



**Presenting\_**

# **Transformations to Sustainability**

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BELMONT FORUM**



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## **Funding**

The Transformations to Sustainability research programme is funded by thirteen NORFACE and Belmont Forum partners, as listed below, and the European Commission:

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- French National Research Agency (ANR), France
- Fund for Scientific Research (FNRS), Belgium – Wallonia and Brussels Federation
- Federal Ministry of Education and Research (BMBF), Germany
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- Research Council of Norway (RCN), Norway
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- Swedish Research Council (VR), Sweden
- UK Research and Innovation - Economic and Social Research Council (UKRI-ESRC), United Kingdom

## **NORFACE**

New Opportunities for Research Funding Agency Cooperation in Europe (NORFACE), launched in 2004, is a partnership of national research funding agencies in Europe dedicated to leading and developing opportunities for scientists in the area of social and behavioural sciences. NORFACE plays an important part in responding to the grand societal challenges by promoting research of the highest quality, sharing best practices among research funders and especially by making international collaboration between social scientists in Europe possible. NORFACE offers distinctive opportunities for researchers by developing common research funding instruments, thus opening new roads for facilitating and building high quality transnational networks of research collaboration in the area of social and behavioural science.

## **The Belmont Forum**

The Belmont Forum, established in 2009, is a global partnership of funding organisations, international science councils and regional consortia committed to the advancement of interdisciplinary and transdisciplinary science. Its operations are guided by the Belmont Challenge, a vision document that encourages international transdisciplinary research providing knowledge for understanding, mitigating and adapting to global environmental change. Belmont Forum members and partner organisations work collaboratively to meet this Challenge by issuing international calls for proposals, committing to best practices for open data access, and providing transdisciplinary training.

## **1. The urgent need for transformations to sustainability**

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Climate change, environmental degradation and resource pressures have reached unprecedented levels worldwide. There is growing recognition that achieving sustainable societies and ways of life will depend on rapid and fundamental transformations in the ways people interact with each other and with the natural environment. These transformations refer to profound and enduring systemic changes across social, cultural, technological, political, economic and environmental dimensions.

The limited progress to date on the pressing challenges of environmental change and global development means that there is an urgent need to go beyond the study and encouragement of gradual change, both in research and policy. Sustainability research needs to be based on a far better understanding of how societal transformation comes about and how – if at all – it can be initiated, fostered, accelerated and steered towards ends that are at the same time ecologically sound, economically viable and socially just.

## **2. A transformative research programme**

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The NORFACE and Belmont Forum Transformations to Sustainability (T2S) research programme contributes to re-structuring the domain of sustainability research by putting the social sciences, as well as the humanities, at the heart of interdisciplinary research on sustainability, making a step change in scale and scope for research programming in this area. The programme has two major objectives:

- To develop understanding of and promote research on transformations to sustainability which are of significant social, economic and policy concern throughout the world and of great relevance to both academics and stakeholders.
- To build capacity, overcome fragmentation and have a lasting impact on both society and the research landscape by cultivating durable research collaboration across multiple borders, disciplinary boundaries, and with practitioners and societal partners. This includes facilitating the development of new research collaborations with parts of the world which are not often involved in large-scale international research efforts, notably low- and lower-middle income countries.

The research projects funded by the Transformations to Sustainability programme address one or more of the following three themes:

- 1 Governance and institutional dimensions of transformations to sustainability;
- 2 Economy and finance of transformations to sustainability;
- 3 Well-being, quality of life, identity and social and cultural values in relation to transformations to sustainability.

The programme involved a two-stage assessment of 154 outline proposals and 39 full proposals, of which 12 were selected for funding, with combined funding of €11.5 million. The 12 research projects launched between July and December 2018 and will each run for 36 months.

## **3. Research to make a difference**

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The Transformations to Sustainability research projects are tackling a wide range of complex challenges, from groundwater governance, artisanal and small-scale mining, urban flood risk and land registration to the role of migration and intellectual property rights in sustainability transitions. They will conduct theoretically and methodologically innovative research in different locations across the globe facing

pressing socio-ecological issues. The teams bring together researchers from a wide variety of disciplines and countries, from Brazil to Sweden, and Japan to Burkina Faso, pooling and integrating knowledge and capabilities from around the world.

The societal and behavioural dimensions of the complex problems under study mean that civil society and other stakeholders are often deeply implicated in the research, from problem-framing and objective-setting, through to communication of findings and implementation of the research. The knowledge produced by the research projects will thus not only be of use to researchers, but also to practitioners and policy makers across a multitude of sectors in their efforts to advance transformative change.

## **4. Knowledge exchange**

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The Transformations to Sustainability programme aims to promote cooperation among the research projects and to enhance the wider impact of the knowledge they produce. Therefore, scientific collaboration, skill building and knowledge sharing within and beyond the programme play an important role in the programme's knowledge exchange activities. A number of scientific and dissemination events and activities are organised over the course of the programme, including workshops for the research projects and events for a wider audience. The website [www.t2sresearch.org](http://www.t2sresearch.org) will feature insights and results from the research projects, blogs, programme publications, audio-visual materials, news from and for the wider transformations to sustainability community and more.



## 5. Overview of the research projects

Twelve international research projects are funded in the NORFACE and Belmont Forum research programme Transformations to Sustainability.



### AGENTS: Amazonian Governance to Enable Transformations to Sustainability

Prof. E. Brondizio, **Indiana University (United States)**



Principal investigators: Dr. F. De Castro, University of Amsterdam (*the Netherlands*), Prof. C.R. Fitemma, State University of Campinas (*Brazil*), Dr. C. Salk, Swedish University of Agricultural Sciences (*Sweden*), Prof. K. Andersson, University of Colorado at Boulder (*United States*), Dr. M. Tengö, Stockholm University (*Sweden*)



### CON-VIVA: Towards Convivial Conservation: Governing Human-Wildlife Interactions in the Anthropocene

Prof. B. Büscher and Dr. R. Fletcher, **Wageningen University and Research (the Netherlands)**



Principal investigators: Prof. D. Brockington, University of Sheffield (*United Kingdom*), Prof. A. Nygren, University of Helsinki (*Finland*), Dr. K. Ferraz, University of São Paulo (*Brazil*), Dr. P. Alagona, University of California, Santa Barbara (*United States*), MSc. M. Bukhi, University of Dodoma (*Tanzania*)



### GoST: Governance of Sociotechnical Transformations

Dr. S. Beck, **Helmholtz Centre for Environmental Research (Germany)**



Principal investigators: Prof. A. Stirling, University of Sussex (*United Kingdom*), Prof. S. Jasanoff, Harvard University (*United States*)



### H2O - T2S: H2O - T2S in Urban Fringe Areas

Dr. S. Sen, **South Asia Consortium for Interdisciplinary Water Resources Studies (India)**



Principal investigators: Dr. C. Butsch, University of Cologne (*Germany*), Dr. L. Hermans, Delft University of Technology (*the Netherlands*)



### IPACST: The Role of Intellectual Property to Accelerate Sustainability Transitions

Prof. E. Eppinger, **Hochschule für Technik und Wirtschaft Berlin (Germany)**



Principal investigators: Dr. A. Gurtoo, Indian Institute of Science (*India*), Prof. N. Bocken, Lund University (*Sweden*), Dr. F. Tietze, University of Cambridge (*United Kingdom*)



### Misty: Migration, Transformation and Sustainability

Prof. N. Adger, **University of Exeter (United Kingdom)**



Principal investigators: Prof. F. Gemenne, University of Liège (*Belgium*), Prof. E. Carr, Clark University (*United States*), Prof. E. Boyd, Lund University Centre for Sustainability Studies (*Sweden*), Prof. S. Codjoe, Regional Institute for Population Studies (*Ghana*), Dr. S. Fransen, University of Amsterdam (*the Netherlands*)



### **SecTenSusPeace: SECURING TENURE, SUSTAINABLE PEACE? The challenges of localizing land-registration in conflict-affected Burundi and eastern DR Congo**



**Dr. M. van Leeuwen, [Radboud University \(the Netherlands\)](#)**

*Principal investigators: Dr. G. van der Haar, Wageningen University and Research ([the Netherlands](#)), Dr. A. Ansoms, Catholic University of Leuven ([Belgium](#)), Prof. S. Mugangu, Institut Supérieur de Développement Rural de Bukavu ([Democratic Republic of Congo](#))*



### **Gold Matters: Sustainability Transformations in Artisanal and Small-scale Gold Mining: A Multi-Actor and Trans-Regional Perspective**



**Dr. E. Fisher, [University of Reading \(United Kingdom\)](#)**

*Principal investigators: Dr. S. Luning, Leiden University ([the Netherlands](#)), Dr. M. de Theije, Vrije Universiteit Amsterdam ([the Netherlands](#)), Prof. M. Schnegg, University of Hamburg ([Germany](#)), Dr. C. Lanzano, Nordic Africa Institute ([Sweden](#)), Dr. P. Hochet, Insuco Foundation for Social Science Research ([Burkina Faso](#)), Dr. L. da Costa Ferreira, Campinas State University ([Brazil](#))*



### **T2SGS: Transformations to Groundwater Sustainability: joint learnings from human-groundwater interactions**



**Prof. M. Zwarteveen, [University of Amsterdam \(the Netherlands\)](#)**

*Principal investigators: Prof. F. Cleaver, University of Sheffield ([United Kingdom](#)), Prof. F. Lu, University of California, Santa Cruz ([United States](#)), Dr. M. Kuper, French Agricultural Research Centre for International Development ([France](#)), Dr. L. Börjesson, Stockholm University ([Sweden](#)), MA. S. Kulkarni, Society for Promoting Participative Eco-system management ([India](#))*



### **TAPESTRY: Transformation as Praxis: Exploring Socially Just and Transdisciplinary Pathways to Sustainability in Marginal Environments**



**Prof. L. Mehta, [Institute of Development Studies \(United Kingdom\)](#)**

*Principal investigators: Dr. S. Movik, Norwegian University of Life Sciences ([Norway](#)), Prof. D. Parthasarathy, Indian Institute of Technology ([India](#)), Prof. N. Ohte, Kyoto University ([Japan](#))*



### **TRUEPATH: TRansforming Unsustainable PATHways in agricultural frontiers: articulating microfinance plus with local institutional change for sustainability in Nicaragua**



**Prof. J. Bastiaensen, [University of Antwerp \(Belgium\)](#)**

*Principal investigators: Dr. S. Flores, Universidad Centroamericana ([Nicaragua](#)), Dr. N. Garambois, Paris Institute of Technology for Life, Food and Environmental Sciences ([France](#))*



### **Waterproofing Data: Engaging stakeholders in sustainable flood risk governance for urban resilience**



**Dr. J. Porto de Albuquerque, [University of Warwick \(United Kingdom\)](#)**

*Principal Investigators: Prof. M.A. Viegas Cortez da Cunha, Getulio Vargas Foundation ([Brazil](#)), Prof. A. Zipf, Heidelberg University ([Germany](#))*

## **1. AGENTS: Amazonian Governance to Enable Transformations to Sustainability**

The Amazon basin hosts locally and globally important environmental services, social-cultural diversity, and economic activities. Governing this region amid accelerated changes is a pressing challenge for Amazonian countries. While government programmes are often more visible and certainly important, most sustainable forest management is locally initiated. Building upon long-term research of team members, the project integrates geospatial analyses and participatory methodologies to assess non-state conservation efforts and challenges via stakeholder engagement, in-depth field research, modeling of land change and conservation, and participatory scenarios.

The project will map where and how non-state actors sustainably use and conserve forests and ecosystems in social-ecologically diverse areas within the Xingu basin and Brazil-Peru-Bolivia tri-frontier. The project will analyse 25 years of land use change in watersheds shared by communal, state, private and protected lands to identify interactions and conservation patterns. The team will define governance problems, research questions, analyse initial results, and draft scenarios in collaboration with diverse land users sharing common watersheds.

The project supports initiatives recognizing the role of individual/collective action to conserve forests, their contrasts and synergies, and their contributions to meet the goals of the Convention of Biological Diversity (CBD). The project will exchange and co-produce knowledge with land users, researchers, and decision makers, sharing our findings in diverse academic forums, workshops, policy-briefs, as appropriate, written in English, Portuguese and Spanish. Lessons from the Amazon may be applicable to similar conditions around the tropics.

*Project leader: Prof. E. Brondízio, Indiana University (United States)*

*Principal investigators: Dr. F. De Castro, University of Amsterdam (the Netherlands), Prof. C.R. Fudemma, State University of Campinas (Brazil), Dr. C. Salk, Swedish University of Agricultural Sciences (Sweden), Prof. K. Andersson, University of Colorado at Boulder (United States), Dr. M. Tengö, Stockholm University (Sweden)*

## **2. CON-VIVA: Towards Convivial Conservation: Governing Human-Wildlife Interactions in the Anthropocene**

The project is grounded in the premise that conservation is critical to transformations to sustainability but that its practices need to change radically. Conservation can be effective in protecting biodiversity in places, but in toto has failed to halt global biodiversity loss. Continued habitat fragmentation and reduced funding during times of austerity compound this problem. Many conservationists now acknowledge this, leading to vigorous 'Anthropocene' discussions on how to reconfigure human-wildlife relations, protected areas and the role of economic development in conservation.

CON-VIVA's key objective is to conceptually refine and empirically test the prospects for one proposal emerging from these debates: 'convivial conservation'. This new model moves beyond protected areas and faith in markets to build landscape, governance and funding pathways that integrate conservation and poverty reduction, while enhancing prosperity. CON-VIVA investigates the prospects for convivial conservation by comparing cutting-edge conservation cases that address human-wildlife conflict involving apex predators in Brazil, Finland, Tanzania and USA. Our hypothesis is that if 'living with' apex predators can be effectively combined with new forms of economic development, a broader transition to convivial conservation can be boosted significantly.

*Project leaders: Prof. B. Büscher and Dr. R. Fletcher, Wageningen University and Research (the Netherlands)*  
*Principal investigators: Prof. D. Brockington, University of Sheffield (United Kingdom), Prof. A. Nygren, University of Helsinki (Finland), Dr. K. Ferraz, University of São Paulo (Brazil), Dr. P. Alagona, University of California, Santa Barbara (United States), MSc. M. Bukhi, University of Dodoma (Tanzania)*

### **3. GoST: Governance of Sociotechnical Transformations**

The GoST project focuses on transformations in three areas of crucial relevance to sustainable development, relating in particular to pressing imperatives in countries of the Global South: energy systems, agriculture and urban digital infrastructures. Each involves intricate North-South linkages that must be better understood for global sustainability efforts. Adopting a systematic comparative approach, GoST will use the concept of sociotechnical imaginaries, or collectively held visions of technological futures, to make sense of how imaginations of transformation help shape societal choices. Many challenges in the three focal areas are related to the prevailing imaginary, and solutions may require imagining radically new alternatives.

Through analysis of two interlinked parameters of transformation (dimensions and timelines of imagined change) across five countries (Germany, India, Kenya, UK, US), leading research centres in each will examine, in cooperation with key stakeholders, the frictions between imagined and experienced states in each focal area of transformation in each country. Through these analytic lenses, GoST aims for a methodologically innovative, integrative, empirically grounded approach that opens up new and nonlinear pathways of transformation. Expected outcomes and impacts: GoST will demonstrate feasible choices among alternative pathways for enacting socially progressive transformations towards sustainability, producing insights of immediate practical importance for how such transformations can best be governed in each selected area: by whom, to what ends, by what means, and with what welfare consequences for affected groups.

*Project leader: Dr. S. Beck, Helmholtz Centre for Environmental Research (Germany)*

*Principal investigators: Prof. A. Stirling, University of Sussex (United Kingdom), Prof. S. Jasanoff, Harvard University (United States)*

### **4. H2O - T2S: H2O - T2S in Urban Fringe Areas**

Rapid urbanization is transforming societies and physical spaces in the Global South fundamentally. The main loci of this transformation are urban fringe areas. They serve the resource-hungry urban core with natural resources and labour, at the cost of increased resource vulnerabilities like water provisions for the population in these urban fringes. Our research aims at understanding how these transformations lead to changes in access to water and water demands, how these are governed, and which consequences these changes have for the local populations.

The project will investigate changes during the urban transformations in three connected areas of study: (1) water governance and institutions, (2) access to water mediated by societal structures, (3) livelihoods and the resulting water demands. The insights from these studies will be used in the co-creation of transformation pathways for sustainable water management. A comparative analysis will be undertaken for the cities of Kolkata, Pune and Hyderabad in India. The project will establish a stakeholder dialogue based on evidence from the research. Participation of government agencies, local communities and key scientific experts will add to the knowledge generated by the project researchers and will be essential for the co-creation of transformation pathways.

Through these activities, the project H2O – T2S contributes to understanding the drivers of vulnerability and resilience of periurban communities and helps to identify more sustainable future pathways. The outcomes will be a step towards the development of future cities built on sustainable principles.

*Project leader: Dr. S. Sen, South Asia Consortium for Interdisciplinary Water Resources Studies (India)*  
*Principal investigators: Dr. C. Butsch, University of Cologne (Germany), Dr. L. Hermans, Delft University of Technology (the Netherlands)*

## **5. IPACST: The Role of Intellectual Property to Accelerate Sustainability Transitions**

IPACST develops evidence-based insights into intellectual property (IP) models and how they can help to accelerate sustainability transition. Effective transitions to sustainability are urgent global challenges, however require innovation with complex diffusion and adoption processes. The role of IP and IP rights (IPR) in sustainability transitions remains insufficiently understood. Certain IP models can delay transitions by blocking innovative technologies, increasing transaction costs and prolonging lifecycles of existing technologies. With appropriate IP models knowledge sharing can flourish and technology transfer becomes accelerated, enabling collaborative learning and sustainable nurturing innovations.

The project will build interdisciplinary research that furthers our understanding of transition processes with a focus on the role of IP models (e.g. patent pools and pledges, licensing, open source) and sustainability. The research team will work with relevant stakeholders in ecosystems for sustainable innovations including companies, policy makers, funding organisations and start-up incubators, to select and govern suitable IP models for sustainable business models, supporting sustainable technologies, production and consumption patterns.

Based on the results, IPACST will provide best-practice cases, guidelines and training for key stakeholders such as policy makers, businesses and educational institutions. This may enable selecting appropriate IP models and accelerate the creation and diffusion of sustainable innovations.

*Project leader: Prof. E. Eppinger, Hochschule für Technik und Wirtschaft Berlin (Germany)*  
*Principal investigators: Dr. A. Gurtoo, Indian Institute of Science (India), Prof. N. Bocken, Lund University (Sweden), Dr. F. Tietze, University of Cambridge (United Kingdom)*

## **6. Misty: Migration, Transformation and Sustainability**

Societies can shift away from current trajectories of unsustainability but current explanations fail to systematically account for demographic shifts, notably migration and mobility. This project incorporates the contemporary dynamics and challenges of migration as parameters affecting the pathways to sustainability. The research develops a model of the specific relationships between migration and sustainability such as consumption patterns and resource intensity. The project investigates how the identity and place attachment of migrant populations affect sustainability and how they are engaged in planning for sustainability. This knowledge is used to investigate how migration policies work to support or hinder the transformation towards sustainability.



The research uses key informant interviews and participatory action research in localities that span the range and diversity of migration types and dimensions. The research incorporates the diversity of experiences of integration and segregation of both domestic and international migrant communities. The research focuses on common issues in localities including Ghana, Netherlands, Belgium, Bangladesh, Mozambique and the United States. The project generates new knowledge on the sustainability potential of the key demographic issue of contemporary society, that of the movement of populations across space. The findings are directly relevant for global dialogues on migration and development and for implementing the Sustainable Development Goals. The principal beneficiaries are new and established populations who experience recurrent adversity in the process of integration into host societies, and policy makers grappling with sustainability transitions.

*Project leader: Prof. N. Adger, University of Exeter (United Kingdom)*

*Principal investigators: Prof. F. Gemenne, University of Liège (Belgium), Prof. E. Carr, Clark University (United States), Prof. E. Boyd, Lund University Centre for Sustainability Studies (Sweden), Prof. S. Codjoe, Regional Institute for Population Studies (Ghana), Dr. S. Fransen, University of Amsterdam (the Netherlands)*

## **7. SecTenSusPeace: SECURING TENURE, SUSTAINABLE PEACE? The challenges of localizing land-registration in conflict-affected Burundi and eastern DR Congo**

In conflict-affected settings, land tenure security of smallholders is seen as essential to prevent local land disputes and sustain peace, enable recovery of rural livelihoods, and advance ecologically and socially sustainable agricultural production. To enhance tenure security – which is often severely compromised during conflict – interveners tend to turn to land registration and other forms of formally acknowledged claims to land. However, conventional state-led approaches relying on centrally-organised, individual titling often fail to deal with very complex local land struggles. Yet, the alternative of recognizing customary land governance is also problematic. Contrary to expectations, customary arrangements may also fail to find locally embedded, acceptable solutions.

Hoping to overcome the shortcomings of both approaches, policy makers and development practitioners are currently experimenting with ‘third way’ approaches that combine statutory and local arrangements. But while land registration faces important challenges in stable settings, these become even more critical in conflict-affected settings. Not only is there less agreement on what norms prevail; approaches also tend to feed into local institutional competition, result in new exclusions, and impinge on struggles around identity and belonging.

Through local fieldwork in pilots on new approaches to registration in Burundi and eastern DR Congo, the project aims to contribute to a better understanding of the challenges of local land registration and the recognition of claims in conflict-affected settings. Through knowledge-sharing with practitioners, it generates instruments that help interveners better map potential outcomes.

*Project leader: Dr. M. van Leeuwen, Radboud University (the Netherlands)*

*Principal investigators: Dr. G. van der Haar, Wageningen University and Research (the Netherlands), Dr. A. Ansoms, Catholic University of Leuven (Belgium), Prof. S. Mugangu, Institut Supérieur de Développement Rural de Bukavu (Democratic Republic of Congo)*





## **8. Gold Matters: Sustainability Transformations in Artisanal and Small-scale Gold Mining: A Multi-Actor and Trans-Regional Perspective**

The project explores whether a transformative approach towards sustainability can arise in Artisanal and Small-scale Gold Mining (ASGM). An estimated 16 million people in low and lower-middle income countries are dependent on ASGM as a livelihood. However, despite its economic significance, ASGM is associated with negative environmental, social, labour and health impacts. These problems generate critical barriers to sustainability. To address sustainability-linked transformation, there is an urgent need for evidence regarding how gold mining actors engage with, understand, and transform their relationships to the natural, social, political and economic worlds.

The research will consider whether and how societal transformation towards sustainable mining futures is possible in ASGM. It will critically reflect on the character of sustainability, for whom, where and how. The concept of gold lifeways focuses attention on sustainability dynamics in ways that bring to the fore sociality, materiality and technological formations. A multi-actor and trans-regional approach is deployed, with comparative analysis across sites in South America and sub-Saharan Africa. Impact is through: generation of social scientific evidence on sustainability, policy influence and public debate. Public communication, referred to under the rubric of Sustainability Conversations, involves co-production of knowledge with mining actors, incorporating voices all-too-often excluded from debates on ASGM. Multimodal visual representations form the basis of a pop-up exhibition, which will travel across Africa, Europe and Brazil.

*Project leader: Dr. E. Fisher, University of Reading (United Kingdom)*

*Principal investigators: Dr. S. Luning, Leiden University (the Netherlands), Dr. M. de Theije, Vrije Universiteit Amsterdam (the Netherlands), Prof. M. Schnegg, University of Hamburg (Germany), Dr. C. Lanzano, Nordic Africa Institute (Sweden), Dr. P. Hochet, Insuco Foundation for Social Science Research (Burkina Faso), Dr. L. da Costa Ferreira, Campinas State University (Brazil)*

## **9. T2SGS: Transformations to Groundwater Sustainability: joint learnings from human-groundwater interactions**

Billions of people around the world rely for their everyday existence on groundwater. Efforts to intensify agriculture to meet growing food needs or improve productivity and profits also increasingly rely on groundwater for their success. The invisibility of groundwater, however, makes it notoriously difficult to know and account for and thus manage. This difficulty is compounded by two intrinsic tensions that characterize groundwater governance: between individual and collective interests and between short-term gains and longer-term sustainability.

This project comparatively studies promising grass-roots initiatives of people organising around groundwater in places where pressures on the resource are particularly acute (India, Algeria, Morocco, USA, Chile, Peru and Tanzania). Chosen because they defy or challenge conventional groundwater governance wisdom, the project's hypothesis is that these initiatives contain new creative insights about grounded ways of dealing with groundwater governance dilemmas.

Focusing on practices – of knowing, accessing and sharing – the project combines qualitative ethnographic methods with hydrogeological and engineering insights to explore the knowledges, technologies and institutions that characterize these local initiatives. The project aspires to enunciate and normatively assess their logic and functioning in view of tracing overlaps or patterns that allow

them to serve as more generic models for transformations to groundwater sustainability.

The overall aim is to create global action-research-capacity building collaborations to generate new inspirations for thinking about and dealing with the interconnections and interdependencies between humans and groundwater.

*Project leader: Prof. M. Zwarteveen, University of Amsterdam (the Netherlands)*

*Principal investigators: Prof. F. Cleaver, University of Sheffield (United Kingdom), Prof. F. Lu, University of California, Santa Cruz (United States), Dr. M. Kuper, French Agricultural Research Centre for International Development (France), Dr. L. Börjeson, Stockholm University (Sweden), MA. S. Kulkarni, Society for Promoting Participative Eco-system management (India)*

#### **10. TAPESTRY: Transformation as Praxis: Exploring Socially Just and Transdisciplinary Pathways to Sustainability in Marginal Environments**

The objective of TAPESTRY is to examine how transformation may arise from below in marginal environments with high levels of uncertainty. Climate change uncertainties, especially at the local level, constitute one of the main challenges to the sustainability of societies and ecosystems, calling for systemic transformative changes. While these uncertainties can exacerbate anxieties about the future, they can also provide an opportunity to create transformation and deep structural change. TAPESTRY focuses on three patches of transformation in India and Bangladesh – vulnerable coastal areas of Mumbai, the Sundarbans and Kutch – where hybrid alliances and innovative practices are reimagining sustainable development and inspiring societal transformation.

TAPESTRY is organised in a transnational and transdisciplinary consortium across the UK, India, Bangladesh, Norway and Japan. We aim to study transformation as praxis, by putting bottom-up change and the agency of marginalised people at the centre. We examine how sustainability transformations emerge and are co-produced amongst a wide range of actors in particular places, and the processes through which they are scaled up and out. The project's outcomes and impact will inform processes to improve the quality of life and wellbeing of marginalised people affected by climate change related uncertainties, whilst generating evidence of how bottom-up transformation can take place in marginal environments.

*Project leader: Prof. L. Mehta, Institute of Development Studies (United Kingdom)*

*Principal investigators: Dr. S. Movik, Norwegian University of Life Sciences (Norway), Prof. D. Parthasarathy, Indian Institute of Technology (India), Prof. N. Ohte, Kyoto University (Japan)*

#### **11. TRUEPATH: TRansforming Unsustainable PATHways in agricultural frontiers: articulating microfinance plus with local institutional change for sustainability in Nicaragua**

The project addresses the global-local institutional dynamics that generate the socially and environmentally unsustainable cattle development pathway. In Latin America, this pathway is a main driver of deforestation, contributing to climate change, the destruction of critical biodiversity stocks and the dispossession of indigenous people. The research specifically focusses on the agricultural frontier around the Bosawas Nature Reserve in Northern Nicaragua and consists of an action-research process in cooperation with the microfinance organisation Fondo de Desarrollo Local and the environmental NGO Centro Humboldt.



The project analyses the potential of a 'Green Microfinance Plus' programme (loans + technical assistance + Payments for Ecosystem Services), and connects to broader reflections in local deliberative fora promoted by the project and a citizen science approach to local climate data generation and use. In terms of research methodology, a multidisciplinary mixed methods set-up combines inputs from development sociology and economics with the Agrarian Systems approach, and makes use of an original simulation game informed by local data. The research aims to co-identify in-roads for policies of 'institutional entrepreneurship', offering opportunities to affect relevant institutional processes to transform today's detrimental pathway in the direction of more sustainable, equitable and climate-sensible agriculture, less dependent on deforestation and cheap land. The objective is to develop scientific outputs and policy proposals (in particular for environmentally responsible rural finance) that contribute to change towards sustainability in the Nicaraguan agricultural frontier and beyond.

*Project leader: Prof. J. Bastiaensen, University of Antwerp (Belgium)*

*Principal investigators: Dr. S. Flores, Universidad Centroamericana (Nicaragua), Dr. N. Garambois, Paris Institute of Technology for Life, Food and Environmental Sciences (France)*

## **12. Waterproofing Data: Engaging stakeholders in sustainable flood risk governance for urban resilience**

Waterproofing Data tackles the challenge of improving the resilience of communities and cities to floods. This is accomplished by investigating the governance of water-related risks, with a focus on social and cultural aspects of data practices. By rethinking how flood-related data is produced and how it flows, Waterproofing Data will enable transformations to build sustainable, resilient communities. To this end, Waterproofing Data develops three innovative methods around data practices, across different sites and scales: 1) we will make visible existing flows of flood-related data through tracing data; 2) generate new types of data at the local level by engaging citizens through the creation of multi-modal interfaces, which sense, collect and communicate flood data, and; 3) integrate citizen-generated data with other data using geo-computational techniques. The project will be conducted by a highly skilled international team of researchers with multiple disciplinary backgrounds from Brazil, Germany and the UK, in close partnership with researchers, stakeholders and publics of a multi-site case study on flood risk management in São Paulo and Acre, Brazil.

These methodological interventions will transform how flood-related data is produced and flows, creating new governance arrangements between citizens, governments and flood experts and, ultimately, increased community resilience related to floods in vulnerable communities of Brazil. Furthermore, the methods and results of this case study will be the basis for a transcultural dialogue with government organisations and local administration involved in flood risk management in Germany and the United Kingdom.

*Project leader: Dr. J. Porto de Albuquerque, University of Warwick (United Kingdom)*

*Principal Investigators: Prof. M.A. Viegas Cortez da Cunha, Getulio Vargas Foundation (Brazil), Prof. A. Zipf, Heidelberg University (Germany)*

## Funding partners

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For further information on the Transformations to Sustainability programme, please visit [www.t2sresearch.org](http://www.t2sresearch.org)

For further information on the NORFACE network and its research programmes, please contact:

## **NORFACE Network Coordination Office**

Netherlands Organisation for Scientific Research (NWO)

Email: [norface@nwo.nl](mailto:norface@nwo.nl)

Postal address: PO Box 93461

NL-2509 AL The Hague

The Netherlands

[www.norface.net](http://www.norface.net)

## **Visiting address:**

Laan van Nieuw Oost-Indië 300

NL-2593 CE The Hague

The Netherlands

For further information on the Belmont Forum and its research programmes, please contact:

## **The Belmont Forum Secretariat**

Inter-American Institute for Global Change Research (IAI)

Email: [info@belmontforum.org](mailto:info@belmontforum.org)

[www.belmontforum.org](http://www.belmontforum.org)

## **Visiting address:**

Av. Italia 6201 - Ed. Los Tilos 102

11500 Montevideo

Uruguay

## **Links**

[www.t2sresearch.org](http://www.t2sresearch.org)

[www.nwo.nl](http://www.nwo.nl)

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