SOCIAL CLIMATE CHANGE IMPACTS AND SUSTAINABILITY INNOVATION IN SOUTHERN AFRICA AND NORTHERN SOUTH AMERICA (NISANSA)

A BMBF PROPOSAL BY THE PHILIPPS UNIVERSITY MARBURG (UMR) AND THE JUSTUS LIEBIG UNIVERSITY (JLU) GIESSEN

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Table of Contents

Social climate change impacts and sustainability innovation in southern Africa and northern South America.

1. SUMMARY

The question of adequate social reactions to the consequences of climate change is one of the central challenges for the future. Western discourse on the impacts of climate change mainly focuses on the Global North and selected regions (Arctic, Pacific Island states). But what are the consequences of climate change in and for the countries in the Global South? How do they address climate change and its consequences? What are the social consequences for these regions, and what possibilities and potential exists to react to them? Which programs and institutional structures are used to address the impacts of climate change? Which practices of sustainable action emerge (sustainability innovation)? And what are the consequences for the Global North, Europe, and Germany?

The joint project between the UMR and the JLU investigates these questions from a transregional and comparative perspective, focusing on Southern Africa and Northern South America. The aim is to generate sound knowledge about the social consequences of climate change in these regions.

The project aims systematically complement current climate research with regional and social science perspectives. Natural sciences and statistical climate models primarily characterize climate research. However, climate change is not only a matter of climatological and ecological change, but it also implies political and cultural responses and societal transformations. These are associated with risks, uncertainties, and new conflict areas, and require socio-political, cultural, and economic sustainability innovations. This means normative, sustainability-oriented changes in social practices. The nexus approach of this project places sustainability innovations at the center of the research and asks how—based on heterogeneous historical conditions and contexts—different development paths towards more environmental, social, and economic sustainability can be taken (Boons/McMeekin 2019). It also asks which non-scientific and non-Western forms of knowledge and practices need to be related to academic knowledge creation (Sousa Santos 2015).

In this project, dynamics of sustainability innovations are examined transregionally in seven sub-projects (SP) in southern Africa (Angola, Botswana, Malawi, Mozambique, Namibia, South Africa) and northern South America (Brazil, Ecuador, Colombia, Venezuela) together with international cooperation partners. All SPs contribute to common transversal sub-goals (TG) and strategically involve relevant stakeholders and young scientists.

The SP show that new areas of vulnerability, risk, and resilience are currently emerging, which are caused by and adapted to climate change. The project aims to examine and make visible these historically and socio-culturally constituted transregional interconnected spaces beyond nation states. This should make it possible to understand, design, plan, and govern climate-related social change processes. Moreover, this will make knowledge available in the countries of the Global South for solution strategies.

2. OVERARCHING TOPIC, RESEARCH QUESTIONS; CONCEPT AND METHODS

The aim of this project is to generate interdisciplinary knowledge on the social consequences of climate change in the Global South and to research the resulting dynamics, innovations, and mobilities. Global climate change manifests differently in its social consequences in different regions and is examined in this project in relation to two heterogeneous regions of the Global South: Southern Africa and Northern South America. The rationale for the selection of regions is as follows:

The focus is on regions in which the PIs of this joint project have proven expertise. The two regions differ in terms of their tropical (S) or subtropical and temperate (A) climatic-ecological conditions, their predominantly medium (S) or low (A) values in relation to the Human Development Index, and in relation to specific socio-cultural and historical-decolonial processes. Southern Africa and Northern South America thus illustrate central parts of the variance of the Global South as different cases. The two regions are linked through global history via trade processes and the trade of enslaved people between Europe, Africa, and the New World. South-East Africa had already established trade contacts with Asia even before the arrival of Europeans. Southern Africa and Northern South America are currently connected via transcontinental relations, particularly with Europe, the USA, and China, and with each other. South-South links exist, for example, along political alliances, formal economic and political cooperation as well as colonial-linguistic relations, for example in relation to the Lusophone countries (Angola, Mozambique, Brazil) or the English-speaking Northern South America (Guyana, Trinidad Tobago) and Southern African countries.

Southern Africa is particularly vulnerable to the consequences of climate change and warming is faster than the global average (Bauer/Scholz 2010). The consequences are the increase in climate variability, the spatial and temporal shift in precipitation, prolonged droughts and the occurrence of extreme weather events in the form of floods or droughts (Bates et al. 2008). Water resources are declining due to declining and irregular rainfall, and the already existing chronic water scarcity in the semi-arid regions will be exacerbated by anthropogenic climate change (Christensen et al. 2007). Progressive desertification, the loss of biodiversity, and an increase in food insecurity and land use conflicts are expected, as a significant proportion of the population is dependent on the primary sector for their livelihood (Speranza & Scholz 2013: 87). It can be assumed that the already prevailing social inequality in the region, with some of the poorest and some of the most unequal countries in the world, will continue to increase.

Far-reaching and regional consequences of climate change can also be expected for Northern South America. An increase in temperature accompanied by a decrease in precipitation, an increase in climate variability and spatial and temporal shifts in precipitation are expected. Northern Colombia, Venezuela, NE Brazil, the Amazon Basin, and the Caribbean will be severely affected by droughts. Additionally, in the Andes region, the melting of glaciers will also lead to water shortages in the long term. The Caribbean mainland coast is being threatened by an increase and intensification of hurricane activity and sea level rise, which is also bringing saltwater horizons to offshore lands and endangering many coastal towns in the region. El Niño years will result in more droughts, while La Niña years will see heavy rainfall. As the largest tropical rainforest, the Amazon region is important for the global climate as CO^2 storage. The destruction of the tropical forest and the transformation of the region into a soy cultivation area will further climate change and large parts of the Amazon region will be converted into savannah in the medium term.

We assume that spaces of sustainability innovation are transregional spaces that cut across cultural, national or classic continental spatial concepts. This project thus locates the social reactions to climate change consequences in the debates of regional studies, in particular the transregional studies (Middel

2019) and takes central suggestions from the discussion about the deconstruction of metageographies (Wippel & Fischer-Tahir 2018) as well as comparative and cross-area studies (e.g., Ahram et al 2018, Derichs 2017, Mielke & Hornidge 2017). From a comparative transregional perspective, it asks about areas of climate change consequences and sustainability innovation, their dynamics, and their mobilities.

Until now, the social consequences of climate change, climate-related social change processes and sustainability innovations have hardly played a role in spatial-geographical representations. Spaces of vulnerability, resilience, risk and protective measures are processed within the framework of established metageographies and methodical nationalism. So far, new sub- and supranational innovation spaces have been neglected systematically. The present project generates new original forms of understanding, presentation, and communication of transregional comparative spaces of climate change consequences and thus contributes to the understanding of sustainability innovations and their blockages. The aim is to provide evidence-based knowledge about the social consequences of climate change in countries in Southern Africa and Northern South America for various stakeholders, political decision-makers and the European and non-European public.

The transregional approach allows for a deeper understanding of areas of interaction and interdependence that are particularly shaped by globalization and multiscalar dynamics. Actors are not only involved in these processes at the national, regional, and local level but also at the international and supranational level. They are intertwined with these processes via transnational networks and intermediary organisations. The approach explicitly considers the increasing importance of South-South links in the globalization dynamics of the 21st century. These interconnected areas—for example between the OPEC countries Venezuela and Angola in the area of the oil industry (Lechini 2010), or between Brazil and South Africa as emerging economies with similar societal challenges—include trade and investment relations and cooperation in the areas of democracy promotion, human rights, or agriculture, health, and education (Erthal Abdenur & Maconda de Souza Neto 2013).

At the same time, our transregional research perspective acknowledges that regions are historically constructed and intertwined. They exhibit place-based institutional contexts that shape the respective social and cultural environments. Processes of perceived environmental changes, associated responses, and the subsequent perception of the consequences are largely dependent on established socio-cultural factors (Renn 2008). These institutional contexts, which are gradually changing at the micro-level, are just as constitutive for the situational formation of relational and transregional spaces as they are for long-term historical and global processes. The transregional research approach makes it possible to capture the interactions of these components: the relatively stable, collectively established over longer timeframes, and place-specific institutional environments at the macro-level, their reaction to and transformation through global processes, and their influence on the perception of environmental changes at the micro-level of actors. At the same time, the interaction-based, cross-border relational interconnected spaces that arise in processes of adaptation to climate change are systematically and comparatively examined and asked how they can lead to a gradual, sustainability-oriented change in the relatively stable, path-dependent, historically grown (place-based) institutional contexts.

With this research design, the project provides a methodical and conceptual advancement of area studies. Previously unconnected research strands are systematically linked to understand the specific multiplicity of the climate change-related transformation paths and the transregional spaces of sustainability innovation, their dynamics (empirically and methodically) and to make them conceptually communicable. The approaches of area studies are combined with research on the social consequences of climate change, sustainability innovations, and social transdisciplinary sustainability

research. On the one hand, this emphasizes the need to systematically consider and develop useful regional perceptions and forms of knowledge as well as historical colonial relationships and current contexts. On the other hand, this approach promotes the methodological and conceptual advancement of area studies, which enables an innovative combination of transregional studies and comparative area studies, as well as their systematic connection with global processes of climate change, its collective context-specific perception and its social consequences. With this methodically innovative advancement of area studies, the project is not only able to build up competence at the participating locations for a globally highly relevant topic but also to strengthen communication with the regions examined.

A. SUBPROJECTS, PROJECT TEAMS

Against this background, the sub-projects (SPs) contribute to the work on the following sub-goals (SG): First, the aim is to document:

SG 1 ecological consequences of climate change, and to analyse
SG 2 public climate discourses. Then it investigates
SG 3 Strategies for dealing with the consequences of climate change (practices, programs, policies) and finally captures
SG 4 paths of sustainability innovation.

The SPs are based on established international partnerships, expand them strategically and focus on regions of particular relevance for Germany, such as Southern Africa and Northern South America. These include the economically most important BRICS countries in these regions (Brazil, South Africa), key suppliers of raw materials such as Venezuela, Ecuador, Mozambique or Colombia but also countries with long colonial-historical ties to Germany, such as Namibia. These are central focus regions of German development cooperation, "Research for Sustainable Development" (FONA3) and the current Africa strategy of the BMBF. The selection of these countries aims to cover the political, economic and ecological regional diversity.

SP 1) Nature-Based Solutions in the cloud forest and paramo zones of Colombia: social and ecological consequences of ecological restoration projects (Bader, U Nacional, Bogotá u. Medellín; Instituto de Investigación de Recursos Biológicos A. v. Humboldt)

Montane cloud forests and the paramo (tropical alpine vegetation in the Andes) above are increasingly recognised by society and politics in Colombia as important areas for regulating water resources and storing carbon. At the same time, large areas in both ecosystems are intensively used for potato farming and cattle grazing, as well as mining, and are highly degraded, jeopardising water security, especially in times of increased rainfall unpredictability. In response, different entities (e.g. local communities, NGOs and government institutions) are working to restore the ecological functions of these ecosystems through ecological restoration efforts. In this project we ask how such “Nature-Based Solutions” are organised, what knowledge dynamics are involved, how successful they are in restoring ecological functions (biodiversity, hydrological regulation, carbon storage), and what societal effects they have. Through participatory research we will gain a first-hand understanding of the social and ecological backgrounds and consequences of selected projects and will map out existing

knowledge dynamics. Through exchange between projects and joint restoration trials, we will clarify the regional transferability of organisational structures and technical-ecological strategies.

SP 2) Climate knowledge as cultural practice and its translation into politics of transformation (Ahrens, U of Botswana, North West U (Südafrika), U del Magdalena (Kolumbien))

Societal knowledge about climate change is, firstly, produced by scientific data (climate science, Umweltbundesamt, IPCC, etc.) to which politics refer. Secondly, it emerges through discourses on climate change in the respective societies that are opening up margins for political decision making. Both variants do not need to be congruent. Science does not necessarily impact the public debate on climate change. Vice versa, the public debate only partially refers to scientific criteria, but much more to the (media) communication of further variables like economic stability, social security, cultural ontologies, etc. Especially in developing and emerging countries, such variables that are defining the social realities of every-day-life might also marginalize the perception of climate change when it is addressed as a more abstract problem and not closely related to problems of everyday-life. Thus, although it is possible, it is not necessary to relate extreme weather like drought or cyclones to climate change. The sub-project examines societal struggles and discourses about climate change in South Africa and Botswana.

SP 3) Local climate initiatives between regional preconditions, national policies and global programmes (Halbmayer, U Federal do Para (Brasilen), U del Magdalena (Kolumbien); U de Rovuma (Mozambique))

The project is based at the Department of Social and Cultural Anthropology at Marburg University. Our research concentrates on local climate initiatives in Pará (Brazil), Magdalena (Colombia) and Niassa/Nampula (Mozambique). We are particularly interested in their strategies of action against ecological and social effects of climate change, as well as in the diversity of involved climate knowledge. We also investigate how global programmes and national policies for climate change impact adaptation are implemented and work at local and regional level. What tensions arise between this multiplicity of actors from different levels of society and from different backgrounds? Between their strategies, visions, projects and forms of knowledge? What kind of synergies emerge and what challenges and potentials for sustainability innovation are revealed? Over the next three years, we will empirically investigate these questions through ethnographic field research, problem-centred expert interviews, and content analysis of programmes, public discourses and established adaptation measures. We are conducting the study in close cooperation with collegues at our partner universities in the research areas: Universidade Federal do Pará (UFPA) in Belém, Brasil, Universidad del Magdalena in Santa Marta, Colombia and Universidade de Rovuma in Nampula, Mozambique.

SP 4) Sustainability discourses and innovations in experimental workshops (Vollan, Namibia U of Science and Technology)

Examines the behavior of local resource users in relation to different climate change and governance scenarios using experimental approaches. For this purpose, economic experiments are developed together with implementation partners, which are not only used to observe behavior but also to enter into a dialogue with the participants. Based on aforementioned scenarios, participants can experiment

with different management options in a low-risk space, learn how fellow community members behave and what consequences their action can have in the long term and on others. This kind of playful experience can accelerate a real-life learning process. Building on this process, adaptation strategies and innovations will be discussed with the participants and various stakeholders. In this participatory process, we will try to better understand local knowledge about resource dynamics, to capture local discourses and, if necessary, to change resource management behavior. The next step is to measure the impact of these experimental workshops by visiting the same village communities again a year later. If we find evidence for the intended impact, this can increase the motivation of implementation partners to integrate experimental workshops into their intervention strategies.

SP 5) Challenges of Sustainable Development in Extractive Societies (Peters, Instituto CAPAZ; U Central del Ecuador)

Large parts of the Global South are characterized by commodity dependencies and can be described as extractivist or even rentier societies. There has been little discussion of the fact that a successful energy transition for the Global North and in general progress in international environmental and climate policy would undermine the economic, social, and political structures especially of these extractivist societies that depend on fossil resources like oil and gas or coal, and bear potential for conflict. This raises questions of the baseline of the so-called 'just transition' in countries depended on fossil primary resource exports. So far, economic diversification strategies are considered as the silver bullet to adapt to projected decreasing demand for petroleum or coal. In the past, such strategies have been pursued with great vigor, but with little tangible success. The reasons for the repeated failures are all too often solely attributed to policy failures. In contrast, the research project aims to examine the economic, social, political, and sociocultural persistence of the extractivist development model on a local level in order to subsequently develop alternative pathways towards post-oil futures. In the spirit of recent research on comparative extractivism, the project will study extractive interventions in Ecuador and Colombia and to a lesser degree in Venezuela and Angola carrying out case-specific analyses to systematically compare and gain further insights into the transformation potential of extractivist societies.

SP 6) Sustainability innovation pathways in the adaptation to climate change impacts - Transregional knowledge combination and institutional dynamics (Strambach, Cooperation partners: African Climate & Development Initiative, U Cape Town, Southern African Science Service Centre for Climate Change & Adaptive Land Management, Namibia)

Climate change-induced changes in the availability and security of water in Southern Africa require new innovative forms of approaches. Therefore, sustainability innovations gain momentum as they aim to promote forward-thinking adaptation processes to these consequences. These highly context-specific innovations form the core of this SP as they strive to normatively and sustainably change established, institutionalized social action practices. The overarching objective is to analyze comparatively the spatio-temporal dynamics of organizational and institutional transformation pathways in Namibia, South Africa and Columbia, associated with the emergence and implementation of complex sustainability innovations.

Processes and actors form the centre point of the three research questions: (1) how is knowledge anchored in different cultural, socio-economic and ecological knowledge domains, integrated and transferred across heterogeneous organizations, social and spatial scales in adaption processes, (2) how and in which ways are institutional dynamics shaped at local, regional, national and

transboundary scales (e.g. multi-scalarity) to foster adaptive water governance systems?, (3) How do transnational networks (e.g. GWP SA, SASSCAL), international organizations, intermediary and science-based organizations contribute to these processes?

SP 7) Policy advice strategies for climate change adaptation in international cooperation with member states (Malawi, Namibia) of SADC (Southern African Development Community)

Due to the severe impacts of climate change in Southern Africa, there is a high pressure to adapt to ecological, social and economic systems Necessary changes aim to adapt policies, structures and processes at the societal level in such a way that risks can be managed and resilience to climate impacts can be achieved. Bi- and multilateral actors of international cooperation take on a supporting role to advise policy, build capacity, support change management and transfer knowledge. The work package examines (1) the risk perception in selected countries to create an analytical basis for answering the question of why, despite the already perceptible dramatic consequences, the policy response has so far been rather restrained. Furthermore, (2) the question will be addressed as to which mechanisms have proven successful in the development of adaptation strategies so to date, (3) which sectors are central to promising adaptation, and (4) how national and regional adaptation strategies can be designed coherently with each other. Cooperation partners in this project are the University of Malawi: Chancellor College, the Namibia University of Science and Technology and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

The SPs participate in the processing of the following transversal work packages (WP):

Overview: Transversal Objectives (TG)

TG A: Methodologies in Climate Change Impact Research	TG B: Place and Space in Climate Change Impact Processing	TG C: Transdisciplinary Knowledge Production and Transfer
This TG develops fundamental and innovative **methodologies** to capture the multiple forms of knowledge embedded in contextualized social practices	This TG serves as a **meta-analysis** and aims to develop **new theoretical and practical approaches** based on the research results, which can make the **specific multiplicity of climate change-related transformation pathways** visible in their space-specific, transregional profile.	This TG develops transfer activities to: (1) provide **knowledge** for public discourse, (2) enable **transfer** between the project regions and to central organizations, including those in development cooperation, (3) address **political actors and decision-makers**. This AP will be practically expanded, especially in the second funding phase.

Based on the interdisciplinary and spatial expertise generated in the SPs, these contribute in a complementary way both to the sub-goals 1-4 and to the transversal goals A to C of the research project.

Reciprocal links and synergies arise through the spatial overlaps of the sub-projects in the various project regions. In Northern South America, the projects SP1, SP2, SP3, and SP5 have a common localization of the empirical analysis in Colombia. These are supplemented by investigations in Brazil (SP3), Ecuador and Venezuela (SP5). In the same way, the sub-projects in sub-Saharan Africa have overlapping empirical research areas, which are investigated with different content-related questions. Projects SP4/SP6/SP7 are conducting research in Namibia and projects SP2/SP6/SP7 in South Africa. These are supplemented by investigations in Botswana (SP2), Mozambique (SP3), and Malawi (SP7)

Synergies and complementarities of the sub-projects are bundled in relation to the common sub-goals to which the content priorities of the projects contribute. While the ecological consequences of climate change (TG 1) form the basis for the investigation of the social consequences of climate change for all sub-projects, SP 1 examines concrete renaturation measures and asks how successful these are in terms of restoring ecological functions. It looks at the social effects of the implementation by examining the transferability of the associated organizational structures and the technological-ecological strategies. The focus of projects SP2, SP3, SP4, SP5, SP6, and SP7 is the socio-cultural perception of environmental changes, the responses to action, and the resulting changes in socio-cultural systems. The main emphasis here is on TO 2 the public climate discourses in SP 2, SP 3, SP4 and on TO 3 the strategies for dealing with the consequences of climate change (practices, programs, policies) in SP 2, SP3, SP 5, SP6, and SP7. The material changes in the natural systems represent the background information for these SPs, which, however, are not analyzed in detail as in SP1. TG 4, recording paths of sustainability innovation, focuses on the connection and interactions of stability and change in processes of dealing with the consequences of climate change. The diversity of regional adaptation paths becomes visible here. The institutional anchoring of regulative, normative, and cultural-cognitive elements requires the stability of established interactions and sets of behavior and often impedes desirable adaptation processes (SP 5). Regarding TO 4, there are content-related links and synergies between the projects SP1, SP3, SP4, SP5, SP6, and SP7. The interactions between addressing climate change impacts in local, transregional relational spaces are considered by all SPs, regardless of the region of spatial investigation.

In summary, the comparative relations between the SPs and regions under investigation create synergies and complementarities that are systematically exploited and conceptually combined to achieve the transversal goals A–C, relating to the advancement of methodologies of social climate change research (A), the areas of climate impact responses (B) and transdisciplinary knowledge production (C).

Exploiting the potential of interdisciplinary and transdisciplinary knowledge generation of the research group and its international cooperation partners is systematically promoted through the organization of the cooperation. In terms of space and content, tandems and triangular forms of cooperation between the PIs are established in order to elucidate mutual relations and complementarities in the research process and to promote combinatorial knowledge dynamics.

The focus of the second research phase is the further development and practical implementation of the transfer principles developed in AP a, b, and c. This should happen (1) with academic institutions in the target countries and the involvement of local actors and forms of knowledge on site, (2) through building networks between academic institutions in South America and Africa via international research groups, and (3) through knowledge transfer in Germany and the local countries (item 4) and through structural measures at the research campus Mittelhessen (item 5).

B. METHODOLOGY FOR RECORDING SPACES OF CLIMATE-RELATED SUSTAINABILITY INNOVATION

Climate change leads to a high variety and diversity of region-specific transformations because of the historical differences and the diverse ecological resources of the regions. This "multiplicity" has also been documented by recent research on sustainability-oriented transformations. There is a need for research regarding the understanding of the underlying mechanisms, their drivers, and barriers (Hansen/Coenen 2015).

So far, transformation and adaptation processes have been examined within individual sectors, such as food security, water, or energy. In the context of climate change, the 2030 Agenda and the Sustainable Development Goals (SDGs), the limitations of these approaches are increasingly being discussed (e.g., Scholz 2019), as they hardly take into account the interdependence of the individual sectors and their embeddedness into localized ecosystems (EU 2019 position paper). An integrated perspective is necessary because sectoral dependencies and different regional contexts often lead to conflicting interests and objectives that trigger or hinder climate change-related change dynamics.

Sustainability innovations go hand in hand with conflicting goals and complex negotiation processes and take many forms (Havas 2016, Krlev et al. 2014, Osburg & Schmidtpeter 2013). From the perspective of "knowledge dynamics" (Jeannerat/Crevoisier 2015; Strambach/Klement 2012, Strambach 2017), it becomes clear that sustainability innovations differ significantly from established technological and economic forms of innovation. They require complex cross-intersectional knowledge integration to consider different needs as well as differing ecological, social, and economic goals. Due to the context specificity of the climate change-related "wicked problems" (Rittel/Webber 1973), innovative social and sustainable problem solutions are based on interdisciplinary and transdisciplinary knowledge production (Boons/McMeekin 2019), which also include non-academic forms of knowledge (Halbmayer 2017, 2020).

The 'Nexus' approach of this project focuses on the mutual dependency of sectors. In addition to the climate-related multiscalar dynamics, transregional mobilities and sustainability innovations form the nexus of the planned project. This enables a comparative analysis within and between the regions and a regionally differentiated analysis of the 'multiplicity' of adaptation paths to climate change consequences.

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3. COOPERATION AND DIVISION OF LABOUR

3.1 Organization of Cooperation

The research group integrates social anthropology, sociology, human geography, political science, economics, and with context-based expertise in the empirical research areas. The aim is to use these competencies in cooperation with international partners for the interdisciplinary and transdisciplinary co-production of climate change-specific knowledge and action strategies specific to the region. The comparative and transregional analysis of the still-limited researched processes of social adaptation to climate change constitutes the central added value of the project. This analysis will also develop a currently missing regional scientific, multiscalar perspective on the social consequences of climate change and contribute to the action-oriented attractiveness of German regional research.

The international cooperation partners in southern Africa and Northern Latin America include:

Cooperation partner (Southern Africa)	Cooperation partner (Northern South America)
Deutsche Gesellschaft für Internationale Zusammenarbeit, GmbH (GIZ). Department: Southern Africa, Eschborn Deutschland	German-Colombian Peace Institute (CAPAZ), Bogotá, Kolumbien
Namibia University of Science and Technology. Windhuk. Namibia	Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Bogotá, Kolumbien
North West University. Potchefstroom. South Africa	Universidad Central del Ecuador. Quito. Ecuador
Southern African Development Community (SADC) Programme on Climate Change Adaption and Mitigation in Eastern and Southern Africa (COMESA-EAC-SADC), Gaborone Botswana	Universidade Federal do Para (UFPA). NAEA - Núcleo de Altos Estudos Amazônicos. Belém, Brasilien
Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL)	Universidade Federal do Oeste do Pará - Amazónia. Santarém. Brasilien
University of Botswana. Gaborone. Botsuana	Universidad del Magdalena. St. Marta, Kolumbien
African Climate Change and Development Initiative (ACDI). University of Cape Town. South Africa	Universidad Nacional de Colombia. Bogotá. Kolumbien
University of Malawi. Zomba. Malawi	Universidad Nacional de Colombia. Medellin. Kolumbien

Universidade de Rovuma. Nampula. Mozambique	

The research is carried out in cooperation with the international partners and the integration of the knowledge of relevant stakeholders. The rationale for the cooperation with international partners in the two regions of the Global South is to systematically integrate context-based knowledge and local networks into the implementation of the empirical research of the individual SPs on site. Cooperation with international partners forms the basis for supporting the establishment and expansion of transregional research networks across the research regions. The fellowships and empirical research intensify the possibilities of international cooperation, the exchange of research content and the empirical understanding of context-based knowledge. As part of the cooperation, local workshops will be held in the context of empirical research. Seminars and colloquia are held in shared, virtual learning spaces across the regions to initiate learning processes among young scientists. Twice a year, the consortium will coordinate the content of the collaboration during dedicated workshops and reflect on and further develop processes. The international partners will be involved in these workshops virtually further to expand cross-spatial learning processes and a joint knowledge base. The two central project conferences will be held in Colombia and South Africa to enable broad regional participation. A future goal is to develop transregional courses at the interface of area studies and the social consequences of climate change, which is based on this cooperation and within the framework of the second funding phase.

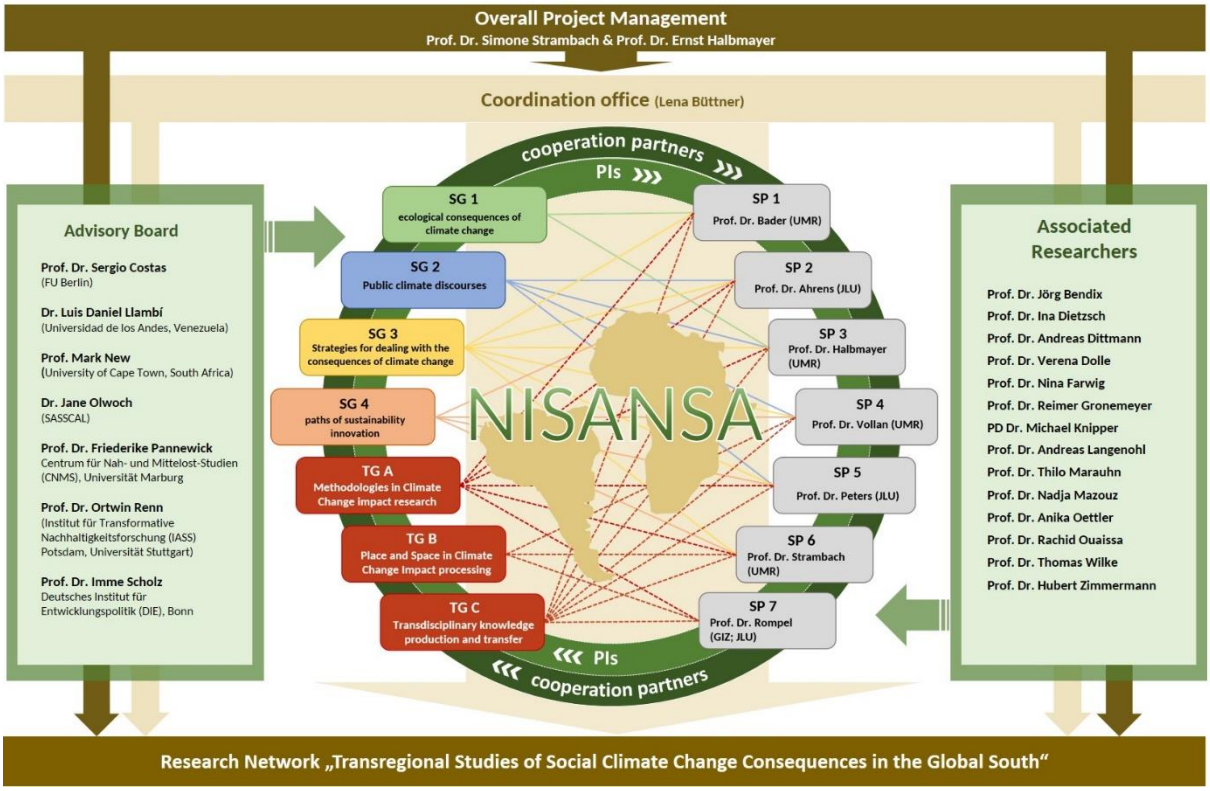

Fig. 1: Division of labour and international cooperation in the joint project

The TG enable the targeted integration of the disciplinary perspectives. Through the transversal TG (A, B, C), a systematic bundling of the knowledge gained during the research process will take place in the 3rd year. These work packages (WP) contain meta-analyses regarding methods, theories, and transfer. In these APs, the qualification opportunities for postdocs will play a central role.

The international project advisory board combines key competencies and central networks of the study regions (Southern African Science Service Center for Climate Change & Adaptive Land Management (SASSCAL), the African Climate & Development Initiative (ACDI), Consortium for the Sustainable Development of the Andean Ecoregion, Merian Center Conviviality-Inequality (Mecila)). Important national actors are the Institute for Transformative Sustainability Research (IASS), the German Development Institute (DIE) and the Forum Transregional Studies. This body's added value consists of the advisory expertise of the multiplier function, which is central to the transfer and access to other (inter)national networks.

The systematic involvement of the associated researchers in the project serves to integrate additional expertise, release synergies between existing research initiatives and projects at the UMR and the JLU, increase the visibility of this BMBF project, and form new networks and cooperation. These are intended to prepare the development of the research network "Transregional Studies of Social Climate Change Consequences in the Global South", which is planned for the second research phase. The associated researchers will specifically link this project to central institutions and initiatives at the Universities of Gießen and Marburg. The committee of associated researchers should enable transfer and research exchange across the centers and open new thematic collaborations and underexploited interdisciplinary potential.

3.2 Integrated institutions via the associated researchers

Include the following centers:

Center for International Development and Environmental Research, JLU (Prof. Thilo Marauhn, Prof. Andreas Dittmann)
- Center for Near and Middle East Studies (CNMS), UMR (Prof. Rachid Ouaissa, Prof. Friederike Pannewick)
- Gießener Center Eastern Europe (GiZo), JLU, (Prof. Andreas Langenohl)
- Merian Centre for Advanced Studies in the Maghreb (MECAM), UMR (Prof. Rachid Ouaissa)
- Systematics & Biodiversity Lab, JLU (Prof. Thomas Wilke)
- Center for Conflict Studies, UMR (Prof. Anika Oettler)

Include the following research projects:

- Environmental Changes in Biodiversity Hotspot Ecosystems of Southern Ecuador: System Response and Feedback Effects (RESPECT) Research group 2730, UMR (Speaker Prof. Jörg Bendix)
- Nature 4.0 - Comprehensive nature conservation monitoring through networked sensors and integrative data analysis, LOEWE-Project, UMR (Members: Prof. Jörn Bendix, Prof. Nina Farwig)
- Colombia CONNECT: Fair and sustainable use of bioresources in a post-conflict society. BMBF CONNECT, CEMarin, JLU (Prof. Stefan Peters)
- SFB Dynamics of Security (Prof. Andreas Langenohl JLU)
- Extractivism of raw materials in Latin America and the Maghreb: Dark side of the ecological turnaround BMBF regional studies (Prof. Rachid Quaissa, UMR, Uni Kassel)
- Climate Change in Sub-Saharan Africa. Social and cultural perception, agricultural consequences and social transformation Flexi-Fund Research Campus Mittelhessen (Prof. Ina Dietzsch, UMR,)
- the focused curriculum (SPC) Global Health, JLU (PD Michael Knipper) and the
- SDG^{nexus} Network, DAAD “Higher Education Excellence in Development Cooperation – exceed”, JLU (Prof. Stefan Peters)

4. SCIENTIFIC PROSPECTS OF SUCCESS AND SCIENTIFIC CONNECTIVITY

4.1 Scientific Prospects of Success

The project contributes to the interdisciplinary consolidation of research on the social consequences of climate change at the national and international levels. Central scientific prospects of success can be expected regarding publications, networking, and promoting young researchers and conferences. The project aims to publish a special issue in a relevant international scientific journal. From the sub-projects, seven publications and three joint articles by the research group are to be made based on the sub-goals and the transversal goals of the project. In addition, within the context of the two international conferences in Latin America and Sub-Saharan Africa, publications will be produced that are of interest for regionally oriented journals. A further aim is to acquire additional funds within the framework of the joint project, which will make it possible to work on joint publications even after the project has been completed, when all empirical results are available.

At the same time, the project will contribute to transcontinental networking and network formation in the field of social climate change impact research and will develop common foundations based on case studies. The presentation of central project results is planned at the following international conferences: EASA (European Association of Social Anthropologists), ISIRC (Interdisciplinary Social Innovation Research Conference), SER (Society for Ecological Restoration).

In addition, the project provides targeted support for young doctoral and postdoctoral researchers through fellowships, research cooperation and conferences, targeted support for young academic researchers from the participating regions in the Global South in the context of a transnational research project.

4.2 Scientific Connectivity

A major contribution to international climate impact research will be made by complementing research that has been monopolized by natural sciences and focused on natural systems. Investigating the social consequences of climate change in their space-specific characteristics and multiscalar dynamics and systematically understanding the possibilities of sustainably transformative development paths has so far been neglected, as has the methodical integration of local knowledge and discourse formations for the successful implementation of sustainability innovations. The project connects to the IPCC Special Report on Climate Change and Land Systems (SRCCL) demands, and asks how an appropriate design of political strategies, institutions, and governance mechanisms can be implemented at all levels to develop and socially implement development pathways adapted to climate change. The results of the joint project will make a significant contribution to this goal and thus contribute to sustainable transformation research from the perspective of area studies. The transnational analysis of the social consequences of climate change makes a significant contribution to this by linking innovative transregional and, at the same time, comparative perspectives via the various sub-projects. At the same time, the results of the interdisciplinary research network based on human geography, plant geography, political science, social and cultural anthropology, and sociology of economics will have an innovative and stimulating effect on the discourse in the corresponding disciplines.