



BIENNIAL  
REPORT  
2018-2019

START



## OUR VISION

A world in which developing countries strengthen their capacities to use science to advance sustainability.

## OUR MISSION

To increase opportunities for research, education and training that strengthen scientific capacities in developing countries to understand, communicate and motivate action on critical global environmental change challenges.

---

# CONTENTS

<b>WELCOME</b>	4
.....	
<b>START AT A GLANCE</b>	6
.....	
<b>PROGRAM HIGHLIGHTS</b>	9
.....	
<b>PARTNERS</b>	21
.....	
<b>ORGANIZATION</b>	22
.....	
<b>PUBLICATIONS HIGHLIGHTS</b>	23
.....	

# WELCOME

---

## **The global change science landscape in Africa and Asia**

has undergone tremendous change since START's founding 28 years ago. The number and diversity of global change science initiatives has increased substantially, with corresponding growth in regional science capacities. The demand for knowledge and skills has also changed over this period, with increasing emphasis on integration of knowledge and disciplinary expertise to address increasingly complex challenges, and the need to more effectively integrate scientific and practitioner knowledge to ensure greater societal relevance of research outcomes in informing solutions. START's long-term presence in Africa and Asia, with its large and diverse network of alumni, provides an important resource for ensuring that these efforts to transcend disciplinary boundaries and actively collaborate across science-societal interfaces reflect regional needs and priorities.

With this 2018-19 biennial report, I am pleased to share news of START's progress in supporting the work of African and Asian researchers in informing critical societal challenges of adapting to climate change, creating more sustainable cities, reducing risks and impacts of natural disasters, and increasing access to clean, renewable energy.

Over this two-year period, two major consortia efforts in Africa came to a successful conclusion: the Adaptation at Scale in Semi-Arid Regions, which advanced understanding of adaptation through the lenses of gender, ecosystem services and governance, and the Future Resilience for African Cities and Lands, which examined how

climate information can more effectively inform decision making in Southern African cities that are facing significant water and energy security challenges.

In Asia, START convened a second round of its Pan-Asian Risk Reduction Fellowship Program, which provided learning opportunities on integrated disaster risk reduction for early career professionals from research, policy and action domains.

During the 2018-19 period, START also engaged teams of researchers, government renewable energy experts, and NGOs to examine how to more effectively expand access to small-scale renewable energy in West Africa. Also in 2018-19, START continued its long-term partnership with the NASA Global Observation of Forest Cover and Land Dynamics program, which expands skills and access to state-of-the-art remote sensing tools to inform research on land-cover change in Africa, Asia, Latin America and the Mediterranean.

We are grateful for the support we received during this period from the US Global Change Research Program, the National Science Foundation of the US, and NASA, the International Development Research Centre of Canada and the Research Fund of Quebec, the Department for International Development and the Natural Environment Research Council of the UK, and others. We are also grateful for our strong partnerships with numerous universities, research centers, NGOs and government agencies in carrying out this work.

**Jon Padgham**

**START's Executive Director**



The Adaptation at Scale in Semi-Arid Regions (ASSAR) program brought together stakeholders from diverse backgrounds to discuss the factors that could trigger a positive impact on agriculture, natural resources and food security challenges in Mali's Koutiala district. Photo: ASSAR

# START AT A GLANCE

---

Since its founding in 1992, START has strengthened capacities for global change science in Africa and Asia

through a comprehensive approach that combines skill development and expanded knowledge with enhanced connectivity.

Our programs foster connectivity at a variety of levels - within peer groups, between peers and mentors, within and across regions, and regionally to globally.

We prioritize multi-directional learning from across research, policy and action domains and promote multi- and interdisciplinary, and where possible, transdisciplinary research.

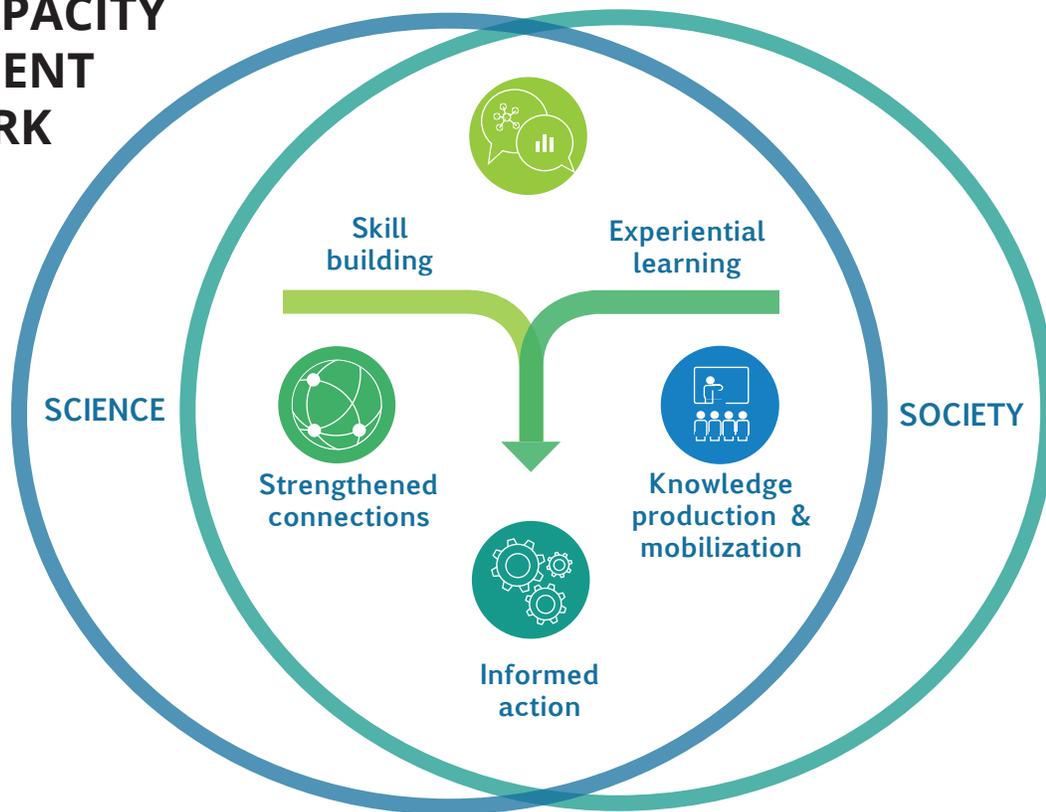
Our programs targets early- and mid-career researchers and professionals who work at the interface of science and action in Africa and Asia.

Throughout the years, our efforts have helped amplify the visibility and impact of southern perspectives in shaping global responses to sustainability challenges.

“START is a wonderful organization that plays in the middle ground, between data and decisions. We just don’t have enough people who live in both worlds, who are aware of both the assets that are available, and also the decisions that need to be made. START can really make a difference in helping bridge these two worlds.”

**Barbara Ryan**  
**START Board Chair**

# START'S CAPACITY DEVELOPMENT FRAMEWORK



## SKILL BUILDING & EXPERIENTIAL LEARNING

START has extensive experience in providing training spanning modeling and data analytical skills through to approaches for research co-design and co-production. START places a high value on advancing experiential learning that enables the assimilation and translation of new skills and knowledge into practice.



## NETWORKING & CONNECTIVITY

Connectivity depends foremost on building a critical mass of researchers and decision makers who can more effectively engage on global change challenges. START advances this effort through creating opportunities for early-career researchers to work directly with early-career professionals from government and civil society.



## KNOWLEDGE PRODUCTION & MOBILIZATION

START activities are designed to promote knowledge exchange among researchers, experts, practitioners and policymakers. Diverse tools and methods are employed by START to promote knowledge sharing, including multi-stakeholder dialogues, writing workshops, learning labs and forums.



## INFORMED ACTION

START has a strong legacy of developing programs that inform action. As a result of their involvement in START programs, alumni have gone on to advise and inform governments, and have moved into positions of influence within the policy realm.



Participants at a training workshop on remote sensing technologies organized as part of the Global Observation of Forest Cover and Land Dynamics (GOFC-GOLD) program in Malaysia in 2019.

# PROGRAM HIGHLIGHTS

---

START's work addresses complex sustainability challenges, including climate change, agriculture and food security, urban resilience and disaster risk reduction.

Now more than ever, these critical challenges require ambitious responses that are locally and regionally driven, grounded in science and developed with partners from all sectors of society.

During the 2018-2019 period, START has supported the development of capacities, knowledge and solutions across these areas of work, by engaging with partners at the intersection of science, policy and practice.



## AGRICULTURE AND FOOD SECURITY

Advancing knowledge on agriculture and food security under a changing climate



## GREEN ENERGY

Exploring how small-scale renewable energy can advance wellbeing and security



## EARTH OBSERVATION

Applying earth observations to better understand how ecosystems and land use are changing



## URBAN ADAPTATION

Helping cities grapple with urban development in a changing climate



## DISASTER RISK REDUCTION

Strengthening communities of practice and research on risk reduction



# ADVANCING KNOWLEDGE ON AGRICULTURE AND FOOD SECURITY UNDER A CHANGING CLIMATE

Advancing understanding of the impact of climate change on agricultural systems and farming communities has been a consistent theme of START's work since its early days.

In 2018-2019, START was a core partner in the **Adaptation at Scale in Semi-Arid Regions (ASSAR)**, a five-year project under DFID-IDRC's Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA), which focused on climate change hotspots.

From 2014 to 2018, the ASSAR program worked in semi-arid regions, with a focus on six countries in Africa (Mali, Ghana, Ethiopia, Kenya, Namibia and Botswana) and three states (Karnataka, Maharashtra and Tamil Nadu) in India. Those living in these areas face complex, interlinked challenges including high levels of poverty, degraded natural resources and food insecurity, and are increasingly vulnerable to impacts from climate change, including changes in timing and intensity of rainfall, longer droughts and more frequent flooding.

## DEVELOPING RESEARCH CAPACITIES



In 2018-19, START awarded nine small opportunity grants that increased research skills of individuals and regional teams and, building on their contextualized knowledge, to advance capacity development concepts, translate these concepts into successful proposals, and work with local stakeholders to carry these ideas to fruition. The program opened pathways for scientists to participate in global climate change assessment efforts and high level expert meetings.

## ADVANCING KNOWLEDGE



The ASSAR West Africa team's work allowed twenty master's and ten PhD students to carry out their research. In 2018-19, as part of this effort, START and regional partners supported the completion of four master's theses and contributed directly to two published journal articles, one cross-regional information brief, and two infographics.

## SUPPORTING LOCAL COMMUNITIES



START oversaw six grants for local adaptation support for vulnerable groups in the ASSAR study sites including support for women's groups and youth, and training in disaster risk reduction and animal husbandry. Also, three grants were awarded for supporting community capacities in specific ASSAR thematic areas including natural resource and invasive species management, rainwater harvesting and soil fertility management and dry season irrigation.

Photo: E-images multimedia

“It has been quite a paradigm shift for me to engage with people to ensure that my research output has an immediate uptake by those who can make decisions and change their livelihoods. From where I am now, I can’t see how else one should be doing research.”

Hillary Masundire  
Professor, University of Botswana



A group of women from Mali’s Koutiala District came together in August 2018 for a workshop to explore ways to improve their living conditions through the increase of business revenue across the agricultural value chain.

## ASSAR capacity development efforts in numbers



**90** early-career researchers trained (approx.)



**18** grants enabling cross-regional collaboration



**30** writeshops and training workshops (approx.)



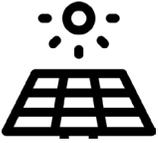
**6** grants to develop capacities of vulnerable groups

## DEVELOPING CAPACITY TO CREATE LONG-LASTING IMPACT

START played two key roles within ASSAR. As lead for the West Africa team, START coordinated research in the region, fed back results to the wider program, and participated in the steering committee. START also led ASSAR’s capacity development efforts, which included supporting training and workshops and awarding small grants to strengthen scientists’ research and science communications skills.

## LOOKING FORWARD

After the conclusion of ASSAR in 2018, START has been awarded a follow-on grant to continue working with partners as lead on a 15-month project in Mali in 2019-2020. START is also a partner on a 12-month follow-on project in Ghana.



# EXPLORING HOW SMALL-SCALE RENEWABLE ENERGY CAN ADVANCE WELLBEING AND SECURITY

Delivering accessible and affordable electricity is a common challenge across Africa, especially in the rural areas where people are reliant on wood and charcoal for cooking, lighting, and other energy needs. This challenge is exacerbated by rapid population growth and the accompanying rise in energy demand.

Despite the enormous potential of renewable energy sources, such as low-cost solar photovoltaics, their use across West Africa remains quite low. To better understand key impediments and challenges to the expansion of renewable energy, START, with support from the Fonds de recherche du Quebec, launched the **Promoting Gains in Renewable Energy (ProGREEN)** project in 2018.

During the first phase of the project in 2018-2019, an assessment effort was conducted in Burkina Faso and Senegal with a multi-disciplinary team of experts from universities, research centers, the public and private sectors, and civil society.

## STRENGTHENING CONNECTIONS



In carrying out the renewable energy assessments, START and the ProGREEN country teams met with a total of 35 national level institutions in Burkina Faso and Senegal, and four regional level institutions to better understand critical barriers to the expansion of solar and biogas energy sources.

## DEVELOPING CAPACITIES



Twelve early-career researchers are engaged as ProGREEN country team members, including six women. In 2019, nine master's students were trained in best practices for data collection prior to assisting with field work in Burkina Faso.

## COLLECTING FIELD DATA



In 2019, ProGREEN teams conducted data collection in Senegal and Burkina Faso, visiting over 18 towns and villages to meet with renewable energy project managers and involved community members.

“ProGREEN stands out for its holistic and inclusive approach to analyzing the renewable energy sector. It will inform both decision makers and practitioners.”

Yvonne Faye  
Managing Director  
énergie R, Senegal



The Senegal ProGREEN team visited communities involved with solar energy projects to assess how access to energy had changed the lives of the users and what challenges they encountered with these local initiatives.

## GENERATING AND SYNTHESIZING ACTIONABLE KNOWLEDGE

Through the assessment, the two country teams have explored:

- the key enabling and constraining factors that influence the development of small-scale renewable energy systems in the region, and
- how access to renewable energy impacts the wellbeing and security of communities in terms of water and food security and other development priorities related to health, education and gender equity.

## STRENGTHENING CAPACITIES OF EARLY-CAREER PROFESSIONALS

Through this project, START's efforts have strengthened capacities and supported networking efforts of early-career professionals, by engaging them in experiential learning and providing opportunities to connect with scientists and other experts from across Africa.

## LOOKING FORWARD

The second phase of the project (2020-2021) will focus on addressing key knowledge gaps and advancing capacities and action on priorities identified through the country assessments.



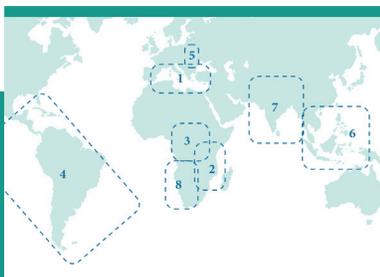
# APPLYING EARTH OBSERVATIONS TO BETTER UNDERSTAND HOW ECOSYSTEMS AND LAND USE ARE CHANGING

Satellite images and remote sensing data provide critical information to better understand complex dynamics between forest cover, land use change and climate change. Such information is key for informing decision makers on sustainably managing natural resources and developing appropriate climate adaptation and mitigation strategies.

START has a long-term commitment to strengthening earth observation capacities in the global-south through involvement in the **Global Observations of Forest Cover and Land-use Dynamics (GOFC-GOLD)** program. This program provides a coordinated effort to improve developing countries' access to existing data, increase scientists' capacity to produce and analyze new data, and foster regional and international networks of scientists working on land cover and forest change issues.

In addition, START is strengthening capacities for using earth observations to meet the UN Sustainable Development Goals. This effort is being led by **START's Temperate East Asia Regional Center (TEA-START)**, located in Beijing, China and supported as a key laboratory in the Chinese Academy of Sciences.

## FOSTERING REGIONAL NETWORKS



During 2018-2019, START supported the involvement of over 100 participants in GOFC-GOLD regional network events that took place in Africa, Asia, North America and Eastern Europe.

## SUPPORTING TRAINING INITIATIVES



Training sessions for early-career professionals are regularly organized as part of the GOFC-GOLD program. The most recent training took place in December 2019 in Thailand, and was attended by 90 young researchers from the region.

## DEVELOPING CAPACITY FOR THE DIGITAL BELT AND ROAD



In December 2019, START and the Digital Belt and Road Program hosted a joint session on science capacity development in the field of Big Earth Data at the 4th Digital Belt and Road Conference that took place in Shenzhen, China.

“The GOFC-GOLD Data Initiative training helped me gain crucial skills on data management and archiving practices. These skills have been very useful in my current role and have allowed me to join an important taskforce of the Government of Nepal.”

Shiva Kanal  
Research Officer  
Forest Research and Training Center  
(FRTC), Nepal

---



In December 2019, ninety early-career researchers from South and Southeast Asia participated in a 3-day training event on remote sensing technologies. The workshop was organized in Phuket, Thailand, by the space agencies of the United States, Japan, Thailand, and India within the framework of the GOFC-GOLD program.

## **AMPLIFYING REGIONAL VOICES IN EARTH OBSERVATION SCIENCE, POLICY AND ACTION**

START plays a key role in supporting the regional networks of the Global Observations of Forest Cover and Land-use Dynamics (GOFC-GOLD) program.

GOFC-GOLD networks are strengthened through workshops addressing regional concerns and issues, providing a strong voice for regional needs and fostering lateral transfer of technology and methods within and between regions. The regional networks also form an important venue for capacity development.

## **STRENGTHENING CAPACITIES FOR USING BIG EARTH DATA IN THE BELT AND ROAD REGION**

The Digital Belt and Road (DBAR) is an international initiative of the Chinese government launched in Beijing in December 2016 to take advantage of earth observations to address issue including climate change, food security, protection of world heritage sites, unbalanced economic and urban development, and disaster risks in the Belt and Road Region. Prof. Gensuo Jia, TEA-START Director, serves as a member of the DBAR science committee and co-chair of the climate and environment working group.



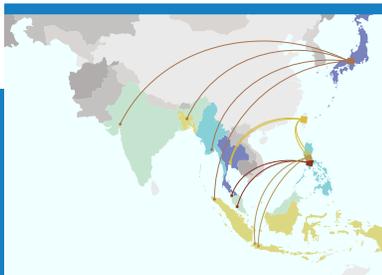
# STRENGTHENING COMMUNITIES OF PRACTICE AND RESEARCH ON RISK REDUCTION

START supports informed decision-making on disaster risk reduction through partnerships that strengthen capacities for conducting integrated, multidisciplinary research and assessments.

One example of START's efforts in disaster risk reduction is the **Pan-Asia Risk Reduction (PARR)** fellowship program, which provided a unique opportunity for fellows to receive training, mentorship, resources, and access to regional networks to advance their research, communication, and practical skills, in order to increase resilience in their communities.

Between 2014 and 2018, START led two Pan-Asia Risk Reduction fellowship rounds with the support of USAID, the United States National Science Foundation, the Oscar M. Lopez Center, the Asia Pacific Network for Global Change Research and the IRDR International Center of Excellence (ICoE) Taipei.

## BUILDING CONNECTIONS



Fellows from seven countries participated in the Pan-Asia Risk Reduction (PARR) fellowship program, a yearlong experience which included an immersive one- to three-month stay at a host institution in Asia.

## STRENGTHENING SCIENCE COMMUNICATIONS



All fellows participated in a series of professional development webinars on how to communicate science to non-technical audiences, engage stakeholders in the research process, and prepare high quality research proposals and budgets.

## ENABLING INDEPENDENT RESEARCH



A competitive process granted additional funding to select fellows to carry out independent research projects at the end of the fellowship. Fellows produced manuscripts for submission to peer-reviewed journals, policy briefs and communications materials.

“PARR is a unique process, which nurtures young talents by engaging them in action research and exposing them to state-of-the-art disaster risk reduction facilities in the host institutes.”

Rajib Shaw  
Professor, Keio University,  
Former IRDR Executive Director

---



Pan-Asia Risk Reduction (PARR) fellow Ibnu Rusydy during geological field work.

## DEMONSTRATING LONG-TERM IMPACT FOR INDIVIDUALS AND INSTITUTIONS

The PARR program has greatly contributed to strengthening research and leadership skills, as well as institutional collaborations.

As PARR fellow Alvidon Asis from the Philippines said: “Thanks to the fellowship, I was able to present my research at international conferences such as the Urban Environmental Accords Summit in Melaka, Malaysia. I was also able to learn how operation centers work in Taiwan and to get extraordinary hands-on experience of their local disaster management strategies.”

PARR fellow Lubna Alam, from Malaysia, stated: “One of the learnings from the fellowship is that we need to translate research outputs in a form that the community can use and understand. We will learn from them and they will learn from us. This was a new approach for me, that I will bring with me in the future.”

PARR fellows also confirmed that institutional collaborations are continuing beyond the program, with government agencies and organizations from different countries still actively engaging through channels that are facilitated by the PARR network of experts and fellows.



# HELPING CITIES GRAPPLE WITH URBAN DEVELOPMENT IN A CHANGING CLIMATE

START works with partners in Africa and Asia to expand understanding of vulnerabilities associated with rapid change in urban areas, and inspire action towards building cities' resilience.

As part of the **Future Resilience for African Cities and Lands (FRACTAL)** project, START is partnering with the University of Cape Town, the Stockholm Environment Institute, the Red Cross/Red Crescent Climate Centre, and others to promote more informed decision making on water and energy resources under a changing climate in nine Southern African cities.

START's **Southeast Asia Regional Center (SEA-START)**, located in Bangkok, Thailand, conducts research, offers training workshops, and contributes to global climate change initiatives, with a particular focus on climate change and adaptation. In 2019 the Regional Center's work included efforts to develop capacity around the integration of climate change adaptation into city planning processes.

## SUPPORTING RESEARCH AND LEARNING



Over the course of the FRACTAL program, a series of small opportunity grants administered by START has supported transdisciplinary research projects and promoted cross-city knowledge exchange and learning.

## BRIDGING SCIENCE AND POLICY IN INNOVATIVE WAYS



Seven "embedded researchers" were employed in FRACTAL cities and worked with city officials, policy-makers and scientists to translate existing knowledge and co-develop new knowledge around urban development and climate change.

## MAINSTREAMING CLIMATE CHANGE IN CITY PLANNING



In 2019, START's Southeast Asia Regional Center (SEA-START) co-hosted a workshop aimed at enhancing the capacity of municipality officials in Thailand to mainstream climate change issues into their planning processes.

“Rather than just focusing on more science, we looked at existing information and tried to find value in it. Rather than just exploring information needs, we also looked at connecting people, knowledge and perspectives. Rather than just building capacity, we built relationships and trust.”

Chris Jack  
Deputy Director  
Climate System Analysis Group  
University of Cape Town

---



Participants during a “Learning Lab”, in Windhoek in 2018. A central part of the city engagement processes, “learning labs” brought together a diversity of actors to engage in interactive and iterative conversations on each city’s “burning issues”.

## SHIFTING THE WAY CITIES ADDRESS CLIMATE ISSUES

FRACTAL used a number of innovative methods to bring stakeholders together to co-define burning issues for each city, explore climate change risks and frame opportunities for resilience.

These methods and approaches included:

- **city learning labs**, gathering city stakeholders for interactive workshops;
- **climate risks narratives**, picturing the potential future of each city under a changing climate;
- **embedded researchers**, straddling the science-policy interface by working with both universities and local decision making organizations;
- **training events, case studies, city exchange visits, field trips, games, roleplays, etc.**

## ENABLING TRANSDISCIPLINARY AND CROSS-CITY LEARNING

Small opportunity grants administered by START were an important source of support for city research and learning during the FRACTAL program.

The grants placed a strong emphasis on cross-city knowledge exchange, learning by doing, mentorship, capacity and relationship building. They supported research projects or learning activities, such as city exchanges, field visits, or multi-stakeholder workshops.

---

## LOOKING FORWARD

FRACTAL is a four-year project initiated in 2015 and has received follow-on support that will allow partners to complete projects and develop scientific and publications other materials.



Members of the Senegal team of the Promoting Gains in Renewable Energy (ProGREEN) project during data collection efforts. The team travelled to nine towns in Senegal to meet stakeholders utilizing improved cook stoves, biodigesters, biofuels and otherwise involved with solar energy projects.

# PARTNERS

---

START's success relies on engaging strong and diverse partnerships at the intersection of science, policy and practice.

Over the years, START has forged collaborations with universities and research institutes, international global change research programs, intergovernmental and multilateral organizations, regional and international NGOs, and private foundations.

## **MAJOR PARTNERS AND SUPPORTERS INCLUDE:**

Belmont Forum

Chinese Academy of Sciences

Chulalongkorn University

Fonds de recherche du Québec

Future Earth

International Development Research Centre

National Aeronautics and Space Administration

National Science Foundation

Natural Environment Research Council

United Kingdom Department for International Development

United States Global Change Research Program

University of Cape Town

University of Ghana

West African Science Service Centre on Climate Change and Adapted Land Use

for a more comprehensive list of partners: [start.org/about-us/partners/](http://start.org/about-us/partners/)

# ORGANIZATION

---

## BOARD OF DIRECTORS



**Barbara J. Ryan**  
START Board Chair  
Former Director, Secretariat of the  
intergovernmental Group on Earth  
Observations (GEO)  
USA



**Prof. Roseanne Diab**  
Executive Officer, Academy of Science of  
South Africa (ASSAf)  
Emeritus Professor, University of  
KwaZulu-Natal  
SOUTH AFRICA



**Alain Bourque**  
Executive Director,  
Ouranos - Consortium on Climate  
Change  
CANADA



**Dr Lars Ribbe**  
Professor and Dean of the Faculty of  
Spatial Development and Infrastructure  
Systems, TH Köln -University of Applied  
Sciences  
GERMANY



**Prof. Kazuhiko Takeuchi**  
President, Institute for Global  
Environmental Strategies (IGES)  
Project Professor, Institute for Future  
Initiatives (IFI), University of Tokyo  
JAPAN

## STAFF



**Jon Padgham**  
Executive Director



**Sarah Schweizer**  
Director of Programs



**Mary Thompson-Hall**  
Senior Program Specialist



**Mariama Camara**  
Program Specialist



**Mzime Ndebele-Murisa**  
Program Specialist



**Marina Monzeglio**  
Communications Specialist



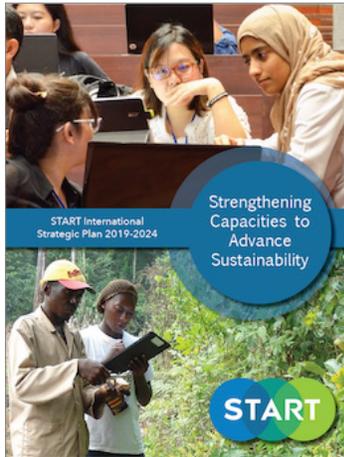
**Clay Oboth**  
Administrative Specialist



**Gulnara Reznik**  
Financial Coordinator

# PUBLICATIONS HIGHLIGHTS

---



## START INTERNATIONAL STRATEGIC PLAN 2019-2024

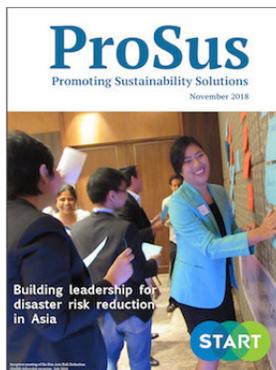
November 2019



## START brochure

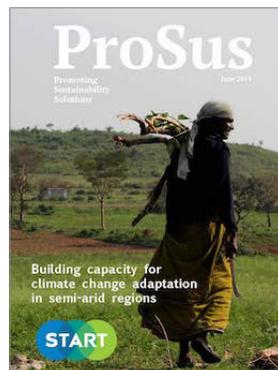
October 2019

## START'S PROSUS MAGAZINE



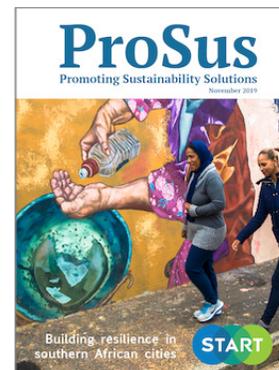
## Building Leadership for Disaster Risk Reduction in Asia

November 2018



## Building capacity for climate change adaptation in semi-arid regions

June 2019



## Building resilience in southern African cities

November 2019



## OPPORTUNITIES IN SUSTAINABILITY

A twice-monthly email round-up of opportunities from and within the sustainability community.

START provides opportunities for training, research, education and networking that strengthen scientific skills and inspire leadership for advancing solutions to critical sustainability challenges.



[WWW.START.ORG](http://WWW.START.ORG)

