreements have not been successful. Part of the reason for this is that climate research in Kazakhstan does not receive enough funding.

Gulzhan Yermekova aims to use her research to strengthen Kazakhstan’s institutional framework for a more efficient climate policy. To achieve this goal, she will examine the European institutional design of environmental policy and the functions and responsibilities of key policy actors in Europe. Her research will also address civil society and NGO engagement in the climate debate as well as human capacity building in Europe. Nevertheless, her overarching objective will still be to propose a vision for a more successful institutional de-



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## Yermekova, Gulzhan

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**Degree:** Master of Science | **Field:** Economic and Social Policy | **Affiliation at the time of application:** Nazarbayev University, Nur-Sultan, Kazakhstan

**Host Institution in Germany:** Freie Universität Berlin, Otto Suhr Institute of Political Science, Environmental Policy Research Centre, Berlin | **Host:** PD Dr Achim Brunnengräber

sign of environmental policy for Kazakhstan. Gulzhan is being supported by the Environmental Policy Research Centre at the Freie Universität Berlin.

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