



SCHLUMBERGER FOUNDATION

2020 ANNUAL REPORT



“Education in science, technology, engineering and mathematics (STEM) is an essential factor in enabling and empowering women from developing and emerging economies to fulfill their potential, ultimately permitting them to address the changes that are needed in economic and social spheres in their home countries. Our goal is to ensure that Faculty for the Future Fellows are equipped with the knowledge and skills necessary for them to teach, carry out research and drive innovation that will lead to increased prosperity and economic development in their local regions and home countries.”

Roseline Chapel

*President,
Schlumberger Foundation*

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Introduction

Word from the President



Roseline CHAPEL

President
Schlumberger Foundation

In **2020**, despite worldwide uncertainty and limitation of movement brought about by the Covid-19 pandemic, the Schlumberger Foundation continued with its flagship Faculty for the Future program focused on advanced academic research in science, technology, engineering, and mathematics (STEM) for women scientists from developing countries and emerging economies where they are still largely underrepresented.

Gaining admission to carry out research programs at PhD and Post-Doctoral level in top international institutes around the world, these talented women acquire a strong set of technical skills as well as the soft skills needed to weave their way towards successful reintegration in their home universities, thus aiding them to promote decision-making in the key socio-economic developments of their home regions. Through interaction with a whole new international scientific community, they build up confidence in their own abilities and are encouraged to tap into their own latent power as future change agents in their home countries. The high-level academic success achieved by these women leads naturally to the influence that they can wield in their local communities while simultaneously reducing the gender gap in STEM education.

The Schlumberger Foundation is committed to gender-parity in science and recognizes that it is essential that girls and women embrace science and learn how to apply the results of scientific research to solve challenges relevant to their local communities and regions. Scientific and technological advances are equally enhanced by tapping into this latent pool of talent to promote productivity and economic wealth while improving livelihoods and public health.



The most popular research disciplines of the 2020 cohort of new Fellows include engineering, computer science and the biological sciences. The research proposals selected reflect the regional challenges of the awardees and demonstrate the determination of these scientists to improve conditions in their native regions through science. STEM education is an essential factor in enabling and empowering these women to fulfill their potential, ultimately permitting them to address the changes that are needed in the economic and social spheres of their home countries. We look forward to accompanying and encouraging them on their journey.

Financial Overview



Financial Overview

In **2020**, 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 is focused on narrowing the gender gap in STEM education by helping to these women to overcome the economic barrier that prevents them from achieving their educational aspirations.

For the **2020-2021** academic year, a total of **19** new fellows were selected in 2020 bringing the total population receiving financial support from this program to **739** female scientists from **82** developing countries, studying in **30** host countries around the world.

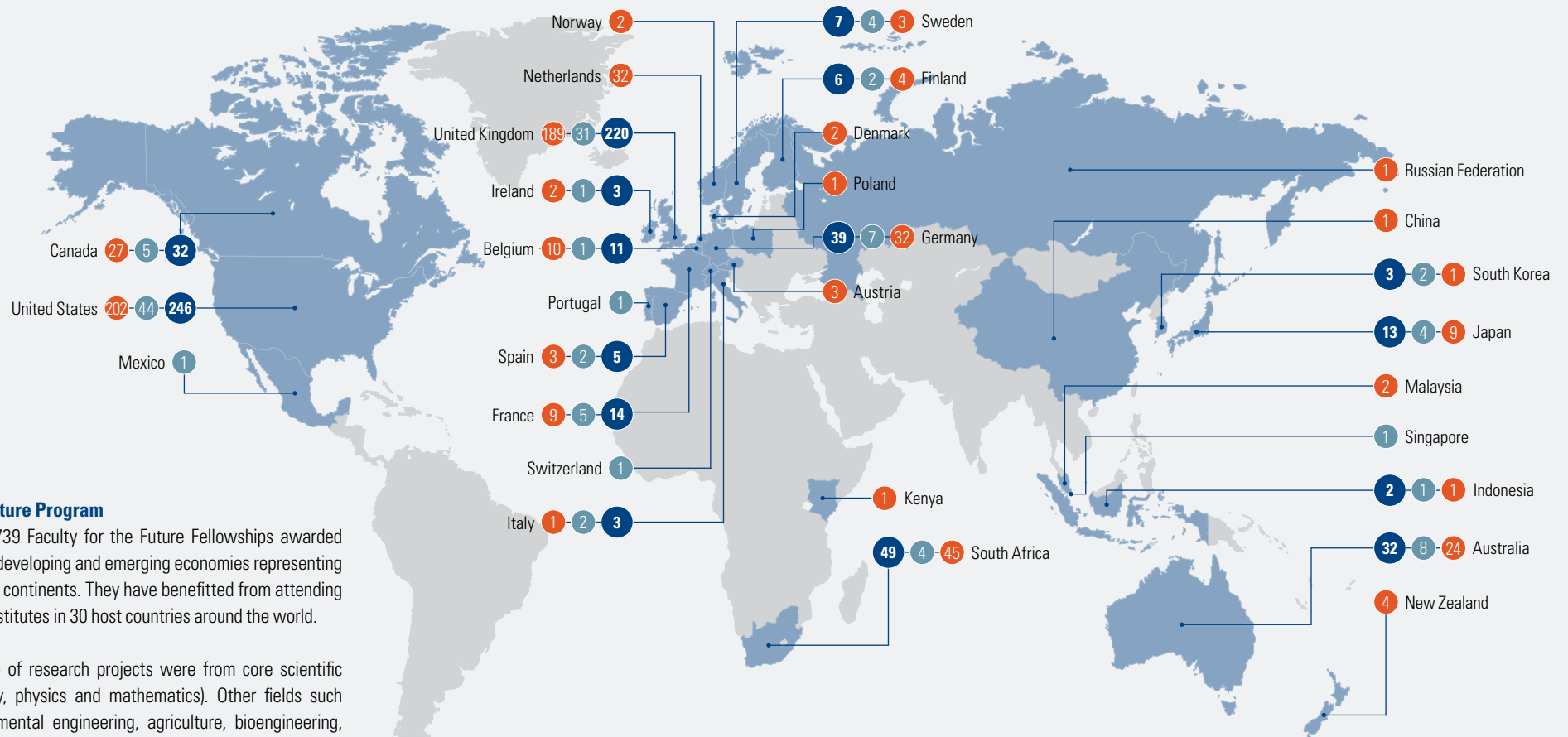
While the total of **19** new grants awarded in **July 2020** represents a decrease of 50% YoY, the Board of Directors committed to financially support all the renewal applications that met the eligibility criteria and **77** renewed grants were awarded, representing a 20% decrease YoY. Grant spend decreased by 35% YoY reaching **\$3.2M** (vs \$4.9M last year). **76%** of the total grant spend in **2020** was disbursed to grantees studying in the United Kingdom and the United States: **\$1.4M** and **\$1M** respectively (vs \$2M and \$1.3M last year). The remainder was disbursed to grantees enrolled at universities in Australia, Canada, Europe (mainly in Germany, Ireland and Finland), and South Africa.

For the **2021-2022** academic year, the Faculty for the Future program received 235 new applications in **2020**. The lower volume of submissions compared to last year (842 applications in 2019) is due to a targeted Call for Applications campaign which focused on developing countries which are under-represented by this program, or absent from it. In addition, a total of **57** renewal applications were submitted marking a **35%** decrease from the previous year. This reduction reflects the end of the wave of renewals from peak numbers of new grants attributed in 2015.



THE FACULTY FOR THE FUTURE PROGRAM IN 2020:
RESEARCH TYPE AND COUNTRY OF STUDY

739 FELLOWS FROM 82 COUNTRIES STUDYING IN 30 HOST COUNTRIES



Faculty for the Future Program

Recipients of the 739 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 30 host countries around the world.

In 2020 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 2018:
CITIZENSHIP AND COUNTRY OF STUDY

739 FELLOWS FROM 82 COUNTRIES STUDYING IN 30 HOST COUNTRIES

AMERICAS

- 1 United States: 246
- 2 Canada: 32
- 3 Mexico: 1 / 13
- 4 Brazil: 16
- 5 Colombia: 16
- 6 Peru: 7
- 7 Ecuador: 4
- 8 Guatemala: 3
- 9 Argentina: 3
- 10 Guyana: 3
- 11 Nicaragua: 3
- 12 Bolivia: 2
- 13 Costa Rica: 2
- 14 Venezuela: 2
- 15 Dominican Republic: 1
- 16 El Salvador: 1
- 17 Haiti: 1
- 18 Paraguay: 1
- 19 Trinidad and Tobago: 1

EUROPE

- 20 United Kingdom: 220
- 21 Germany: 39
- 22 Netherlands: 32
- 23 France: 14
- 24 Belgium: 11
- 25 Sweden: 7
- 26 Finland: 6
- 27 Spain: 5
- 28 Austria: 3
- 29 Ireland: 2
- 30 Italy: 3
- 31 Denmark: 2
- 32 Norway: 2
- 33 Poland: 1
- 34 Portugal: 1
- 35 Russia: 1 / 4
- 36 Switzerland: 1
- 37 Ukraine: 2

MIDDLE EAST

- 38 Iran: 1 / 11
- 39 Palestinian Territory: 11
- 40 Turkey: 11
- 41 Iraq: 7
- 42 Jordan: 4
- 43 Syria: 2
- 44 Kuwait: 1
- 45 Lebanon: 1
- 46 Oman: 1
- 47 Yemen: 1

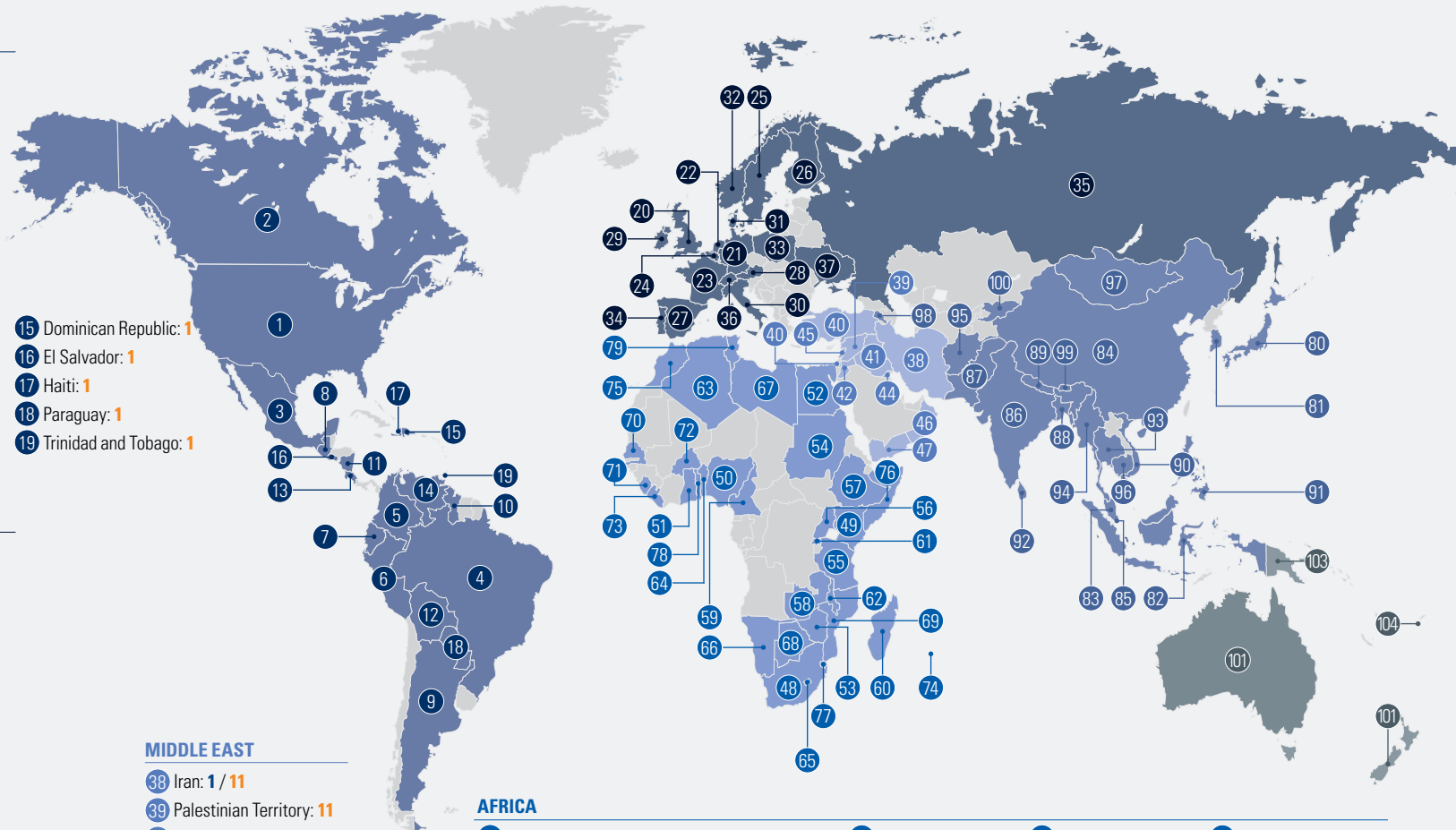
AFRICA

- 48 South Africa: 49 / 6
- 49 Kenya: 1 / 25
- 50 Nigeria: 101
- 51 Ghana: 22
- 52 Egypt: 21
- 53 Zimbabwe: 16
- 54 Sudan: 15
- 55 Tanzania: 15
- 56 Uganda: 15
- 57 Ethiopia: 12
- 58 Zambia: 8
- 59 Cameroon: 7
- 60 Madagascar: 6
- 61 Rwanda: 6
- 62 Malawi: 5
- 63 Algeria: 4

- 64 Benin: 4
- 65 Lesotho: 4
- 66 Namibia: 4
- 67 Libya: 3
- 68 Botswana: 2
- 69 Mozambique: 2
- 70 Senegal: 2
- 71 Sierra Leone: 2
- 72 Burkina Faso: 1
- 73 Liberia: 1
- 74 Mauritius: 1
- 75 Morocco: 1
- 76 Somalia: 1
- 77 Swaziland: 1
- 78 Togo: 1
- 79 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

- 80 Japan: 13
- 81 South Korea: 3 / 1
- 82 Indonesia: 2 / 39
- 83 Malaysia: 2 / 4
- 84 China: 1 / 31
- 85 Singapore: 1
- 86 India: 77
- 87 Pakistan: 55
- 88 Bangladesh: 14
- 89 Nepal: 13
- 90 Vietnam: 13
- 91 Philippines: 10
- 92 Sri Lanka: 5
- 93 Thailand: 4
- 94 Myanmar: 3
- 95 Afghanistan: 2
- 96 Cambodia: 2
- 97 Mongolia: 2
- 98 Armenia: 1
- 99 Bhutan: 1
- 100 Kyrgyzstan: 1

OCEANIA

- 101 Australia: 32
- 102 New Zealand: 4
- 103 Papua New Guinea: 3
- 104 Fiji: 1

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

THE FACULTY FOR THE FUTURE PROGRAM IN 2020: HOST UNIVERSITIES

739 FELLOWS FROM 82 COUNTRIES STUDYING IN 30 HOST COUNTRIES

246 United States

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

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

220 United Kingdom

39 University of Cambridge
15 University of Nottingham
14 Imperial College, London
12 University of Manchester
10 University of Oxford
10 University College London
8 University of Southampton
7 University of Leeds
8 University of Bath
7 University of Strathclyde
6 Lancaster University
5 King's College London
5 University of Reading
5 Newcastle University
5 University of Surrey
5 University of York
4 University of Sheffield
3 University of Birmingham
4 University of Bradford
3 University of Glasgow
3 University of Edinburgh
2 University of Wolverhampton
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

49 South Africa

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

39 Germany

5 University of Bonn
3 University of Ulm
3 Technische Universität Berlin
2 Hamburg University of Technology
2 University of Leipzig
2 Heinrich Heine University of Dusseldorf
3 Saarland University
2 Jacobs University, Bremen
1 Hambourg Uni. of Applied Science
1 Free University of Berlin
1 Technische Universität Ilmenau
1 Chemnitz University of Technology
1 University of Konstanz
1 Humboldt University of Berlin
1 Technische Universität Hamburg
1 Carl von Ossietzky University
1 Technische Universität München
1 Ruprecht Karls Universität Heidelberg
1 University of Kassel
1 Darmstadt University of Technology
1 GEOMAR Helmholtz Centre for Ocean Research Kiel

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

32 Canada

4 University of Toronto
4 University of Waterloo
4 University of British Columbia
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

32 Netherlands

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

14 France

2 University of Paris Sud 11
2 University of Strasbourg

1 Technical University of Dortmund
1 Centre for Solar Energy and Hydrogen Research
1 Europa University Flensburg
1 University of Hamburg

32 Australia

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

1 SUPAERO Institute of Aeronautics & Space Technology
1 Université Joseph Fourier
1 Albert Bonniot 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 National Graduate School of Engineering and Research Center
1 Université Bordeaux Montaigne

13 Japan

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

11 Belgium

7 Ghent University
3 Katholieke Universiteit Leuven
1 University of Mons

7 Sweden

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

6 Finland

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

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

1 Vienna University of Technology
2 University of Natural Resources and Life Sciences

3 Italy

2 Polytechnic University of Milan
1 University of Pisa

3 Korea (Republic of, South Korea)

1 Ewha Womans University, Seoul
1 Seoul National University
1 Gwangju Institute of Science and Tech.

3 Ireland

2 University College Dublin
1 University College Cork

2 Malaysia

1 Universiti Teknologi Mara
1 Technological University of Malaysia

2 Denmark

1 University of Copenhagen
1 Technical University of Denmark

2 Indonesia

1 Telkom Institute of Technology
1 Queensland University of Technology

2 Norway

1 Norwegian Uni. of Science and Tech.
1 Norwegian University of Life Sciences

1 China

1 China Uni. of Petroleum, Dongying

1 Iran

1 University of Tehran

1 Kenya

1 Jomo Kenyatta University of Agriculture and Technology

1 Mexico

1 National Autonomous Uni. of Mexico

1 Poland

1 University of Warsaw

1 Portugal

1 University of Lisbon

1 Russian Federation

1 Moscow Institute of Physics and Tech.

1 Singapore

1 National University of Singapore

1 Switzerland

1 Swiss Federal Institute of Aquatic Science and Technology

Women in STEM

A Closer Look at some 2020 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 2020. These talented, self-driven scientists come from Bolivia, Burkina Faso, Ethiopia, Guatemala, the State of Palestine, The Philippines, Rwanda, Senegal and Uganda. 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 of residual crop fiber bundles for use as biomethane and paper production; aquatic systems, wetland management, hydro-geotechnical processes in relation to landslides, proper sanitation systems and traffic congestion control.

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.

Flavia BYEKWASO



In 2009, the Government of Uganda approved the establishment of a Climate Change Unit housed in the Ministry of Water and Environment which five years later was upgraded to a full-fledged, standalone Department. However, the department is concerned with low staffing levels coupled with limited skills range for the satisfactory execution of its giant mandate of coordinating national responses to climate change issues. For Flavia, who is employed in this ministry, this was an opportunity to seize and it helped clarify her field of specialization.

As a Senior Climate Change Specialist, Flavia's mission is to explore the impact of climate change on natural resources, water management and development, with its consequences for stakeholders. Her PhD research program at the University of Natural Resources and Life Science (BOKU), Vienna-Austria, focuses on key topics in wetland ecology and the interaction with human uses and societal processes. Her research results could have far-reaching implications for the future of wetland management and can contribute to a more sustainable resource use in the future which aims at shifting the paradigm in policy and practice.

Flavia will return to the Climate Change Department better equipped with the relevant skills and knowledge to share with fellow staff and improve coordination roles across different sectors which will help with capacity building needed to cope with emerging challenges associated with climate change issues. In addition, Flavia is a Platinum Member registered as a Climate Change Specialist with Professional Women for Water and Sanitation Network and she will continue her work to empower, support and encourage the professional careers and social development of women and girls to enhance their physical, economic and social growth at national, regional and international levels.

Home Country
Uganda

Degree
PhD in Natural Resources
and Life Sciences

Host University
BOKU, Vienna, Austria

Fellowship Awarded
2020

Joy CARPIO

Through her expertise in sensors and earthquake instrumentation, and with the help of a government-funded project, Joy has already helped a start-up company to offer advanced technology that monitors the health of different structures and reduce the risk of hazards in the Philippines. The next problem Joy is tackling for the benefit of her country, and which has been cast aside by so many administrations to-date, is chronic traffic congestion, an aggravating societal problem that is worsening with each year.

Currently conducting her PhD in Systems Engineering at the University of California, Berkeley in the United States, Joy's aim is to create a mechanism that will help her government develop policies in a systematic manner. Being part of a laboratory that focuses on artificial intelligence and reinforcement learning, she is confident that this will be instrumental in providing an advanced platform in traffic management using computer simulations, machine learning and day-to-day real time data. Joy also has the strong support of her home university, the National University Manila, to help her achieve this valuable goal.



Home Country
Philippines

Degree
PhD in Systems
Engineering

Host University
University of California,
Berkeley, United States

Fellowship Awarded
2020

Fatma HADDAD



Fatma is conducting her PhD research in Pharmaceutical Engineering at Bradford University in the United Kingdom. There are currently only three people in Palestine who hold a PhD in this discipline, all of them male. Fatma is focusing her research on drug delivery techniques for lung cancer which is the leading cause of death in many places across the globe.

It is Fatma's plan to launch a pharmaceutical technology laboratory in her home university, Al- Quds University in Hebron, upon completion of her PhD. It would be the first laboratory of its kind in Palestine. She is passionate about encouraging girls and women to choose STEM as a sure path to independence on many levels: personal, professional and financial. Fatma has given freely of her time while she was a researcher in drug design to coach and train new female master's students in laboratory techniques, helping them to graduate successfully.

Fatma never tires of giving lectures and talks to girls and women inciting them to chase their dreams to become a scientist and to ignore the negative societal messages and pressures that women receive to discourage them from even daring to dream. Fatma is certainly a woman who has broken the mold and she is on the right track to break many more in the future, allowing many other women to follow confidently in her lead.

Home Country
The State of Palestine

Degree
PhD in Pharmaceutical Materials

Host University
University of Bradford, United Kingdom

Fellowship Awarded
2020

Marie KORSAGA

Astronomy has remained a passion for Marie ever since her first contact with the field during her undergraduate years in Burkina Faso. At that time, she was the only female student in the master's Physics class and several years later, Marie is the first woman from Burkina Faso to obtain a PhD in Astrophysics, which she earned at the University of Aix-Marseille in France, in 2018.

Currently, Marie is conducting postdoctoral research in Dark Matter at the University of Strasbourg, where she has access to high quality research tools in an astronomy-focused work environment which will allow her to acquire a high level of excellence in her research field. This experience will also allow her to create a solid network with internationally renowned peers working in Strasbourg, and further deepen her experience in carrying out independent research. This will be most helpful for her when she returns to Burkina Faso as a lecturer. Her research project directly addresses one of the central goals of modern astrophysics and is a major driver for the key science goals of the future telescope that Burkina Faso is planning to install in the near future.



Home Country
Burkina Faso

Degree
Post-Doc in Astrophysics

Host University
University of Strasbourg, France

Fellowship Awarded
2020

Hanna Berhanu LEMMA



In 2019, Hanna was the first female to obtain a PhD from the School of Chemical and Bioengineering, at the Addis Ababa Institute of Technology (AAIT) in Ethiopia. Upon completion of her current postdoctoral research in the University of Hamburg, Germany, she plans to return to AAIT. Her objective is to overcome gender imbalance in Ethiopia's Universities especially in technology institutes by becoming the first female associate professor and then full professor in the School of Chemical and Bioengineering.

Hanna's research project focuses on the Enset plant, commonly called false banana, which is one of the basic food resources in many parts of Ethiopia, covering about 2.27% of the total farmland in the country. In the extraction process of the food ingredients from Enset, large quantities of residual fibrous material are produced. The availability of these large quantities of fibrous residues has triggered the interest in their valorization. She is investigating the potential of its fiber bundle for biomethane and paper production, contributing to a full resource use and valorization of an endogenous crop relevant to the local economy.

Hanna's postdoctoral research will also serve to enhance and strengthen an ongoing collaborative project entitled "Bio-homes" between the Thünen Institute of Wood Science, at Hamburg University, and AAIT.

Home Country
Ethiopia

Degree
Post-Doc in Chemical
Technology

Host University
University of Hamburg,
Germany

Fellowship Awarded
2020

Yasmin QUINTANA MORALES

Today, aquatic systems are being deteriorated by human development, putting at risk water availability and fisheries that support rural communities. Yasmin has witnessed how Mayan traditions and communities' livelihoods (which are strongly linked to water) are threatened by these processes. Her observation that aquatic ecosystems are managed by people with inadequate experience in this field has been the driving factor behind her decision to pursue a PhD.

Yasmin's PhD research at Texas A&M, aims to evaluate the impact of invasive armored catfish which pose a strong threat to native biota in Mesoamerica disrupting ecosystem processes, impacting fish assemblage composition and distribution. During her fieldwork in 2019, Yasmin collected a total of 10,000 fish samples comprising 51 species from 36 localities.

Yasmin has significant research accomplishments as well as experience working with governmental and non-governmental conservation organizations in Guatemala. She has been the Project Director for the Bi-National Project (Guatemala–Mexico) analyzing fish stocks and artisanal fisheries in rivers of northern Guatemala and southern Mexico. She has also held the position of Director for Wildlife for the National Council of Protected Areas in Guatemala.



Home Country
Guatemala

Degree
PhD in Wildlife and
Fisheries Sciences

Host University
Texas A&M University,
United States

Fellowship Awarded
2020

Nini SANE



Home Country
Senegal

Degree
PhD in Engineering

Host University
University Bordeaux
Montaigne, France

Fellowship Awarded
2020

Nini is a young, already experienced civil engineer from Dakar, in Senegal. Currently carrying out her PhD at Bordeaux Montaigne University, in France, Nini's research project addresses sanitation, an urgent matter of public health in Senegal where only 50% of the population has access to an adequate system. Her project focuses on the treatment and recycling of used waters for an autonomous sanitation line using a novel solution that takes into account local, cultural, socio-economic, scientific and technical issues. This innovative research approach uses the effect of Moringa Oleifera seeds to enhance the quality of wastewater to meet international standards. The whole project is tailored to the needs and constraints of her home country and the outcome, once it is up and running successfully, will have an immediate positive impact on the health and wellbeing of her local region.

In June 2019, with six other Senegalese fellows, Nini created Go4STEM, an association that draws attention to the lack of girls' education in STEM across Africa and particularly in Senegal, where female literacy rate is only 43.8 %. Go4STEM also aims to increase awareness of policies and practices that effectively support girls' and women's education in STEM as well as to strengthen national, regional and global networks and partnerships and cooperation in girls' and women's education in STEM.

Lina Gabriela TERRAZAS VILLARROEL



Home Country
Bolivia

Degree
PhD in Water Science
and Engineering

Host University
UNESCO-IHE, Delft,
The Netherlands.

Fellowship Awarded
2020

Lina is carrying out her PhD research at the UNESCO-IHE Institute for Water Education and TU Delft, in The Netherlands. Her work focuses on the implementation of environmental tools to assess ecohydrological relations in Bolivia as well as an impact assessment in the Beni River. The main objective of Lina's research is to generate scientific knowledge about the relationships between water resources and ecosystems in Bolivia.

Previous studies in the region have underlined the need for environmental research to fill in gaps in knowledge. For instance, it is necessary to study ecohydrological relationships and how they influence ecosystems; understand the dynamics of river-floodplain connectivity and recognize how cumulative changes in water affect an ecosystem and its resilience.

The identification of ecosystem services contributes to increasing social awareness about the importance of water resources. With this information, decision-makers can define environmental objectives and acceptable levels of river alteration. Lina aims to contribute to the urgent need to advance research on environmental physical processes in order to formulate the scientific basis needed to propose better policies for natural resource management.

Janvière TUYISENGE



Janvière is passionate about finding ways to solve societal problems. While teaching biology and chemistry at Ordinary Level, she continued to read more advanced scientific literature as a hobby. She developed interest in aquatic environments and later on, she worked for the Lake Kivu Monitoring Programme to monitor the impacts of methane gas extraction in Lake Kivu. This gave her the scientific skills, which she is now enhancing through a PhD at the IHE Delft Institute for Water Education. Through her energy and enthusiasm, she has incited both academia and government alike to get on board with her research project to impact the local lakes sustainable ecosystem.

Lake Kivu, known for large amounts of methane and carbon dioxide in its deep water, is low in fish varieties with only 29 recorded species. Although fish farming could contribute to needed protein for people in this region, it could cause significant environmental problems, including water pollution. The goal of Janvière's study is to understand the response of Lake Kivu's ecosystem to the establishment of cage aquaculture in its near-shore zones.

Through collaboration with local and regional institutions and scientists, Janvière was invited to become a member of the Lake Kivu Advisory Group under the African Centre for Aquatic Research and Education and has now become Vice-Lead of the group. Janvière is a member and committee member of the Rwandan Association for Women in Science and Engineering. She is also a researcher affiliated with the Rwanda Environment Management Authority.

Home Country
Rwanda

Degree
PhD in Aquatic Ecosystems

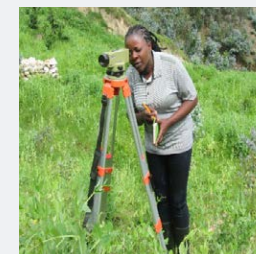
Host University
UNESCO-IHE, Delft,
The Netherlands.

Fellowship Awarded
2020

Judith UWIHIRWE

Judith is studying the effect of land use change on hydro-geotechnical processes triggering landslides in the North-Western part of Rwanda. She uses archived and remotely sensed data and imageries to retrieve information, but data collection, either by field experiment or laboratory analysis, is expensive. In her home region, secondary data are a rare commodity. For a successful research project, more time is needed in primary data collection and this is where the Faculty for the Future program has stepped in to help support the financial cost of this, which will allow Judith to complete her PhD in Civil Engineering and Geosciences at Delft University of Technology in The Netherlands.

Judith is involved in outreach activities to promote science and engineering subjects to female students as a "Gender Champion" in Rwanda. Young female students come to learn from her experiences during seminars and meetings. She feels that most female students are afraid to register for Engineering field, harboring the idea that it is only for male students. One of her main objectives is to help female students overcome this kind of fear and misperception and encourage change in mindsets.



Home Country
Rwanda

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