



# SCHLUMBERGER FOUNDATION

2021 ANNUAL REPORT



“The study of science, technology, engineering and mathematics (STEM) is vital for all nations and is especially critical for women from developing and emerging economies. The Schlumberger Foundation is committed to gender parity in science and recognizes that full access to and participation in a STEM curriculum is essential for the empowerment of girls and women.”

**Roseline Chapel**

*President,  
Schlumberger Foundation*

## SCHLUMBERGER FOUNDATION

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2021 ANNUAL REPORT

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## Introduction

### Word from the President



**Roseline CHAPEL**

President  
Schlumberger Foundation

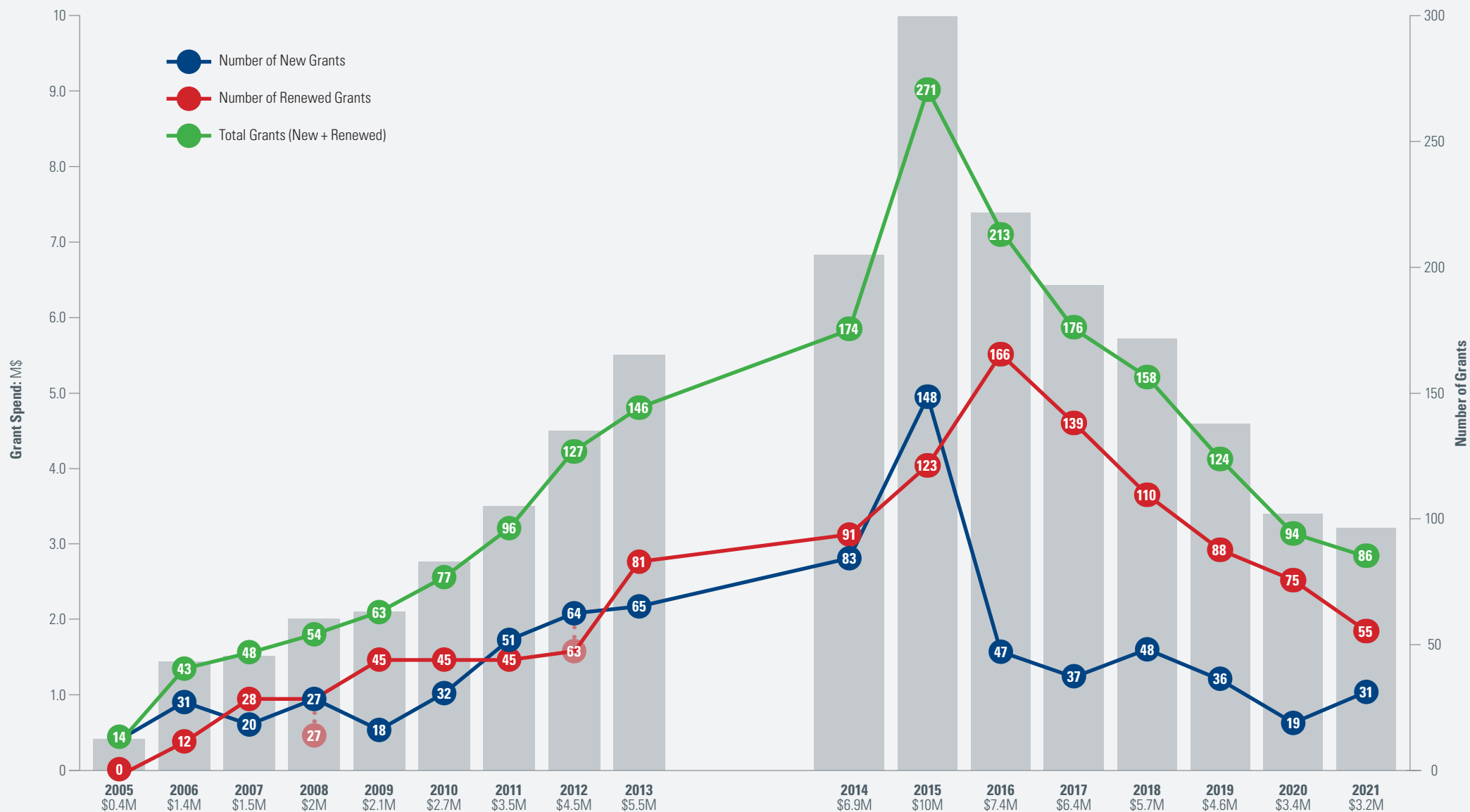
As the pandemic reaches over one year of age, the world has become more complex and people more isolated, but so far, thankfully, the impact on Faculty for the Future Grantees has not been significant.

In **2021**, we focused more closely on these eligible countries from which we receive historically very few or no applications. Economic challenge and gender disparity in tertiary education being the main drivers of country eligibility, we intend to make an impact in every country in scope. The FFTF Call for Application was further enhanced to ensure that we can reach women scientists in need of financial support to pursue PhD or Post-Doctoral research in top institutions worldwide in Science, Technology, Engineering and Mathematics. In time, as they make their way home to resume an academic career, join research institutes, policy-making organizations, or the private sector, we trust our support to their scientific journey will help them shine as models and pave the way for more women to join and develop scientific achievements in their home countries. With internationally recognized degrees and connections, the talent pool of their home country institutions increases and helps resolve more ecological, medical and technological issues.

World and regional challenges have never been so pressing on scientific competences and worldwide collaboration. More than ever, these areas require unrestricted participation by all who wish to participate; our commitment to scientific education and gender balance is our way to play our part.



## Financial Overview



## Financial Overview

In **2021**, the Schlumberger Foundation continued with its flagship Faculty for the Future program focused on advanced academic research in STEM disciplines for women scientists from the developing world. The key goal of the program focuses on reducing the gender gap in STEM education by breaking down the economic barrier that prevents women from achieving their educational aspirations.

For the **2021-2022** academic year, a total of **31** new fellows were admitted in 2021 bringing the total population receiving financial support from this program to **770** female scientists from **84** developing countries, studying in **32** host countries around the world.

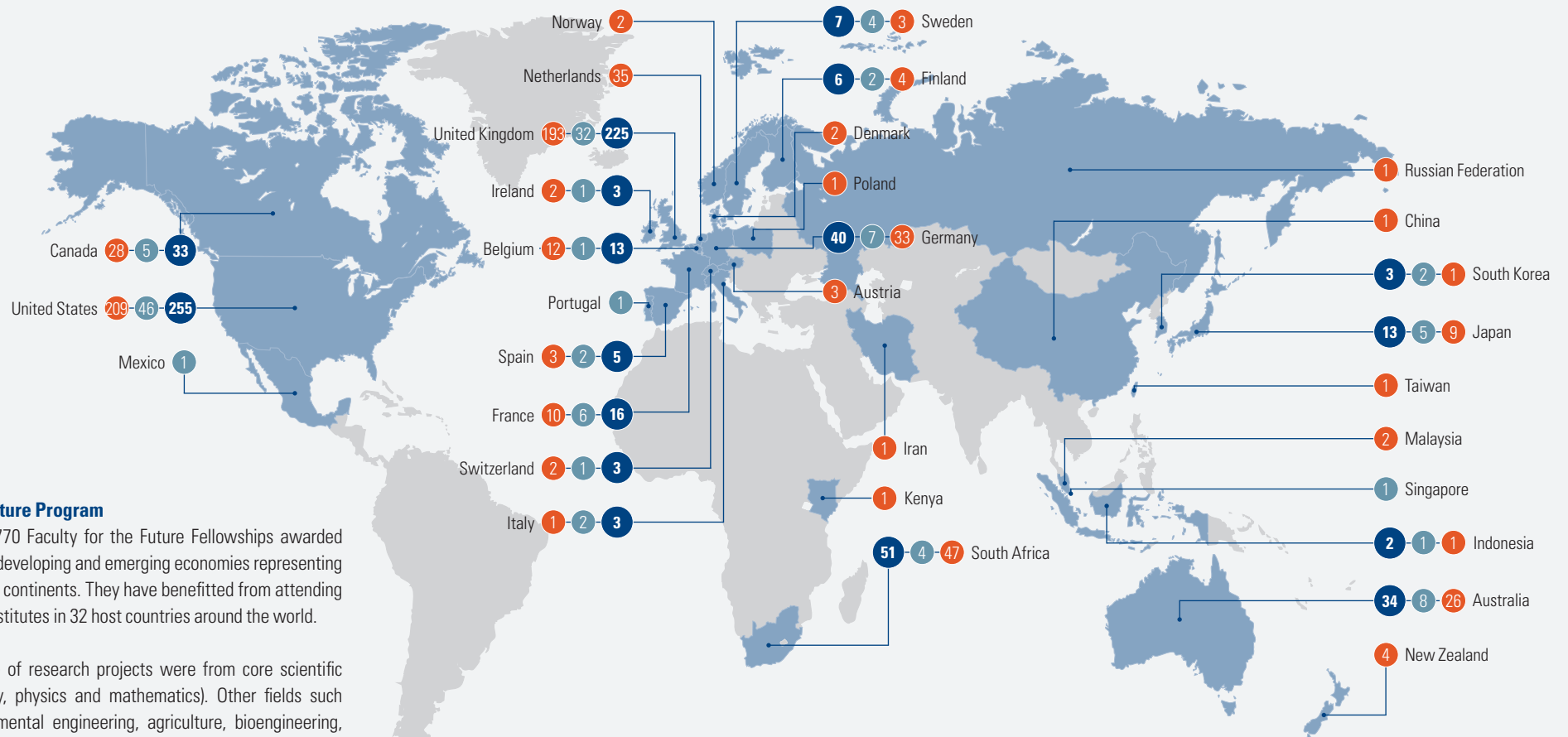
The total of **31** new grants awarded in **March 2011** represents an increase of 63% YoY. The **55** renewed grants awarded represents a 29% decrease YoY. Grant spend increased by 4% YoY reaching **\$3.3M** (vs \$3.2M in 2020). **73%** of the total grant spend in 2021 was disbursed to grantees studying in the United Kingdom and the United States: **\$1.7M** and **\$843k** respectively (2020: \$1.4M and \$1M last year). The remainder was disbursed to grantees enrolled at universities in Australia, Canada, Europe, New Zealand and South Africa.

For the **2021-2022** academic year, the Faculty for the Future program received **138** new applications were submitted in **2021**. The lower volume of submissions compared to last year (235 in 2020) could be attributed to the COVID-19 pandemic from December 2019 with its effects lasting until end of 2021. In addition, a total of **57** renewal applications were submitted with the numbers remaining flat from the previous year.



**THE FACULTY FOR THE FUTURE PROGRAM IN 2021:**  
RESEARCH TYPE AND COUNTRY OF STUDY

770 FELLOWS FROM 84 COUNTRIES STUDYING IN 32 HOST COUNTRIES



**Faculty for the Future Program**

Recipients of the 770 Faculty for the Future Fellowships awarded to date come from developing and emerging economies representing most of the world's continents. They have benefitted from attending leading research institutes in 32 host countries around the world.

In 2021 the choice of research projects were from core scientific domains (chemistry, physics and mathematics). Other fields such as civil & environmental engineering, agriculture, bioengineering, environmental sciences, computer engineering, hydrology, nutrition and medicine were also in evidence as many research projects directly focused on home country related issues.



**THE FACULTY FOR THE FUTURE PROGRAM IN 2021:**  
CITIZENSHIP AND COUNTRY OF STUDY

770 FELLOWS FROM 84 COUNTRIES STUDYING IN 32 HOST COUNTRIES

**AMERICAS**

- 1 United States: 255
- 2 Canada: 33
- 3 Mexico: 1 / 13
- 4 Brazil: 16
- 5 Colombia: 16
- 6 Peru: 7
- 7 Bolivia: 4
- 8 Ecuador: 4
- 9 Guatemala: 4
- 10 Nicaragua: 4
- 11 Argentina: 3
- 12 Guyana: 3
- 13 Costa Rica: 2
- 14 El Salvador: 2
- 15 Venezuela: 2
- 16 Dominican Republic: 1
- 17 Haiti: 1
- 18 Paraguay: 1
- 19 Trinidad and Tobago: 1

**EUROPE**

- 20 United Kingdom: 225
- 21 Germany: 40
- 22 Netherlands: 35
- 23 France: 16
- 24 Belgium: 13
- 25 Sweden: 7
- 26 Finland: 6
- 27 Spain: 5
- 28 Austria: 3
- 29 Ireland: 3
- 30 Italy: 3
- 31 Switzerland: 3
- 32 Denmark: 2
- 33 Norway: 2
- 34 Poland: 1
- 35 Portugal: 1
- 36 Russia: 1 / 4
- 38 Ukraine: 2

**MIDDLE EAST**

- 39 Iran: 1 / 11
- 40 Palestinian Territory: 12
- 41 Turkey: 11
- 42 Iraq: 8
- 43 Jordan: 7
- 44 Syria: 2
- 45 Kuwait: 1
- 46 Lebanon: 1
- 47 Oman: 1
- 48 Yemen: 1

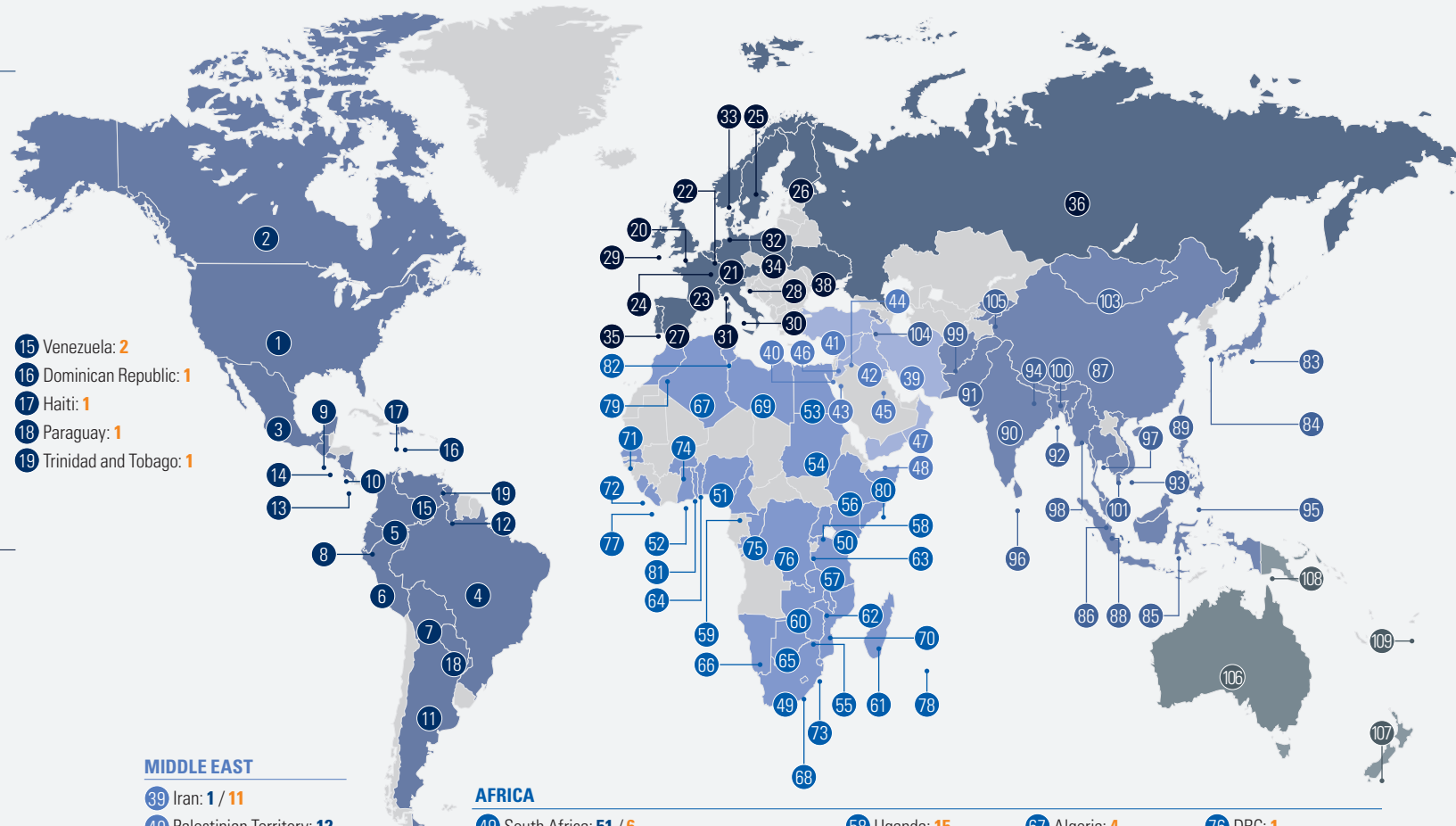
**AFRICA**

- 49 South Africa: 51 / 6
- 50 Kenya: 1 / 25
- 51 Nigeria: 101
- 52 Ghana: 22
- 53 Egypt: 21
- 54 Sudan: 16
- 55 Zimbabwe: 16
- 56 Ethiopia: 15
- 57 Tanzania: 15

- 58 Uganda: 15
- 59 Cameroon: 9
- 60 Zambia: 8
- 61 Madagascar: 7
- 62 Malawi: 7
- 63 Rwanda: 7
- 64 Benin: 6
- 65 Botswana: 5
- 66 Namibia: 5
- 67 Algeria: 4
- 68 Lesotho: 4
- 69 Libya: 3
- 70 Mozambique: 3
- 71 Senegal: 3
- 72 Sierra Leone: 3
- 73 Eswatini: 2
- 74 Burkina Faso: 1
- 75 Congo: 1
- 76 DRC: 1
- 77 Liberia: 1
- 78 Mauritius: 1
- 79 Morocco: 1
- 80 Somalia: 1
- 81 Togo: 1
- 82 Tunisia: 1

00 Country Name: 12 / 23

- 1 Country name and location on map.
- 2 Number of Fellows studying in that country.
- 3 Number of Fellows from that country.



**ASIA**

- 83 Japan: 14
- 84 South Korea: 3 / 1
- 85 Indonesia: 2 / 39
- 86 Malaysia: 2 / 4
- 87 China: 1 / 31
- 88 Singapore: 1
- 89 Taiwan: 1
- 90 India: 77
- 91 Pakistan: 55
- 92 Bangladesh: 18
- 93 Vietnam: 15
- 94 Nepal: 12
- 95 Philippines: 10
- 96 Sri Lanka: 5
- 97 Thailand: 4
- 98 Myanmar: 3
- 99 Afghanistan: 2
- 100 Bhutan: 2
- 102 Cambodia: 2
- 103 Mongolia: 2
- 104 Armenia: 1
- 105 Kyrgyzstan: 1

**OCEANIA**

- 106 Australia: 34
- 107 New Zealand: 4
- 108 Papua New Guinea: 3
- 109 Fiji: 1

"Fellows" refers to current and former grantees of the program.



## THE FACULTY FOR THE FUTURE PROGRAM IN 2021: HOST UNIVERSITIES

770 FELLOWS FROM 84 COUNTRIES STUDYING IN 32 HOST COUNTRIES

### 255 United States

18 Massachusetts Institute of Technology  
13 Texas A&M University  
10 Georgia Institute of Technology  
10 Harvard University  
9 University of Texas at Austin  
7 Pennsylvania State University  
7 University of Florida  
7 Uni. of Illinois, Urbana-Champaign  
6 Purdue University  
6 Stanford University  
6 University of California, Irvine  
5 California Institute of Technology  
5 University of California, Berkeley  
5 University of Georgia  
5 University of South Florida  
4 Arizona State University  
4 Carnegie Mellon University  
4 Columbia University  
4 Cornell University  
4 Louisiana State University  
4 New York University  
4 Ohio State University  
4 Rice University  
3 Duke University  
3 Iowa State University  
3 Johns Hopkins University  
3 North-Carolina State University  
3 Northeastern University  
3 University of Arizona  
3 University of California, Davis  
3 University of Connecticut  
3 Uni. of North Carolina, Chapel Hill  
2 Auburn University  
2 Boston University  
2 Drexel University  
2 Michigan State University  
2 Northwestern University  
2 Oklahoma State University  
2 Princeton University  
2 Rutgers University  
2 South Dakota State University  
2 Syracuse University  
2 Texas Tech University  
2 University of California, San Francisco  
2 University of California Santa Barbara  
2 University of California, Santa Cruz  
2 University of Colorado  
2 University of Maryland  
2 University of Michigan  
2 University of Minnesota  
2 University of Notre Dame  
2 University of Pittsburgh  
2 University of South Carolina  
2 University of Tennessee, Knoxville  
2 University of Wyoming  
2 Vanderbilt University  
2 Yale University

1 Brandeis University  
1 Boston College  
1 Colorado School of Mines, Golden  
1 George Mason University  
1 Lawrence Berkeley National University  
1 Missouri Uni. of Science and Tech.  
1 Montana State University  
1 National Institutes of Health  
1 New Jersey Institute of Technology  
1 Ohio University  
1 Scripps Research Institute  
1 State University of New York, Buffalo  
1 Tennessee Technological University  
1 University of California at Los Angeles  
1 University of Chicago  
1 University of Delaware, Newark  
1 University of Houston  
1 University of Illinois at Chicago  
1 University of Kansas  
1 University of Massachusetts  
1 University of Miami  
1 University of Nebraska-Lincoln  
1 Uni. of North Carolina at Charlotte  
1 University of Texas at San Antonio  
1 University of Utah  
1 Iowa State University  
1 University of Washington, Seattle

### 225 United Kingdom

39 University of Cambridge  
16 University of Nottingham  
14 Imperial College, London  
12 University College London  
12 University of Manchester  
10 University of Oxford  
8 University of Bath  
8 University of Southampton  
7 University of Leeds  
7 University of Strathclyde  
6 King's College London  
6 Lancaster University  
6 University of Reading  
5 Newcastle University  
5 University of Surrey  
5 University of York  
4 University of Sheffield  
3 University of Birmingham  
3 University of Bradford  
3 University of Edinburgh  
3 University of Glasgow  
2 Bangor University  
2 Cardiff University  
2 De Montfort University  
2 Loughborough University  
2 Queen's University, Belfast  
2 University of Aberdeen  
2 University of Bristol  
2 University of Dundee

2 University of Exeter  
2 University of Huddersfield  
2 University of Hull  
2 University of Leicester  
2 University of Stirling  
2 University of Wolverhampton  
1 Aston University  
1 Cranfield University  
1 Durham University  
1 Keele University  
1 Manchester Metropolitan University  
1 Plymouth University  
1 St George's University of London  
1 University of Essex  
1 University of Greenwich  
1 University of Liverpool  
1 University of London, Royal Holloway  
1 University of Portsmouth  
1 University of Roehampton  
1 Northumbria University  
1 University of West London

### 51 South Africa

19 University of Cape Town  
9 Stellenbosch University  
7 University of the Witwatersrand  
6 University of Pretoria  
3 Rhodes University  
2 Tshwane University of Technology  
1 Nelson Mandela Metropolitan Uni.  
1 North West University, Potchefstroom  
1 University of Johannesburg  
1 University of Kwazulu-Natal  
1 University of the Western Cape

### 40 Germany

6 University of Bonn  
3 Saarland University  
3 Technische Universität Berlin  
3 University of Ulm  
2 Hamburg University of Technology  
2 Heinrich Heine University of Düsseldorf  
2 Jacobs University, Bremen  
2 University of Leipzig  
1 Carl von Ossietzky University  
1 Chemnitz University of Technology  
1 Darmstadt University of Technology  
1 Europa University Flensburg  
1 Free University of Berlin  
1 GEOMAR  
1 Hamburg Uni. of Applied Science  
1 Humboldt University of Berlin  
1 Ruprecht Karls Universität Heidelberg  
1 Technische Universität Hamburg  
1 Technische Universität Ilmenau  
1 Technische Universität München  
1 Technical University of Dortmund  
1 University of Hamburg

1 University of Kassel  
1 University of Konstanz  
1 ZSW

### 35 Netherlands

12 IHE Delft Institute for Water Education  
5 Delft University of Technology  
4 University of Groningen  
4 Utrecht University  
3 Wageningen University  
2 IHE Delft Institute for Water Education  
2 University of Amsterdam  
1 Rijksuniversiteit Groningen  
1 University Medical Center Groningen  
1 University of Twente

### 34 Australia

7 University of Queensland  
4 James Cook University  
3 Queensland University of Technology  
3 University of Sydney  
2 Murdoch University, Perth  
2 University of Canberra  
2 University of Melbourne  
2 University of Technology Sydney  
1 Australian National University  
1 Curtin University  
1 Flinders University, Adelaide  
1 Monash University  
1 University of Adelaide  
1 University of Newcastle  
1 University of New South Wales  
1 University of South Australia  
1 University of Western Australia, Perth

### 33 Canada

5 University of British Columbia  
4 University of Toronto  
4 University of Waterloo  
3 McGill University  
3 McMaster University  
3 University of Alberta  
2 University of Victoria  
2 University of Calgary  
1 INRS  
1 Carleton University  
1 Ecole Polytechnique de Montreal  
1 Northwestern University  
1 University of Western Ontario  
1 Queen's University, Kingston  
1 Université du Québec

### 16 France

2 University of Paris Sud 11  
2 University of Strasbourg,  
1 ISAE-SUPAERO  
1 Université Joseph Fourier  
1 Albert Boniot Institute, Grenoble

1 Aix-Marseille University  
1 Université de Franche-Comte  
1 Centrale Graduate School, Marseille  
1 University Toulouse III  
1 Ecole Supérieure du Bois, Nantes  
1 ENSICAEN  
1 Université Bordeaux Montaigne  
1 University of Lille  
1 University of Orleans

### 14 Japan

4 Kyoto University  
2 Hokkaido University, Fukuoka  
2 Tokyo Institute of Technology  
1 Chiba University  
1 Hokkaido University  
1 Keio University, Tokyo  
1 Niigata University  
1 Tokyo Uni. of Agriculture & Technology  
1 Tokyo University of Science

### 13 Belgium

7 Ghent University  
3 Katholieke Universiteit Leuven  
1 University of Antwerp  
1 Australian National University  
1 University of Mons

### 7 Sweden

2 Swedish Uni. of Agricultural Science  
2 Umea University  
1 Linköping University  
1 Lund University  
1 Uppsala University

### 6 Finland

3 University of Helsinki  
1 Aalto University  
1 University of Eastern Finland  
1 University of Oulu

### 5 Spain

3 Polytechnic University of Valencia  
2 University of Barcelona

### 4 New Zealand

2 University of Canterbury  
1 Massey University  
1 University of Auckland

### 3 Austria

2 BOKU  
1 Vienna University of Technology

### 3 Ireland

2 University College Dublin  
1 University College Cork

### 3 Italy

2 Polytechnic University of Milan  
1 University of Pisa

### 3 South Korea

1 Ewha Womans University, Seoul  
1 GIST  
1 Seoul National University

### 3 Switzerland

1 Eawag  
1 University of Lausanne  
1 University of Zurich

### 2 Denmark

1 Technical University of Denmark  
1 University of Copenhagen

### 2 Indonesia

1 Queensland University of Technology  
1 Telkom Institute of Technology

### 2 Malaysia

1 Technological University of Malaysia  
1 Universiti Teknologi Mara

### 2 Norway

1 Norwegian University of Life Sciences  
1 NTNU

### 1 China

China University of Petroleum, Dongying

### 1 Iran

University of Tehran

### 1 Kenya

JKUAT

### 1 Mexico

UNAM

### 1 Poland

University of Warsaw

### 1 Portugal

University of Lisbon

### 1 Russian Federation

MIPT

### 1 Singapore

National University of Singapore

### 1 Taiwan

Taipei Medical University, Taipei

# Women in STEM

## A Closer Look at some 2021 Fellows

In this section we take a closer look at some profiles of the women scientists who were awarded a Faculty for the Future fellowship in 2021. These talented, self-driven scientists come from Namibia, Rwanda, Democratic Republic of Congo, Nicaragua, Sudan, and Bhutan. Their research topics are focused on questions relevant to solving specific issues in their home countries and will help to bridge knowledge gaps in a wide variety of areas. Each successful outcome will bring these scientists one step closer to achieving the valuable research goals they have set for themselves which will in turn positively impact the livelihoods, health and education of their local communities, regions and countries.

The advanced research projects discussed below are as wide-ranging as they are compelling and tackle topics such as the transformation novel drugs for treating tuberculosis and other pathogens, policies related to land use land cover change as a result of human activities and natural factors, biocontrol for plants grown in a humid tropical climate, framework to estimate the water deficit index for agriculture based on water accounting and the Analysis of the Contiguous Drought Area, understanding how ecosystem diversity influences vector and virus populations in light of large-scale land-use changes in rural Africa and biodiversity conservation and protected area management as a country's growth and prosperity.

As diverse in scope and subject matter as they would appear, there is, however, a common thread running throughout the narrative of these research topics: clearly, advanced research in STEM is necessary to formulate the scientific basis needed to propose better policies and generate social awareness. There can be no advancement, nor change, without the help of advanced scientific research. The Schlumberger Foundation through its Faculty for the Future program is committed to ensuring that advanced research programs in STEM are funded to talented women scientists whose research specializations hold the key to tangible advancement—while reducing the gender gap in STEM in developing countries.

## Novel Drugs for Tuberculosis and other Pathogens

### Dr Klaudia Talohole ANGULA



#### Home Country Namibia

#### Degree PhD in Pharmaceutical Chemistry

#### Expertise Synthesis and Biological Evaluation of Novel Drugs

#### Research Focus Novel Drugs for Tuberculosis and other Pathogens

#### Host University Northwest University (NWU), South Africa

#### Fellowship Awarded 2021

Klaudia Talohole Angula was born in Ohakweenyanga, a village in northern Namibia. When she was 4 months old her parents lived 400 miles (640 km) away in Windhoek, the country's capital, leaving Klaudia under the care of her maternal grandparents and an aunt. She grew up doing house chores, field work, and selling fried fish to *cuca*-shops (unlicensed houses selling fermented liquor).

Klaudia went on to attend the University of Namibia (UNAM) in Windhoek, where in 2005 she obtained a BSc in Chemistry and Physiological and Molecular Biology. She then worked in several temporary positions in the educational and mining sectors to earn a living and plough back to her family. In 2009, she was awarded a bursary by Rio Tinto, which owned the Rössing uranium mine in the Namib Desert, to study towards a BSc (Honours) in Chemistry at the University of Stellenbosch, South Africa. After graduation Klaudia was obliged to work for the mine as a laboratory shift chemist until 2013, when she rejoined UNAM as a laboratory technologist. In 2015, she took staff development leave to work towards an MSc in Pharmaceutical Chemistry at NWU, which she graduated in 2017. Upon completion of the MSc program, Klaudia had an obligation to return to work in the role she held prior to embarking on MSc studies. In July 2017 she and her husband Mr Remigius Angula were blessed with a son Remigius (junior) whose second name is "Tanga-Ohole", a name derived from their second names, Tangeni and Talohole, meaning "praise love."

In 2019, she was promoted to Senior Laboratory Technologist position. Motherhood has not derailed Klaudia in her academic career aspiration, thus in 2020 she enrolled for her PhD studies back at the NWU leaving behind her toddler son and husband. In 2021 received the Faculty for the Future Fellowship to pursue her PhD. Her research was based on the organic compound quinolone, derivatives of which represent a large class

of important antibiotic drugs. Because of the versatility of the quinolone scaffold her work has a particular focus on the evaluation of substituted quinolone derivatives against tuberculosis and other bacterial pathogens and provide her with exposure to advanced analytical techniques such as Nuclear Magnetic Resonance (NMR) spectroscopy.

After her graduation in December 2022, Klaudia returned to UNAM in her role as a senior technologist, and she will be eligible for promotion to Chief Laboratory Technologist after serving at least 3 years. Meanwhile she is looking into registering as a professional health scientist in Namibia. This will form part of the basic requirements for her plan to establish a pharmaceutical drug research laboratory at the University. She is also working on new drug discovery research in collaboration with her colleagues at UNAM and South Africa. Klaudia plans to volunteer as science project mentor for young girls in local schools in Windhoek and also extending to her Alumni school in northern Namibia where she is currently a custodian of the fundraising account aimed at assisting vulnerable good performing learners.

## Land Use Land Cover Change and River Hydro-morphology

### Naomie KAYITESI MANISHIMWE



**Home Country**  
Rwanda

**Degree**  
PhD in Earth Sciences

**Expertise**  
Water Resources  
and Remote Sensing

**Research Focus**  
Land Use Land Cover  
Change and River  
Hydro-morphology

**Host University**  
University of Lausanne,  
Switzerland

**Fellowship Awarded**  
2021

Naomie Kayitesi Manishimwe was born in August 1992, in Kigali, the capital city of Rwanda. When she was only one and half year old, her country Rwanda experienced the darkest chapter in its history “Genocide against Tutsi”, in which Naomie lost her three siblings and most of her family members. Her parents fortunately survived and were later reunited with more than 20 displaced extended family members.

Despite her turbulent early childhood, Naomie attended school in Kigali and achieved excellent grades for which she received scholarships. She graduated from one of the best high schools for girls in her country with qualifications in mathematics, physics, and geography. Naomie gained entry to the College of Science and Technology at the University of Rwanda, Kigali, and in 2015 obtained a BSc in Civil Engineering. Her undergraduate studies focused on water supply systems, and she was subsequently given the opportunity to study at the Institute of Water Education, IHE Delft, the Netherlands, where in 2019, she gained an MSc in Water Science and Engineering, specializing in Land and Water Development for Food Security. Since then, she has been working with the International Union for Conservation of Nature (IUCN) in the East and Southern Africa Region.

Rwanda is a small landlocked mountainous country that has suffered from issues including land degradation, deforestation and reducing water resources, mainly due to human activities and natural disasters. Naomie’s PhD research focuses on modelling land use and hydrological changes in order to help understand river flow dynamics and support policy development in overcoming the country’s environmental challenges in the face of socio-economic and climate induced changes.

Naomie expects that her studies in Switzerland will enhance her contribution towards research into remote sensing and water resource management and help provide solutions to problems related to these topics in Rwanda.

## Biocontrol of Fungal Pathogens on Peanuts

### Virginie KORANGI ALLELUYA



Virginie Korangi Alleluya was born in Mons, Belgium. Her passion for science started at a young age when she was fascinated by observing nature, especially plants. She started to read, write and draw while in Belgium and continued this when her family returned to the Democratic Republic of Congo (DRC) when she was a child. Virginie's parents encouraged her interest in science and nature, and at high school she specialized in biology and chemistry, graduating with Distinction in her State Diploma.

Virginie chose Agronomics when she started her university studies, initially at the Institut Facultaire des Sciences Agronomiques de Yangambi and then at the University of Kinshasa (UNIKIN), located in the capital and the largest city of the DRC, where she received a Diploma in Agronomic Sciences with Distinction. She remained at UNIKIN and in 2008 gained a Diploma of Agronomic Engineering, specializing in Chemistry and Agricultural Industries, again graduating with Distinction. Virginie has been a teacher and researcher at UNIKIN since 2011 and has also worked as quality controller and supervisor of a wastewater treatment plant at a brewery. In 2014 she was awarded a scholarship by the Belgian government that enabled her to study towards an MSc in Food Science and Technology at the Université Catholique de Louvain and Université de Liège, Belgium, where she graduated the following year with Distinction.

The PhD investigates biocontrol for plants grown in a humid tropical climate. Damage to peanut plants has traditionally been controlled using chemical pesticides, however improper use of these chemicals has been responsible for many accidental poisonings and deaths, especially in African countries such as the DRC. The use of biological tools for pest control would alleviate the damage that chemicals can do to people and the environment.

The knowledge and skills learned during her PhD studies will help Virginie in her teaching activities at UNIKIN and help to build links with international research institutions.

**Home Country**  
Democratic Republic  
of Congo

**Degree**  
PhD in Agronomy  
and Bioengineering

**Expertise**  
Microbiology, Food Science

**Research Focus**  
Biocontrol of Fungal  
Pathogens on Peanuts

**Host University**  
University of Liège, Belgium

**Fellowship Awarded**  
2021

## Analysis of Optimal Drought Management Scenarios

**Ingrid Elizabeth Ubeda TRUJILLO**



In order to find time to study during the stage from school to university, in the morning she did homework and took care of her sisters (education-health). And during the night until dawn she spent time on her high school homework. During her time in college, she worked as a freelance merchant to earn money to buy her books. The positive aspect is that she was able to view these situations as opportunities to develop the abilities necessary to adapt, stay tenacious, and discover new personal and professional goals.

Ms. Ubeda has a bachelor's in Geographic Sciences and a Master of Science degree in Environmental Management. Her career was financed by a UNAN scholarship due to her excellence in the program. In 2021, Ms. Ubeda won the award for the young scientist and researcher in Nicaragua, in the environmental category. She is a university teacher at UNAN-Managua, with more than 9 years of experience. She has taught the courses: Geographic Information System (GIS) in the context of the National Strategy for Climate Change Adaptation, Territory course for the Master's Degree in Social Degree in Social Management for the development of the Central Government of Nicaragua. She also taught other courses like: GIS, Remote sensing Introduction, Rural Geography, Territory Planning, and Practices Professional. She has been a researcher tutor at the degree level. Ms Ubeda coordinated the Curricular Planning of the Geography Career and elaborated courses for the two curricular plans with different approaches. She contributed to the development of the first courses for the Open Online University of Nicaragua (UALN).

Currently, Ms. Ubeda is a PhD Fellow at the Institute for Water Education, IHE Delft and Technische Universiteit Delft (TU Delft). In her research, she addresses the analysis of how to identify a nature-based solution and the impact that they could have on the management of extreme hydrological in river basins. This work is meant to explore Machine Learning and Remote sensing information to provide analysis over large regions at a low cost. As a case study, Central America will be analyzed, and it is expected to provide information about the way nature-based solutions could be in space and time.

On completion of her studies, Ingrid wants to start a regional research group and make a hydroinformatics lab at UNAN where models and algorithms can be made to help farmers, government ministries, and other organizations make decisions about the environment.

**Home Country**  
Nicaragua

**Degree**  
PhD in Hydroinformatics  
and Socio-Technical  
Innovation Department

**Expertise**  
Geography

**Research Focus**  
Analysis of Optimal Drought  
Management Scenarios

**Host University**  
Institute for Water  
Education (IHE, Delft),  
Netherlands

**Fellowship Awarded**  
2021

## Mosquito-Borne Diseases

### Tasneem Moawia Abdallah OSMAN



#### Home Country

Sudan

#### Degree

PhD in Medical Entomology

#### Expertise

Parasitology, Virology,  
Molecular Biology

#### Research Focus

Mosquito-Borne Diseases

#### Host University

University of Bonn,  
Germany

#### Fellowship Awarded

2021

Tasneem Moawia Abdallah Osman is from Sudan. She has been interested in biology from a young age, when she would follow ant trails back to their hole and try to catch colorful butterflies with nets. She now works in entomology—the scientific study of insects—and is doing research in medical entomology, which focuses on insects and other arthropods such as ticks that impact human health.

Tasneem studied at the University of Khartoum (UofK), in the capital city of Sudan, where in 2007 she obtained a BSc in Zoology for which she was awarded a Best Performance Prize. During her studies she performed research into mosquitos that spread malaria in parts of her country. In 2010 she returned to UofK to study towards an MSc in Immunology at the University's Institute of Endemic Diseases, which she completed in 2012 for her research into the human body's response to a vaccine against Plasmodium falciparum, the parasite that causes the deadliest form of malaria. Tasneem has been a Research Assistant at UofK since 2008 and a Lecturer there since 2012.

Viruses that use arthropods (arboviruses) as vectors to spread, such as Zika virus and dengue virus, have recently caused a growing number of epidemics. A recent outbreak in Sudan can be linked to floods that left large pools of stagnant water, which form breeding sites for various types of vectors. Other factors are likely to include increasing urbanization and human mobility. Tasneem's PhD research aims to understand how ecosystem diversity influences vector and virus populations in light of large-scale land-use changes in rural Africa. The study is taking place in Kenya and has an emphasis on invasive plant species.

After her studies in Germany, Tasneem intends to return to her teaching and research position at UofK, where she plans to develop and implement vector born disease training modules for undergraduates, postgraduate and researchers at UofK, and at other academic and research institutions.

## Evaluation of Protected Area Mgmt. Effectiveness in Bhutan

### Thinley CHODEN



Thinley Choden is from a rural farming background in eastern Bhutan. She is the eldest of her siblings and has five younger brothers. Her father sadly died serving in the army when she was 11 years old and, despite financial challenges, her mother was able to send all of her children to school. Thinley specialized in science, and in 2003 graduated with academic excellence for which she received a Meritorious Government of India Scholarship to study towards a BSc in Forestry in India.

Thinley obtained her BSc in 2007 from the College of Forestry at Dr. Balasaheb Sawant Konkan Agricultural University, Maharashtra, India, where she received a University Gold Medal for her academic performance. After a year working as a Trainee Forestry Officer in Gedu Forest Division, Bhutan, Thinley worked on a wide variety of projects involved with ecotourism, protected area management planning, wildlife conservation and renewable natural resources management. Since 2012 she has been a member of a task force drafting the National Biodiversity Strategy and Action Plan of Bhutan. With funding from an Australia Awards, in 2016 she completed an MSc in Environmental Management at Murdoch University, Perth, Australia. Since gaining her MSc she has been the Program Director at the Non-Wood Forest Products and Agroforestry Technology Sub-Centre of Ugyen Wangchuck Institute for Forestry Research and Training (UWIFoRT) Bumthang, Bhutan and holds the position of Principal Forestry Officer.

Biodiversity conservation and protected area management are key to Bhutan's prosperity. Bhutan's Forest Department is mandated to evaluate the effectiveness of its protected area management on a regular basis, for which it has required experts from outside the country. Thinley's PhD in Australia will provide her with the skills to perform this job and reduce dependence on foreign expertise and its associated cost for the Forest Department.

Following her placement Thinley looks forward to being reunited with her colleagues and students at UWIFoRT and sharing the knowledge and experience she has gained during her PhD studies.

**Home Country**  
Bhutan

**Degree**  
PhD in Environmental  
Management

**Expertise**  
Sustainable Forestry,  
Protected Areas,  
Biodiversity

**Research Focus**  
Evaluation of Protected  
Area Management  
Effectiveness in Bhutan

**Host University**  
Murdoch University,  
Perth, Western Australia

**Fellowship Awarded**  
2021





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